

# 11.0 CLOSURE AND RECLAMATION

### 11.1 INTRODUCTION

Closure and reclamation plans (CRPs) are an integral component of a sound environmental management system for any development, designed to ensure that the proposed development will not leave an adverse footprint on the ecosystem. As such, the YGP has been developed keeping in mind the anticipated reclamation requirements.

The plan will be prepared in consultation with various stakeholders, and will generally follow INAC's Mine Site and Reclamation Guidelines for the Northwest Territories. According to INAC, the CRP should address the physical stability, chemical stability and future land use for each component of the mine. Also, the CRP should present a list of alternatives, where available, and rationale for selecting the preferred reclamation activities; long term local community values, among other items, are to be considered.

During the final abandonment phase, infrastructure pads, roads and development sites will be re-contoured and scarified as required to ensure surface stability encouraging the reestablishment of native vegetation. The underground will be sealed off in accordance with mine safety requirements.

Other surface reclamation measures that will be implemented, as required, include drainage and erosion control measures, organic mulches, the application of fertilizer and approved northern seed mixes, and tree and shrub plantings. With the application of a broad suite of available reclamation measures, Tyhee NWT Corp. is confident that reclamation goals for the YGP can be effectively achieved. The CRP will incorporate the conditions of the permits, regulations, and industry standards.

EBA has provided a preliminary estimate of closure and reclamation costs totalling \$11.73M. These costs are focused on the waste dump and tailings facilities which were assumed to incur the largest reclamation liabilities. This estimate has not been based on detailed review of local contractor costs and EBA recommends that a detailed costing investigation be undertaken during the Feasibility Study. In addition to updating the cost estimates, a detailed closure and reclamation plan would be provided during the regulatory phase.

### 11.1.1 Regulatory Environment

Reclamation and closure of all YGP facilities will be conducted in accordance with the terms and conditions of the future MVLWB Water License and Land Use Permit, the *Mine Site Reclamation Policy for the Northwest Territories* and the *Mine Site Reclamation Guidelines for the Northwest Territories and Nunavut* (INAC 2007b).

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# 11.1.2 Objectives

The proposed YGP is considered to be a temporary land use. At closure, the project site and the land affected by the operations will be reclaimed to the extent possible to achieve the following closure objectives:

- Protection of public health and safety through the use of safe and responsible reclamation practices;
- Reduction or elimination of physical environmental effects once the mine ceases operation;
- Re-establishment of conditions that enable the affected lands to return to pre-mining land uses; and
- Eliminate the need for long-term monitoring and maintenance by establishing physical and chemical stability of disturbed areas.

In addition to Tyhee NWT Corp's reclamation objectives, the anticipated operating permits will specify reclamation requirements that must be met by the licensee. Examples of such conditions, drawn from other existing permits, may include:

- Progressive reclamation will be undertaken as and when opportunities are presented.
- Clean-up and restoration of the lands used prior to the expiry date of the permit.

# 11.2 CLOSURE PLAN

The conceptual closure and reclamation plan for the YGP is based on a "design for closure" approach. The closure and reclamation plan will be a living document that is updated throughout the life of the Project to adapt to and reflect any changes that may arise.

The closure and reclamation activities of all YGP site facilities will be conducted in accordance with the terms and conditions of the future MVLWB Water License and Land Use Permit and accepted mine reclamation practices in the NWT and other jurisdictions that might also apply (e.g., INAC 2007b, 2002).

The primary reclamation activities will involve the removal of surface facilities and infrastructure, the re-contouring and scarification of the footprint area, the application of stockpiled organics to disturbed areas, and re-vegetation to the best extent possible.

The following objectives were established to guide development of the CRP:

- To protect public health and safety;
- To minimize the effects of mining on the environment;
- To establish conditions that lead to acceptable long-term physical and chemical stability in reclaimed areas;

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- To establish conditions that are appropriate for the surrounding environment and identified end land uses; and
- To provide the public and government with a clear understanding of reclamation expectations.

The following components will be incorporated into the overall mine design, where possible, and into the closure and reclamation plans for relevant components of the YGP:

- Buildings and site infrastructure will be located, to the greatest extent possible, on previously disturbed land;
- Organic and mineral soils collected from the YGP Mine Site will be salvaged and stored for future reapplication during reclamation of the site;
- Re-vegetation efforts, if undertaken, would be evaluated during the post closure monitoring period as set out in the YGP's water license. Research during the mine life using native plant species will determine appropriate seed mixes and plant material for use in reclamation and closure activities; and
- Test plots may be developed in different ecosystem types during operations to assist in the revegetation efforts post closure.

Following removal of surface facilities, the remaining fill embankments, borrow pits, access roads, and development footprint will be scarified and re-contoured as required to ensure surface stability, blend with the surrounding landscape, and facilitate the re-establishment of native vegetation.

# 11.2.1 Roads and Airstrip

The existing and proposed site roads are described in the Development Description (Section 4.0) and shown on Figures 4.1-1 and 4.1-2. The existing Discovery Mine airstrip is also shown on Figure 4.1-1 and described in Section 4.14.1.6.

# 11.2.1.1 Closure Strategy

Upon closure, all roads servicing the mine site will be decommissioned and will no longer be maintained by YGP. The reclamation of roads will focus on the restoration of natural drainage patterns by removing fills and culverts, contouring to minimize erosion and sedimentation, and minimizing hazards to wildlife. Locked gates will be used to prevent public access to the site; however, a network of unmaintained trails beyond the gates will allow access throughout the site by foot or all-terrain vehicle for post-closure monitoring activities.

At this time, YGP is proposing that the airstrip would remain in place. This will provide a public safety feature in an area of the NWT that does not have an abundance of areas for emergency landings.



### 11.2.1.2 Reclamation Plan

All site roads not requiring post-closure monitoring would be decommissioned and reclaimed. The remaining roads will be reclaimed at the conclusion of the post-closure monitoring program. Reclamation may involve scarifying and loosening the surface to allow natural revegetation. Where erosion or sedimentation may be a concern, the surface will be re-contoured. Culverts or stream crossing structures will be removed to allow the natural drainage to be re-established.

The airstrip will be left as an unmaintained facility; however, it will not be reclaimed. Any waste or stored supplies/materials will be removed from the area upon final closure.

# 11.2.2 Open Pit and Underground Mines

#### 11.2.2.1 Ormsby Open Pit

Open pit operations will begin once the mine has been commissioned and pre-development activities are complete. The mine plan includes removal of 79 Mt of material, of which 5 Mt will be processed as ore and 74 Mt will be handled as waste rock. The Ormsby open pit has a mine life of 5.5 years.

### **Closure Strategy**

The Ormsby open pit will remain operational until the completion of the closure activities for the underground development. Once this has been completed, the pit will be partially backfilled with waste rock and flooded. A suitable fence will be erected around the perimeter of the excavation.

### **Reclamation Plan**

Upon completion of underground closure activities, pumping and dewatering activities in and around the pit will cease and groundwater will be allowed to recharge into the pit to the pre-disturbance level. Waste rock material may be used to partially backfill the open pit, with priority placed on use of PAG material. The YGP is in an area of discontinuous permafrost, however should permafrost be present, especially in the area of the open pit, one could expect migration of permafrost into the backfilled material.

A priority in the open pit reclamation will be to secure the excavation and to prevent access into the pit. This will require a suitable combination of rock berms and fencing to prevent humans or animals from falling into the pit.

### 11.2.2.2 Ormsby Underground

Underground development will begin during year 3 at the Ormsby site with ore production scheduled to begin at the end of year 4. Underground operations have a current expected mine life of 3.5 years. Decline development will originate from the bottom of the Ormsby pit. Total underground operations will remove approximately 1.4 Mt of material, of which 0.98 Mt of material will be processed as ore and 0.42 Mt will be handled as waste.

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# **Closure Strategy**

The closure strategy for the underground mine involves salvaging underground equipment and associated infrastructure. Unsalvageable and non-hazardous underground infrastructure will remain underground. In addition, surface infrastructure, as well as scrap materials may be disposed of underground. The workings will be backfilled with waste rock and all underground openings will be sealed in accordance with NWT mine safety requirements.

# **Reclamation Plan**

Following completion of underground mining activities, all salvageable equipment will be removed. All openings to underground, including proposed ventilation raises, and access ramps, will be sealed and isolated from surface water infiltration in accordance with NWT Mine safety requirements. The ventilation raises will be permanently sealed using a reinforced concrete cap, cast in place over the opening. Surface water diversion channels will be constructed to minimize any water from collecting near the mine openings. The underground decline will be sealed with broken rock and/or concrete recovered from surface infrastructure demolition and will be left to flood during the closure activities of the open pit.

The underground workings will be backfilled using waste rock in addition to any unsalvageable and non-hazardous underground infrastructure, demolished surface infrastructure or scrap materials. Any salvageable underground equipment and associated infrastructure will be recovered from the underground development prior to closure, transported off site and where applicable will be sold.

### 11.2.2.3 Nicholas Lake Underground

The Nicholas Lake underground operation will begin development in year 1 of the YGP start-up, and will host a 1.3 Mt underground operation with 0.98 Mt of material processed as ore over a 4 year mine life.

# **Closure Strategy**

A similar closure strategy will exist for the underground development at Nicholas Lake as at the Ormsby underground development. If waste rock volumes are available on site, the mined-out cavity will be backfilled and groundwater will be allowed to recharge to predisturbance levels. The decline and ventilation raises will be sealed to ensure that the workings are isolated from surface water infiltration. As the YGP is in an area of discontinuous permafrost, encroachment of permafrost may occur over a number of years.

# **Reclamation Plan**

Following completion of underground mining activities in the underground, the cavities will be backfilled using waste rock in addition to any unsalvageable and non-hazardous underground infrastructure, demolished surface infrastructure or scrap materials. Any salvageable underground equipment and associated infrastructure will be recovered from the underground development prior to closure, transported off site and where applicable will be sold to offset the closure costs.

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All underground openings including any ventilation raises and access ramps will be sealed in accordance with NWT Mine safety requirements. The ventilation raises will be permanently sealed using a reinforced concrete cap, cast-in-place over the opening to both completely isolate the backfill material from surface water infiltration and to provide a protective boundary for surface access. Surface water diversion channels will be constructed to minimize any water from collecting near the mine openings.

# 11.2.3 Waste Rock Storage

### **Closure Strategy**

Recent static testing completed of the Ormsby and Nicholas Lake mineralized and unmineralized waste rock (Golder 2011, Appendix L) indicates that the waste material is categorized as either potentially acid generating (PAG) or as having an uncertain potential for acid generation (section 4.12.9.1). Further studies are required to define areas and volumes of PAG rock versus non-acid generating (NAG) rock and a segregation criteria will be defined that will enable the practical segregation of problematic rock types. Where available, use of NAG waste rock material as construction material may be possible (such as for haul roads, dams for the tailings containment area and sub-grade fill for infrastructure), but verification testing will be needed to identify and segregate NAG rock from uncertain and PAG rock.

The long term strategy for the closure and reclamation of the waste rock facilities is to isolate any PAG material from oxidizing and to ensure a passive treatment of any water runoff. Efforts to re-vegetate any waste rock that remains on surface will benefit from research conducted during the mine operation.

# **Ormsby Reclamation Plan**

Waste rock produced from the Ormsby mining operations (both open pit and underground) will be placed on surface to the northwest of the Ormsby open pit as shown on Figure 4.1-1. The Ormsby waste rock storage facility will accommodate a total of approximately 74 Mt at an average in-situ dry density of 2.1 t/m<sup>3</sup>. The dimensions of the waste rock pile are approximately 2,200 m long, 500 m wide by 108 m high, with a maximum elevation of 392 masl. Scheduling of waste rock removal from the open pit and underground operations will facilitate material management and will allow for the waste pile to be segmented into PAG and NAG material.

Upon closure, some waste rock may be used as backfill material for the Ormsby pit. Any remaining material in the waste pile will remain in situ and PAG materials will be covered with sufficient NAG material and/or growth media to eliminate surface water infiltration. If necessary, the use of a synthetic membrane in addition to growth material may be used to ensure an impermeable surface over PAG material. The waste rock storage facility will be designed for long term geotechnical stability using average final side slopes of 1H: 2.5V which in combination with some surface till placement will allow for revegetation of the slopes as part of reclamation and closure.



The closure activities will include construction of a series of catchment and diversion ditches to collect surface runoff from the waste rock pile. The ditches will be designed to control sediment loading into the natural water drainage, to minimize erosion of surface materials, and to divert any potential acidic or metal-rich waters to the Ormsby pit.

# **Nicholas Lake Reclamation Plan**

Nicholas Lake underground mining operation will produce approximately 0.34 Mt of waste rock (Figure 4.1-2). Specific volumes of PAG and NAG waste rock have not yet been established, however it is expected that the majority of the NAG material will be used for operating requirements including road base, stope backfill and general construction. An area has been designated to temporarily contain waste rock during operations should significant volumes accumulate. Closure activities will use any accumulated waste rock as backfill material within the underground workings at Nicholas Lake.

### 11.2.4 Buildings and Infrastructure

### 11.2.4.1 Process Buildings, Accommodations, and Ancillary Facilities

Infrastructure components that will be decommissioned during mine closure will include:

- accommodations and mine office;
- mill and processing facility;
- truck shop;
- laydown areas;
- fuel storage;
- explosives magazines; and
- chemical storage area.

### **Closure Strategy**

The objective for reclamation of the mine buildings and infrastructure is to minimize the environmental impact of mining operations to the extent practical, and to maintain the overall present productivity of the natural site. The end-land use will be to decommission any areas that have been disturbed from infrastructure pads so that they may return as quickly as possible to a productive wildlife habitat.

The short-term reclamation objectives of these disturbed areas are to:

- progressively reclaim disturbed areas as soon as they are no longer active;
- minimize the risk and impact of water erosion and sediment transportation;
- stabilize slopes;
- restore natural water drainage;
- cover ground to prevent soil drifting/dust;



- start to rejuvenate the soil and start soil building processes; and
- stimulate re-vegetation on all reclaimed components using the results of research on appropriate techniques and flora that was conducted during the mine operation.

Long-term objectives are to:

- maintain or improve the level of wildlife habitat;
- to the extent practical, create an aesthetically pleasing environment, and
- any salvageable materials, associated infrastructure and equipment will be recovered from the decommissioning, transported off site and where applicable will be sold to offset the closure costs.

# **Reclamation Plan**

All of the YGP surface infrastructure, including buildings, processing equipment, fuel tanks, and related infrastructure will be dismantled and removed so that the site can be graded. Any remaining building foundations or infrastructure pads will be scarified and covered with soil. At least part of the exploration camp will be maintained to support post closure monitoring activities and, if required, provide short term accommodations. If necessary, portable housing, such as tents which can be moved off site by trucks, will be used by reclamation crews for final closure activities.

Appropriate terms should be secured within Water and Land Use permits to allow all nonsalvageable and non-hazardous building scrap to be placed in the underground workings and covered. All other salvageable and hazardous components from the buildings will be removed from the site. If necessary, an on-site soil and special material treatment facility will be constructed to contain and passively treat materials during the post-closure period. No design currently exists for such a facility for YGP.

Following the end of mine and milling operations, any unused fuel or mill reagent supplies described in Section 4.0 (Development Description) will be returned to the supplier for credit. It is anticipated that all reagent product at the site will be properly contained/stored so that no product will be considered as special waste and will be fully recovered from the site. A closure inventory/investigation of reagents and hazardous materials on site will be conducted upon the cessation of milling activities. Should some product's containment be deemed suspect upon the closure inspection, that volume of materials will be added to an inventory of special wastes, and removed from the site for disposal in a permitted facility by a licensed contractor with other special wastes on site.

Following final closure activities, a complete assessment of soils and related material around the mill and processing facility, the fuel and chemical storage infrastructure, warehouse and laydown facilities, power plant, camp and service complex will be conducted to determine whether additional remedial measures are required. Any contaminated materials will be either treated using an on-site special material treatment facility or will be required to be removed from site and disposed in a permitted facility by a licensed contractor. A cover of

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clean material will be placed where the material was removed from and the entire area will be graded and contoured to blend with the surrounding topography.

All necessary removal of infrastructure and mining related equipment will take place the first winter following the final closure activities, thus obviating the necessity of constructing the winter road beyond the end of mine life plus one year.

### 11.2.4.2 Storage

Storage facilities used during operations for chemicals, fuel, explosives, cement, dry goods, and equipment are described in Section 4.0 (Development Description). Storage facilities that will be demolished and removed from the surface include a fuel truck unloading facility containing a concrete pad and spill containment sump; a secondary containment area, protected by gravel berms and liners to contain potential fuel spills; two envirotanks, or similar equipment, at the airstrip; and one envirotank, or similar equipment, at the process plant. In addition, the explosives manufacture and storage facilities will consist of an explosives manufacturing plant, a cold storage building with a cement floor and approved explosives magazines. A pre-engineered, unheated building will provide storage of dry goods and equipment.

### **Closure Strategy**

The closure strategy includes the removal of all above ground storage tanks (AST), buildings/structures, and shallow foundations.

#### **Reclamation Plan**

The ASTs will be dismantled and de-mobilized from the site. The AST foundations, containment berms, and liner materials will be removed. The potential hydrocarbon impact to soil will be assessed and remediated on site or off site at a licensed facility, as required. The containment berms will be removed and the area regraded.

The storage buildings and any related impermeable liner material will be assessed for contamination and will be handled similar to other building infrastructure described in Section 11.2.4.1. Any materials that are assessed to be hazardous will be disposed within on-site special material treatment facility or removed from site and handled at a licensed facility by a qualified contractor.

#### 11.2.4.3 Solid Waste Management

Solid waste management facilities used during the mine operation will consist of a waste transfer storage area located adjacent to the camp and processing plant, a waste storage building, an oil-fired incinerator for burning waste oil and an approved landfill which will contain non-hazardous materials.

# **Closure Strategy**

The closure strategy involves removal of the incinerator and associated waste handling equipment. The landfill site will be covered and re-contoured to blend with surrounding terrain gradients as part of the closure program

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# **Reclamation Plan**

The incinerator and waste handling equipment and associated structures will be dismantled and handled similar to other building and infrastructure as described in Section 11.2.4.1. All salvageable equipment and structures will be removed from site. Non-salvageable equipment, materials, and structures will be disposed of underground or in an approved on site landfill.

During mine operations, management of the landfill site will include regular placement of a cover of non-PAG rock over the solid wastes disposed of in the landfill. Upon closure of the site, all remaining solid waste materials will be completely covered with a thick layer of non-PAG rock and re-contoured to match surrounding terrain gradients as part of the closure program.

A complete assessment of soils material around the incinerator and related waste storage facilities will be conducted upon removal of the components to determine whether additional remedial measures are required. Any contaminated materials will be either treated using an on-site special material treatment facility or will be required to be removed from site and disposed of in a permitted facility by a licensed contractor. A cover of clean material will be placed where the material was removed from and the entire area will be graded and contoured to blend with the surrounding topography.

### 11.2.4.4 Water and Sewage Treatment

#### **Closure Strategy**

Water storage and sewage treatment facilities will be dismantled and recovered during demolition of the accommodation complex.

### **Reclamation Plan**

Sewage wastes from the operation will be processed through a sewage treatment plant that will be incorporated into the camp design with final specifications provided in the feasibility and design phases. Material from the facilities will be reclaimed upon demolition of the camp building. Any recovered materials will be treated as non-hazardous or hazardous waste as necessary.

### 11.2.4.5 Water Supply and Distribution

### **Closure Strategy**

The closure strategy involves removal of all pumping equipment and water lines.

#### **Reclamation Plan**

The reclamation plan for these facilities includes the removal of the fresh water pumphouse and all related infrastructure. It is anticipated that this will include salvaging all pumping equipment including piping, control systems, and wiring. Emergency power supplies associated with heat tracing equipment will also be salvaged. All salvageable equipment and

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materials will be demobilized from the site. All non-salvageable equipment and materials will be handled as non-hazardous waste as described in Section 11.2.4.3.

# 11.2.5 Water Management Facilities

### 11.2.5.1 Sedimentation Ponds, Sumps, and Ditches

### **Closure Strategy**

Any sumps or ditches constructed during mine operations will be maintained until the completion of the closure activities to collect runoff and to allow water quality monitoring. Following closure, these facilities will no longer be required.

The closure strategy will be to decommission the sumps and sedimentation ponds and to restore natural drainage patterns. Collection and diversion ditches constructed at the base of the waste rock facility may not require decommissioning.

### **Reclamation Plan**

Closure of the ditches, sumps, and sedimentation ponds will be completed following closure of the waste rock storage pile. Decommissioning of the ponds and ditches will involve the removal of all liner materials from the ponds and ditches and re-contouring of the underlying base and berm materials. Liner materials will be disposed of in an approved manner. Surface re-contouring will be carried out to re-establish natural drainage patterns and to minimize potential for erosion. Where applicable, re-vegetation will be implemented to provide soil stability.

### 11.2.5.2 Tailings Containment Area

### **Closure Strategy**

For closure and reclamation, it is the intent to reclaim the facility to a near natural state, to minimize the oxidation of the tailings and to mitigate any potential negative effects to the downstream receiving environment. Surface drainage from the TCA area will be directed to the Ormsby pit.

Ongoing water quality monitoring will be conducted following the completion of decommissioning activities to ensure that acceptable downstream water quality can be passively maintained.

### **Reclamation Plan**

Closure of the tailings containment area will be carried out following decommissioning of the plant site. All water/mill refuse distribution infrastructure, seepage control, and water reclaim infrastructure will be removed from the facility and salvaged where possible.

Soil will primarily be used as the cover material. An additional synthetic material cap may be used to cover the tailings if sufficient natural materials are not available. The synthetic material may also be used to augment the stability of the natural material.

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The post-closure monitoring period, estimated to be 2-3 years, would include annual inspection of the TCA and other reclaimed areas to confirm that closure predictions are in compliance with the YGP's closure plan and associated permits/licenses. The monitoring will be conducted and reported under the direction of Tyhee NWT Corp.

### 11.2.5.3 Narrow Lake Inflow

### **Closure Strategy**

Following the cessation of mining and processing activities, it is intended to maintain sufficient flow to the Narrow Lake inlet stream, and hence Narrow Lake, to conserve existing fish habitat productive capacity.

# **Reclamation Plan**

Following mine reclamation activities and cessation of effluent discharges to the TCA, water flows to Narrow Lake will continue as a result of natural surface runoff due to precipitation and snowmelt. Drainage from the capped exposed tailings surface will be collected by constructed drainage channels around the perimeter of the reclaimed TCA and routed to Narrow Lake via the Narrow Lake inlet stream.

Two options are available for management of Round Lake water as part of the reclamation plan:

- discharge via an excavated channel to the Ormsby pit; and,
- discharge through a permanent channel from Round Lake that will link with the Winter Lake watershed drainage system, which will flow directly to the Narrow Lake inlet stream.

It is recognized that Round Lake water is of poor quality due to historic tailings deposition, and seasonally can contain elevated concentrations of such metals as arsenic, copper, mercury, and cyanide. Discharge to the Ormsby pit may therefore prevent further loading of such contaminants in Narrow Lake. The long period required for the pit to fill will provide ample time for the attenuation of contaminants due to natural processes, including dilution, and may also result in reduction of levels of these substances at their source in deposits adjacent to or in Round Lake.

However, the loss of flow from Round Lake has the potential of altering the physical and chemical characteristics of Narrow Lake. As shown in Figure 6.2-4, recharge of Narrow Lake occurs primarily during spring freshet, and principally from flows originating from Winter Lake (the TCA, following mine development). Although flows during summer from Round Lake are very low, its overall contribution to discharges to Narrow Lake is significant. For example, in 2010, flows from Round Lake comprised 42% of all measured flows from May to September at the outlet of Winter Lake (EBA 2011). A substantive reduction of flow to Narrow Lake has the potential to result in changes in water level, disruptions to migration timing, loss of stream habitat, reductions in flow rates downstream of Narrow Lake, and possible effects on the timing and extent of Narrow Lake stratification.

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Comparing the two options identified above, it is suggested that preference be given to discharging Round Lake water directly to Narrow Lake to maintain flow characteristics through the system. Although this might result in some additional loading of potential contaminants (e.g. arsenic) in Narrow Lake, levels are not expected to increase substantially or to cause exceedances of CCME guidelines.

# 11.2.6 Reclamation Strategy Summary

A series of conceptual schematic representations have been created to provide visualizations of what the Ormsby and Nicholas Lake areas could look like over time after implementation of the reclamation strategies described above. Figures 11.2-1 to 11.2-4 show the progression from current natural conditions; after eight years of operations; at closure and 1 year following closure; 5 years and 15 years after closure, respectively, for Ormsby. Figures 11.2-5 to 11.2-8 show the progression from current natural conditions; after eight years of operations; after four years of operations; at closure and 1 year following closure; 5 years and 15 years after closure; 6 years after closure; 7 years and 15 years afte

# 11.3 POST CLOSURE MONITORING

Based on discussions with the regulatory agencies, Tyhee NWT Corp understands that environmental monitoring may continue through the post-closure phase and for such a time that confirms that licensed closure criteria have been met. Once this has been achieved, Tyhee NWT Corp would seek final clearance to permanently abandon the YGP area.

During post closure monitoring, any surface drainage from the YGP would be monitored as specified in the water license and would continue for a 2-3 year period, or as required to meet the established criteria. It is expected that water quality parameters will have reached acceptable levels within a reasonable time frame and monitoring would cease at this time. It is expected that post closure monitoring would occur during the spring freshet and in the fall, prior to freeze-up. Should monitoring show elevated levels of components relative to those specified under the water license parameters, appropriate remedial options would be implemented.

Typee NWT Corp will comply with the terms and conditions of the issued closure water license including monitoring and reporting.



VIEW 1: Ormsby Existing Condition (Natural)



VIEW 2: Ormsby Representation of Existing Condition (Natural)





VIEW 2: Ormsby Representation of Existing Condition (Natural)



# VIEW 3: Ormsby Representation of Existing Condition and Mine Footprint at Full Build-out Following Eight Years of Operation





VIEW 4: Ormsby Representation of Existing Condition Following Closure



VIEW 5: Ormsby Representation One Year Later





VIEW 6: Ormsby Representation Five Years Later



VIEW 7: Ormsby Representation 15 Years Later





VIEW 1: Nicholas Lake Existing Condition (Natural)



VIEW 2: Nicholas Lake Representation of Existing Condition (Natural)





VIEW 2: Nicholas Lake Representation of Existing Condition (Natural)



# VIEW 3: Nicholas Lake Representation of Existing Condition and Mine Footprint at Full Build-out Following Four Years of Operation





VIEW 4: Nicholas Lake Representation of Existing Condition Following Closure



VIEW 5: Nicholas Lake Representation One Year Later





VIEW 6: Nicholas Lake Representation Five Years Later



VIEW 7: Nicholas Lake Representation 15 Years Later

