

# NUNAVIK ABANDONED MINERAL EXPLORATION SITES REHABILITATION PROJECT

## 2013-2014 ACTIVITY REPORT



**Kativik Regional Government**

**Renewable Resources, Environment, Lands  
and Parks Department**

**April 2014**



**Cover Page:**

Helicopter transporting material, July 2013

Material at site P-24F, September 2013

**Reference to be cited:**

Kativik Regional Government. 2013. *Abandoned Mineral Explorations Sites in Nunavik. Rehabilitation Project 2013-2014 Activity*. Kativik Regional Government, Renewable Resources, Environment, Lands and Parks Department, Kuujuaq.

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The community of Kuujjuaq contributed to the project again this year during the cleanup of the site requiring intermediate cleanup known as P-24F.

Mining companies currently active in Nunavik, especially Canadian Royalties and Xstrata Nickel, should furthermore be recognized for their cleanup initiatives on numerous abandoned mineral exploration sites located on or near their claims.

The KRG would like to thank Nunavik Rotors for its continued professionalism and expertise during the transportation of material and employees during fieldwork and inspections.

Finally, the KRG would like to underline the continued financial and technical support it receives from the Makivik Corporation, the Ministère des Ressources naturelles (Natural Resources) and the Fonds Restor-Action Nunavik.

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# 1 INTRODUCTION

In 2001 and 2002, a verification of 193 possible abandoned mineral exploration sites was performed in Nunavik of which 90 were confirmed as such. Eighteen of these were classified as requiring major cleanup work, 27 needing intermediate cleanup work and 45 would require minor cleanup work.

In 2007, the mining industry took up the challenge and created the Fonds Restor-Action Nunavik (FRAN) to rehabilitate abandoned mineral exploration sites in Nunavik dating as far back as several decades. In October 2007, the KRG, the Makivik Corporation, the Ministère des Ressources naturelles (MRN) and the FRAN signed a formal contribution agreement that made it possible to proceed with the cleanup of the 18 sites requiring major cleanup, using the expertise developed during previous pilot projects. Furthermore, an amendment to this agreement signed in April 2012, has allowed for the rehabilitation work to continue and be extended to the group of sites requiring intermediate cleanup.

In January 2012, a report was published that provides, in greater detail, the history of this project and summarizes the rehabilitation work undertaken on a number of abandoned mineral exploration sites in Nunavik over seven years, from 2005-2011 (KRG, 2012a).

In 2013, cleanup work continued in the Nunavik region and the following report describes the rehabilitation activities carried out on the six sites known as: KAW-36, KAW-59, KAW-119, PJ-1, SW-34, and P-24F. Appendix 1 includes five maps that indicate these and all the 90 confirmed abandoned mineral exploration sites in relation to nearby communities in Nunavik.

## 2 CONTRIBUTION AGREEMENT

In April 2012 an amendment to the agreement concerning the cleanup of abandoned mineral exploration sites in Nunavik was signed to allow for continued funding in order to extend the rehabilitation activities being carried out. This funding will be used to continue the rehabilitation of any remaining sites requiring major cleanup work as well as the remaining 18 sites requiring intermediate cleanup. The 2012-2017 General Response Plan (GPR) was prepared in consequence to the amendment, a summary of which will be presented in this report. The full version of the report was published by KRG in May 2012. The cost of the clean-up work in 2013 was estimated at approximately seven hundred and sixty-five thousand, five hundred and fifty-six dollars (\$765,556).

The KRG is responsible for the management of the cleanup work carried out on all sites covered under the contribution agreement. The KRG is also responsible for drafting a timetable and anticipated budget for each year of work and for ensuring that the concerned Inuit communities are adequately informed of the cleanup being performed.

The Makivik Corporation contributes to the project by way of in-kind contribution in the form of marine and air transportation services for materials and labour.

In the first agreement (2007-2012) the FRAN participated through a financial and in-kind contribution of seven hundred and fifty thousand (\$750,000). In the renewed agreement (2012-2017), the FRAN again contributed through a maximum financial and in-kind contribution of seven hundred and fifty thousand (\$750,000).

The MRN participates in the project through a financial contribution of which the maximum is 4 million, one hundred thousand dollars (\$4.1 M).

### 3 SUMMARY OF PREVIOUS WORK

Since the beginning of the rehabilitation project, 15 of the 18 sites requiring major cleanup have been completed. This work has been undertaken in collaboration with various Inuit communities in Nunavik, the Naskapi community of Kawawchikamach, the Innu Nation of Matimekush Lac-John, various active mining companies in the region and other Northern organizations. Table 1 provides a summary of the quantities of the waste removed from these sites from 2005-2013.

In 2011, inspections were undertaken on a second group of sites classified as requiring intermediate cleanup. These 27 sites contain similar items found on the sites requiring major cleanup, only to a lesser extent. From 2006 to 2013 the KRG, various active mining companies and Cruise North Expeditions has initiated cleanup on 16 of these sites, 14 of which are now complete. Table 2 indicates the current status for all the site requiring major and intermediate cleanup to date.

Table 1 Quantities of Waste Removed from the 18 Abandoned Mineral Exploration Sites Classified as Requiring Major Clean-Up Work between 2005 and 2013

Sector/ Site	Buildings burned or demolished (no.)	Equipment (no.)	Propane tanks (no.)	Reservoirs (no.)	Barrels (no.)	Diesel or other fuel (L)	Motor oil (L)	Grease	Other hazardous material	Transformers (T) or batteries (B) (no.)	Pipes, core trays, wood (m <sup>3</sup> )	Debris (m <sup>3</sup> )
<b>Kawawachikamach</b>												
KAW-35	19	1 muskeg + various	0	5	1000	4000	0	0	Acid, solvents, paint, oil filters, extinguishers	15 B	500+	200+
KAW-45	5	0	0	0	12	30	0	0	Naptha	0	15+	5+
<b>Tasiujaq</b>												
PJ-1	3 + 5 platforms	30	80	10	403	5100	54	5 kg	Paint, antifreeze, extinguishers	2 T 20 B	150+	200+
TQ-1	0	1 snowmobile	6	0	30	500	0	0	0	1 B	20+	40+
TQ-4	2	1 drill	8	0	156	200	0	0	0	0	10+	10+
<b>Aupaluk</b>												
PJ-10	1 platform	0	15	1	74	1400	280	40 L	0	1 B	50+	25+
PJ-17	11	11	40	0	285	500	2000	1 pail	0	1 T; 6 B	75+	100+
<b>Kangirsuk</b>												
TW	2 platforms	1 pipe threader	11	0	83	1230	0	110 L 2 kg	0	0	30+	20+
<b>Kangiqsujuaq</b>												
K-28	1 tent	1 motor	15	2	70	2000	0	0	CaCl <sub>2</sub>	0	30+	25+
K-61	12	11	18	1	3600	5000	2	900 L	Acid, paint	5 B	150+	75+
WB-3	0	0	1	0	85	675	0	0	0	0	20+	5+
<b>Salluit</b>												
KV-1	TO BE COMPLETED											
SAL-1	6	0	15	0	336	1000	27	0	0	4 B	50+	10+
SW-27	TO BE COMPLETED											
SW-34	1 platform	0	42	0	1500	1000	0	0	Acid, powder, oil filters	20 B	50+	70+
SW-42	1	0	0	0	45	1000	12	0	0	0	10+	10+
WB-9	TO BE COMPLETED											
<b>Umiujaq</b>												
WHA-1	9	0	0	0	28	280	0	0	Cleaners	0	50+	5+
<b>TOTAL</b>	<b>-</b>	<b>-</b>	<b>251</b>	<b>19</b>	<b>7 707</b>	<b>23 915</b>	<b>2 375</b>	<b>&gt;1 075 L</b>	<b>-</b>	<b>3 T; 72 B</b>	<b>1 210+</b>	<b>800+</b>

**Table 2 Status of Abandoned Mineral Exploration Sites Requiring Major and Intermediate Cleanup Work**

Site Name	Latitude	Longitude	Status
<i>SITES REQUIRING MAJOR CLEANUP</i>			
KAW-45	55° 33.68' N	67° 21.20' W	Cleaned
KAW-35	55° 13.94' N	66° 07.27' W	Cleaned
PJ-1	58° 57.71' N	69° 35.85' W	Cleaned
TQ-1	57° 57.68' N	69° 40.16' W	Cleaned
TQ-4	58° 15.23' N	70° 07.20' W	Cleaned
PJ-17	59° 20.29' N	69° 45.93' W	Cleaned
PJ-10	59° 15.07' N	70° 06.52' W	Cleaned
TW	60° 05.45' N	69° 55.48' W	Cleaned
K-28	61° 34.65' N	73° 14.75' W	Cleaned
K-61	61° 33.25' N	73° 27.25' W	Cleaned
WB-3	61° 29.41' N	72° 18.09' W	Cleaned
KV-1	61° 25.64' N	76° 45.46' W	Untouched
SAL-1	61° 31.14' N	74° 53.01' W	Cleaned
SW-34	61° 34.90' N	74° 28.12' W	Cleaned
SW-27	61° 28.76' N	76° 22.93' W	Untouched
SW-42	61° 23.92' N	74° 34.40' W	Cleaned
WB-9	61° 27.35' N	74° 33.22' W	Untouched
WHA-1	56° 24.06' N	75° 59.40' W	Cleaned
<i>SITES REQUIRING INTERMEDIATE CLEANUP</i>			
KAW-36	55° 15.02'	66° 09.46'	Cleaned
KAW-59	56° 17.80'	67° 49.00'	Cleaned
KAW-119	57° 37.48'	66° 45.77'	Cleaned
P-24F	57° 01.54'	68° 53.20'	Cleaned
TA-1	58° 16.80'	69° 50.19'	Untouched
TA-2	58° 17.48'	69° 56.34'	Untouched
TQ-6	58° 17.92'	69° 57.37'	Untouched
TQ-10	58° 06.36'	70° 09.10'	Untouched
TQ-14	58° 19.36'	70° 14.30'	Untouched
VP-11	57° 48.59'	69° 31.75'	Cleaned
G-24N04-3	59° 11.57'	69° 49.86'	Untouched
PJ-17A	59° 20.54'	69° 43.81'	Cleaned
PJ-19	59° 18.91'	69° 46.06'	Partially Cleaned
QC-3	60° 21.55'	70° 09.33'	Untouched
I-32	61° 43.12'	72° 54.94'	Cleaned
K-27	61° 36.24'	73° 19.89'	Cleaned
K-37	61° 31.07'	73° 37.44'	Cleaned
K-49	61° 28.70'	73° 49.70'	Cleaned
KAN-1	61° 32.19'	72° 57.90'	Cleaned
KAN-2	61° 32.51'	73° 31.11'	Partially Cleaned
KAN-4	61° 30.92'	73° 40.18'	Cleaned
KAN-6	61° 28.94'	73° 49.50'	Inuit Camp
KAN-7	61° 28.48'	73° 49.93'	Cleaned
KAN-10	61° 31.58'	72° 49.30'	Cleaned
Parent Lake	61° 33.43'	75 10.36'	Untouched
SW-24	61° 18.75'	75° 44.00'	Untouched
GW-8	55° 05.09'	78° 15.51'	Untouched

## 4 GENERAL RESPONSE PLAN 2012-2017

The *Agreement concerning the Clean-up in Nunavik of Abandoned Mineral Exploration Sites Classified as "Major"*, originally signed in 2007 was amended in April 2012 to allow for continued funding for the rehabilitation activities being carried out on abandoned mineral exploration sites in Nunavik. This funding will not only be used to complete the cleanup work on the remaining sites requiring major cleanup but will also allow for the cleanup of sites classified as requiring intermediate work. The 2012-2017 General Response Plan (KRG, 2012b) was prepared as a result to the amendment and contains the following sections: a description of the cleanup work to be carried out before March 2017; the proposed work schedule; the proposed budget for the work; a description of human resources; and a few details concerning the communication of results.

A summary of the GRP is provided below. It is important to note that at the end of each year, the GRP is adjusted to better reflect the reality of the cleanup situation. The work schedule and budget presented in this report have therefore been adjusted from the original GRP at the end of the 2013 season.

In 2013, priority was given to completing the work on the sites requiring major cleanup as well as preparing material in Aupaluk for transportation by ship to a recovery facility in the south. It was anticipated that Canadian Royalties would undertake the cleanup of sites known as WB-9, KV-1, and SW-27 while site SW-34 would be cleaned by the KRG.

According to the GRP, 2014 will focus on completing rehabilitation work on blocks of intermediate sites located in the Tasiujaq and Aupaluk sectors. 2015 will consist of completing work on any remaining sites that were not rehabilitated in the previous years. Finally, 2016 has been set aside for final inspections of all the sites where work was carried out and for the development of a presentation to be made to communities involved in the project.

### 4.1 WORK TO BE COMPLETED UNDER THE GRP

In drafting the GRP, the work to be completed at the remaining sites requiring major or intermediate cleanup was broken down into the following categories: 1) field logistics, 2) the transportation and disposal of hazardous material, 3) the management of combustible non-toxic material, and 4) the management of non-combustible non-toxic material. Below is a brief summary of those categories.

#### 4.1.1 Field Logistics

Summer is the busiest and most productive cleanup season. It allows workers easier access to the material on the sites and a greater number of daylight hours to operate. Summer fieldwork involves the cutting up and crushing of barrels, the transfer of residue to undamaged barrels, the gathering of hazardous material and waste, gathering of general debris, gathering and burning of combustible material, and facilitating, if necessary, the transportation of these materials during the winter.

Access by land may be possible after taking into account the distance between each site and the nearest villages as well as topographical conditions. However, generally speaking, most sites will have to be accessed by helicopter or float plane. Winter work could involve the transportation of materials if the site were within proximity to a village and accessible by snowmobile.

#### **4.1.2 Transportation and Disposal of Hazardous Waste**

All recoverable hazardous material will be sent to a recovery facility south of the province. The transfer of residue to undamaged containers, labeling and preparing the material for transportation will be carried out during summer fieldwork.

#### **4.1.3 Management of Combustible Non-Toxic Material**

Combustible non-toxic material will be burned or left at each site. This material includes wood as well as buildings constructed from wood, aluminum and mineral wool insulation. Pursuant to Section 22 of the *Regulation Respecting the Quality of the Atmosphere*, a certificate of authorization is required to burn wood, shacks and buildings. Prior to burning any building, all hazardous material must be removed including emergency lights (lead and Ni-Cd battery cells), smoke detectors, fluorescent ballast and fire system accumulators (Ni-Cd battery cells). Non-combustible material should also be removed including asphalt shingles, heating stoves, refrigerators, stove-ovens, bed frames, etc. Material remaining after burning (tin, glass wool, iron and wire) is managed with the other waste at the site. It is also possible that petroleum hydrocarbons at the sites will be used to ignite combustible material. In such cases, a certificate of authorization will be required pursuant to Section 23 of the *Regulation Respecting the Quality of the Atmosphere* for the open-air burning of petroleum hydrocarbons, which KRG obtained in 2008.

#### **4.1.4 Management of Non-Combustible Non-Toxic Material**

At most of the sites, non-combustible non-toxic material represents the greatest quantity of debris (empty barrels, equipment parts, domestic appliances, wire meshing, etc.) and is the least likely to be harmful to the environment or to jeopardize the health of animals and humans. Notwithstanding, such material adversely affects the appearance of the landscape. For this reason, wherever possible all waste will be removed from the sites. Batteries, oil, antifreeze and tires will be removed from equipment, transported from the sites and treated as hazardous material.

### **4.2 WORK SCHEDULE**

Table 3 outlines the proposed work schedule for the rehabilitation at the remaining sites requiring major and intermediate work, between April 1, 2012 and March 31, 2017. In order to facilitate the work, cleanup activities will be carried out, when possible, on sites located in the same sector. The table has been adjusted since the end of the 2013 work session.

**Table 3 Tentative Work Schedule for 2012-2017 Clean-up Activities**

Site	Summer 2012	Winter 2012-2013	Summer 2013	Winter 2013-2014	Summer 2014	Winter 2014-2015	Summer 2015	Winter 2015-2016	Summer 2016	Winter 2016-2017
SW-34*	Green		Green						INSPECTIONS	COMMUNITY TOUR
SW-27*	Yellow		Yellow		Yellow					
WB-9*			Yellow		Yellow					
KV-1*	Yellow		Yellow		Yellow					
KAW-35*	Green									
PJ-1 (Aupaluk)*	Green		Green		Green					
KAW-36			Green							
KAW-59			Green							
KAW-119			Green							
P-24F			Green							
TA-1					Green					
TQ-6					Green					
TQ-10					Green					
TQ-14					Green					
VP-11	Green									
G-24N04-3					Green					
PJ-19					Green					
QC-3							Green	Blue		
KAN-10	Yellow									
KAN-2	Yellow									
KAN-7	Yellow									
Parent Lake							Green			
SW-24							Green			
GW-8							Green			

\*Major Site

- Rehabilitation activities to be undertaken in collaboration with active mining Companies
- Rehabilitation activities to be undertaken by KRG



Transportation of material in winter

#### 4.3 ESTIMATED BUDGET, 2012-2017

Table 4 indicates the overall estimated 2012-2017 budget, as set out on the 2012-2017 GRP, for carrying out rehabilitation work on the remaining abandoned mineral exploration sites requiring major and intermediate work, as identified in the 2001-2002 inventory.

**Table 4 Estimated Yearly Budget for 2012-2017 Cleanup Activities**

YEAR	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	TOTAL
<b>EXPENSES</b>						
Coordinator salary (General Contract)	\$44,000	\$35,000	\$30,000	\$10,000	\$11,000	\$150,000
Technician salary and benefits	\$36,000	\$35,000	\$30,000	\$8,000	\$5,000	\$125,000
Workers salaries	\$135,000	\$125,000	\$95,000	\$30,000	\$0	\$225,000
Professional/Technical salaries (General Contract)	\$20,000	\$0	\$0	\$0	\$0	\$30,000
Transportation of waste (via south)	\$110,000	\$15,000	\$0	\$0	\$0	\$126,000
Transportation of material/employees	\$115,000	\$140,000	\$140,000	\$60,000	\$0	\$436,000
Disposal of waste (General Contract)	\$25,000	\$50,000	60,000	\$10,000	\$0	\$125,000
Travel Airfare	\$45,000	\$65,000	\$70,000	\$10,000	\$70,000	\$99,000
Travel Expenses	\$50,000	\$115,000	\$130,000	\$20,000	\$70,000	\$57,000
Material/Equipment	\$55,000	\$65,000	\$65,000	\$10,000	\$10,000	\$63,000
Communication and translation	\$1,200	\$1,200	\$1,200	\$400	\$2,000	\$5,000
KRG training costs (Human Resources)	\$6,000	\$6,000	\$6,000	\$2,000	\$2,000	\$5,000
<b>Sub-total</b>	<b>\$642,200</b>	<b>\$652,200</b>	<b>\$627,200</b>	<b>\$160,400</b>	<b>\$170,000</b>	<b>\$2,252,000</b>
Administration (12%)	\$77,064	\$78,264	\$75,264	\$19,248	\$20,400	\$270,240
Weather Condition Provision (15%)	\$96,330	\$97,830	\$94,080	\$24,060	\$25,500	\$337,800
<b>TOTAL</b>	<b>\$815,594</b>	<b>\$828,294</b>	<b>\$796,544</b>	<b>\$203,708</b>	<b>\$215,900</b>	<b>\$2,860,040</b>

#### 4.4 HUMAN RESOURCES

Human resources for the project fall into two categories: 1) KRG employees, which is to say the project coordinator and environmental or field technicians, and 2) local workers.

The project coordinator works full-time on the project while the environmental technician or field supervisor works part-time during the summer season and winter season if necessary. Experience acquired in the previous work terms suggests that it is absolutely necessary to have one and in some case two technicians on site to complete the cleanup according to the schedule and to allow for more consistent logistical planning by the coordinator.

Local workers are hired to work on the project from the communities located closest to each site. This not only creates jobs, but it also contributes to increasing local know-how regarding contaminated site restoration and environmental project management. The Northern Villages are central to providing local workers for the rehabilitation work, including the payment of the workers' wages. The amounts paid for these workers are subsequently invoiced to the KRG who reimburses all related costs. This cooperation is extremely effective and permits the hiring of individuals who are recognized in their communities. This kind of experience is also highly sought-after by mineral exploration companies for the clean up of their sites and could therefore lead to future work.

Worker safety is also an important issue for those involved in rehabilitating the abandoned mineral exploration sites in Nunavik. All of the sites to be rehabilitated are in isolated locations that cannot easily be reached from nearby villages. In summer, workers are most often transported by helicopter or floatplane. Since the transporter does not remain at the site, emergency planning is important. It is essential that each work team have an emergency plan and adequate communication systems to contact help, if necessary.

#### 4.5 COMMUNICATIONS

A yearly activity report will be sent to each of the partners involved in the cleanup work. In 2017, a final report will be prepared to summarize the overall outcome of the 2012-2017 rehabilitation efforts.

Also in 2017, at the end of the project, a tour in the communities involved in the clean-up project could be organized to present the results of the rehabilitation work. Also, as was the case in 2011, a presentation could be made during a KRG Regional Council meeting, at which a representative from each village is present, including the mayors.

## 5 DESCRIPTION OF CLEAN-UP WORK UNDERTAKEN IN 2013

This section provides an updated description of the sites where cleanup work was carried out during the 2013 season. These sites had been inspected in 2011 in order to have a clearer picture of the type of work, manpower and equipment required and to estimate a timeframe.

This year, the rehabilitation of sites SW-34, KAW-36, KAW-59, KAW-119 and P-24F were completed. Work was undertaken in the community of Aupaluk to prepare material previously removed from sites PJ-1 and PJ-10 for transportation by ship. Also, during final inspection in October, sites KAN-7 and KAN-10 were noted as being completed. The work carried out on each site is described in Section 5.1 with supporting photographs available in Appendix 2.

It should be noted that in 2013 a field technician was hired to supervise the work on each of the sites and in some communities when necessary. Richard Knoxleet, who has many years of experience in the Nunavik region, was hired by KRG to fulfil this role. Nancy Dea remained as project coordinator in 2013.

### 5.1 DESCRIPTION OF WORK

#### **Kawawachikamach Sector**

##### **KAW-36**

The abandoned mineral exploration site KAW-36 (55° 15.02' N, 66° 09.46' W) is located near Lake Retty, approximately 60 km east-northeast of Kawawachikamach and Schefferville (Map 3). The site is categorized as requiring intermediate cleanup.

In collaboration with the Naskapi Nation of Kawawachikamach and the Innu Nation of Matimekush-Lac John, an initial inspection of the site was undertaken in June and a cleanup session was carried out in August 2013. 40 barrels, drill rods, core boxes, and various metal waste were removed from site. Photographs of the material transported from the site are found in Appendix 2.

A floatplane was used to transport the waste from the site to Schefferville. The material was then transportation by train to Sept-Îles to a metal recycling facility. The site has been rehabilitated.

##### **KAW-59**

The abandoned mineral exploration site KAW-59 (56° 17.80' N, 67° 49.00' W) is located northeast of Kawawachikamach and Schefferville (Map 3). The site is categorized as requiring intermediate cleanup.

In collaboration with the Naskapi Nation of Kawawachikamach and the Innu Nation of Matimekush-Lac John, an initial inspection of the site was undertaken in June and a cleanup session was carried out in August 2013. A small amount of metal debris including 3 barrels, old

stoves and metal pipes were removed. Some wooden debris was left on site. Photographs of the site before cleanup are found in Appendix 2.

A floatplane was used to transport the waste from the site to Schefferville. The material was then transportation by train to Sept-Îles to a metal recycling facility. The site has been rehabilitated.

#### **KAW-119**

The abandoned mineral exploration site KAW-119 (57° 37.48' N, 66° 45.77' W) is located northeast of Kawawachikamach and Schefferville (Map 3). The site is categorized as requiring intermediate cleanup.

In collaboration with the Naskapi Nation of Kawawachikamach and the Innu Nation of Matimekush-Lac John, an initial inspection of the site was undertaken in June and a cleanup session was carried out in August 2013. 11 barrels and approximately 30 pounds of metal was removed from site. Photographs of the site before cleanup are found in Appendix 2.

A floatplane was used to transport the waste from the site to Schefferville. The material was then transportation by train to Sept-Îles to a metal recycling facility. The site has been rehabilitated.

### **Kuujuaq Sector**

#### **P-24F**

The abandoned mineral exploration site P-24F (57° 01.54' N, 68° 53.20' W) is located south of Kuujuaq and is categorized as needing intermediate cleanup (Map 4).

An initial inspection of the site was undertaken in June and the cleanup was completed in September 2013. Mostly metal debris was removed from the site and included 60 barrels, 30 propane tanks, stove and small metal cans. This material was transported to Kuujuaq by helicopter where it was stored in marine containers and shipped to a recycling facility by ship in October. Wooden debris was either burned or left to rot of site. The site is now considered as rehabilitated.

### **Tasiujaq Sector**

#### **PJ-1**

The abandoned mineral exploration site PJ-1 (58° 57.71' N, 69° 35.85' W) is located between the communities of Aupaluk and Tasiujaq (Map 4). The site covers more than 3 km<sup>2</sup> and is comprised of nine sectors. The 2001-2002 inventory ranked this site number one in importance for major rehabilitation. Extensive work has been completed on this site since 2006, including several winter terms. The final material was removed from PJ-1 in the summer of 2011 and was stored in the community of Aupaluk. In 2011, approximately 36 pieces of equipment and machinery, totalling 117 tonnes, were transported by ship to a metal recovery facility in the south. In 2012, approximately 30 tonnes of metal was transported south to a metal recycling facility.

In August and September 2013, work continued to prepare the remaining material for shipment. All remaining drums were crushed and stored in marine containers and large pieces of equipment were cut into smaller, more manageable pieces. 4 open-top containers and 2 regular marine containers were filled with various metal debris. Unfortunately, due to logistical issues with the ship, only the 2 marine containers could be transported. The remaining material was stored in the community of Aupaluk and will be transported in 2014.

## **Salluit Sector**

### **SW-34**

The abandoned mineral exploration site SW-34 (61° 34,90' N, 74° 28,12' W) is located next to Lake Esker, 90 km southeast of Salluit (Map 6). The site comprises two sectors. The 2001-2002 inventory ranked this site second in importance for major rehabilitation.

In collaboration with Xstrata Nickel and the Northern Village of Salluit, a work session was organized for July 2013. However, due to bad weather conditions, the team was no able to access the site. A second attempt was made with a team from Kangiqsujuaq in August. Upon arrival at the site, the field supervisor discovered the remaining material had been removed. After contacting several mining companies active in that area, the Project Coordinator was able to confirm that Canadian Royalties had undertaken a cleanup of this site in July. Appendix 3 contains a description and photographs of the work they carried out. After six years of cleanup, the site is now complete.

During his time in this sector, the field supervisor also noted that Canadian Royalties had completed the cleanup of intermediate sites KAN-7 and KAN-10.

## **5.2 EXPENDITURES INCURRED DURING 2013 FIELDWORK**

Table 5 indicates the estimated expenditures during the fieldwork undertaken from June 2013-November 2013. Some costs were under or over-estimated during previous cost assessments due to weather conditions and less days spent on some sites.

**Table 5 Estimated Expenditures for work carried out in 2013-2014**

<b>INCOME</b>	
MRN income	\$175 780
FRAN income	\$175 780
<b>TOTAL</b>	<b>\$351 560</b>

<b>IN-KIND CONTRIBUTION</b>					
<b>Site</b>	<b>PJ-1 (Aupaluk)</b>	<b>KAW-35</b>	<b>SW-34</b>	<b>VP-11</b>	<b>Total</b>
Canadian Royalties			\$35 896		\$35 896
Makivik (NEAS)	\$22 874				\$22 874
<b>TOTAL</b>	<b>\$22 874</b>	<b>\$0</b>	<b>\$35 896</b>		<b>\$58 770</b>

<b>EXPENDITURES*</b>	<b>2013</b>
Travel & Accommodations	\$128 333
General Contracts	\$53 330
Salaries & Fringe Benefits	\$0
Purchase of Materials	\$4 074
Administrative Costs	\$4 432
Administrative Charges	\$56 952
<b>TOTAL:</b>	<b>\$247 121</b>

## 6 DESCRIPTION OF CLEAN-UP WORK TO TAKE PLACE IN 2014

The following section describes the cleanup work required on the abandoned mineral exploration sites scheduled for rehabilitation in 2014, according to the work schedule presented in Section 4.2. Photographs of these sites can be found in Appendix 4.

### Tasiujaq Sector

#### PJ-1

Due to logistical issues in 2013, there remains a large volume of metal and containers being stored next to municipal garage in Aupaluk. However, this material is properly packaged and ready to be transported by ship.

In 2014, KRG will need to organize the removal of this material with the appropriate shipping company and have a representative present for the loading.

Four sites requiring intermediate cleanup remain in the Tasiujaq sector (Map 4), for which the description is provided in the table below.

Site No	Latitude North	Longitude West	Description
TA-1	58° 16.80'	69° 50.19'	8 barrels, wood debris, 1 propane tank, 1 wood bench in water, 1 blue tarp, small dump.
TQ-6	58° 17.48'	69° 56.34'	Core trays, 9 barrels (1 is in the water), pipes, 2 wood beams, beds, 1 furnace, 2 open barrels, pails, wood debris. Aluminum core trays, open barrels, metal debris, wood debris, cables, ~45 x 45-gallon barrels, 2 x 10-gallon barrels, metal pipes (drilling pipes), aluminum pipes, wood beams, propane tanks, wood beams, furnace, chimney, tar paper, beds, cans. No soil contamination observed. Also identified as P-24K/5-10 by GÉTIC.
TQ-10	58° 06.36'	70° 09.10'	3 large bladders at <10m from the shore, 1 wood box containing 1 bladder, flexible hoses, motor with pump, 1 motor, 1 wood box with debris (pipes), 1 barrel with residue (1 eight diesel).
TQ-14	58° 19.36'	70° 14.30'	11 scattered barrels, 4 propane tanks, wood debris from an old cabin. Close to the shore.

An inspection of these sites in 2011 confirmed the material present. In 2014, KRG will need to mobilize a team from either Kuujjuaq or Tasiujaq. These sites were grouped together on the cleanup schedule due to their proximity to one another and can most likely be completed within the same work session.

Metal waste, including the drums, as well as the miscellaneous debris, can be transported by helicopter to Kuujjuaq where it will be stored in marine containers and transported by ship. Wood debris can be burned on site.

### **Aupaluk Sector**

Two sites requiring intermediate cleanup remain in the Aupaluk sector (Map 5). Their description is provided in the table below.

Site No	Latitude North	Longitude West	Description
G-24N04-3	59° 11.57'	69° 49.86'	<p><i>Sector 1:</i> campsite for mining exploration, includes: 9 recent yellow barrels (8 are full, 1 is one third full); 1 burnt campsite; 20 burnt (1.5-m long) aluminum rods (3 x 3m<sup>3</sup>); metal debris; 4 beds, 8 barrels (3 are recent and contain diesel; 4 are empty, the other one is very old); 9 empty barrels on the beach; 1 old campsite (nothing left, has been cleaned). No contamination. On the way to Sector 2: 2 empty barrels and dumpsite</p> <p><i>Sector 2:</i> at ~500m near the stream. 1 empty propane tank; 6 barrels (1 is full); 1 open barrel with recent debris (pepsi cans, paper...); 1 empty reservoir for a Coleman stove; scattered metal debris (&lt;0,1m<sup>3</sup>). 2 drums near shore</p> <p>At 50m towards east: 52 barrels, 9 barrels (one is full, 2 have residue (one quart, one third)); 3 empty barrels; one wood rack for canoe; 3 empty barrels; 3 empty propane tanks; 1 Coleman stove; 8 empty barrels at 5m from the water.</p>
PJ-19	59° 18.91'	69° 46.06'	~only drum covers remaining

Site G-24NO4-3 is located south of Aupaluk on the shores of Lac Laliberte. The site has a large surface area and the material is fairly spread out. However the terrain is quite flat with very little obstacles, which should make the cleanup straightforward.

Site PJ-19, just north of Aupaluk, was previously cleaned during a winter session, however there remain some drum covers that were hidden under the snow.

In 2014, KRG will need to mobilize a team from Aupaluk to remove the material from these 2 sites. All metal debris can be transported to Aupaluk by helicopter were it can be stored in the marine containers already containing debris from other sites. It can then be transported by ship. Wood debris can be burned on site.

## 6.1 COLLABORATIVE CLEANUP WORK

The following section describes work to be carried out in collaboration with mining companies that are active in the Nunavik region.



## **Salluit Sector**

### **WB-9**

The abandoned mineral exploration site WB-9 (61°27.35' N, 74°33.22' W) is located next to Lake Kenty, roughly 100 km south-southeast of Salluit (Map 6). The site comprises one sector. The 2001-2002 inventory ranks this site fifth in importance for major rehabilitation work.

A follow-up inspection was undertaken in June 2012. The site possesses 10 buildings and three small wooden cabins. The condition of the facilities has deteriorated since the original inventory. The site contains a large quantity of non-hazardous waste, such as bed frames, rotten mattresses, a stove-oven, a washing machine, refrigerators etc. Hazardous waste is nonetheless present on site and includes paint, motor oil, propane tanks, fire extinguishers, oil filters and a battery. Several thousand rock/core samples are still housed in a wooden structure on the site. There are approximately 20 barrels stacked close to the buildings, about half of which contain hydrocarbon residue. The soil contamination observed in 2001 underneath two barrels is still present. As well, within a one-kilometre radius of the camp, two groups of drums were observed. The first group, to the west of the site contain approximately 30 full and 10 empty barrels. The second group, located on a hill next to the site contains 18 empty drums. Photographs of the debris and buildings present at the site in 2012 are found in Appendix 4.

In 2013 Canadian Royalties claimed responsibility for the cleanup of this site.

### **KV-1**

The abandoned mineral exploration site KV-1 (61°25.64' N, 76°45.46' W) is located on the shore of a lake, roughly 100 km southwest of Salluit (Map 6). The site comprises two sectors. The 2001-2002 inventory ranks this site 14th in importance for major rehabilitation work.

Roughly 23 barrels are scattered around the site and on the opposite shore of the lake. As well, 15 compacted barrels and two dumpsites are still present. The site is rather small in comparison with other sites requiring major cleanup.

Work will consist of gathering barrels and other debris to be removed from the site by helicopter. The combustible material can be burned on location. The site was inspected in September 2012 and photographs are found in Appendix 4.

### **SW-27**

The abandoned mineral exploration site SW-27 (61°28.76' N, 76°22.93' W) is located roughly 90 km south-southwest of Salluit, far from any body of water (Map 6). The site covers 0.2 km<sup>2</sup> and comprises four sectors. The 2001-2002 inventory ranks this site 12th in importance for major rehabilitation work.

Of all the abandoned mineral exploration sites still requiring clean-up, site SW-27 contains the greatest quantities of residual material and hydrocarbons residue: roughly 1650 L of diesel, 260 L of grease and 26 L of oil. Although covering only 2.5 m<sup>2</sup>, hydrocarbon soil contamination is still very evident. Open or damaged barrels of grease were also observed. The site was inspected in September 2012 and photographs are found in Appendix 4.

This site is located near a Canadian Royalties claim and very near to site KV-1. This could allow for the two sites to be cleaned in tandem to make effective use of a work team and helicopter.

## 6.2 ESTIMATED BUDGET FOR 2014-2015

Table 6 indicates the estimated budget for carrying out the final rehabilitation work on sites TA-1, TQ-6, TQ-10, TQ-14, G-24NO4-3 and PJ-17 in 2014, as well as finalizing the work in Aupaluk regarding the transportation of material.

**Table 6 Estimated Budget for 2014-2015**

<b>INCOME</b>	
KRG surplus 2013	\$728 927
MRN income	\$0
FRAN income	\$0
Other	0
<b>TOTAL</b>	<b>\$728 927</b>

<b>IN-KIND CONTRIBUTION</b>									
Site	WB-9	PJ-1 (Aupaluk)	TA-1	TA-2	TQ-6/10	TQ-14	G-24NO4-3	PJ-19	Total
Xstrata Nickel/Glencore	assistance								\$50,000
Canadian Royalties									\$0
Makivik (NEAS)		transportation							\$50,000
<b>TOTAL</b>	<b>\$50,000</b>	<b>\$50,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$100,000</b>

<b>EXPENSES</b>									
Site	WB-9	PJ-1 (Aupaluk)	TA-1	TA-2	TQ-6/10	TQ-14	G-24NO4-3	PJ-19	Total
Coordinator salary (General Contract)	\$20,000	\$10,000	\$3,000	\$3,000	\$3,000	\$3,000	\$5,000	\$3,000	\$50,000
Technician salary and benefits	\$15,000	\$7,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$1,000	\$48,000
Workers salaries	\$40,000	\$25,000	\$10,000	\$10,000	\$10,000	\$10,000	\$20,000	\$5,000	\$130,000
Professional/Technical salaries (General Contract)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Transportation of waste (via south)	\$75,000	\$50,000	\$0	\$0	\$0	\$0	\$10,000	\$0	\$135,000
Transportation of material/workers	\$40,000	\$0	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$100,000
Disposal of waste (General Contract)	\$0	\$0	\$5,000	\$5,000	\$5,000	\$5,000	\$0	\$0	\$20,000
Travel Airfare	\$5,000	\$5,000	\$0	\$0	\$0	\$0	\$0	\$0	\$10,000
Travel Expenses	\$3,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$0	\$15,000
Material/Equipment	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$0	\$35,000
Communication and translation	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$1,600
KRG training costs (Human Resources)	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$8,000
<b>Sub-total</b>	<b>\$204,200</b>	<b>\$105,200</b>	<b>\$41,200</b>	<b>\$41,200</b>	<b>\$41,200</b>	<b>\$41,200</b>	<b>\$58,200</b>	<b>\$20,200</b>	<b>\$552,600</b>
Administration (12%)	\$24,504	\$12,624	\$4,944	\$4,944	\$4,944	\$4,944	\$6,984	\$2,424	\$66,312
Weather condition provision (15%)	\$30,630	\$15,780	\$6,180	\$6,180	\$6,180	\$6,180	\$8,730	\$3,030	\$82,890
<b>TOTAL</b>	<b>\$259,334</b>	<b>\$133,604</b>	<b>\$52,324</b>	<b>\$52,324</b>	<b>\$52,324</b>	<b>\$52,324</b>	<b>\$73,914</b>	<b>\$25,654</b>	<b>\$701,802</b>

## 7 REFERENCES

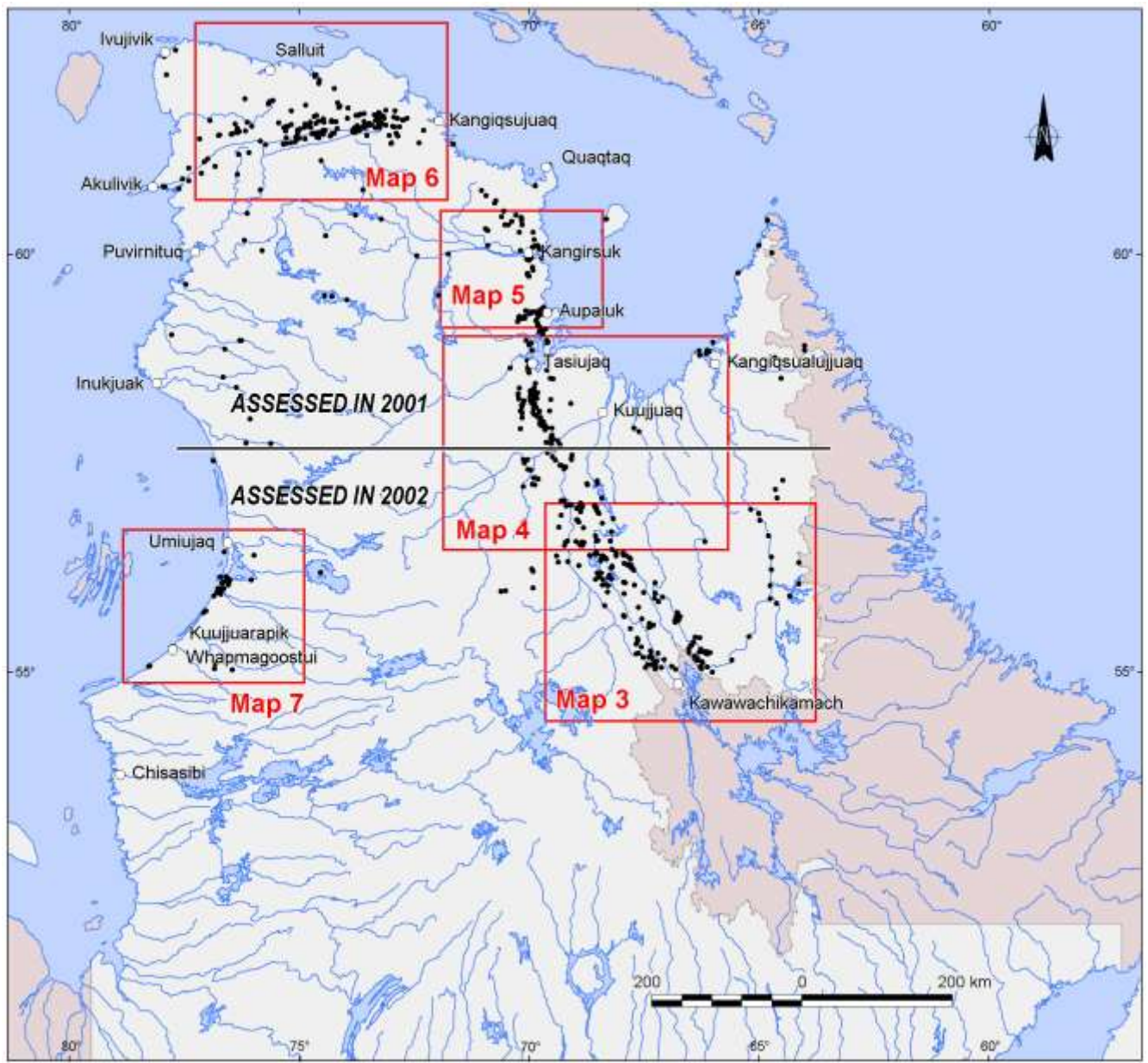
- Kativik Regional Government, 2003. *Assessment and Prioritization of Abandoned Mining Exploration Sites in Nunavik: Final Report on a Two-Year Project (2001–2002)*. Kativik Regional Government, Makivik Corporation, Kuujjuaq. 67 p. and appendices.
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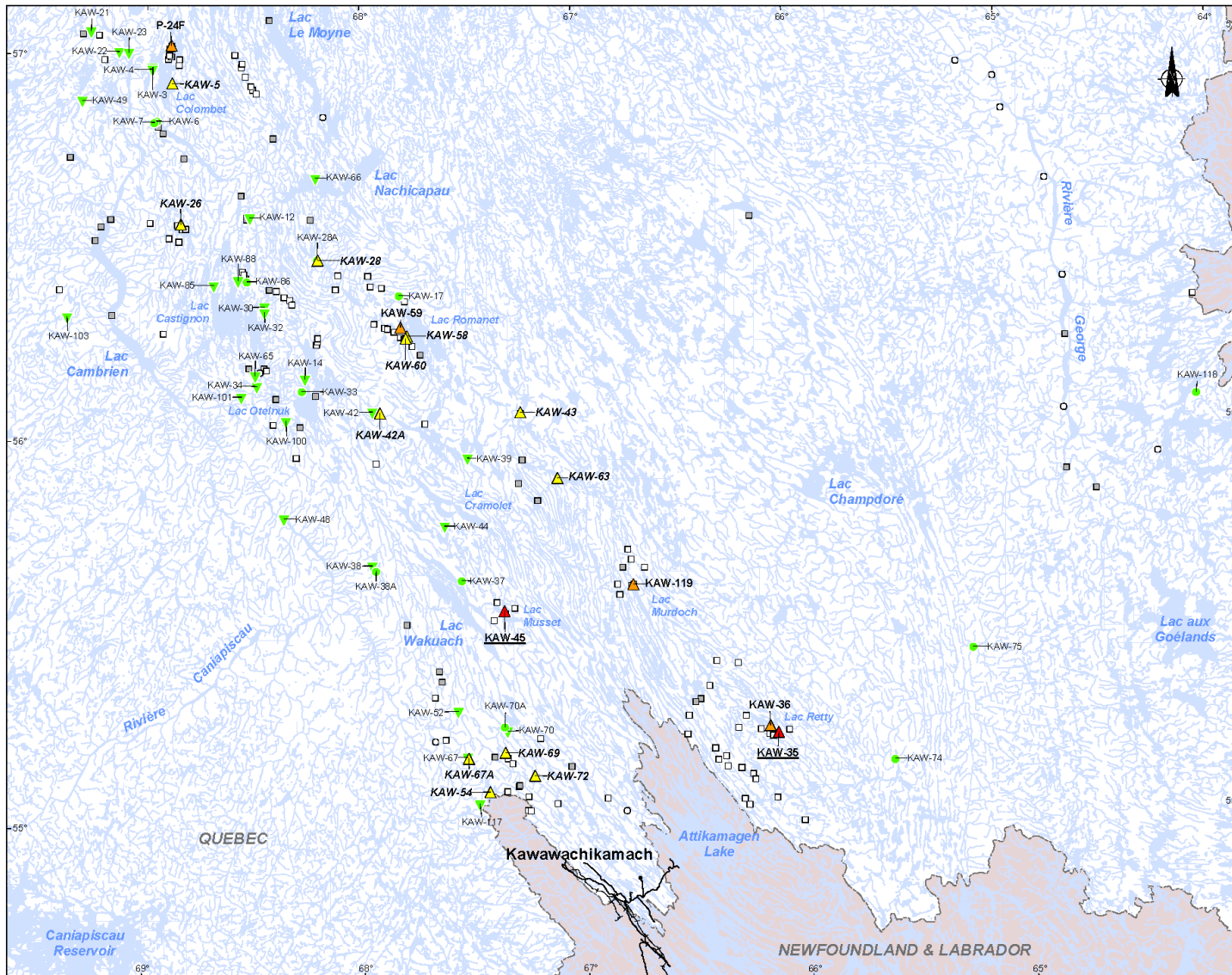
# APPENDIX 1

## **Maps Showing the Locations of Abandoned Mineral Exploration Sites in Nunavik**

## LIST OF MAPS

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Assessment and Prioritization of Abandoned Mining Exploration Sites in Nunavik

**Map 3**  
Abandoned Mining Exploration Sites near Kawawachikamach

**Legend**

**Assessed and Prioritized Sites**

- KAW-1 ▲ Major
- KAW-1 ▲ Intermediate
- KAW-1 ▲ Minor
- KAW-1 ◆ Cleaned by a community
- KAW-1 ▼ No debris
- KAW-1 ● Other - not a mining site

**Potential Sites (Duhaime and Comtois, 2002)**

- Informants
- Archives
- Other - not a mining site

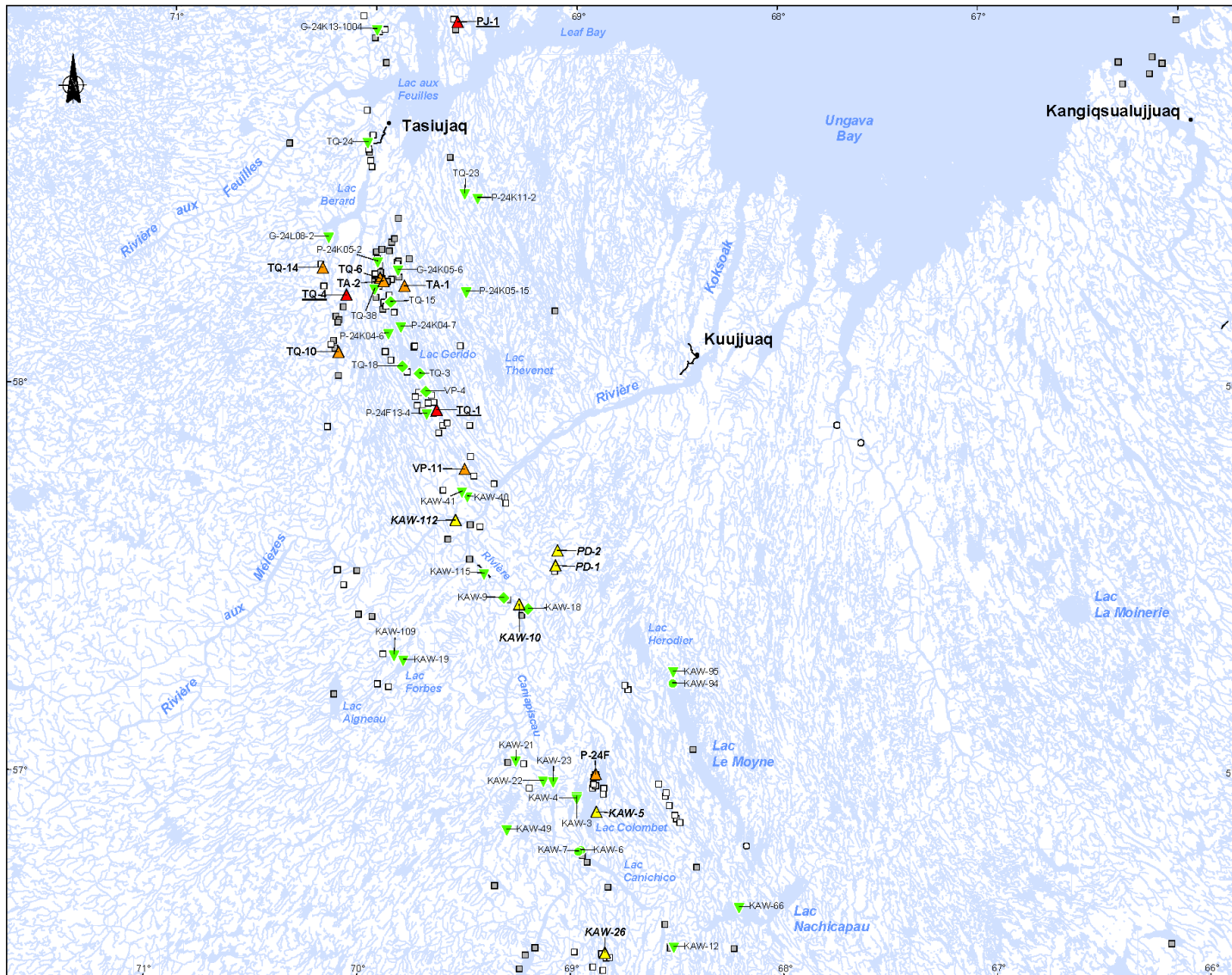
0 20 40 60 km



Sources:  
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 Assessed and prioritized sites: Environment Canada, 2001 and 2002  
 Potential sites: Environment Canada, 2000  
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 Cartography realised by Carto-Média, 2003  
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**January 2003**





Assessment and Prioritization of Abandoned Mining Exploration Sites in Nunavik

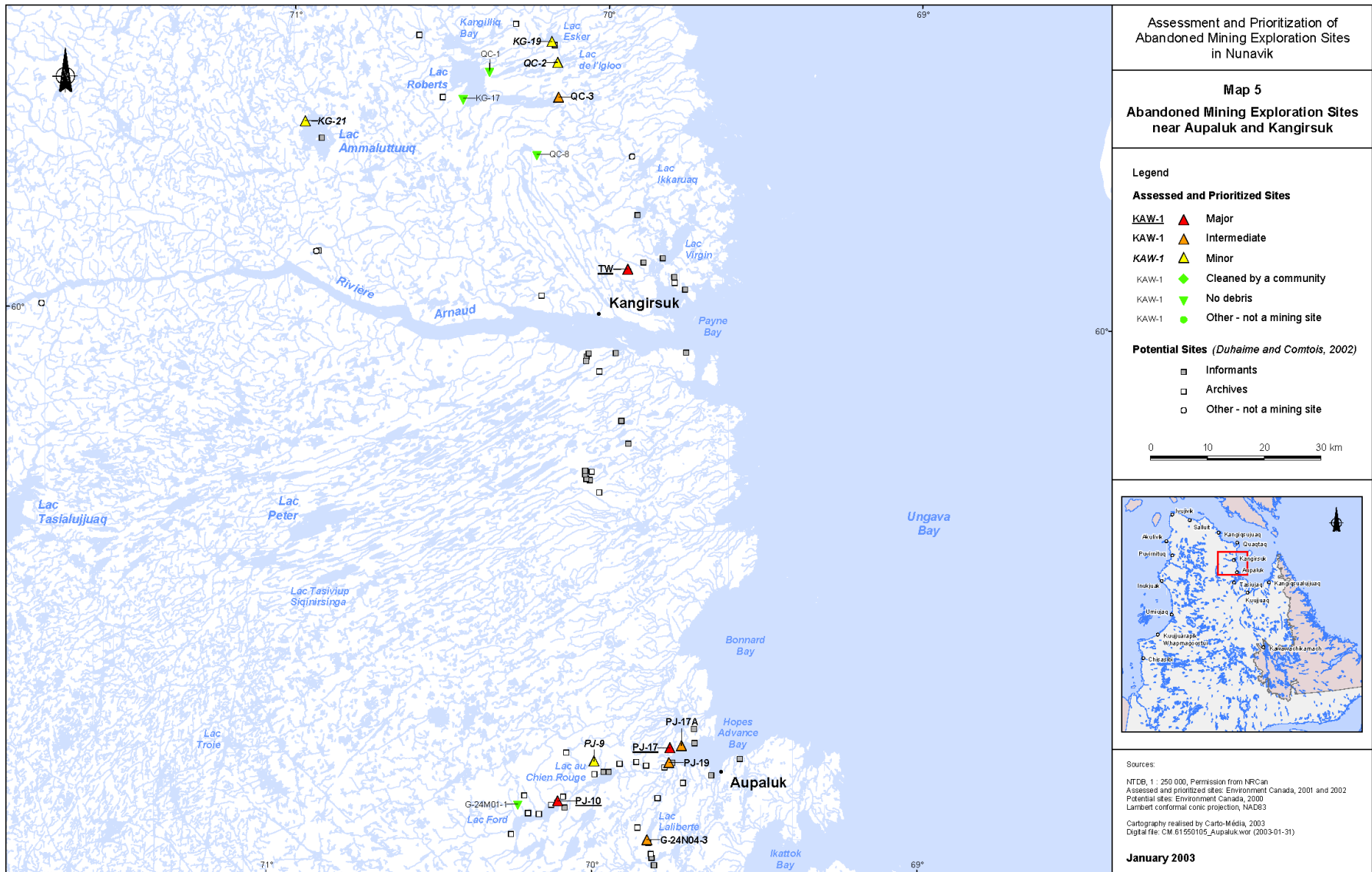
**Map 4**  
Abandoned Mining Exploration Sites near Kuujuaq and Tasiujaq

- Legend**
- Assessed and Prioritized Sites**
- KAW-1 ▲ Major
  - KAW-1 ▲ Intermediate
  - KAW-1 ◆ Minor
  - KAW-1 ▼ Cleaned by a community
  - KAW-1 ▲ No debris
  - KAW-1 ● Other - not a mining site
- Potential Sites (Duhaim and Comtois, 2002)**
- Informants
  - Archives
  - Other - not a mining site
- 0 20 40 60 km



Sources:  
 NTDB, 1 : 250 000, Permission from NRCan  
 Assessed and prioritized sites: Environment Canada, 2001 and 2002  
 Potential sites: Environment Canada, 2000  
 Lambert conformal conic projection, NAD83  
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**January 2003**



Assessment and Prioritization of Abandoned Mining Exploration Sites in Nunavik

Map 5  
Abandoned Mining Exploration Sites near Aupaluk and Kangirsuk

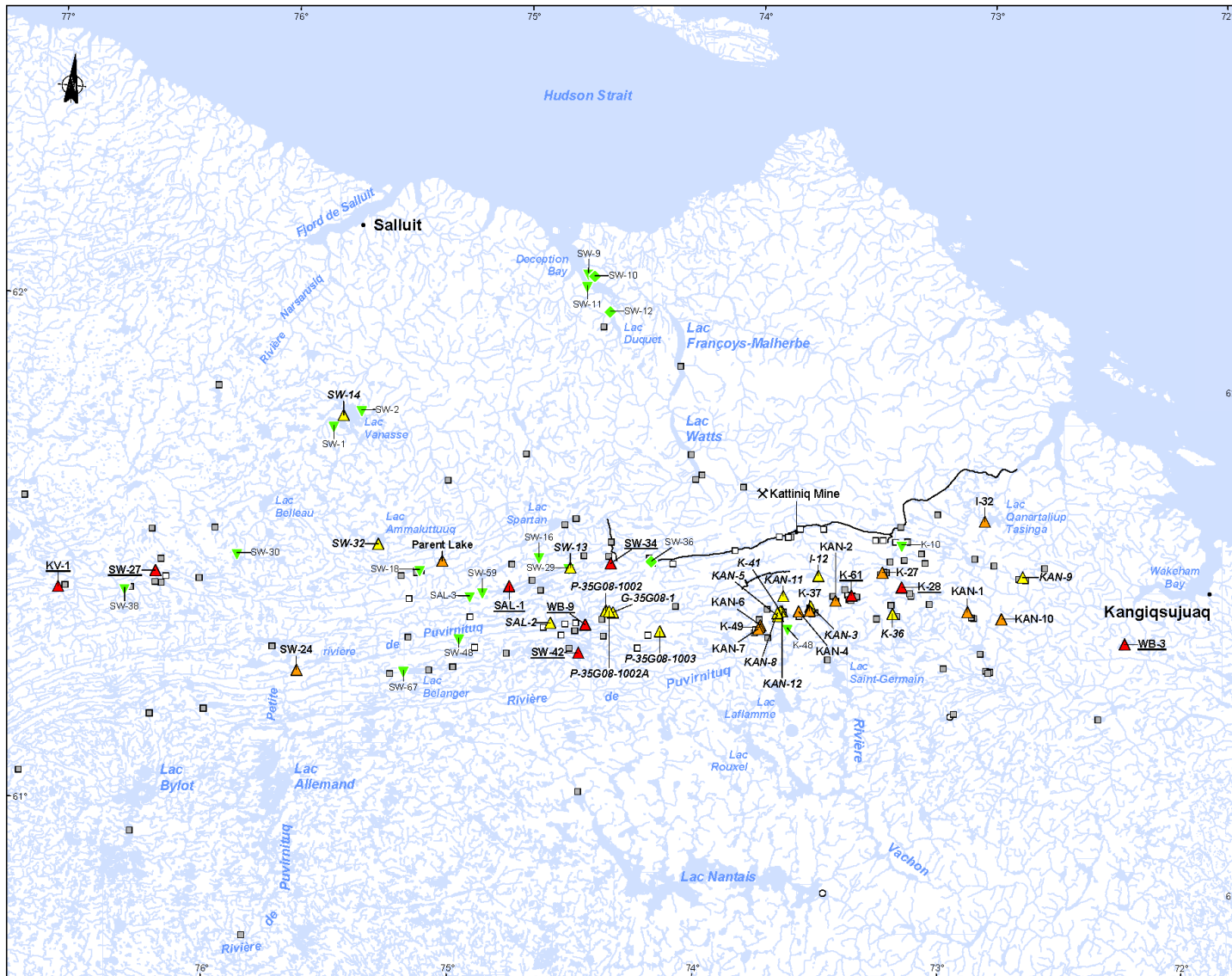
- Legend**
- Assessed and Prioritized Sites**
- KAW-1 ▲ Major
  - KAW-1 ▲ Intermediate
  - KAW-1 ▲ Minor
  - KAW-1 ◆ Cleaned by a community
  - KAW-1 ▼ No debris
  - KAW-1 ● Other - not a mining site

- Potential Sites (Duhaime and Comtois, 2002)**
- Informants
  - Archives
  - Other - not a mining site



Sources:  
 NTDB, 1 : 250 000, Permission from NRCan  
 Assessed and prioritized sites: Environment Canada, 2001 and 2002  
 Potential sites: Environment Canada, 2000  
 Lambert conformal conic projection, NAD83  
 Cartography realised by Carto-Média, 2003  
 Digital file: CM.61550105\_Aupaluk.wor (2003-01-31)

January 2003



Assessment and Prioritization of Abandoned Mining Exploration Sites in Nunavik

Map 6  
Abandoned Mining Exploration Sites near Kangiqsujuaq and Salluit

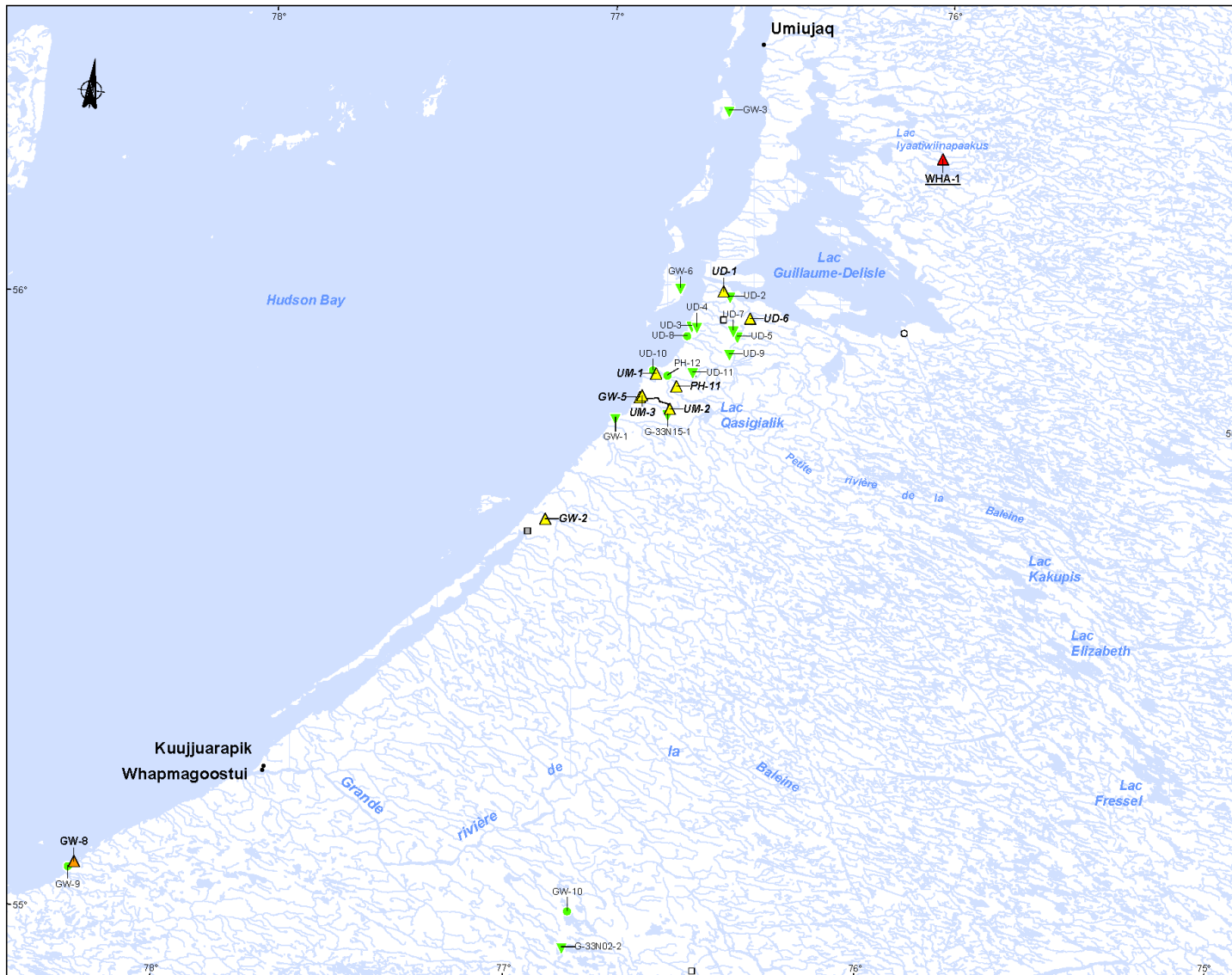
- Legend**
- Assessed and Prioritized Sites**
- KAW-1 ▲ Major
  - KAW-1 ▲ Intermediate
  - KAW-1 ▲ Minor
  - KAW-1 ◆ Cleaned by a community
  - KAW-1 ▼ No debris
  - KAW-1 ● Other - not a mining site

- Potential Sites (Duhaime and Comtois, 2002)**
- Informants
  - Archives
  - Other - not a mining site



Sources:  
 NTDB, 1 : 250 000, Permission from NRCan  
 Assessed and prioritized sites: Environment Canada, 2001 and 2002  
 Potential sites: Environment Canada, 2000  
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January 2003

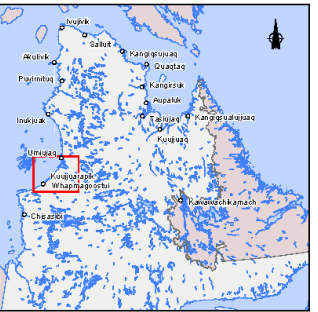


Assessment and Prioritization of Abandoned Mining Exploration Sites in Nunavik

Map 7  
Abandoned Mining Exploration Sites near Umiujaq and Kuujjuarapik

- Legend**
- Assessed and Prioritized Sites**
- KAW-1 ▲ Major
  - KAW-1 ▲ Intermediate
  - KAW-1 ▲ Minor
  - KAW-1 ◆ Cleaned by a community
  - KAW-1 ▼ No debris
  - KAW-1 ● Other - not a mining site

- Potential Sites (Duhaime and Comtois, 2002)**
- Informants
  - Archives
  - Other - not a mining site



Sources:  
 NTDB, 1 : 250 000, Permission from NRCan  
 Assessed and prioritized sites, Environment Canada, 2001 and 2002  
 Potential sites, Environment Canada, 2000  
 Lambert conformal conic projection, NAD83  
 Cartography realised by Carto-Média, 2003  
 Digital file: CM.61550107\_Umiujaq.wor (2003-01-31)

January 2003

## APPENDIX 2

### **Photographs of Sites on Which Cleanup Work was Undertaken in 2013**

Kawawachikamach Sector

**KAW-36**



Figure 1: Workers on site KAW-36, August 2013



Figure 2: Aerial view of site KAW-36 after cleanup, August 2013

KAW-59



Figure 3: Site KAW-59 during 2011 inspections

**KAW-119**



Figure 4: Site KAW-119, during 2011 inspections



Aupaluk Sector

**PJ-1 (Aupaluk)**



Figure 5: Barrels located at the Aupaluk disposal site, August 2013



Figure 6: Aupaluk disposal site after removal of barrels, October 2013



Figure 7: View of material stored next to municipal garage in Aupaluk, October 2012



Figure 8: View of municipal garage area after material was removed, August 2013



Figure 9: Material at dock in Aupaluk, October 2013



Figure 10: Aerial view of material at dock in Aupaluk, October 2013

## APPENDIX 3

### **Canadian Royalties Activity Report, 2013**

## SW-34

19 au 23 juillet 2013



Projet Nunavik Nickel Sébastien  
Vadeboncoeur Technicien environnement







**SW-34**  
**0528216, 6827694**

	19	20	21	22	23
Date (juillet 2013)					
Travailleurs	5	5	4	4	4
Heures travaillées	8	10	10	8	8
Voyage à Méquillon	2	6	0	7	6





# Matériel rendu à Méquillon pour élimination



## APPENDIX 4

### **Photographs of Sites on Which Work Will be Undertaken in 2014**

Tasiujuaq Sector

**PJ-1 (Aupaluk)**



Figure 11: Example of remaining material in Aupaluk, October 2013



Figure 12: Example of remaining material in Aupaluk, October 2013



TA-1



Figure 13: Aerial view of site TA-1, September 2011



Figure 14: Small disposal site at site TA-1, September 2011

TQ-6



Figure 15: Aerial view of site TQ-6, September 2011



Figure 16: Material found on site TQ-6, September 2013

**TQ-10**



Figure 17: Aerial view of site TQ-10, September 2011



Figure 18: Material found on site TQ-10, September 2011

**TQ-14**



Figure 19: Aerial view of site TQ-14, September 2011



Figure 20: Material found on site TQ-14, September 2011

Aupaluk Sector

**G-24-N4-3**



Figure 21: Aerial view of site G-24-N4-3, September 2011



Figure 22: Aerial view of barrels found on site G-24-N4-3, September 2011

**PJ-19**



Figure 23: Aerial view of site PJ-19, September 2011

Salluit Sector

**WB-9**



Figure 24: One group of barrels found at site WB-9, June 2012



Figure 25: Two of thirteen buildings found on site WB-9, June 2012



Figure 26: Example of wooden structures and debris found on site WB-9, June 2012



Figure 27: Propane tanks found at site WB-9, June 2012



Figure 28: General debris and waste found inside buildings on site WB-9, June 2012





Figure 29: Core sample from previous mining exploration activities found at site WB-9, June 2012

Kangiqsujuaq Sector

**KV-1**



Figure 30: Sector 2 of site KV-1 containing crushed drum and wood, September 2012



Figure 31: Sector 1 of site KV-1 containing various debris and wood, September 2012

### SW-27



Figure 32: Sector 1 of site SW-27, containing wood debris, barrels, propane tanks and hazardous waste, September 2012



Figure 33: Sector 2 of site SW-27, containing barrels, muskeg, trailer, debris and hazardous waste, September 2012



Figure 34: Sector 3 of site SW-27, containing barrels, wood and debris, September 2012



Figure 35: Sector 4 of site SW-27, containing barrels, debris and hazardous waste, September 2012



## Fonds Restor-Action Nunavik