

7. Malfunctions, Accidents, and Mitigation Measures

During the implementation and operation of the rehabilitative measures at the site, there is a potential that malfunctions (e.g. in design, construction, or commissioning) or accidents (e.g. due to acts of nature) could occur. These malfunctions and accidents can adversely affect remediation activities, and OMM, resulting in delays or costly mitigation measures. These events must be considered and mitigation measures must be developed to ensure environmental impacts are minimal and acceptable.

Table 7.1 identifies mitigation measures for potential malfunctions and accidents that have a reasonable probability of occurring at the site during three time frames:

- Short-term: Preparation activities
- Mid-term: Remediation activities
- Long-term: OMM activities

TABLE 7.1
MALFUNCTIONS, ACCIDENTS AND MITIGATION MEASURES IN THE INDUSTRIAL AREA

Malfunction (M) or Accident (A)	Mitigation Measures
Short-term: Preparation Activities	
M/A – Perpetual disruptive forces (MNDM, 1995)	The recommended alternative for rehabilitation of the Industrial Area incorporates measures to mitigate perpetual disruptive forces.
A – Spill of contaminated soil, ATP related chemicals, fuel for equipment and vehicles	Contractors, ATP operators and other site personnel should be trained to respond to spills. Spill would be isolated and transferred to WCA or to an acceptable waste receiver if spill occurs offsite.
Mid-term: Remediation Activities	
M/A – Perpetual disruptive forces (MNDM, 1995)	The recommended alternative for rehabilitation of the Industrial Area incorporates measures to mitigate perpetual disruptive forces.
A – Spill of contaminated soil, ATP related chemicals, fuel for equipment and vehicles	Contractors, ATP operators and other site personnel should be trained to respond to spills. Spill would be isolated and transferred to WCA or to an acceptable waste receiver if spill occurs offsite.
M/A – During excavation and consolidation activities, severe storm events could expose contaminants or transport contaminants via wind or stormwater	Contain stormwater and make sure that sediment controls are in place. Implement contingency plan to dewater ponded water in excavations. Sedimentation catchments will be in place during construction activities. Excavation should be staged such that contaminated sediments cannot be washed into clean areas. These design measures should be sufficient during normal storm events. Sequence work to avoid areas subject to erosion during severe storm events.

TABLE 7.1
MALFUNCTIONS, ACCIDENTS AND MITIGATION MEASURES IN THE INDUSTRIAL AREA

Malfunction (M) or Accident (A)	Mitigation Measures
M/A – During simple earth (clay) cap/engineered cover placement, soils, and vegetation could wash away	Straw blown onto sloped areas that are freshly planted, and planting with annual rye or wheat will help stabilize the soil. If soils are washed away, then replace the soil and replant.
A – Damage to existing groundwater collection system during construction activities	Piping may require rerouting and a temporary shutdown during waste consolidation and cap/cover construction activities. As groundwater control is essential to limiting the migration of arsenic to the Moira River, system downtime will be minimized.
Long-term: Operation, Maintenance, and Monitoring Activities	
M/A – Perpetual disruptive forces (MNDM, 1995)	The recommended alternative for rehabilitation of the Industrial Area incorporates measures to mitigate perpetual disruptive forces.
A – Spill of ATP related chemicals, GIWN cleaning chemicals, fuel for construction equipment/vehicles	ATP operators and other site personnel should be trained to respond to spills. Spill would be isolated and transferred to an acceptable waste receiver.
M – Breach of consolidated waste cover or simple earth (clay) cap	Although the thickness of the cover and simple earth (clay) cap are designed to prevent penetration from tree roots and burrowing animals, there is a remote possibility that this can happen. Ongoing OMM program will identify need for repairs to covers and caps. The site OMM manual will provide Simple Earth (Clay) Cap/Cover Repair procedures and protocols.
M – Riverbank erosion	Ongoing monitoring program will identify need for repairs to riverbank. The site OMM manual will provide riverbank repair procedures and protocols.
M – Drainage ditches and culverts fill with sediment and debris or require repairs	Ongoing monitoring program will identify need for cleaning or repairing drainage ditches and culverts. The site OMM manual will provide drainage ditch and culvert cleaning and repair procedures and protocols.
M – Tree mortality due to soil conditions, contaminants, rodents, etc.	Install raptor perches to encourage hawks and owls to prey on rodents. Monitor routinely the health of the trees. Mulch trees and keep grass mowed to reduce potential for rodent damage. If mortality occurs, determine cause of mortality (soil conditions, contaminants, rodents) and rectify then replace trees.
M – Leachate transfer pump failure	Use standby pump, routine monitoring of pump performance.
M – Leachate transfer pump capacity insufficient	Purchase appropriate pump and replace original pump.
M – Piping failure	Install auto shutoff that is triggered if back pressure is too low, and routinely monitor the pipe integrity.
M – Piping frozen	Shut down pump and thaw line. Check heat tracing integrity, and routinely monitor that the collected water is flowing.
M – Irrigation system not functioning	Troubleshoot and repair and restart or, if problem cannot be easily remedied, use a watering truck.
M – Electrical short circuiting in pump control panel	Troubleshoot and repair. If due to rain/moisture, ensure waterproof features are in place.

TABLE 7.1
MALFUNCTIONS, ACCIDENTS AND MITIGATION MEASURES IN THE INDUSTRIAL AREA

Malfunction (M) or Accident (A)	Mitigation Measures
M – Cover failure or riverbank erosion due to flooding	Although the majority of the cover is approximately 5 m above the floodplain of the 100-year flood, site vegetation will require a number of years before becoming well established. Therefore, it is possible that a flood could compromise the integrity of the various caps/covers in the Industrial Area and lead to the release of contained wastes and soils. Any damaged areas during such an event would be identified and rectified using defined maintenance procedures.
A – Seismic occurrences	Design long-term structures at the Deloro site to the appropriate Seismic Zone. The probability of an earthquake of sufficient magnitude to breach the cover of the WCA is very small given the stability of the region (Zone 1, low risk of earthquake). Any damaged areas during such an event would be identified and rectified using defined maintenance procedures.

Notes: Perpetual disruptive forces are defined in MNM (1995) to include wind erosion; water erosion due to flooding, sheeting, rilling, and gulleying; sedimentation and debris accumulation; annual ice accumulation; seasonal frost penetration; soil restructuring; and physical and chemical weathering. Biological activities include root penetration, burrowing, intrusion, and actions by animals and man.

8. Expected Post-Closure Conditions and Uses

This section provides an assessment and description of the expected conditions and uses following closure activities.

8.1 Land Use

The final intended use of the site will be specified as a component of the federal EA. It is anticipated that access to the site will continue to be restricted (as described in Section 3.1) and the fence that currently surrounds the site will be maintained for the foreseeable future.

8.2 Topography

In general, the revised topography in the Industrial Area will be heavily dependent on:

- The amount of HLW identified and excavated from areas
- The final grade of the land, that will be suitable for stormwater runoff yet minimize stormwater erosion
- The thickness of the engineered cover or simple earth (clay) caps applied to the area
- The amount of waste consolidated around the equalization pond

It is anticipated that the ground surface of the consolidated wastes and engineered cover will rise to a maximum elevation of approximately 205 masl; the approximate grade of the Village of Deloro. The mound will be approximately 5 m below the localized topographic high points at the north end of the Industrial Area.

Tree cover between the Village and the WCA will reduce visual impacts to Deloro residents.

Figures 3-10 to 3-12 show the cross-sections of the anticipated topography of the Industrial Area following the completion of the site rehabilitation program.

8.3 Water Resources

It is anticipated that the implementation of the recommended rehabilitation alternative for the Industrial Area will result in a marked improvement to the Moira River water quality, and be supportive of the overall closure objective of a 90 percent reduction in arsenic discharge to the Moira River to achieve PWQOs at the intersection of the Moira River and Highway 7 (CG&S, 1998).

8.4 Plant and Animal Life

As noted in Section 2.1.2, the post-closure risks to ecological receptors from the draft SLERA are not conclusive given information that is currently available. Additional site information is being collected and further risk evaluation is underway.

9. Approval Requirements

The primary site-wide regulatory approvals that must be applied for and issued by the appropriate government agencies are outlined in this section of the Closure Plan.

9.1 Site-Specific Risk Assessment

SSRA is the remedial approach selected from the options available in the GUCSO (MOE, 1997). There are a number of steps to approval of an SSRA to ensure that public health and the environment are protected. First, an SSRA is reviewed by an independent third party peer reviewer, qualified and experienced in conducting SSRAs. Once the peer reviewer's comments have been incorporated, the SSRA is submitted to the Standards Development Branch (SDB) of the MOE, which undertakes a review of both technical and policy issues. Other prerequisites for acceptance of the SSRA include community-based public communication and dialogue with the municipality regarding the SSRA. Once these steps have been completed, the cleanup can proceed.

As confirmation that the actual cleanup is completed according to the SSRA, a Record of Site Condition (RSC) will be prepared and filed to document the cleanup. The RSC is completed jointly by the proponent, MOE, as well as the consultant overseeing the cleanup. The SSRA is a Level 2 Risk Management involving the use of engineered controls (e.g. engineered covers, groundwater pumping/treatment systems). A Level 2 Risk Management requires Registration on Title for the property to document the conditions of the land in the public domain. Registration on Title will be accomplished through filing a Certificate of Prohibition.

As a result of the different land ownership between the Deloro Mine Site and the Young's Creek Area south of Highway 7, a separate draft SSRA report has been prepared for each of these two land parcels following the process described in this section.

The current process for completing SSRAs, outlined above, was developed in 1997 and has been in place since that time. New legislation has been passed that is anticipated to modify this process once the enabling regulations are finalized. The new legislation, the *Brownfield Law Statutes Amendment Act*, received Royal Assent on November 21, 2001 and the public comment period for the regulations ended on April 29, 2003. Final regulations, which are expected to be released through 2003, may change the SSRA process from a guideline-driven to a regulatory-driven process. The draft regulations do not suggest significant change in the technical approach to SSRAs, but they do indicate some changes in the administrative aspects. The Deloro Mine Site SSRA will be adapted, if needed, to meet the new regulatory requirements.

9.2 MOE Authorizations

Under the *Environmental Protection Act* (EPA) and the *Ontario Water Resources Act* (OWRA), approval is required from the MOE for processes that emit to the environment or for waste management activities. The primary means of approval is through issuance of a Certificate of Approval (C of A) for air or water emissions or a Provisional Certificate of Approval (PC

of A) for waste related activities. A Permit to Take Water (PTTW) is required for water extraction above 50,000 L/day. Generator Registration is required for ongoing waste generation, such as the ferric arsenate sludge, which is generated by the onsite ATP.

A number of MOE authorizations already exist at the Deloro Mine Site as a result of environmental mitigation actions implemented to date. This includes extraction and pumping of impacted groundwater, treatment of water in the ATP, discharge of the treated effluent and storage/dewatering of sludge from the treatment process. A listing of the MOE authorizations currently in place at the Deloro Mine Site is provided in Table 9.1.

The Closure Plans will result in changes to the currently authorized systems, plus the addition of new systems. Changes to the current systems will require modifications to the existing MOE authorizations, most likely through an amendment (i.e. C of A Amendment). New systems will require new authorizations to be developed.

Certificate of Approval – Sewage

Amendment to the existing C of A for the ATP, sludge storage lagoon, pumping stations, and forcemains may be required to accommodate modifications to these systems as a result of the Closure Plans.

Certificate of Approval – Air

There is no anticipated requirement for modification of the existing C of As or for new C of As as a result of the Closure Plans.

Permit to Take Water

The existing PTTW for the Tuttle Shaft pumping station will require amendment to account for installation of a permanent forcemain and the increase in pumping to a year-round operation. Other PTTWs for the other pumping stations may also require some modifications.

In the Industrial Area, a new PTTW will be required to authorize the construction and operation of a groundwater interceptor system at the western property line. Similarly, a new PTTW will be needed in the Tailings Area for groundwater pumping from wells located in the vicinity of the tailings dams.

Provisional Certificate of Approval – Waste Disposal

The site cleanup is following the SSRA process (outlined above) where existing residuals and by-products will be managed onsite through a Level 2 Risk Management involving isolation and containment. Although the legacy materials being managed have been in place for several decades and are not the result of ongoing waste production and many of the materials are the result of mining activities (e.g. mill tailings from a mine) that are exempt from Ontario's Waste Management Regulation, the MOE has committed to seeking a PC of A for the proposed waste management facilities under Part V of the EPA. The development of Closure Plans for the Deloro site has drawn on landfill design standards, as well as mine closure and other guidelines, as general guidance and best management practices to ensure that the site is engineered and maintained to be safe and secure for hundreds of years.

TABLE 9.1
EXISTING MOE AUTHORIZATIONS FOR THE DELORO MINE SITE

Authorization	Type	Number	Date	Description
Certificate of Approval	Sewage	4-036-82-006	28 Jul 1982	Collection/storage/ treatment system
Certificate of Approval	Air	8-4042-82-006	8 Sep 1982	Lime silo venting and fume hood exhaust
Certificate of Approval	Sewage	4-053-83-006	18 Jul 1983	Pumping station and forcemain
Provisional Certificate of Approval	Waste Disposal Site	A362106	6 Sep 1983	Temporary storage processed sludge
Permit	Permit to Take Water	85-P-4006	26 Apr 1985	Tuttle shaft and pumping station #5
Certificate of Approval	Sewage	4-041-85-006	25 Jul 1985	Sludge drying lagoon
Permit	Permit to Take Water	85-P-4038	16 Aug 1985	Moira River
Certificate of Approval	Sewage	4-067-85-006	16 Sep 1985	Manhole rehabilitation
Certificate of Approval	Air	8-4069-86-006	17 Nov 1986	Plant exhaust system
Certificate of Approval	Sewage	4-116-86-876	8 Jul 1987	Tuttle shaft pump and forcemain
Certificate of Approval	Sewage	4-0155-87-006	20 Nov 1987	Sludge testing lagoon
Certificate of Approval	Air	8-4120-88-006	12 Dec 1988	Lab equipment exhaust
Generator Registration	Waste Streams	ONO199886	23 Jan 1989	Arsenic compounds and oils
Certificate of Approval	Air	8-4128-89-006	4 Dec 1989	Lab fume hood exhaust
Permit Amendment	Permit to Take Water	83-P-4010	6 Jun 1990	Pumping station #3
Permit Amendment	Permit to Take Water	82-P-4035	6 Jun 1990	Pumping stations #1, #2, and #4
Certificate of Approval Amendment	Industrial Sewage	4-041-85-006	27 Nov 1992	Sludge storage lagoon expansion
Permit Amendment	Permit to Take Water	85-P-4006	21 Feb 1996	Tuttle shaft and pumping station #5
Certificate of Approval Amendment	Industrial Sewage Works	4-036-82-006	20 Apr 2000	Decontamination facilities
Generator Re-registration (HWIN)	Waste Streams	ONO199886	Jan 2002	Ferric arsenate sludge
Provisional Certificate of Approval	Waste Disposal Site	2668-5DHJEW	30 Aug 2002	Temporary storage contaminated soil
Provisional Certificate of Approval Amendment	Waste Disposal Site	2668-5DHJEW	12 Nov 2002	Contingency plan

The Deloro Mine Site Cleanup Project is being carried out under an exemption to the provincial *Environmental Assessment Act* (EAA). Ontario Regulation 577/98 (O. Reg. 577/98) exempts the Deloro Mine Site Cleanup Project from a mandatory hearing under Part V of the EPA (sections 30 and 32).

9.3 Conservation Authority

Through the Fill, Construction and Alteration to Waterways Regulation, which is administered in support of Section 28 of the *Conservation Authorities Act* of Ontario, the Conservation Authority regulates and may prohibit work taking place within valley, river, stream and watercourse corridors as well as along lake waterfronts.

Fill regulations allow the Authority to prohibit or regulate the placing, excavation, grading or dumping of fill of any kind for projects such as pools, ponds, roads and driveways. These regulations are applied when, in the opinion of the Authority, the control of flooding, pollution, or the conservation of land within its jurisdiction may be affected by the placing or dumping of fill.

Construction regulations allow the Conservation Authority to regulate construction in or on a wetland or floodplain, or in any area susceptible to flooding during a regional storm. In this regulation, construction refers to new buildings, additions to existing buildings, stormwater outfalls, culverts, and bridges.

The alteration to waterways regulation allows the Conservation Authority to prohibit or regulate the straightening, changing, diverting, or interfering with the existing channel of a river, creek, stream, or watercourse.

Based on the remedial works that are proposed along the west bank of the Moira River (reconstruction) as well as within Young's Creek (sediment and soil removal and wetland rehabilitation), it is anticipated that a permit "To Construct, Place Fill, or Alter a Waterway" will be required from the Moira River Conservation Authority (MRCA) c/o Quinte Conservation (QC).

9.4 Ministry of Natural Resources

Of note within the Deloro Mine Site property and in the Young's Creek Offsite Area is a Provincially Significant Wetland (PSW), the Deloro Wetland Complex. The Deloro Wetland Complex, including the area along Young's Creek south of Highway 7, was evaluated during the summer of 2000 using the 3rd Edition of the wetland evaluation manual (Snider's Ecological Services, 2000). The wetland received a total score of 688 and was evaluated as a Class 2 PSW.

The management of Ontario wetlands and lands adjacent to them is implemented through the *Wetlands Policy Statement*, which falls under the jurisdiction of the *Planning Act*. The MNR and the Minister of Municipal Affairs jointly issued the *Wetlands Policy Statement*. The policy requires that all planning jurisdictions protect PSWs such that development is not permitted in PSWs that are located within the Great Lakes – St. Lawrence Region. Development and alteration may be permitted on lands adjacent to PSWs only if it does not result in:

- Loss of wetland function
- Subsequent demand for future development that will negatively impact existing wetland functions
- Conflict with existing site-specific management practices
- Loss of wetland area

An Environmental Impact Study (EIS) would have to be prepared in order to permit development on these adjacent lands.

Consultation is required with the MNR, and possibly the Minister of Municipal Affairs, to determine whether any of the project components, such as construction of the Young's Creek Area onsite containment cell and dredging, constitutes wetland "development" and whether the project can be permitted. Also, the MNR would need to determine whether an EIS would need to be completed.

The MNR is also responsible for issuing Work Permits under the authority and provisions of several different Provincial Acts. If the project is allowed to proceed, the Provincial Acts that apply to this project would have to be determined in consultation with the MNR. The following Provincial Acts and their regulations are considered in the application for a Work Permit.

Forest Fire Prevention Act: The MNR administers this Act. A Work Permit is required to authorize any work on Crown land, and to ensure that adequate forest fire precautions and equipment are in place.

Lakes and Rivers Improvement Act: The purpose of this Act is to manage the use of the lakes and rivers in Ontario, and to regulate improvements to them. The Act provides for the preservation of public rights in or over water; protection of the interests of riparian owners; management of fish, wildlife, and other natural resources dependent on such waters; preservation of natural amenities; and suitability of the location and nature of improvements. The *Lakes and Rivers Improvement Act* gives the MNR the mandate to manage water-related activities, particularly in the areas outside the jurisdiction of Conservation Authorities.

Public Lands Act: This Act, which is administered by the MNR, authorizes the construction of roads on Crown lands, sets out Crown cost-sharing of company roads, limitations on liability and tenure for private forest roads and camp areas, and defines the applicability of the *Highway Traffic Act* on access roads.

As part of the application for a Work Permit, each project proponent must complete and apply for "Parts" of the permit. The determination of which Parts (i.e. A through F) are applicable to the project is conducted in consultation with the MNR. The Parts that must be taken into consideration when applying for a Work Permit are briefly described below:

- *Part A:* Fire Prevention and Suppression/Logging Activities
- *Part B:* Mineral Exploration Activities
- *Part C:* Building Construction
- *Part D:* Application to do Work on Shore Lands
- *Part E:* Roads, Trails, or Water Crossings
- *Part F:* Works Within a Waterbody

Based on the work proposed at the Deloro Mine Site, a Work Permit will be required from the MNR. Several Parts to the application will have to be completed possibly including, but not limited to, Parts A, D, and F. It is anticipated that the MNR will include conditions pertaining to work in the PSW with those issued as part of the Work Permit.

9.5 Department of Fisheries and Oceans/ Canadian Coast Guard

9.5.1 Navigable Waters Protection Act (NWPA)

The purpose of the NWPA is to protect the public right to marine navigation, and to ensure unobstructed passage of vessels in Canadian waters. Any construction, modification, or repair of a work that will interfere with navigable waterways must be approved, or concurrence provided by the DFO, and is administered by the Canadian Coast Guard (CCG). The removal of obstructions to navigation, and the provision and maintenance of lights and markers required for safe navigation are also covered under this Act. Although the section of the Moira River that passes through the site has limited use for boating, many parts of the Moira River are navigable and the CCG should be consulted on the final cleanup plan for the site.

9.5.2 Fisheries Act

The federal Minister of Fisheries and Oceans has the legislative responsibility for the administration and enforcement of the federal *Fisheries Act*. The *Fisheries Act* protects and conserves fish and fish habitats, and has the power to deal with damage to fish habitat, destruction of fish, obstruction of fish passage, necessary flow requirements for fish, and the control of deleterious substances. Section 35(1) of the federal *Fisheries Act* states that “no person shall carry on any work or undertaking that results in the harmful alteration, disruption, or destruction (HADD) of fish habitat”. Any proposed works and activities that are likely to alter or damage fish habitat must be reviewed and authorized by the DFO. The Conservation Authorities have agreements with the DFO in the evaluation and processing of applications, and therefore would also have to be consulted.

It is important to note that DFO has also developed a Policy for the Management of Fish Habitat, which includes a No Net Loss guiding principle. This principle is applied to any proposed development that would result in a loss of productive fish habitat. The regulatory agency would review the measures to determine if they meet not only the No Net Loss of fish habitat, but also the DFO’s long-term policy objective of achieving an overall net gain of the productive capacity of fish habitats. Therefore, works requiring an authorization from the DFO typically include a Fisheries Compensation Plan, which describes the measures taken to realize an overall net gain in the productive capacity of fish habitats as a result of the project.

A section of the west bank of the Moira River in the Industrial Area will be reconstructed, and a significant amount of work is proposed within Young’s Creek including the excavation of contaminated sediments/soils and wetland rehabilitation. As this will affect fish habitat, a Fisheries Act authorization will be required, and a Fisheries Compensation Plan may have to be prepared. In addition, application for a blasting permit may be required to address “destruction of fish by any other means” (under the *Fisheries Act*), since a portion of the onsite containment cell will be located in Young’s Creek.

9.6 Environmental Assessment and CNSC Licensing

The NSCA mandates the CNSC to regulate all aspects of the nuclear industry in Canada, including the management and isolation of nuclear wastes. Paragraph 26 of the NSCA states that:

“Subject to the regulations, no person shall, except in accordance with a licence,...possess...manage, store or dispose of a nuclear substance. . .”

It is with respect to this paragraph that the MOE seeks to obtain a licence to manage and store, at various locations on the Deloro Mine Site, the low-level radioactive wastes present on the site. Conceptual waste isolation scenarios are presented in Section 3.4 of this and other Closure Plans for low-level radioactive (and non-radioactive) materials.

CNSC’s authorization of the project would be provided through the issuance of a Waste Nuclear Substance Licence (WNSL) for the possession, management and storage of nuclear substances, pursuant to subsection 24(2) of the NSCA.

As previously noted, because nuclear waste management and storage is a physical activity listed in the “Inclusion List Regulation” of the CEAA, the proposed project is subject to the federal EA process. Therefore, the licencing and the federal EA processes are closely linked, as explained below.

The screening level EA process being followed for this project is outlined in Section 2.3. At the completion of the EA study, the proponent must summarize the process and the results of the EA into a report that is submitted to the RA for its review. Once the RA is satisfied that the EA has met the initial scope, the report is then submitted to the members of the CNSC for its approval. A hearing in which the proponent presents the project and where the public is invited to voice its concerns or support may be required.

Following the approval of the results of the EA by the CNSC, an application for a WNSL must be formally submitted by the proponent in accordance with the General Nuclear Safety and Control Regulations and Nuclear Substance and Radiation Devices Regulations of the NSCA. A WNSL is applicable, as opposed to a Class Ib Nuclear Facility Licence, because mainly chemical wastes are being managed with the presence of some low-level radioactive materials.

As part of the application for a WNSL, safety analyses must be conducted to ensure low-level radiation exposures to both workers and the public are acceptable during normal and abnormal conditions at the site.

Some applicable portions of the General Nuclear Safety and Control Regulations, which must be addressed in the application, are as follows:

- 3 (1) (e) the proposed measures to ensure compliance with the *Radiation Protection Regulations* and the *Nuclear Security Regulations*;
- (f) any proposed action level for the purpose of section 6 of the *Radiation Protection Regulations*;
- (g) the proposed measures to control access to the site of the activity to be licensed and the nuclear substance, prescribed equipment or prescribed information;
- (h) the proposed measures to prevent loss or illegal use, possession or removal of the nuclear substance, prescribed equipment

or prescribed information;

(i) a description and the results of any test, analysis or calculation performed to substantiate the information included in the application;

(j) the name, quantity, form, origin and volume of any radioactive waste or hazardous waste that may result from the activity to be licensed, including waste that may be stored, managed, processed or disposed of at the site of the activity to be licensed, and the proposed method for managing and disposing of that waste;

Some applicable sections of the Nuclear Substance and Radiation Devices Regulations are as follows:

3. (1) An application for a licence in respect of a nuclear substance or a radiation device, other than a licence to service a radiation device, shall contain the following information in addition to the information required by section 3 of the *General Nuclear Safety and Control Regulations*:

(a) the methods, procedures and equipment that will be used to carry on the activity to be licensed;

(b) the methods, procedures and equipment that will be used while carrying on the activity to be licensed, or during and following an accident, to

(i) monitor the release of any radioactive nuclear substance from the site of the activity to be licensed,

(ii) detect the presence of and record the radiation dose rate and quantity in becquerels of radioactive nuclear substances at the site of the activity to be licensed,

(iii) limit the spread of radioactive contamination within and from the site of the activity to be licensed, and

(iv) decontaminate any person, site or equipment contaminated as a result of the activity to be licensed;

(c) a description of the circumstances in which the decontamination referred to in subparagraph (b)(iv) will be carried out;

Following submission of the application and any clarifications and/or additional materials required by CNSC staff, a draft licence is then prepared by CNSC staff, discussed with the proponent and ultimately presented to the members of the CNSC for approval. A hearing in which the proponent presents its application and where the public is invited to voice its concerns or support, may be required. Upon acceptance, a WNSL is issued and remedial work can begin under the conditions of the Licence.

9.7 Mining Act

The regulatory considerations relevant to the Deloro project were examined early in the project and have been refined as the project has progressed. The document entitled *Deloro Mine Rehabilitation Project – Development of Closure Criteria, Final Report* (CG&S, October 1998) summarized the application of the *Mining Act* to the Deloro project. Even though the Crown (i.e. the Provincial Government) is exempt from the requirements of the *Mining Act*, the Closure Plans have been developed to satisfy in general the requirements of the document entitled *Rehabilitation of Mines, Guidelines for Proponents* (MNDM, 1995). MNDM has agreed to review the Closure Plans relative to accepted standards for closure and rehabilitation of mines in Ontario, although a specific approval will not be issued.

10. References

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