



Aboriginal Affairs and
Northern Development Canada

Affaires autochtones et
Développement du Nord Canada

WHAT'S HAPPENING

in areas subject to
on-going negotiations?

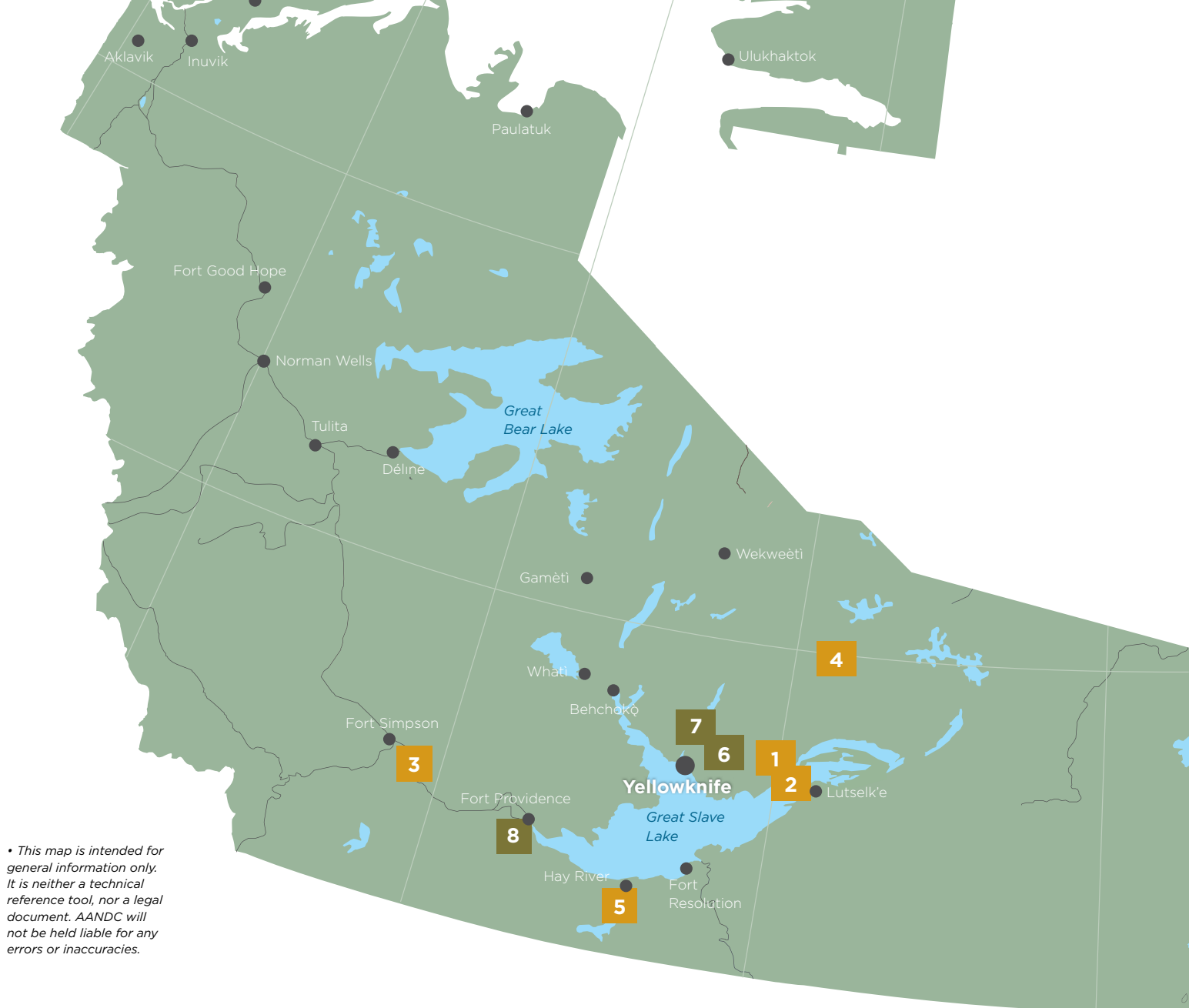
Contaminated Site Remediation

2011 In Review

About the Contaminants and Remediation Directorate

Aboriginal Affairs and Northern Development Canada (AANDC) recognizes the importance of cleaning up contaminated sites and preventing future contamination. The Contaminants and Remediation Directorate (CARD) in the NWT currently manages over 30 contaminated sites at various stages of remediation. Many of these sites became the Government of Canada's responsibility after private owners relinquished their properties according to the legislation of the day, or when companies went bankrupt. The properties then reverted to the Crown, and as representative of the Crown, AANDC became custodian of these properties and related remediation activities.

Canada



10 Step Process

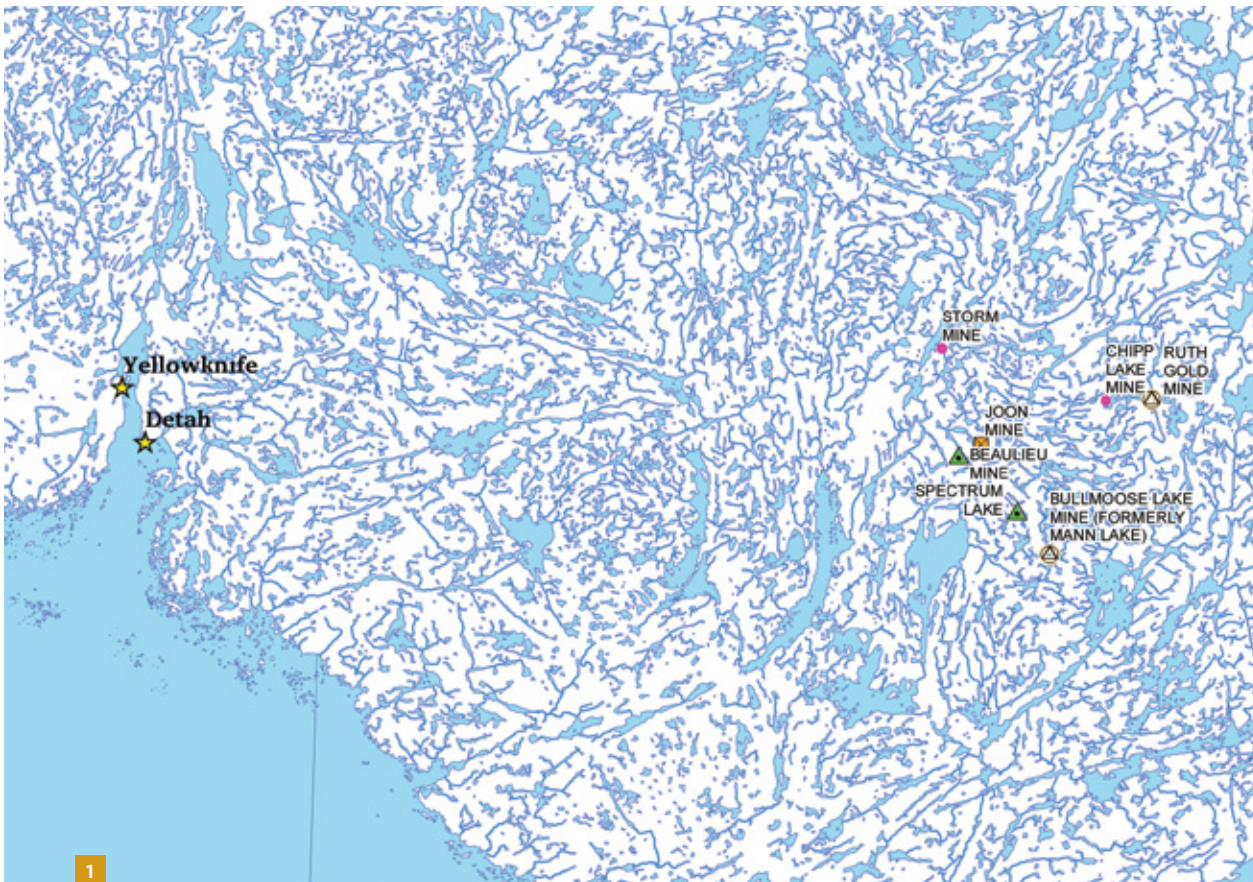
In 1999, the Contaminated Sites Management Working Group (CSMWG) released the document *A Federal Approach to Contaminated Sites* outlining a 10 step process for addressing a federal contaminated site. These guidelines were developed to ensure that there would be a common approach to the management of contaminated sites. For more information on the 10 step process, please visit www.aadnc-aandc.gc.ca/eng/1100100027359

LEGEND:

- Assessment Phase**
Steps 1 to 7
- Remediation Phase**
Steps 8 and 9
- Complete / Monitoring**
Step 10

- 1 Bullmoose Mine/Ruth area Mines ¹**
- 2 Great Slave Lake area sites ²**
- 3 Checkpoint Highway Maintenance Yard**
- 4 Tundra Mine**
- 5 Hay River Sour Gas Wells**
- 6 Hidden Lake Mine**
- 7 Discovery Mine**
- 8 Axe Point Mine**

- ¹ Storm Mine, Joon Mine, Beaulieu Mine, Spectrum Lake Mine, Chipp Lake Mine
- ² Blanchet Island Mine, Outpost Island Mine, Copper Pass Mine, Destaffany Mine



Sites in Remediation

1 Bullmoose Mine/ Ruth Mine Area

Bullmoose Mine, Ruth Mine, Storm Mine, Joon Mine, Beaulieu Mine, Spectrum Lake Mine, Chipp Lake Mine

These sites are being assessed together, due to their close proximity to one another. The sites are located between 74 and 90 km east of Yellowknife and the majority of the activity at these sites was gold exploration and mining. Operations at each of the sites occurred on and off between the 1940s and 1980s.

CONCERNS AT THE SITE INCLUDE:

- Hydrocarbon contamination
- Waste rock and tailings with metal contamination

- Physical hazards such as old buildings, debris and mine shaft openings.

WORK COMPLETED:

2009 Site investigations were carried out at Bullmoose Mine and Ruth Mine.

2010 Development of draft Remedial Action Plans began for Bullmoose Mine and Ruth Mine.

2010 Site investigations were carried out at all seven sites and fencing was put up around the deteriorating headframe at Ruth Mine.

2011 Site specific risk assessments were completed at Bullmoose, Ruth, Beaulieu and Spectrum Mines; signs warning of deteriorating buildings and other hazards were put up at Spectrum Mine; a Draft Remedial Action Plan

was developed for all seven sites; and workshops were held with affected Aboriginal communities to obtain input on preferred remedial options.

WHAT'S NEXT?

Additional fieldwork is planned to finalize remedial options for the sites and the final Remedial Action Plan report will be completed in 2012. Remediation is anticipated to begin in 2015. ■





2 Great Slave Lake Area

Blanchet Island Mine, Outpost Island Mine, Copper Pass Mine, Destaffany Mine

These mine sites are located near or within the East Arm of Great Slave Lake. The sites are being assessed together due to their close proximity to one another.

CONCERNS AT THE SITE INCLUDE:

- Hydrocarbon contamination
- Waste rock and tailings
- Physical hazards such as old structures, unsealed mine openings, drums and camp debris.

WORK COMPLETED:

2008 Phase II site investigations were carried out at Outpost Island Mine and Blanchet Island Mine.

2009 Phase III site investigations were carried out at Outpost Island Mine and Blanchet Island Mine.

2010 Phase II site investigations were carried out at DeStaffany Mine and Copper Pass Mine; supplemental site investigations were carried out at Outpost Island Mine and Blanchet

Island Mine; Draft Human Health and Ecological Risk Assessments were completed for Outpost and Blanchet Mine.

2011 Human Health and Ecological Risk Assessments and a Draft Remedial Action Plan for Outpost Island Mine and Blanchet Island Mine were completed; Care and maintenance activities took place at Copper Pass Mine and Blanchet Island Mine.

WHAT'S NEXT?

Community input on the remedial options identified for Outpost and Blanchet will be sought in 2012. The remedial action plan for Outpost and Blanchet is anticipated to be finalized in 2012 and remediation is anticipated to commence in 2014. ■

3 Checkpoint Highway Maintenance Yard

The former Checkpoint Highway Maintenance Yard was originally a highway maintenance area built in the 1970s and was later used as a logging and milling operation in the 1990s. It is located 63 km south of Fort Simpson, in

the Northwest Territories. Remediation of the site is being carried out by the Government of the Northwest Territories (GNWT) Department of Transportation with support by AANDC.

CONCERNS AT THE SITE INCLUDE:

- Elevated levels of hydrocarbons and metals in groundwater at the site; however, there was no indication of contamination of Jean Marie River from these sources
- A dump at the site which contains buried waste, crushed fuel drums, tires, wood, fibreglass insulation, metal debris, a culvert and a vehicle
- Surface domestic debris including appliances, tires, empty drums and scrap building materials

WORK COMPLETED:

2010 Contaminated soils were excavated and treated; buried hazardous and non-hazardous waste was dug up and disposed of at a licensed waste disposal facility.

2011 Further assessment work was carried out at the site to determine the extent of buried waste and hydrocarbon-impacted soils and a supplemental Phase III Environmental Site Assessment Report was completed.

WHAT'S NEXT?

Remediation of the site is being led by the GNWT. They will determine the next steps in 2012. ■

4 Tundra Mine

Tundra Mine is a former gold mine located 240 km northeast of Yellowknife. Mine operations began in 1964. This is one of three mines that reverted to the Crown in 1999 when the owner of the mine at the time, Royal Oak Mines Inc., went into receivership. Another company, Giant Yellowknife Mines, also used the site to process ore and to dispose of tailings from nearby Salmita Mine (remediated in the late 1980s).

CONCERNS AT THE SITE INCLUDE:

- The water in the Tailings Containment Area (TCA) has elevated levels of arsenic and water downstream from the TCA has been affected
- Old buildings
- Hazardous waste
- Hydrocarbon-impacted soils

WORK COMPLETED:

1999 Care and maintenance of the site included dam repairs, landfill repairs, geotechnical inspections of dams, water management and water quality monitoring

2007 The initial remediation was completed and included the removal of buildings and hazardous waste, construction of a non-hazardous landfill and capping of mine openings

2009 Water treatment was carried out on-site to treat the water in the TCA

2010 The contract for remaining remediation was awarded and water treatment of the TCA continued

2011 Full remediation of the site began in June 2011. This work included water treatment, excavation of hydrocarbon-



contaminated soil and the consolidation of tailings solids and buried debris.

WHAT'S NEXT?

Further remediation work will include completing water treatment in the TCA, treating hydrocarbon-contaminated soil, covering tailings and waste rock, and decommissioning dams. Remediation is expected to be complete in 2013/14 and, following site closure, long-term monitoring will begin. A monitoring plan for the site has been developed and includes monitoring fish health and the water quality on-site and downstream of the TCA. ■

5 Hay River (Frobisher) Sour Gas Wells

There are seven abandoned gas wells near the Hay River Golf Course/Ski Club, approximately 12 km outside the Town of Hay River. In 1922 and again in the 1940s, test wells were drilled in the area by the Frobisher Exploration Company Limited of Yellowknife. Although some gas was discovered at first, there was



no actual oil found and the wells were abandoned.

CONCERNS AT THE SITE INCLUDE:

- Abandoned gas wells have the potential to discharge hydrogen sulphide gas, which can present a risk to human health
- The gas wells could pose a physical hazard

WORK COMPLETED:

2005 The wells were tested for hydrogen sulphide and overall stability, and options were examined for closing the wells

2010 A design/build contractor was hired to design and close three of the wells

2011 A drill rig was mobilized to site in March 2011 and corroded well casings were removed, boreholes were cemented and competent casing and valves were installed on three of the gas wells. Subsequent gas testing confirmed that the wells are no longer discharging hydrogen sulphide gas.

WHAT'S NEXT?

The next steps will be discussed with the National Energy Board and AANDC Northern Oil and Gas Directorate in 2012/13. ■

Remediation Completed/ Monitoring



6

Hidden After

6 Hidden Lake Mine

Hidden Lake Mine is a former underground gold mine located 45 km northeast of Yellowknife in the Northwest Territories. The mine opened in 1959 with most of the mining production taking place in 1968. Since closure in 1969, there has been very limited activity at the site.

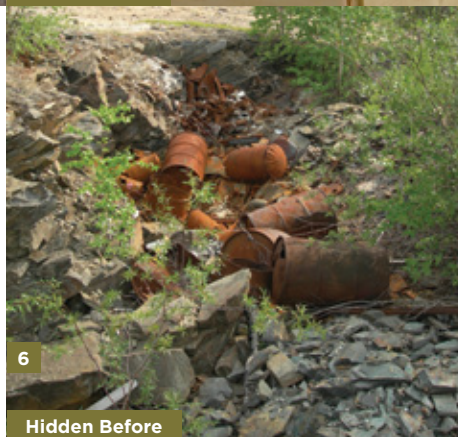
CONCERNS AT THE SITE INCLUDED:

- Tailings with metals and hydrocarbon contamination
- Surface fuel contamination around the sites of old buildings and fuelling areas
- Physical hazards such as abandoned mining equipment, unsecured mine openings, scattered metal debris and drums, and buried scrap metal
- Submerged metal drums near the dock area

WORK COMPLETED:

2009 The Remedial Action Plan was finalized

2010 Remediation was completed and included the removal of tailings and



6

Hidden Before

hydrocarbon impacted soils, backfilling of the west shaft, capping of the east shaft, debris collection, and final site grading

2011 Demobilization from site occurred in February 2011 and the long-term monitoring program began

WHAT'S NEXT?

Results from the first year of geotechnical monitoring indicate the remediated structures are performing as expected. The site will be monitored again in 2015 and once the results are known, it will be determined if any further monitoring is required. ■

7 Discovery Mine

Discovery Mine is an abandoned gold mine located on the west shore of Giauque Lake, approximately 80 km northeast of Yellowknife. The mine operated from 1949 to 1969 and at the time was one of the most profitable gold mines in the country.

CONCERNS AT THE SITE INCLUDED:

- Approximately 1.1 million tonnes of acid-generating tailings containing mercury
- Asbestos-containing materials
- Lead-based paint
- Physical hazards such as old buildings, mine structures, unsealed mine openings
- Soils containing hydrocarbons

WORK COMPLETED:

2008 Remediation was completed

2009 Short-term monitoring began

2010 Comprehensive Remediation Performance Assessment Report was completed, which included a performance review of the geotechnical, water quality, terrestrial, and aquatic conditions on site.

2011 Annual geotechnical and water quality monitoring continued.

WHAT'S NEXT?

The Water Licence and Land Use Permit for the site expired in February 2012 and a final plan and close-out letter of the licence/permit will be submitted to the Mackenzie Valley Land and Water Board at the end of March 2012.

In 2012/13, AANDC will review the recommendations and monitoring results from the Performance Assessment Reports and develop a long-term monitoring plan for the site. ■

8 Axe Point Mine

Axe Point is located on the Mackenzie River, 60 km west of Fort Providence. The site was in operation for several years as an airstrip, staging area and camp along the winter road to Norman Wells for the American military during World War II.

Axe Point was remediated in 2007 and now that remediation is complete and all contamination was removed, no additional site-specific monitoring is required. ■



Community Involvement

Engagement with nearby communities is an essential part of the remediation process. AANDC commits to working collaboratively to ensure community concerns and input are taken into consideration throughout each project. Community information sessions are held each year to update the nearby communities on the progress of remediation, assessment and monitoring of the sites.

The success of remediation projects is due, in large part, to the participation of those who use the land traditionally. Elders, in particular, play an important role in the remediation of these sites. They participate in site tours, and provide valuable knowledge, experience and suggestions in determining remedial options for the sites. Traditional knowledge studies provided data on the historical and traditional uses of the site, as well as information on soil and groundwater quality.

In 2011, community involvement included open houses in Fort Resolution in February and Lutselk'e in March as well as a workshop in July on remedial options which was attended by Elders and community members from the Yellowknives Dene First Nation (YKDFN), Deninu K'ue First Nation and Lutsel K'e Dene First Nation. An update was also provided to the YKDFN Chief and Council in October and a third-party peer review of the Remedial Action Plan was completed by the YKDFN on the Bullmoose/Ruth area sites. Concerns and suggestions raised at these meetings have helped guide the assessment work and remediation plans for the sites.

In 2012, CARD will continue to engage communities regarding contaminated sites currently being addressed in the NWT. ■



Northern Contaminants Program

photo credit: Paul Vecsei

The Northern Contaminants Program (NCP) was established in 1991 in response to concerns about human exposure to elevated levels of contaminants in wildlife species that are important to the traditional diets of northern Aboriginal peoples. Early studies found a wide variety of substances, many of which had no arctic or Canadian sources, but which were, nevertheless, reaching unexpectedly high levels in the arctic ecosystem.


The NCP is represented in the Northwest Territories by a regional committee called the Northwest Territories Regional Contaminants Committee. The committee develops and coordinates research priorities for the NWT and its membership includes Aboriginal organizations, government departments and health boards. It provides information to the public about the presence and possible effects of contaminants and, in association with the Government of the NWT - Department of Health, information is also provided to the public on the risks and benefits of consuming traditional foods.

The NCP allocates funds for research and related activities in five main areas: Human Health, Environmental Monitoring and Research, Community Based Monitoring and Research, Communications, Capacity, and Outreach, and National/Regional/International Coordination and Aboriginal Partnerships.

Research in areas subject to on-going negotiations has included:

- Mercury levels of fish tested in Deep, McGill, Fish, Ekali, Sanguez, Willow and Trout Lake.
- Contaminant levels (Mercury, PCBs, Persistent Organic Pollutants) in trout and burbot on Great Slave Lake near Lutsel K'e and Fort Resolution

For results or additional information on these subjects, contact the AANDC NT Region NCP representative at (867) 669-2416. ■



**If you see a
contaminated site,
or have questions
about sites in your
area, contact us:**

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This Publication is also available in French under the title: Que se passe-t-il dans la région où des négociations sont en cours? Retour sur 2011