

# APPENDIX L

## TANCO OPEN HOUSE DISPLAY BOARDS

# Welcome

## Tantalum Mining Corporation of Canada Ltd. (TANCO)

Tantalum Mining Corporation of Canada Ltd. (TANCO) is 100% owned by Cabot Corporation. Cabot Corp. is a global performance materials company, headquartered in Boston, Massachusetts, who operates 39 manufacturing facilities worldwide. Their primary products include: rubber and specialty grade carbon blacks, inkjet colorants, fumed metal oxides, aerogel, tantalum and related products, and cesium formate drilling fluids.

## Purpose of the Open House

- the facility operates under a Manitoba Environment Act License that was issued in 1983
- since the early 1990's several minor changes to the operation have been approved by Manitoba Conservation, mostly related to the cesium products facility
- TANCO now wishes to consolidate the project changes into a single, comprehensive description of the operation including all emissions to the environment to the end of mine life
- TANCO will be submitting a Notice of Alteration (NOA) to Manitoba Conservation to enable this process
- TANCO has chosen to host this open house to inform the public about the facility and NOA and provide an opportunity for the public to speak directly with Company representatives
- no changes to the current operation are proposed

*Please take this opportunity to review the display panels, speak with TANCO and its consultant team, and provide your comments on a comment form.*

**TANCO**  
Bernic Lake Mine

**WARDROP**  
A TETRA TECH COMPANY







## About the Bernic Lake Mine

- the TANCO mine and mill complex is located approximately 160 km by road northeast of Winnipeg and 70 km northeast of Lac du Bonnet on the northwest shore of Bernic Lake, MB
- production began in 1969
- mineral products (pollucite, tantalum, and spodumene) are mined concurrently from the same deposit
- mining and milling capacity is 1,000 tonnes per day
- the facility also includes a Cesium Products Facility (CPF) that produces cesium chemical products which are derived from pollucite
- the mine is forecast to continue operating for a minimum of nine years
- the mine employs up to 150 people at full production, most are from Lac du Bonnet or Pinawa



1001660200-SKT-V0010-A1

# TANCO

## Bernic Lake Mine



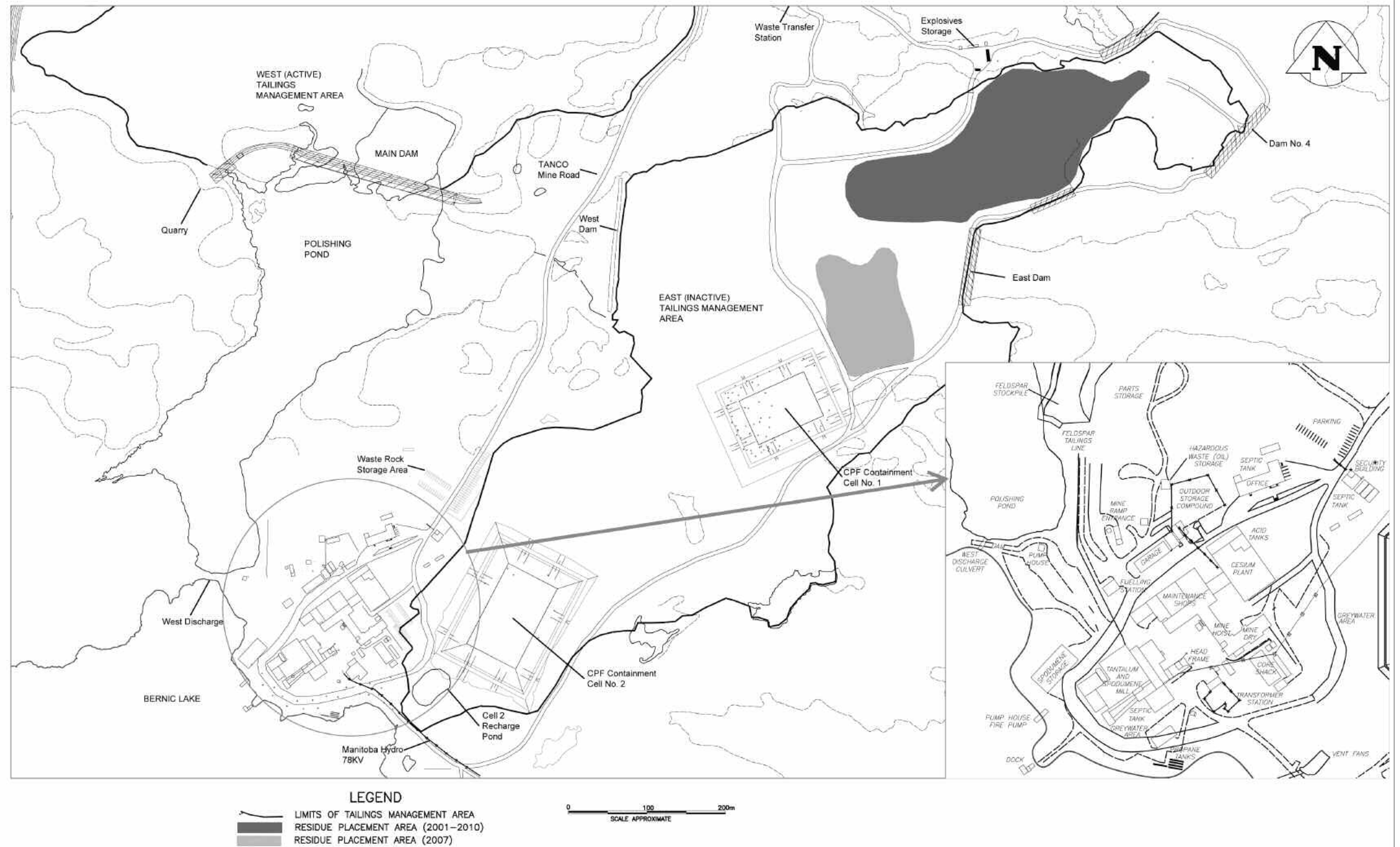


# Site Infrastructure

The Bernic Lake mine site covers approximately 85 hectares of Crown land. Surface infrastructure required to support the mine includes:

- headframe and portal
- tantalum/spodumene mill
- cesium products facility
- cesium containment cells and residue stockpile
- tailings management areas (one active, one inactive)
- waste transfer station
- transformer station
- storage facilities
- quarries
- access road
- office building
- security building
- warehouse/maintenance shop
- rail siding (located in Molson, MB)

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SITE LAYOUT

1001660200-SKT-V0009-A

# TANCO

## Bernic Lake Mine







## Facility Operation

Cabot has incorporated environmental performance as a critical component of operational excellence and carefully monitor environmental performance events that occur at our facilities. Cabot invests significant capital in our facilities' process equipment and infrastructure to maintain regulatory compliance, increase our energy efficiency, and minimize our impact on the environment.



# TANCO

Bernic Lake Mine

## Tailings Management

- there are two Tailings Management Areas (TMA), the inactive East TMA and the active West TMA
- the East TMA covers approximately 32 hectares and was filled to capacity in 1992; it is contained by topographic highs (bedrock) and six dams
- the West TMA consists of a tailings pond and a polishing pond contained by two dams and five perimeter dykes
- the West TMA will cover approximately 40 hectares and contain 6 million tonnes of tailings at the end of mine life
- the dams and dykes are inspected annually

## Residue Management

- residue produced in manufacturing of the cesium compounds is temporarily collected in two double-lined containment cells located in the East TMA
- the containment cells are used for recovery of the process liquor for recycle back to the Cesium Products Facility (CPF) process; residue solids (primarily residual ore and gypsum) from the CPF are retained in the containment cells
- once a cell is filled with residue solids, the residue is dewatered, removed, and dry-stacked in the designated residue placement area in the East TMA
- factors including distance to Bernic Lake and visibility were fundamental in selecting a site for residue placement in the East TMA; TANCO's residue management approach continues to minimize the footprint of the dry-stack pile, maximize distance to any discharge points, and ensure that the height of the pile remains below the surrounding tree line





## Facility Operation

Each year Cabot dedicates more than 53,000 hours to safety and environmental training for our employees worldwide. In addition, we provide extensive safety training for our contractors organizations.

At Cabot, we are committed to being responsive, responsible and respected citizens in the communities in which we live and work. As Cabot employees, we operate our facilities as if they were located next to our own homes, and we conduct our business in an honest, concerned and caring manner. Earning the goodwill of our neighbors is our goal and our legacy.



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Bernic Lake Mine

### Water Management

- the operation draws water from Bernic Lake and recycles water from the West TMA polishing pond
- approximately 50% of the mill and CPF water requirements are satisfied by recycled water from the polishing pond, with the remainder being drawn from the lake
- water pumped from the mine workings is directed to the West TMA polishing pond

### Runoff Management

- surface runoff within the site is contained by the TMA's and/or directed to the phreatic ditch
- runoff to the East TMA collects in a pond located between CPF Cell #2 and the Main Dam and is pumped to the West TMA
- runoff to the West TMA flows into the West TMA polishing pond for clarification
- site roads have been contoured to direct runoff water back to the mine site; direct runoff to Bernic Lake is limited to the southern margins of the site, outside of the perimeter mine site road

### Waste Management

- solid waste is collected regularly by a contractor for disposal
- sanitary waste drains into a septic tank where the liquid effluent is decanted and pumped into a designated grey water area and the solid waste is removed by a local contractor
- all hazardous materials, waste petroleum products, and special wastes are collected for proper off-site disposal in accordance with the applicable standards, codes and/or regulations

### Waste Rock Management

- small quantities of mining waste rock are stockpiled north of the parking lot
- feldspar, a byproduct of the spodumene milling process, is deposited on the east shore of the polishing pond and used for various construction purposes, including surfacing of the mine road and as an erosion resistant cover for the residue dry-stack pile







Natural vegetation re-growth in the East TMA

In recent years, TANCO has conducted a number of studies to determine a successful method for revegetation of the mine tailings and CPF residue. The studies demonstrate that conventional tailings in the East TMA provide a suitable growth medium for natural revegetation. Additional studies are being undertaken and the Mine Closure Plan will be updated as required



Seeding trial on residue stockpile

## Mine Closure and Reclamation

At closure, the mine site will be left in a state compatible with the surrounding natural environment. TANCO will follow the plans laid out in its Closure Plan which was prepared in accordance with Manitoba Mine Closure Regulation (67/99).

The mine closure plan includes:

- permanent capping of mine openings with engineered concrete plugs
- demolishing and/or removing all buildings and equipment
- re-grading and re-vegetation of disturbed areas
- decommissioning of roads, including removal of water crossings as per Manitoba Conservation direction and re-vegetation
- re-contouring of the shoreline, where it has been altered by road construction, to prevent un-natural erosion into the lake
- decommissioning and re-vegetation of the tailings management areas
- capping and re-vegetation of the CPF residue stockpile
- post-closure monitoring

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Bernic Lake Mine





# Environmental Impact Assessment

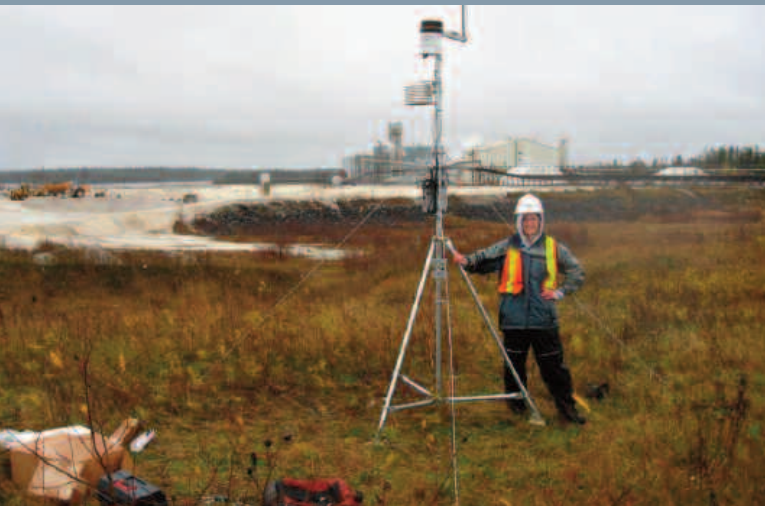
Preparation of the Notice of Alteration report includes the assessment of any known or potential environmental effects of the mine. Long-term monitoring data collected by TANCO between 1969 and 2009 were used to compare the pre-development environment and current operating environment.

## Climate and Air Quality

- thirty years of data were obtained from meteorological stations located in Bisset and Pinawa, Manitoba to assess climatic conditions
- TANCO monitors the release of greenhouse gases and has implemented measures, where necessary, to reduce these emissions according to provincial and federal initiatives
- in 2007 TANCO conducted an on-site investigation of dust from the CPF residue stockpile which concluded that the feldspar capped residue stockpile does not represent a source of airborne dust
- there are no known or anticipated mine-related effects on climate or air quality.

## Vegetation

- the mine site was cleared of vegetation for the construction of surface infrastructure; natural vegetative recolonization has occurred in areas that are no longer in use, including the East TMA
- within the local study area there are no known occurrences of species of conservation concern
- vegetation has been affected where it was cleared for development; however reclamation activities will include re-vegetation of the site at closure



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Bernic Lake Mine





# Environmental Impact Assessment

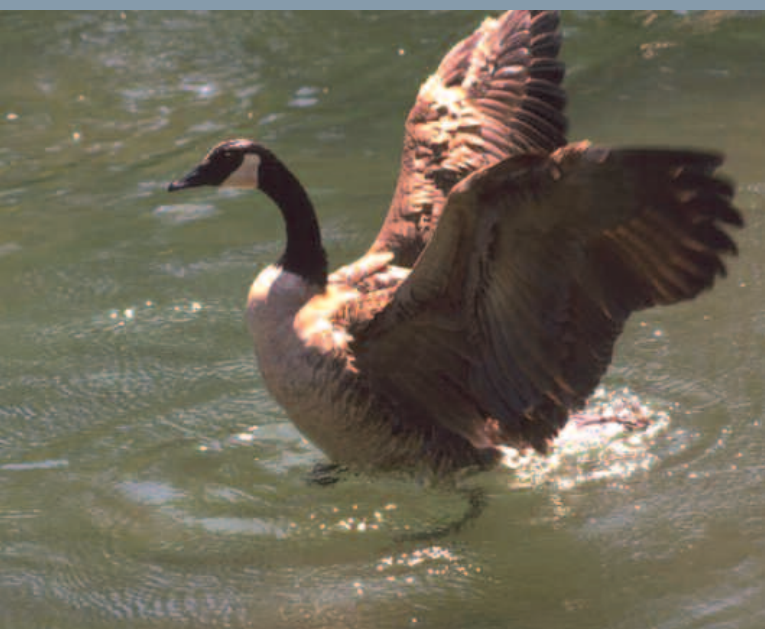
The deposit at Bernic Lake is believed to contain two-thirds of the world's known reserves of pollucite, which contains cesium. Cesium is used to produce a dense biodegradable drilling fluid – cesium formate - which is used as a lubricating agent for large scale drilling projects.

## Groundwater

- precipitation infiltrates through the tailings and residue and forms a shallow groundwater system underneath the East TMA
- the shallow groundwater system is contained by dams and natural topography
- groundwater monitoring is conducted semi-annually to track changes in water quality
- there have been no mine-related changes in groundwater chemistry in the deeper natural groundwater systems

## Surface Water Quality

- water, sediment, and effluent quality, as well as benthic invertebrate communities (bottom dwelling 'bugs') have been assessed periodically in Bernic Lake since 2003 as part of a monitoring program
- concentrations of phosphorus and 14 metals were higher in the mine effluent compared to Bernic Lake; concentrations of phosphorus (consistently), aluminum and nitrate (periodically) in effluent exceeded the provincial water quality guidelines; the effluent plume extended to approximately 250 m from the point of mine effluent discharge in 2008
- concentrations of phosphorus and 14 metals were elevated in sediments closest to the mine discharge, but there were no exceedances of the Canadian Council of Ministers for the Environment (CCME) probable effect level (PEL) for metals in sediment which is the level at which adverse effects on aquatic life would be expected
- the numbers of invertebrates were significantly higher in sediment near the mine effluent discharge compared to more distant sampling sites which indicated the area provides ideal growing conditions for some species due to the presence of excess nutrients
- the water quality of Bernic Lake continues to be very suitable for supporting aquatic life



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Bernic Lake Mine







## Environmental Impact Assessment

Hydroelectric power is provided to the site via a 78 kV transmission line that originates at Pointe du Bois. The transmission line is owned and maintained by Manitoba Hydro. The approximate length of the line is 15 km.

### Wildlife

- several wildlife species are frequently observed on the mine site including white tailed deer and red fox; characteristic regional wildlife include moose, black bear, lynx, snowshoe hare, ruffed grouse, and pileated woodpecker as well as many waterfowl and songbird species
- a boreal woodland caribou range (Owl-Flintstone) exists in the area of the mine site
- no caribou sightings or other species of concern have been reported within the Bernic Lake watershed
- species dependent on mature forest were displaced during original development of the mine, no further displacement is expected to occur since no additional clearing is proposed
- following re-vegetation of the mine site post-closure, wildlife are expected to make use of the area again
- to minimize potential effects on the population and comply with provincial caribou recovery strategies, TANCO has implemented mitigative actions such as decommissioning and revegetation of the TANCO mine road and site roads as a component of mine closure

### Fish and Fish Habitat

- the lake supports a year-round resident fish community comprised of eight species; cisco, suckers, and northern pike appear to be the most abundant of the large species in the lake
- the lake is not accessible to fish from downstream water bodies due to a waterfall on the outlet stream
- no commercial or traditional Aboriginal fish harvest activities are carried out on Bernic Lake; there is limited recreational fishing on the lake, largely by mine employees from the shoreline in the vicinity of the mine site



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Bernic Lake Mine







# Environmental Impact Assessment

## Regional Study Area

- Municipalities and communities surrounding the mine site include:

RM of Lac du Bonnet  
Town of Lac du Bonnet  
LGD of Pinawa  
RM of Alexander  
Town of  
Powerview-Pine Falls  
Pointe du Bois

- First Nations in the mine's vicinity include:

Fort Alexander (Sagkeeng)  
Black River  
Brokenhead  
Hollow Water

## Resource Use

- resource use in the area includes forestry, mining, wild rice harvesting, hunting, fishing, trapping, and recreation. The mine is adjacent to Nopiming and Whiteshell provincial parks

## Traffic

- local residents, cottagers, park users, employees of TANCO and other rural businesses are typical travelers on the roads that are most commonly used to access the mine from Lac du Bonnet (PR 313 east of the Winnipeg River, 314, and 315)
- speed limits on the access roads range from 80 km/hr to 100 km/hr and are further reduced when crossing narrow bridges; TANCO employees are required to adhere to the posted speed limit
- peak travel times for TANCO employees are typically around shift change (7:30 to 8:00 and 16:00 to 16:30)

## Employment

- the mine benefits the surrounding communities in a positive way by contributing to the regional economy through mine-related spending and employment. At peak operation the mine employs 150 people, most of whom reside in Pinawa and Lac du Bonnet



# TANCO

## Bernic Lake Mine





# Environmental Monitoring

TANCO conducts an annual groundwater monitoring program in the East TMA to monitor the effects of residue placement on the groundwater and to verify that the Containment Cells' outer liners are intact



## Water Quality Monitoring

### Metal Mining Effluent Regulations

- all metal mines that discharge a liquid (called an effluent) to the aquatic environment must follow the Metal Mining Effluent Regulations (MMER) under the *Fisheries Act*

#### What it does

- the law requires mines to sample receiving water and mine effluent all year round to test water quality and ensure the effluent is not toxic
- these regulations are designed to assess any effects the mine effluent has on the downstream rivers and lakes

#### How it protects

- water quality and toxicity results must be reported quarterly and annually to Environment Canada
- the MMER has legislated limits on effluent quality and all data must be reported
- Environment Canada can fine or shut down a mine if it is not in compliance with the MMER
- the mine is also required to carry out an Environmental Effects Monitoring (EEM) program, involving detailed studies to monitor the community health of aquatic organisms every 2 to 3 years
- the MMER requires monitoring of the environment for the life of the mine and for 3 years after it is closed



**TANCO**  
Bernic Lake Mine





Thank You  
for  
Attending  
this  
Open House

## How You Can Participate in the Process

You can participate in the process by filling out a comment form. Comment forms will be included with the NOA submission to Manitoba Conservation and concerns or ideas conveyed by the public will be discussed in the report.

You can also contact TANCO directly if you have any questions or concerns.

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## Timeline

TANCO's Notice of Alteration (NOA) is scheduled to be submitted at the end of May, 2010. To be included in the NOA, comments must be received in advance of this date.

**Please visit Cabot's website for further  
information about the company  
[www.cabot-corp.com](http://www.cabot-corp.com)**



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