



Aboriginal Affairs and
Northern Development Canada

Affaires autochtones et
Développement du Nord Canada

WHAT'S HAPPENING

in the Sahtu Settlement Area?

**Contaminated Site
Remediation**

2011 in Review

Contaminated Sites in the Sahtu Settlement Area

The Contaminants and Remediation Directorate (CARD) of Aboriginal Affairs and Northern Development Canada (AANDC) is currently managing over 30 contaminated sites in the NWT. These sites are at various stages of the remediation process. A number of contaminated sites have been identified in the Sahtu Settlement Area. These sites are assessed and remediated based on level of concern. Many of the high priority sites are abandoned mines located within the Délne district. The following sites were identified by AANDC and the Sahtu as priority sites for remediation to allow, to the extent possible, renewed traditional use of the areas.

• This map is intended for general information only. It is neither a technical reference tool, nor a legal document. AANDC will not be held liable for any errors or inaccuracies.

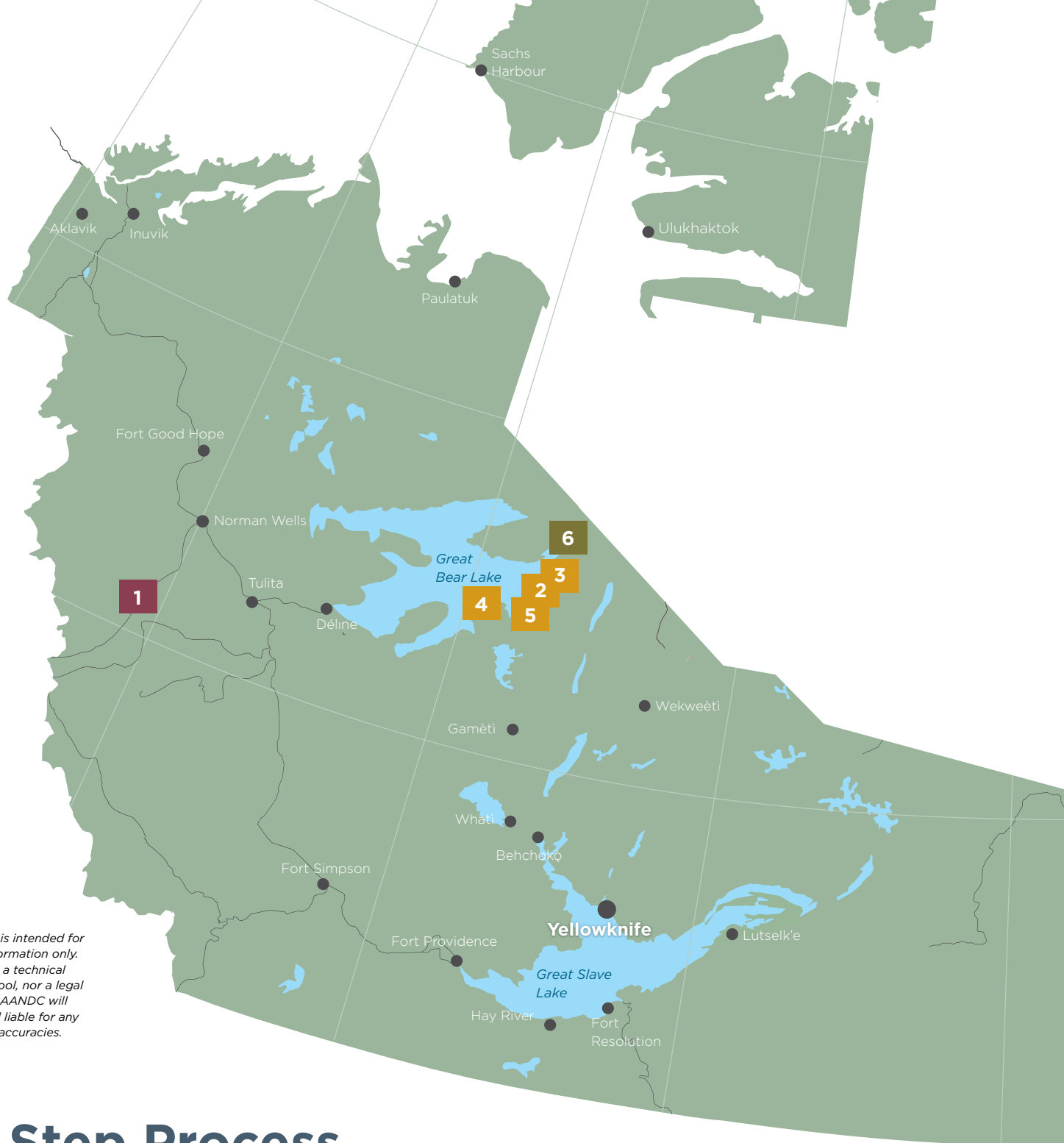
10 Step Process

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 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 | Canol Trail |
| 2 | Contact Lake Mine |
| 3 | El Bonanza/Bonanza Mines |
| 4 | Sawmill Bay |
| 5 | Silver Bear Properties |
| 6 | Port Radium Mine |





1 Canol Trail

The Canol Trail was part of the CANOL (Canadian Oil) Project, a cooperative effort between the United States and Canada during World War II to ensure a continuous supply of oil from Norman Wells, NWT to American Forces stationed in the Pacific. Oil flowed along the route to Whitehorse starting in April 1944, but one year later, the entire project was abandoned. Although several salvage operations were conducted, remnants of the project lay strewn along the NWT portion of the trail.

CONCERNS ALONG THE TRAIL INCLUDE:

- Oil or fuel contaminated soil
- Buildings containing asbestos materials
- Crude oil storage and separator tanks
- Surfaces coated with lead-based paint
- Hazardous fluids and materials
- Physical hazards such as buildings and bridges in disrepair, drums, telephone wire, abandoned pipeline and rusted vehicles

REMEDIATING THE SITE

Due to the complexity of the site, the assessment and remediation of the trail is a long-term initiative. Between 2007 and 2009, AANDC conducted an aerial and ground review of the entire Canol Trail and compiled an inventory of abandoned waste materials and areas of potential concern. Initial Environmental Site Assessments (Phase II ESAs) were performed at nine sites along the Canol Trail in 2009 and a further 18 sites in 2010.

FUTURE PLANS

The results of these assessments will help guide both the human health and ecological risk assessment which will be finalized in 2012/13 and detailed investigations (Phase III ESAs) which are scheduled for 2013/14.

An Assessment and Remediation Working Group has been established to facilitate communication of the project's progress and to engage with key stakeholders to ensure all interests are identified, discussed, and managed using an acceptable approach. Remedial options will be evaluated through consultation with the Government of the Northwest Territories (GNWT),

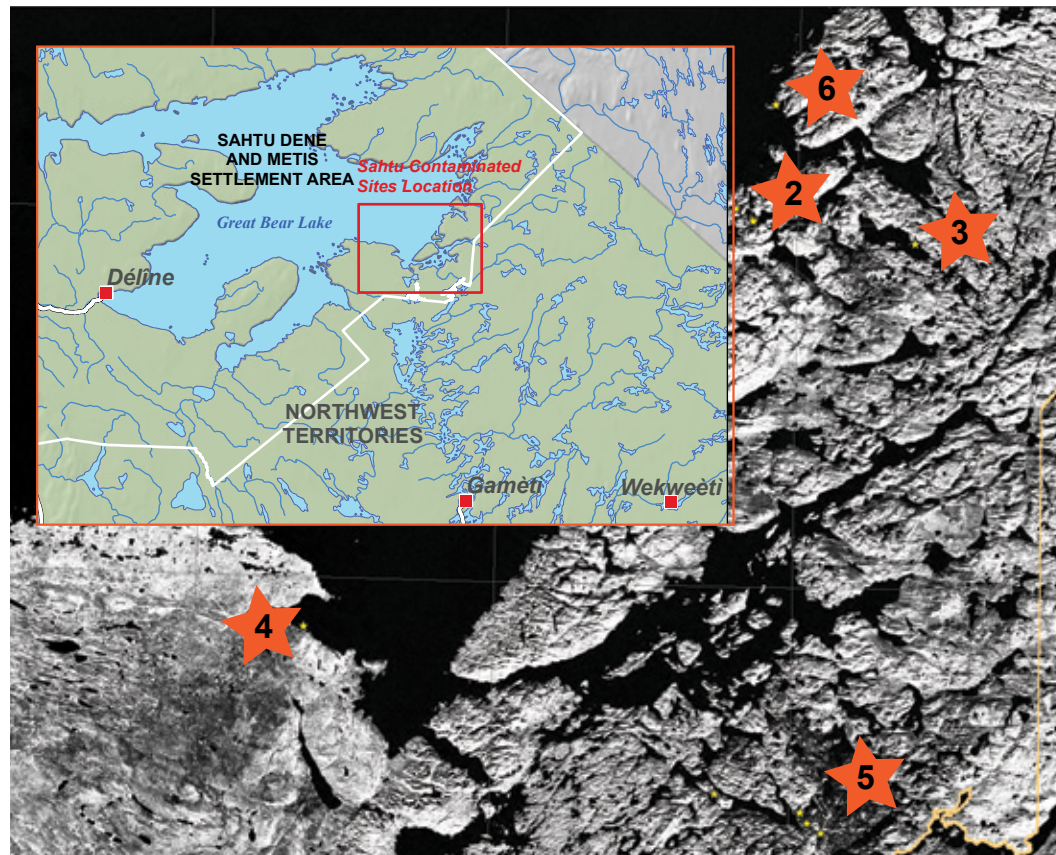


local communities and organizations and the trail's heritage value will be taken into account throughout.

The GNWT has a commitment through the Sahtu Dene and Métis Comprehensive Land Claim Agreement to develop the Canol Heritage Trail as part of the proposed Doi T'oh Territorial Park. Since the majority of the Canol Trail is on Crown Land, a land transfer agreement between the Crown and the territorial government is required prior to park development. Talks between AANDC and the GNWT are on-going regarding site remediation and future land transfer requirements. ■

Great Bear Lake sites

The majority of contaminated sites to be remediated in the Sahtu are located in the eastern region of the Great Bear Lake area. The Great Bear Lake project is a compilation of the Silver Bear Properties, Contact Lake, El Bonanza/ Bonanza and Sawmill Bay as described below.



2 Contact Lake

The Contact Lake Mine is a former silver and uranium mine located on Contact Lake. The Contact Lake Mine is much smaller than the Silver Bear Mines but still has environmental concerns.

CONCERNS AT THE SITE INCLUDE:

- Waste rock and processed tailings deposited downslope of the mine site, located in and around a small tailings pond
- Elevated levels of metals in surface waters limited to the tailings pond
- Old buildings, mine structures and openings on the site that pose safety hazards
- A fuel storage site associated with the mine located in the east arm of Echo Bay, approximately five kilometres away by road. ■

3 El Bonanza/ Bonanza

The El Bonanza and Bonanza sites are former silver mines located on the Dowdell Peninsula on the eastern end of Great Bear Lake. The El Bonanza/ Bonanza Mines are relatively small and have limited environmental concerns.

CONCERNS AT THE SITE INCLUDE:

- A limited amount of soil containing hydrocarbons
- Drums of diesel
- Waste rock extending into Silver Lake
- Old buildings, mine structures and openings on the site that pose safety hazards
- Scrap metal and general debris. ■

4 Sawmill Bay

The Sawmill Bay site was originally developed to support timber requirements for the Port Radium mine and is located on the northern part of the Leith Peninsula on the south eastern end of Great Bear Lake. The Sawmill Bay site is a relatively small site compared to the Silver Bear Mines but has historical significance as part of the uranium ore transportation route from Port Radium.

CONCERNS AT THE SITE INCLUDE:

- Approximately 12,000 abandoned barrels from various site users
- Small amounts of hydrocarbon and asbestos residue
- Old buildings, scrap metal and general debris
- Approximately 1,500 m³ of uranium ore-contaminated soil



From the mid 1940's, Sawmill Bay was used as a uranium ore transfer point. Spillages during transfer operations resulted in the contamination of a few small areas at the site. Licensable material associated with these operations were removed from the site during a 1997 clean-up led by the Low-Level Radioactive Waste Management Office of Natural Resources Canada (NRCAN). The remaining contaminated soil at the site is at concentrations marginally above the levels that occur naturally for uranium in soil. The site continues to be the responsibility of the federal government.

AANDC and NRCAN continue to work together to make sure remaining clean-up efforts at Sawmill Bay are coordinated. ■



Remediating the sites

The procurement approach to the remediation of the Great Bear Lake sites was developed through engagement with Sahtu (Délne) and 1 community representatives. Remediation activities completed in 2010 and 2011 have addressed a number of the components while the remaining components are currently scheduled for resolution in the coming years.

TASKS COMPLETED:

- Limited building demolition, barrel inspection/consolidation and consolidation of surface debris at Contact Lake, El Bonanza/Bonanza and Sawmill Bay
- Consolidation and crushing of 10,425 barrels at Sawmill Bay

TASKS REMAINING:

The remediation of the Silver Bear Properties and the remaining items at Contact Lake and El Bonanza/Bonanza will include:

- Construction of a non-hazardous waste landfill at Silver Bear (Terra site)
- Complete removal and/or collection of hazardous material and shipment off-site to a licensed facility (with the exception of asbestos)

- Building demolition and collection of non-hazardous debris and placement in the landfill (including asbestos)
- Closing/capping all mine openings
- Covering and/or removal of exposed tailings and acid-generating waste rock
- Excavation and treatment of hydrocarbon-contaminated soils
- Wetland and dam enhancements at the Terra site
- Remediating the remaining items at Sawmill Bay (e.g., fuel contamination in the soil and building demolition. ■



5 Silver Bear Properties

Silver Bear Properties is a collection of former silver, copper and bismuth mines located in the Camsell River area. Terra, Northrim, Norex, Graham Vein, and Smallwood make up the Silver Bear Properties. Terra Mine is the main Silver Bear site and has a large camp and mill complex. Ore was processed and tailings were deposited into the HoHum tailings pond. There is also a group of large fuel tanks that led to significant fuel contamination in the soil.

CONCERNS AT THE SITES INCLUDE:

- Elevated levels of metals in surface waters in some waste rock and two tailings ponds, including HoHum Pond at Terra Mine and Hermandy Pond at Northrim
- Hazardous waste materials including asbestos, lead paint, residual mill reagents and waste fuels
- Hydrocarbon contaminated soils associated with past fuel handling activities
- Old buildings, mine structures and openings on the site that pose safety hazards. ■

6 Port Radium Mine

Port Radium was a former radium, uranium, and silver mine located along the eastern shore of Great Bear Lake, 440 km north of Yellowknife and 265 km east of the Dene community of Délı̨ne. The site was decommissioned to silver mine standards in 1982. Beginning in 2000, the site was reassessed and further studied, due to concerns raised by the community of Délı̨ne. All studies and recommendations on how to address the site were developed jointly by the federal government and Délı̨ne. Remediation of the site was completed in 2007/08.

FUTURE PLANS

Long-term monitoring is a very important commitment in the Port Radium Remediation Plan. For the first four years of monitoring, environmental and engineering inspectors travel to the site twice a year to make sure that the site remains in stable condition, and that remediation solutions are working. As well, water is sampled at the site once a year.

In 2012, the fifth year of the monitoring program, scientists will complete a more detailed study of the site. They will look at the health of fish in the Great Bear Lake area around Port Radium, as well as the plants and the soil. They will also examine sediments in Great Bear Lake close to the site and complete a gamma survey of the entire Port Radium site, to make sure that the radiation covers are working properly.

AANDC will then make a recommendation to the Canadian Nuclear Safety Commission as to how often and what type of future monitoring is required to ensure the remedial structures on-site continue to perform as expected. ■



Community Involvement

Community involvement is an important part of the remediation process and engagement with members from the Sahtu Settlement Area has been on-going. During the Environmental Site Assessment of the Great Bear Lake sites, community members assisted with sample collection and camp support services during on-site activities. They also took part in traditional knowledge studies and provided key information which was used to guide both the environmental site assessment and development of Remedial Action Plans (RAPs).

Since 2006, AANDC has provided support for the hiring of a Community Liaison in communities most affected by remediation projects. The Community Liaison is responsible for keeping the community connected with the on-going remediation process and developing various programs. For the past few years, AANDC has also held a science camp for junior high school students to share information on science techniques which are used to assess contaminated sites. In 2011/2012, the science camp included field trips and in-classroom activities, including working closely with Elders to learn various skills.

In 2010 and 2011, AANDC provided support to Délne for a community representative to job shadow the government on-site representative. Responsibilities included providing oversight for the Sahtu on the progress of work, and tracking the contractor's Aboriginal employment or contracting obligations.

This year, the annual training program supported by AANDC continued in the community of Délne, where residents participated in an environmental services training program. There are many job prospects for the graduates in areas such as site remediation, environmental monitor/stewardship with diamond mines, other resource development companies, and with government.

AANDC is committed to continue working with affected communities throughout the remediation of the Great Bear Lake Sites. The procurement approach to the remediation of the Great Bear Lake sites was developed with Sahtu (Délne) and 1 community representatives. When tendering the remediation package, an Aboriginal Opportunities Considerations package will be designed to meet the objective of maximizing local and regional employment and business opportunities. ■



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.

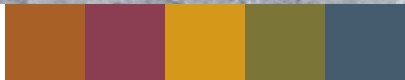
The NCP is represented in the Northwest Territories by a regional committee called the Northwest Territories Regional Contaminants Committee. The committee develops and coordinates research priorities for the NWT and its membership includes Aboriginal organizations, government departments and health 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 the Sahtu Settlement Area has included:

- Examining benefits and risks of traditional and market food.
- Hair mercury analysis and communicating research results in the community of Tulita, NWT

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
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This Publication is also available in French under the title: Que se passe-t-il dans la région visée par le règlement du Sahtu? Retour sur 2011