

Deloro Mine Site Cleanup Project

Update • May 2009

This is a critical year for the Deloro Mine Site Cleanup Project as the ministry finalizes engineering designs for the caps, covers and pumping stations that will be built on the site starting in 2010.

At the same, the ministry is working to get the federal, provincial and municipal licenses and approvals in place in order to begin the work.

Environmental Assessment

One significant license for construction for engineered containment cells will come from the Canadian Nuclear Safety Commission (CNSC) for the safe, long-term storage of the existing low-level radioactive material at the site (up to 6 per cent of the waste is low-level radioactive material). In order



to get that license the ministry must first complete a detailed federal environmental assessment (EA).

Defining environmental impacts

The purpose of an EA is to predict how planned construction may affect the environment in

the short, medium and long-term of the project.

All aspects of the environment are considered including water quality, fish and fish habitat, wildlife and wildlife habitat. Potential impacts to cultural and heritage resources, and to the people and economy of the local area community are also

considered. Not only does the EA identify potential impacts, it also makes recommendations about how to minimize any negative impacts.

Environmental assessment: additional field work

The ministry submitted its Environmental Assessment Study Report (EASR) to the CNSC in June 2007. Five federal departments, two provincial ministries as well as the Hastings and Prince Edward Counties Health Unit reviewed the report.

The ministry conducted additional field work in 2008 in response to review comments. The additional information from those studies was included in a revised EASR submitted to the CNSC in December 2008.

Next steps

CNSC staff have drafted an EA Screening Report, which will be presented to the Commission for their decision on whether the project is likely to cause significant adverse environmental effects.

CNSC are conducting public consultation on the EA Screening Report in May / June 2009. For more information: www.cnscccsn.gc.ca. Or contact:

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Species at risk

When the shovel hits the ground for cleanup construction in 2010, extra precautions will be taken to protect 10 species at risk found on the Deloro mine site. This will ensure that heavy construction at the site will minimize disruption of plants, animals, birds and insects and their habitats.

A species at risk is any native plant or animal that is at risk of extinction or of disappearing from the province. Both the federal and provincial governments have legislation in place that identifies and protects these designated species.

The ministry conducted a species at risk survey of the mine site from May to August 2008 as part of the environmental assessment for the cleanup project, and in response to changes to Ontario's Provincial Endangered Species Act in June 2008.

The field work for this assessment was done to coincide with bird migration and flowering times.

The field survey found 10 species at risk on the site: three species of birds, one species of



Golden-winged warbler

reptile, five species of insects, and one species of vegetation. The final report recommends ways to protect these species during construction.

Birds

Eighty-two species of birds were observed at the site, most of them forest birds. Of those, three are known species at risk: the golden-winged warbler, the common nighthawk and the olive-sided flycatcher.

Golden-winged warbler

Male golden-winged warblers were found at two locations in May. This species is not likely to be affected by construction since the birds were found outside areas planned for cleanup. Also, there is an abundance of suitable nesting habitat on site.

The noise and disturbance of construction might have indirect effects on the birds but this would only happen in the short and mid-term (about four years) of the project.

The ministry will avoid disturbing areas where the birds were found and as much as possible, will schedule work outside of the breeding season to extent practical.

Common nighthawk

The common nighthawk nests on the ground in wide-open



Common nighthawk

areas. The ministry found two nests on the limestone rock of the Tailings Area. This is an artificial habitat for the birds.

There may be an initial loss of nesting habitat for this species due to the work to build a cover over the Tailings Area.

Suitable alternate nesting sites may exist in Young's Creek and new nesting sites may be created as a result of new forest clearings from construction. To minimize adverse effects on this species, construction activities will be conducted, where possible, outside of the breeding season to avoid direct damage to existing nests.

Olive-sided flycatcher

A single olive-sided flycatcher was seen in August at the north end of the property along the Moira River. This is a migrant species in this area. It does not nest onsite and only uses the

mine site as a stopover during migration.

Because the bird is migratory, and doesn't remain on site for long periods of time, the species will not likely be affected by construction. Only minor effects, if any, might be possible during the short and mid-term of the project.



Olive-sided flycatcher

Reptiles and amphibians

Five-lined skink

Five-lined skink, the only lizard found in Ontario, was observed onsite in August. The skink helps control insect populations.

Potential impacts to this species are possible during the short and mid-term time periods as a result of heavy machinery and as a result of habitat being destroyed and altered during construction. However, there is suitable habitat for the skink in areas of Young's Creek not affected by construction.

Disturbance of this habitat will be minimized to decrease the risk to this species. Gradually increasing activity in an area prior to actual construction will encourage the skinks to move out of the area. The ministry will sequence work to make sure there is always suitable habitat any time during construction.

Insects

Forty-three species of butterflies were observed onsite. Of these, only the monarch is a species at risk. Several monarchs were found in a variety of locations onsite. Adults were observed during the June, July, and August site visits.



Five-lined skink

Monarch butterfly

The monarch butterfly may be affected by the short-term destruction of its larval food source, milkweeds. Construction work around the shoreline and along the roadside may damage milkweed. The ministry can reduce potential impacts to the monarch butterfly by protecting its food source. This can be done by keeping vehicles on existing roads, and by minimizing clearing of vegetation.

Once construction is complete, site and shoreline rehabilitation will allow milkweed to thrive again. Overall, the rehabilitation work should benefit this species in the long-term both through contaminant removal and habitat restoration.

Dragonflies

Fifty-five species of dragonflies and damselflies were observed

onsite. Of these, five species are designated species at risk: Halloween pennants, mottled darter, least clubtails, horned clubtail, and swamp spreadwings.

Dragonfly habitat along the Moira River and Young's Creek may be damaged in the short-term during construction.

The ministry will sequence work to ensure that some habitat is always available to this species at risk. In the long-term, habitat rehabilitation and contaminant removal is expected to increase habitat quality for all dragonfly species.



Dragonfly

Vegetation – butternut trees

The only rare plant found onsite was the butternut tree. Twenty-four live and 14 dead butternuts were found within the study area. Butternut was not previously known to be onsite.

Ninety percent of the butternuts within the site study area appeared to be infected by butternut canker. Of the 24 live trees, 14 were healthy or in light decline, while 10 were in moderate decline.

Construction activities during the short and mid-term time periods could cause the removal of or damage to butternut trees. The trees will be protected during construction and only those trees that are dead or dying will be removed. There are ten trees



Butternut tree

onsite that are considered retainable. These trees will be left to grow and reproduce.

The ministry will work with the Forest Gene Conservation Association to conduct long-term monitoring and enhancement of butternut populations.

For more information on Ontario's species at risk legislation: www.mnr.gov.on.ca/en/Business/Species/index.html

Detailed engineering

The ministry is working on a number of other planning documents and approvals applications needed to start construction.

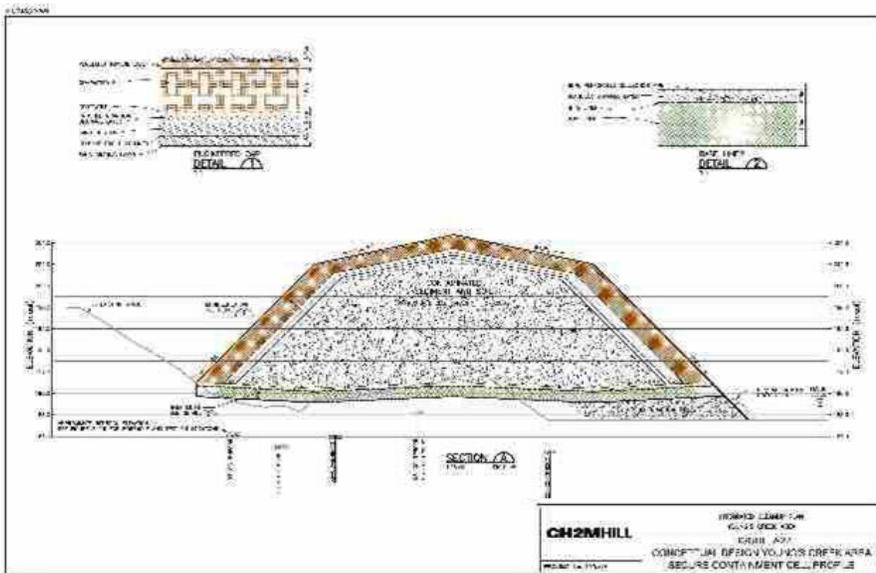
The ministry's consultants have achieved 50 per cent progress for the engineering designs for the caps, covers and pumping stations planned for the cleanup. Detailed engineering design will be complete by March 2010.

Licensing and approvals

As well as federal approval through the Canadian Nuclear Safety Commission, the ministry also needs licenses, permits and approvals from the following departments and ministries:

Federal:

- Work authorization under the Fisheries Act – Department of Fisheries and Oceans
- Authorization under Migratory Birds Act – Environment Canada



Provincial:

- Risk assessments – MOE
- Provisional certificate of approval: waste – MOE
- Permit to take water (4) – MOE
- Modify existing certificate of approval: arsenic treatment plant – MOE
- Sedimentation basins discharge under the Ontario Water Resources Act – MOE
- Permit under the Endangered Species Act – Ministry of Natural Resources
- Stage 3 archaeological assessment – Ministry of Culture

Archaeological assessments

The varied landscape of the Deloro mine site – its slag piles, demolished and existing buildings, monitoring wells and arsenic treatment plant – paints a vivid picture of mining, industrial and environmental history. It is an important cultural landscape.

In Ontario, planning for major construction must include archaeological assessment to determine if cultural resources may be disrupted or destroyed. This is a requirement of the Ontario Heritage Act.

There are four stages of archaeological fieldwork, moving from identifying areas of archaeological potential and

archaeological resources (Stage 1 and 2) to assessing their significance (Stage 3). The final stage (Stage 4) involves either protecting significant archaeological resources, or documenting them before they are destroyed.

The ministry hired licensed archaeologists to conduct an archaeological assessment of the mine site: a stage 1 assessment in 2006, and two stage 2 assessments in 2006 and 2007. A stage 3 assessment will be conducted in the 2009 field season. All archaeological assessment reports are reviewed and accepted by the Ministry of Culture.

For more information on the Ontario Heritage Act: www.culture.gov.on.ca.

Site operations

As the ministry continues the planning and permitting work for final site construction, the arsenic treatment plant on site continues to operate to capture and treat arsenic contaminated groundwater.

The Ontario Clean Water Agency (OCWA) operates and maintains the arsenic treatment plant under the ministry's direction. There are, on average, three to four OCWA personnel onsite, whose responsibilities include:

- Inspecting and controlling the property
- Maintaining the plant assets (including the perimeter fence)
- Operating the Arsenic Treatment Plant, storage basins, lagoons, and pumping stations, and
- Performing on-site and off-site environmental monitoring and testing.

Arsenic treatment plant performance

The arsenic treatment plant was built by the ministry in 1983 to control arsenic discharges to the Moira River. The facility includes a water collection, storage and treatment system that removes arsenic and heavy metals from groundwater at the site.

The groundwater is treated through a chemical precipitation process at the arsenic treatment plant. The ferric arsenate sludge is a red-brown muddy material that is the byproduct of the treatment process. It is pumped from the arsenic treatment plant to a 50 by 40 meter sludge drying lagoon. The treated water, with 99.5 to 99.9 per cent of the arsenic removed, is returned to the Moira River.

A total of 86,190 cubic meters of contaminated groundwater was processed in 2008. The

plant removed an average of 99.9 per cent of arsenic from contaminated groundwater, preventing it from getting into the Moira River.

In 2008, the total amount of arsenic removed through treatment was 8,630 kg.

Arsenic treatment plant sludge removal

As part of the regular operation and maintenance of the arsenic treatment plant, the ministry hired a licensed hauler, Scott Environmental Group Limited, to remove the waste by-product of the treatment process from the on-site storage lagoon. The material is a sludge.

A total of 800 tonnes of sludge was removed and taken to the Lafleche Environmental Inc. landfill site in Moose Creek, Ontario, a site approved by the Ministry of the Environment to receive non-hazardous waste. The work took place from February 11 to February 24, 2009.

The material was transported by water-tight trucks. Every precaution was taken to ensure the safe handling of the material on and off the mine site.

The ministry conducted extensive sampling and testing of the sludge for metals, including arsenic and radiological parameters. This testing was done to meet regulatory requirements.



Arsenic treatment plant sludge removal, February 2009

The sludge in the storage lagoon was last removed in 2002. Additional sludge removal will happen in fall/winter 2009.

Grant to municipality for road work

The ministry gave the Municipality of Marmora and Lake a grant totalling \$117,000 to install new sidewalks in the Village of Deloro, and to upgrade the asphalt surface layer along Deloro Road. The asphalt upgrade was needed to accommodate the heavy truck traffic anticipated during construction. The sidewalks were requested by Deloro residents who are members of the Public Liaison Committee.

The municipality contracted the work and the improvements were completed in November 2008.

Next steps

Spring 2009: CNSC public consultation on EA Screening Report for the Deloro Mine Site Cleanup Project

Summer 2009: Commission decision on EA Screening

Summer 2009: Application for the Waste Nuclear Substance Licence

Winter 2009: All provincial and federal approvals to be obtained

Spring 2010: Detailed engineering complete; tendering for construction contracts to begin

Summer/fall 2010: Construction to begin

The project schedule depends on timely approvals and licenses from all federal and provincial regulatory agencies.

Annual drinking water reminder

The ministry and the Hastings and Prince Edward Counties Health Unit remind people living between the mine site and the outlet of Moira Lake not to drink river or lake water unless it is treated to remove arsenic, as well as bacteria (which is always necessary for water taken from lakes, rivers, and other such sources).

Levels of arsenic in this stretch occasionally exceed Ontario Drinking Water Standards, particularly in summer months, when water levels are lower. Distillation and reverse osmosis are the treatment methods generally recommended for removing arsenic.

The ministry and the health unit issued the annual drinking water reminder to residents along the Moira River down-

stream of the Deloro mine site through the municipal tax bill in spring 2008, and will issue another reminder in spring 2009.

If you have questions regarding this drinking water reminder, please contact Roxana Bacanu, Senior Public Health Inspector at the Hastings and Prince Edward Counties Health Unit, at 613-966-5513 extension 318.

Public Liaison Committee meetings

The ministry meets three to four times a year with the Public Liaison Committee (PLC). The PLC includes residents from the Village of Deloro, as well as representatives from the Municipality of Marmora and Lake, local property owners' associations, environmental groups and others.

If you are interested in being a member of the PLC please contact Heather Hawthorne, Communications Advisor, MOE, Kingston at 613-548-6927 (1-800-267-0974).

For more information visit:
www.ontario.ca/delorominesite

In the event of an emergency

The Ontario Clean Water Agency (OCWA) operates the arsenic treatment plant on the mine site. The plant is staffed 7 am to 3:30 pm, Monday to Friday. If you have questions or concerns about the operation of the on-site facility, please contact: Kara Smith, MOE, 613-548-6922, or Cindy Spencer (OCWA) 613-472-2131.

The contact numbers below can be used in the event of an emergency:

Fire: 911

Spills: 1-800-268-6060 (MOE's Spills Action Centre)

Suspicious activities/trespassing:

OCWA (613-472-2131) or after hours: Falcon Security at 1-800-342-6442.