

# **NUNAVIK ABANDONED MINERAL EXPLORATION SITES REHABILITATION PROJECT**

## **2012-2013 ACTIVITY REPORT**



**Kativik Regional Government**

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

**March 2013**



**Cover Page:**

Material in Aupaluk, September 2012  
Site VP-11 after cleanup, September 2012

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The community of Kuujuaq contributed to the project again this year during the cleanup of the site requiring intermediate cleanup known as VP-11.

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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, 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 all sites requiring major cleanup, using the expertise developed during the 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 from 2005-2011 (KRG, 2012a).

In 2012, cleanup work continued in the Nunavik region and the following report describes the rehabilitation activities carried out on the four sites known as: KAW-35, PJ-1, SW-34, and VP-11. Appendix 1 includes five maps that indicate these and all the 90 confirmed abandoned mineral exploration sites in relation to nearby communities.

## 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 would be used to continue the rehabilitation of the 5 remaining sites requiring major cleanup work as well as the 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 2012 was estimated at approximately eight hundred and fifteen thousand, five hundred and ninety-four dollars (\$815,594).

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, 14 of the 18 sites requiring major cleanup have been completed, and initiated on 2 other sites. 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 2005-2012.

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 2012, cleanup was initiated on 11 of these sites by mining companies and Cruise North Expeditions, 8 of which have now been completed. 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 2012**

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> )
Kawawachikamach												
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+
Tasiujaq												
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+
Aupaluk												
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+
Kangirsuk												
TW	2 platforms	1 pipe threader	11	0	83	1230	0	110 L 2 kg	0	0	30+	20+
Kangiqsujaq												
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+
Salluit												
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											
Umiujaq												
WHA-1	9	0	0	0	28	280	0	0	Cleaners	0	50+	5+
TOTAL	-	-	251	19	7 707	23 915	2 375	>1 075 L	-	3 T; 72 B	1 210+	800+

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

Site Name	Latitude	Longitude	Status
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	Partially 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
KAW-36	55° 15.02'	66° 09.46'	Untouched
KAW-59	56° 17.80'	67° 49.00'	Untouched
KAW-119	57° 37.48'	66° 45.77'	Untouched
P-24F	57° 01.54'	68° 53.20'	Untouched
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'	Untouched
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'	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'	Partially Cleaned
KAN-10	61° 31.58'	72° 49.30'	Partially 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 2012 season.

In 2012 priority was given to completing the work on the 5 sites requiring major cleanup known as KAW-35, WB-9, KV-1, SW-27 and SW-34, as well as preparing material in Aupaluk for transportation by ship to a recovery facility in the south. It was anticipated that some of the cleanup work would be done in collaboration with mining companies who are active in those areas. According to the GRP, years 2013 and 2014 will focus on completing rehabilitation work on blocks of intermediate sites located in the same 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 5 remaining sites requiring major cleanup and the 18 remaining sites requiring 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 2012 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*									INSPECTIONS	COMMUNITY TOUR
SW-27*										
WB-9*										
KV-1*										
KAW-35*										
KAW-36										
KAW-59										
KAW-119										
P-24F										
TA-1										
TA-2										
TQ-6/10										
TQ-14										
VP-11										
G-24N04-3										
PJ-19										
QC-3										
KAN-10										
KAN-2										
KAN-7										
Parent Lake										
SW-24										
GW-8										

\*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	\$2,00	\$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 only work 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 the KRG Regional Council meeting.

## 5 DESCRIPTION OF CLEAN-UP WORK UNDERTAKEN IN 2012

This section provides an updated description of the sites where cleanup work was carried out during the 2012 season. These sites were inspected in June 2012 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 KAW-35 and VP-11 were completed. Work was undertaken on site SW-34 as well as in the community of Aupaluk to prepare material previously removed from sites PJ-1 and PJ-10 for transportation by ship. 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 2012 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 2012.

### 5.1 DESCRIPTION OF WORK

#### **Kawawachikamach Sector**

##### **KAW-35**

The abandoned mineral exploration site KAW-35 (55° 13.94' N, 66° 07.27' W) is located near Lake Retty, 60 km east-northeast of Kawawachikamach and Schefferville (Map 3). The site covers 0.15 km<sup>2</sup> and comprises three sectors and is also known locally as the Blue Lake site. The 2001-2002 inventory ranked this site 8<sup>th</sup> in importance for major rehabilitation. However, following the extensive work that has been carried out in recent years, it may be stated that this site was under-ranked. It should have instead been ranked in the top three sites requiring the most cleanup work.

Further to the recommendations contained in the 2001-2002 inventory and site characterization work report, the KRG implemented one of two pilot projects at site KAW-35 in 2005-2006. Since then, cleanup work has been carried out on this site every year with the exception of 2010.

In collaboration with the Naskapi Nation of Kawawachikamach and the Innu Nation of Matimekush-Lac John, 2 work sessions were carried out in August and September 2012. Nearly all of the remaining scrap metal, found in various piles throughout the site, was removed. Five metal reservoirs were cut up into smaller pieces and removed from the site. Debris in the water and around the newly constructed dock was also collected. A wooden structure located near the water was demolished and burned and the fibreglass reservoir inside was dismantled. The larger wooden structure located on the site was cleaned and will be left as a shelter. Finally, a pipeline (partially covered by a wooden frame) that ran from the lake to an area located near the mine tailings, was cut up into smaller pieces and 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.

After many years of hard work, site KAW-35 has been rehabilitated and a final inspection is scheduled for 2013. Furthermore, the Project Coordinator established communication with a representative of a mining exploration company who was active in the area during the summer of 2012. Collaboration for future cleanup work in the area may be possible.

## **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. Approximately 36 pieces of equipment and machinery, totalling 117 tonnes, were transported by ship in 2011 to a metal recovery facility in the south.

In 2012, work continued in Aupaluk to prepare the remaining material for transportation by ship. Approximately 125 of the 400 drums being stored in Aupaluk waste disposal site were crushed and stored in a marine container. A second container was filled with 10 bags of contaminated soil (removed from site PJ-10 but also stored in Aupaluk) as well as 45 tires. These 2 containers were loaded onto the ship in November as well as 5 reservoirs that had previously been cut in half and filled with smaller pieces of metal. A skid of metal pipes, were also loaded aboard the cargo ship. In all, approximately, 30 tonnes of metal was transported south to a metal recycling facility.

Due to a lack of sea containers, some of the smaller pieces of metal could not be transported. Section 6 describes the work remaining in Aupaluk for 2013.

### **VP-11**

There are six sites requiring intermediate cleanup in the Tasiujaq sector. The site VP-11 (57°48.59' N, 69°31.75'W) is located between the communities of Kuujuaq and Tasiujaq (Map 4).

During the 2001-2002 and 2011 inspections, debris of 3 collapsed wooden cabins, 3–4 groups of barrels (all empty) and a small amount of metal debris were found on site. In collaboration with the Northern Village of Kuujuaq, cleanup work took place in June 2012. 12 large and 8 small drum as well as 300 pounds of debris was removed from the site. The wooden debris was left on site. After final inspection in September 2012, the site is now considered as complete.

## **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, an 8-day work session was organized for September 2012. However, due to bad weather conditions, the team was only able to complete 2 days of work. Approximately 2,200 pounds of scrap metal was removed from the site by helicopter and slung to a nearby location and stored inside sea containers. These containers will be transported by Xstrata Nickel to their port and shipped south to a metal recycling facility.

Section 6 describes the work remaining on site SW-34 for 2013.

## **5.2 EXPENDITURES INCURRED DURING 2012 FIELDWORK**

Table 5 indicates the estimated expenditures during the fieldwork undertaken from June 2012-October 2012. Some costs were under or over-estimated during previous cost assessments due to weather conditions and extra sessions on some sites.

**Table 5**                      **Estimated Expenditures for work carried out in 2012-2013**

<b>INCOME</b>	
KRG surplus 2011	\$8, 791
MRNF income	\$403, 402
FRAN income	\$403, 402
Scrap Metal	\$7,274
<b>TOTAL</b>	<b>\$822,869</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>
Xstrata Nickel			\$8,000		\$8,000
Makivik (NEAS)	\$35,000				\$35,000
<b>TOTAL</b>	<b>\$35,000</b>	<b>\$0</b>	<b>\$8,000</b>		<b>\$43,000</b>

<b>EXPENDITURES*</b>	<b>2012</b>
Travel Airfare	\$178,676
Travel Expenses	\$24,106
Translation	\$13,417
Purchase of Materials	\$9,163
Shipping	\$4,588
General Contracts	\$123,068
Bottle Gas	\$1,732
Gas-Vehicle	\$288
Licenses/Plates	\$180
Administrative Charges	\$85,000
Annual Report	\$5,050
Insurance	\$804
Salaries & Fringe Benefits	\$3,647
<b>TOTAL:</b>	<b>\$422,787</b>

\* Source: KRG Financial Statement, 2012

## **6 DESCRIPTION OF CLEAN-UP WORK TO TAKE PLACE IN 2013**

The following section describes the cleanup work required on the abandoned mineral exploration sites scheduled for rehabilitation in 2013, according to the work schedule presented in Section 4.2. Photographs of these sites can be found in Appendix 3.

### **Tasiujaq Sector**

#### **PJ-1**

Due to a lack of available sea containers the smaller pieces of metal and debris remain next to municipal garage in Aupaluk. Moreover, only approximately 125 of the 400 drums located at the community's waste disposal site were crushed and transported south by ship.

In 2013, KRG will need to mobilize a team of workers from Aupaluk to complete the cleanup work. Sea containers will be filled with all remaining material and shipped south to a recovery facility. The remaining 275 drums will need to be crushed and also stored in sea containers.

## **Salluit Sector**

### **SW-34**

In September 2012, an inspection of site SW-34, classified as requiring major cleanup work, found approximately 15 dumpsites containing rusty cans and metal debris spread out around the site.

In 2013, the KRG will need to assemble a team of workers from the communities of Salluit and Kangiqsujaq to undertake several days of work in order to complete the site's rehabilitation. With the assistance of a helicopter, the work team will move the debris from the site to the shipping containers located nearby. Photographs of the dumpsites and the material remaining at the site are found in Appendix 3.

As in previous years, collaboration with Xstrata Nickel will facilitate the rehabilitation of the site. Normally, the mining company handles the storage and transportation of the debris to a recovery facility in the south and allows the work team to use their camp facilities, located closer to the site than the nearest village.

### **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

An 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 3.

The KRG will need to establish a team of workers from the Northern Villages of Salluit and Kangiqsujaq to undertake several work sessions on the site. The cleanup is scheduled for the next two years due to its size and amount of material. Collaboration with nearby active mining exploration companies would greatly assist with the cleanup.

In 2013 the goal will be to empty the nine wooden structures of metal and non-hazardous waste, and to burn the combustible material on site. Hazardous material will be transported by helicopter to a nearby container (used for site SW-34) and then shipped to a recycling facility in the south.

If time permits, barrels and other non-hazardous debris will be transported by helicopter to a nearby container. Otherwise, this step will be completed in 2014.

### **Kawawachikamach Sector**

There are three sites requiring intermediate cleanup in the Kawawachikamach sector: KAW-36, KAW-59 and KAW-119 (Map 3). The results of the observations made at these sites during 2001-2002 and 2011 inspections are summarized in the following table.

Site no.	Map no.	North latitude	West longitude	Description
KAW-36	23/O8	55°15.02'	66°09.46'	32 barrels, 1 wooden platform, plastic core trays (10 m <sup>3</sup> ), drilling pipes, wood and metal debris, dumpsite with cans (2 m <sup>3</sup> ), old toilet.
KAW-59	24B/5	56°17.80'	67°49.00'	4 wooden platforms, 3 barrels, piping, metal debris, 1 stove, 1 tarpaulin, 1 recent canoe.  REQUIRED ACTION: Cut down trees and bushes to allow a helicopter to land at the site.
KAW-119	23O/10	57°37.48'	66°45.77'	17 barrels, 2 wooden platforms, 1 stove, 1 isolated barrel on the other side.

In 2013, KRG will need to mobilize a team of workers from the nearby Naskapi Nation of Kawawachikamach and the Innu Nation of Matimekush-Lac John for an extended work session on these three sites, which can be done in tandem since they are all located fairly close to each other.

KAW-36 is located near the site requiring major cleanup known as KAW-35, at which rehabilitation work was completed this year. Normally, this area is accessed by floatplane. However, a helicopter will be practical for moving the waste from site KAW-36 to Blue Lake, in order for it to then be transported to Schefferville by floatplane.

KAW-59 is located approximately 150 kms from Kawawachikamach, near Lac Romanet, and presents a bit of a challenge. Trees and brush are overgrown since the site was last visited and a landing/docking area for a helicopter or floatplane will need to be prepared. Once this is done, a helicopter will be able to transport the waste to site KAW-35 so that it can be transported by floatplane to Schefferville.



KAW-119 is located approximately 60 kms from Kawawachikamach, near Lac Murdoch. A helicopter can be used to transport the waste to site KAW-35 where it will then be transported to Schefferville by floatplane.

All non-toxic combustible material can be burned on location at all three sites. Photographs of these 3 sites can be found in Appendix 3.

### **Kuujuaq Sector**

There is only one site requiring intermediate cleanup in the Kuujuaq sector: P-24F (Map 3). The results of the observations made at this site are summarized in the following table.

<b>Site no.</b>	<b>Map no.</b>	<b>North latitude</b>	<b>West longitude</b>	<b>Description</b>
P-24F	24F/2	57°01.54'	68°53.20'	3 wooden platforms (6 m <sup>3</sup> ), 44 empty barrels, 1 barrel with ~10 L of diesel, 2 small barrels with ~20 L of diesel (the barrels are in 3 groups), 6 x 1 L aviation-oil containers (empty), 2 empty pails, empty Raid aerosol cans, 2 small propane tanks, 2 stoves, stove piping, cans, shingles (~1 m <sup>3</sup> ), bottles, beer cans, 1 double toilet, plastic, wood debris (1–2 m <sup>3</sup> ), aluminium core tray (1–2 m <sup>3</sup> ).

In 2013, KRG will need to mobilize a team of workers from the nearby community of Kuujuaq to undertake a cleanup at site P-24F. During 2011 inspections, it was noted that this site was located on an island on which the trees and shrubs had grown considerably since the last inspection in 2001. The team will have to ensure the site is safe for a helicopter to land and may need to prepare a land area.

The team will then need to gather the material scattered across the site and use the helicopter to sling the material to Kuujuaq, where it will be stored in a marine container and shipped to a recovery facility.

## 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.

### **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 3.

### **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 3.

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 2013

Table 6 indicates the estimated budget for carrying out the final rehabilitation work on sites SW-334, WB-9, KAW-36, KAW-59 and KAW-119 in 2013, as well as finalizing the cleanup work in Aupaluk.

**Table 6 Estimated Budget for 2013-2014**

<b>INCOME</b>	
KRG surplus, 2012	\$413,996
MRN income	\$175,780
FRAN income	\$175,780
<b>TOTAL</b>	<b>\$765,556</b>

IN-KIND CONTRIBUTION										
SITE	SW-34	WB-9	PJ-1 (Aupaluk)	KAW-36	KAW-59	KAW-119	P-24F	KV-1	SW-27	Total
Xstrata Nickel	\$30,000	\$10,000								\$40,000
Canadian Royalties		\$5,000						To clean	To clean	\$45,000
Makivik (NEAS)			\$100,000							\$100,000
Jien Nunavik Mining & Exploration Ltd.		\$10,000								\$10,000
TOTAL	\$30,000	\$25,000	\$100,000	\$0	\$0	\$0	\$0	\$20,000	\$20,000	\$195,000

<b>ESTIMATED EXPENSES</b>	<b>SITE</b>	<b>SW-34</b>	<b>WB-9</b>	<b>PJ-1 (Aupaluk)</b>	<b>KAW-36</b>	<b>KAW-59</b>	<b>KAW-119</b>	<b>P-24F</b>	<b>KV-1*</b>	<b>SW-27*</b>	<b>Total</b>
Coordinator salary (General Contract)		\$5,000	\$10,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$1,000	\$1,000	<b>\$42,000</b>
Technician salary and benefits		\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000		\$0	<b>\$35,000</b>
Workers salaries		\$15,000	\$30,000	\$25,000	\$10,000	\$10,000	\$10,000	\$5,000		\$0	<b>\$105,000</b>
Professional/Technical salaries (General Contract)		\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	<b>\$0</b>
Transportation of waste (via south)		\$0	\$0	\$50,000	\$10,000	\$10,000	\$10,000	\$10,000		\$0	<b>\$90,000</b>
Transportation of material (by helicopter/floatplane)		\$25,000	\$50,000	\$5,000	\$15,000	\$15,000	\$15,000	\$15,000		\$0	<b>\$140,000</b>
Disposal of waste (General Contract)		\$0	\$0	\$0	\$5,000	\$5,000	\$5,000	\$5,000		\$0	<b>\$20,000</b>
Travel Airfare		\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$5,000		\$0	<b>\$65,000</b>
Travel Expenses		\$5,000	\$5,000	\$5,000	\$10,000	\$10,000	\$10,000	\$5,000		\$0	<b>\$50,000</b>
Material/Equipment		\$10,000	\$10,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000		\$0	<b>\$45,000</b>
Communication and translation		\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	<b>\$1,800</b>
KRG training costs (Human Resources)		\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	<b>\$9,000</b>
<b>Sub-total</b>		<b>\$76,200</b>	<b>\$121,200</b>	<b>\$111,200</b>	<b>\$76,200</b>	<b>\$76,200</b>	<b>\$76,200</b>	<b>\$61,200</b>	<b>\$2,200</b>	<b>\$2,200</b>	<b>\$602,800</b>
Administration (12%)		\$9,144	\$14,544	\$13,344	\$9,144	\$9,144	\$9,144	\$7,344	\$264	\$264	<b>\$72,336</b>
Weather Provision condition (15%)		\$11,430	\$18,180	\$16,680	\$11,430	\$11,430	\$11,430	\$9,180	\$330	\$330	<b>\$90,420</b>
<b>TOTAL</b>		<b>\$96,774</b>	<b>\$153,924</b>	<b>\$110,744</b>	<b>\$96,774</b>	<b>\$96,774</b>	<b>\$96,774</b>	<b>\$77,724</b>	<b>\$2,794</b>	<b>\$2,794</b>	<b>\$765,556</b>

\* To be cleaned by mining company

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# APPENDIX 1

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

**LIST OF MAPS**

**Map 2    Map Index..... 3**

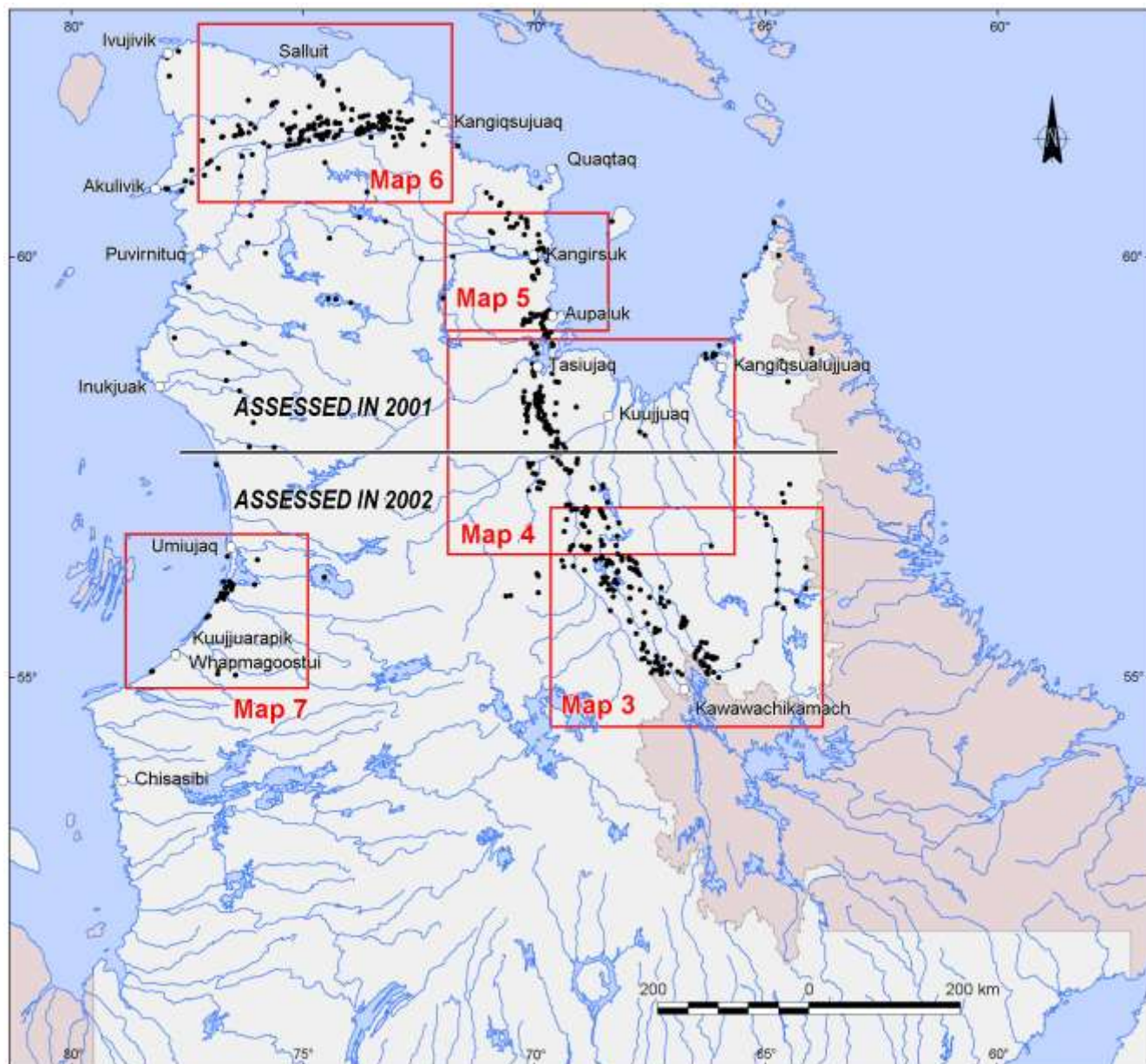
**Map 3    Abandoned Mining Exploration Sites near Kawawachikamach ..... 4**

**Map 4    Abandoned Mining Exploration Sites near Kuujjuaq and Tasiujaq ..... 5**

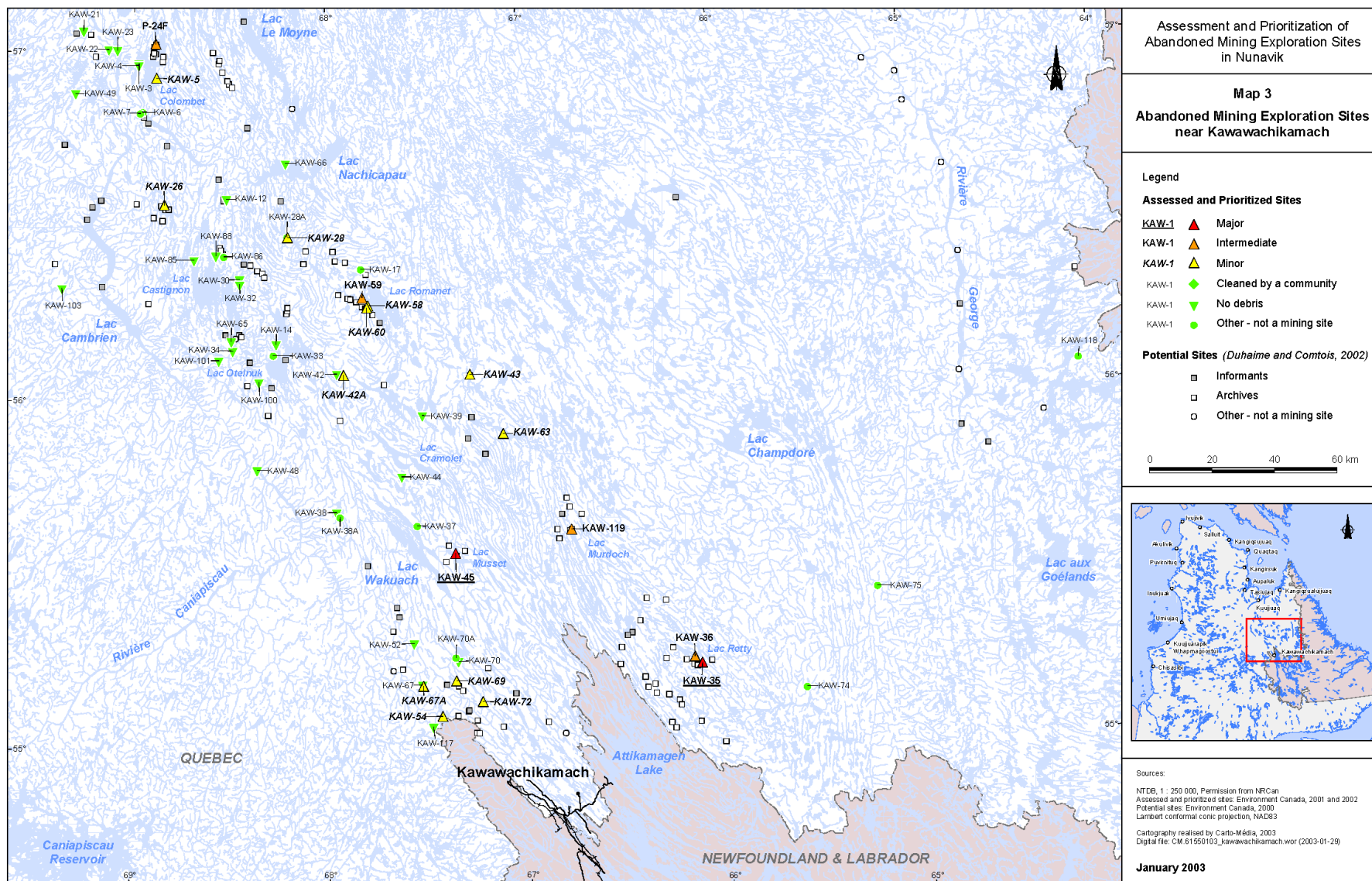
**Map 5    Abandoned Mining Exploration Sites near Aupaluk and Kangirsuk..... 6**

**Map 6    Abandoned Mining Exploration Sites near Kangiqsujaq and Salluit ..... 7**

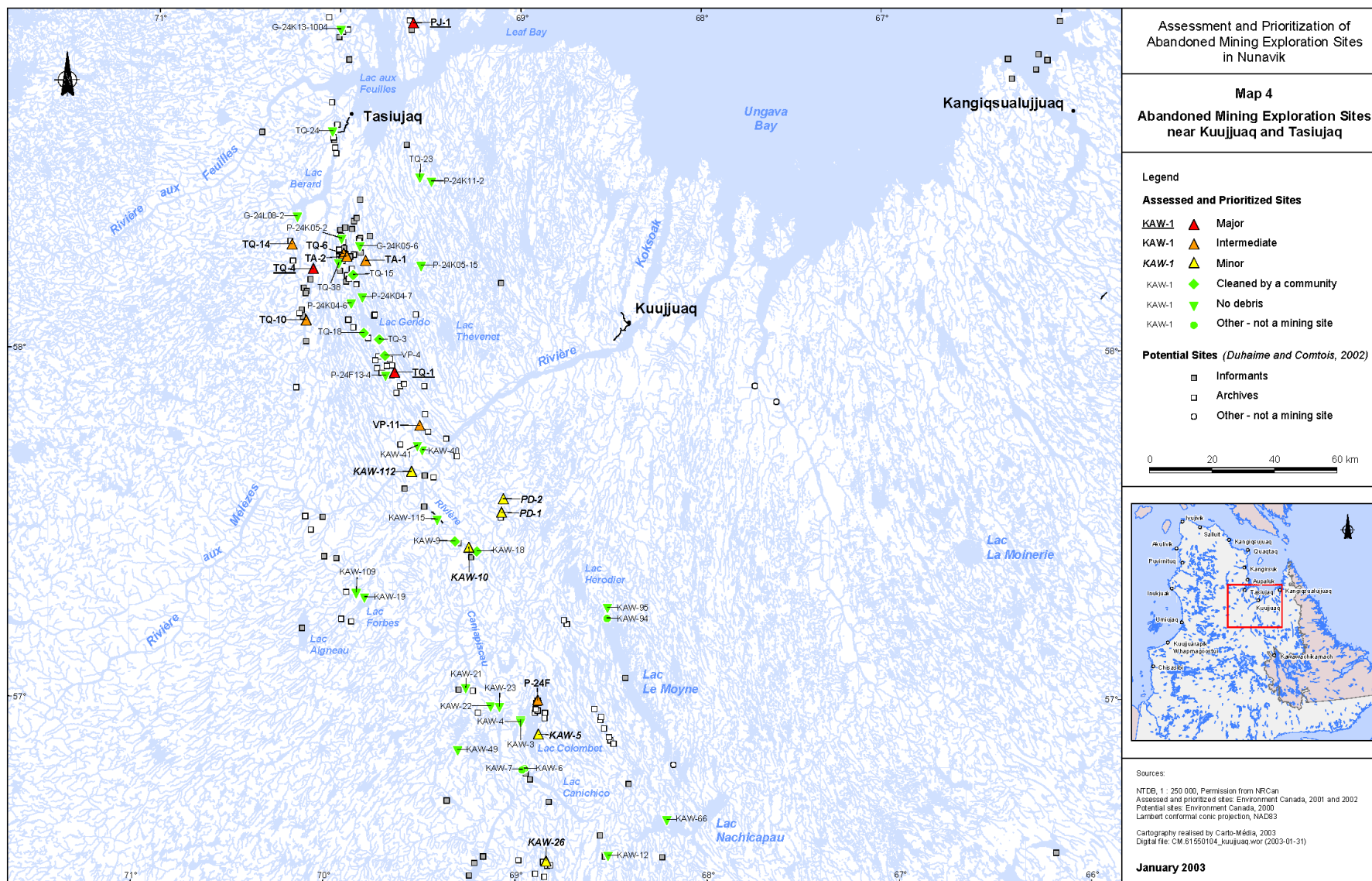
**Map 7    Abandoned Mining Exploration Sites near Umiujaq and Kuujjuarapik ..... 8**







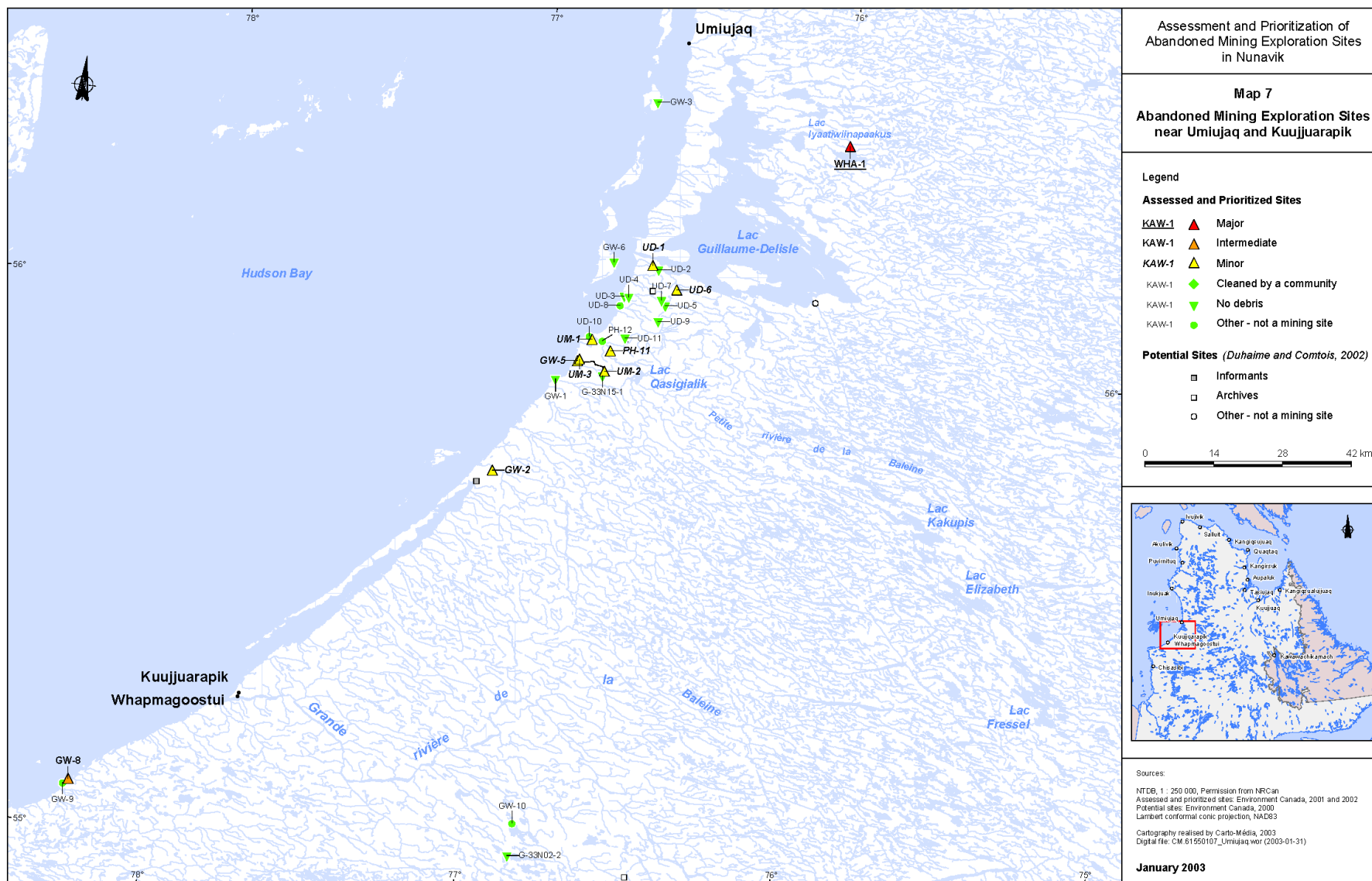














## APPENDIX 2

### **Photographs of Sites on Which Cleanup Work was Undertaken in 2012**

Kawawachikamach Sector

KAW-35



Figure 1: Material loaded on floatplane, September 2012



Figure 2: Floatplane being loaded with material, September 2012



Figure 3: Example of reservoir cut into smaller pieces and transported by floatplane



Figure 4: Example of waste transported to Schefferville by floatplane, September 2012



## Tasiujaq Sector

### VP-11



Figure 5: Site VP-11, June 2012



Figure 6: Site VP-11 after cleanup, September 2012



Figure 7: Site VP-11, June 2012

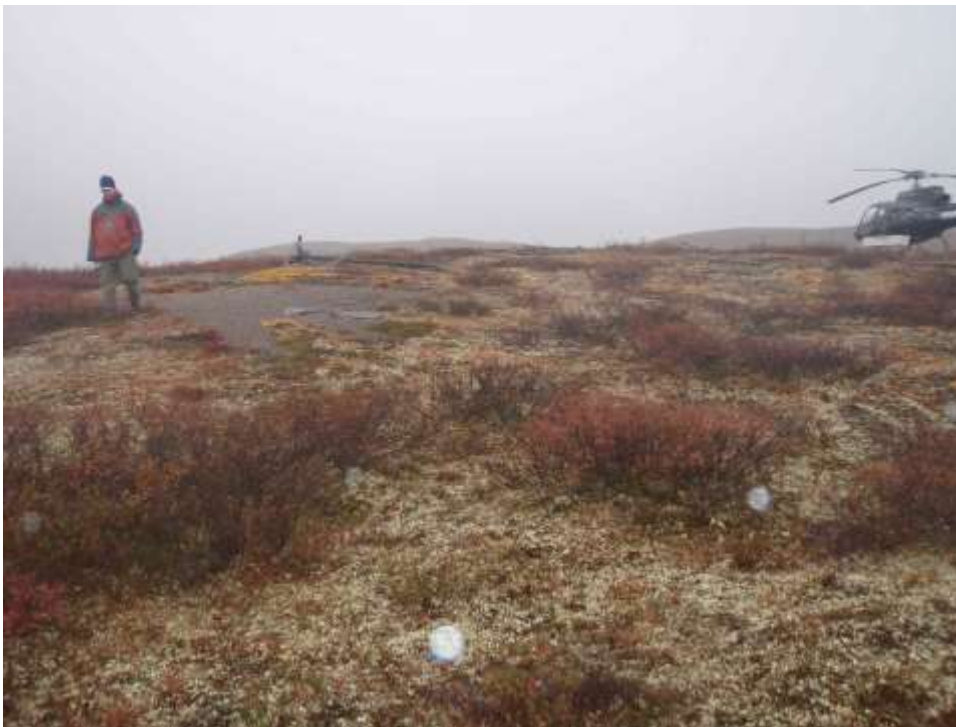


Figure 8: Site VP-11 after cleanup, September 2012



## Aupaluk Sector

### PJ-1 (Aupaluk)



Figure 9: Example of half-reservoir, filled with metal, which was transported by ship in October 2012



Figure 10: Example of large pieces of metal transported by ship in October 2012



Figure 11: Example of bags of contaminated soil transported by ship in October 2012

## Salluit Sector

### SW-34



Figure 12: Sector 2 of site SW-34, September 2009



Figure 13: Sector 2 of site SW-34, after cleanup, September 2012

## APPENDIX 3

### **Photographs of Sites on Which Work Will be Undertaken in 2013**



## Tasiujuaq Sector

### **PJ-1 (Aupaluk)**



Figure 12: Remaining barrels, stored at local landfill in Aupaluk, September 2012



Figure 13: Example of smaller pieces of metal debris remaining in the community of Aupaluk, September 2012

Salluit Sector

SW-34



Figure 14: Example of waste remaining at site SW-34, September 2012



Figure 15: Example of metal debris remaining at site SW-34, September 2012



**WB-9**



Figure 16: One group of barrels found at site WB-9, June 2012-11-02



Figure 17: Two of thirteen buildings found on site WB-9, June 2012



Figure 18: Example of wooden structures and debris found on site WB-9, June 2012



Figure 19: Propane tanks found at site WB-9, June 2012





Figure 20: General debris and waste found inside buildings on site WB-9, June 2012



Figure 21: Core sample from previous mining exploration activities found at site WB-9, June 2012

Kawawachikamach Sector

KAW-36



Figure 22: Aerial view of site KAW-36, September 2011



Figure 23: Photo of barrels found near shore at site KAW-36, September 2011



**KAW-59**



Figure 24: Aerial view of site KAW-59, September 2011

**KAW-119**



Figure 25: Aerial view of site KAW-119, September 2011

**Kangiqsujaq Sector**

**KV-1**



Figure 26: Sector 2 of site KV-1 containing crushed drum and wood, September 2012



Figure 27: Sector 1 of site KV-1 containing various debris and wood, September 2012



**SW-27**



Figure 28: Sector 1 of site SW-27, containing wood debris, barrels, propane tanks and hazardous waste, September 2012



Figure 29: Sector 2 of site SW-27, containing barrels, muskeg, trailer, debris and hazardous waste, September 2012



Figure 30: Sector 3 of site SW-27, containing barrels, wood and debris, September 2012



Figure 31: Sector 4 of site SW-27, containing barrels, debris and hazardous waste, September 2012



**Kuujuuaq Sector**

**P-24F**



Figure 32: Site P-24F, containing barrels, debris, September 2012



## Fonds Restor-Action Nunavik