

# **CAMECO CORPORATION**

# ABANDONMENT AND RESTORATION PLAN

for the

**NUELTIN LAKE PROJECT, NUNAVUT** 

Original Version April 2008 Gerard Zaluski, P.Geol. District Geologist Revisions by Kristl Hoksbergen, P.Geo Geologist June 2009

# **HISTORY OF REVISIONS**

Version	Revision	Date	Author	Details of Revision
1	0	April, 2008	Gerard Zaluski	Original Submission
1	1	October,	Gerard Zaluski	Revised to address comments
		2008		from Nunavut Water Board
				regarding license 2BE-NUE-0810
1	2	March, 2009	Kristl	Addition of the temporary camp
			Hoksbergen	to the plan.
1	3	June 12,	Kristl	Correction to Section 5.1
		2009	Hoksbergen	All sumps will be located 30m
				from high-water line.

# Addendum to Abandonment and Restoration Plan for the Nueltin Lake Project, Nunavut (license 2BE-NUE0810)

March, 2009

1. Sections 1, 2, 3, 4

Added the introduction of a temporary 5-man camp for the 2009 season only.

2. Section 5.1 Camp Waste

Added the waste management system for the temporary camp

3. Section 7.1 Final Abandonment: Buildings

Added the plan to fully demobilize the camp upon completion of the geophysical program and document the clean up.

# Addendum to Abandonment and Restoration Plan for the Nueltin Lake Project, Nunavut (license 2BE-NUE0810)

October, 2008

1. Table of Contents

Added table of contents and summary of revisions to document

2. Section 5.3.3 Permafrost

Updated to discuss sealing of drill holes at permafrost boundary

3. Section 7.3 Airstrips

Updated to discuss reclamation of airstrips

4. Section 7.6 Revegetation

Updated to discuss revegetation of sites

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# Abandonment and Restoration Plan for the Nueltin Lake Project, Nunavut

#### 1.0 PREAMBLE

This Abandonment and Restoration (AR) Plan relates to exploration activities on the Nueltin Lake exploration project of Cameco Corporation located in southern Nunavut approximately 15 km north of the Manitoba border. It is located approximately 185 km northeast of Lac Brochet, MB and 350 km west-southwest of Arviat, NU. The project, consisting of 1 mineral lease and 34 mineral claims is centered at 60° 7'N, 99° 59' 30"W. Housing of field crews will be split, with the geological and helicopter crew stationed at Treeline Lodge of Nueltin Lake Lodge in northwestern Manitoba. The ground geophysical crew will be stationed at a very small temporary camp located on the LES-1 central mineral claim, specifically at 60° 06" 41' N, 99° 59" 12'W.

The plan shall be in effect from the present (under land use permit N2008C0006 and water permit 2BE-NUE0810) until May 24, 2010 or until expiry of permit renewals. The location of the project area is shown in Figures 1 and 2.

# 2.0 INTRODUCTION

This AR plan applies to the exploration activities on the Nueltin Lake uranium exploration project operated by Cameco Corporation. This plan covers exploration activities (including both geological and geophysical programs). Fuel caches and their required reclamation will be planned for even though there are currently no fuel caches on the property. The geological exploration activities are based out of a commercial camp, Treeline Lodge of Nueltin Lake Lodge in northwestern Manitoba, which has a 30 person exploration camp in addition to the recreational fishing camp. The geophysical crew will be based out of a small, temporary, 5-person camp located at 60° 06" 41' N, 99° 59" 12'W.

Questions regarding this plan should be addressed to Kristl Hoksbergen, the geologist managing the project (306-956-6427 or kristl\_hoksbergen@cameco.com) or Gerard Zaluski, District Geologist – Nunavut and Northwest Territories (306-956-6359 or gerard\_zaluski@cameco.com).

#### 3.0 SCHEDULE

As a grassroots exploration project, the site will be seasonally occupied and temporary. A nearby commercial camp and a small temporary camp will be used for accommodation. A camp manager (as designated by the geophysical crew) and other camp personnel will maintain the camp on a daily basis. Following the field program this camp will be removed from the site entirely.

This plan therefore addresses exploration activities and impacts of the temporary 5-man camp. Routine or progressive restoration practices will be used wherever possible, including garbage disposal, removal of empty fuel drums, and restoration of the campsite upon completion of the program. Final restoration will begin upon completion or cessation of all exploration activities. No buildings, equipment, or waste will remain beyond the end of the 2009 summer program.

# 4.0 SITE INFRASTRUCTURE

The construction of the temporary camp will commence at the beginning of the geophysical program (presumably June 17<sup>th</sup>, 2009) assuming the acceptance of pending Land Use Permit, and Water License amendments.

The camp will likely consist of:

- 2 sleep tents
- A kitchen facility, a dry/shower facility
- Small outhouse

The entire camp will be removed upon completion of the summer geophysical program.

Please refer to Figure 3 for the schematic diagram of the camp location and infrastructure.

# 5.0 ROUTINE AND PROGRESSIVE RESTORATION

#### 5.1 Camp Waste

Camp waste will be disposed of as follows:

Grey water: will be disposed of in a small, hand-excavated sump, 1m in diameter and .5 m depth. This will be located at minimum 30m from the high-water line of the nearest water body.

Sewage: Waste collected in the outhouse will be bagged, and transported to the Nueltin Lake Lodge for proper disposal.

#### 5.2 Fuel and Chemicals

Empty fuel drums, propane cylinders, and chemical containers will be removed from camp and returned to Nueltin Lake Lodge.

#### 5.3 Drill Sites- THERE WILL BE NO DRILLING IN 2009

Progressive reclamation will be undertaken during drilling programs, where sites will be restored as soon as possible after the drill has been removed. The timbers from the drill pad will all be removed from the site and the area leveled with a hand rake. Efforts will be made to return the site to as natural a condition as possible.

#### 5.3.1 Drill Holes

After completion of the drill holes casing will be removed or cut off at ground level. Drill holes will be sealed by cementing the top 30 m of the bedrock.

#### 5.3.2 Sumps

Sumps shall be constructed to collect all drill waste including water, cuttings, salts, and mud and will be at least 30 m away from the ordinary high water mark of a water body. Upon completion of the hole, the cuttings will be backfilled into the holes and/or sumps. Sumps will be scanned to ensure that gamma radiation is <1 uSv/hr. Radioactive cuttings will be disposed of as the proceeding section. The sumps will be filled and leveled.

#### 5.3.3 Permafrost

The Nueltin Lake project is located in the taiga biome, close to but below the treeline. Therefore permafrost is not encountered in drilling and plugging of holes at the base of the permafrost will not be necessary.

#### 5.3.4 Radioactivity

Drill mud solids and cuttings with a uranium concentration greater than  $0.05\%~U_3O_8$  will collected and backfilled down the drill hole. Any drill hole with mineralization greater than  $1.0\%~U_3O_8$  over 1.0 m and with a meter-percent > 5.0 will be sealed by grouting throughout the mineralized interval (at least 10 m above and below).

#### 5.3.5 Waste

All wastes will be removed from the drill site and flown to camp. Combustible wastes will be incinerated and non-combustible wastes will be removed to an authorized disposal site.

#### 5.3.6 Site Inspection and Documentation

Each drill hole location will be located by GPS. Photos will be taken of each site both before and after drilling in order to monitor the restoration. This information will be provided in annual permit reports.

#### 6.0 SEASONAL SHUTDOWN

Exploration activities will be seasonal in nature (May through September). Upon completion of the field season all exploration equipment, and all wastes will be removed from the project area.

#### 6.1 **Buildings**

Temporary wood floor tents utilized in the geophysical camp will be taken down and removed from the site when the geophysical program is complete. Likely the end of July, 2009.

#### **6.2** Water System

Water pumps for the camp, if used, will be disconnected, drained, and removed from the site.

# **Fuel and Chemicals**

All fuel in caches will be removed at the end of the 2009 season. All empty containers will be removed from the site (including fuel drums, propane cylinders, and chemical containers). All chemicals (including cleaning supplies) will be removed from the site.

# 6.4 Waste

#### 6.4.1 Combustible Waste

All combustible waste will be removed to Nueltin Lake Lodge for incineration.

#### 6.4.2 Non-combustible Waste

All non-combustible waste will be collected and removed to Nueltin Lake Lodge for proper disposal or recycling.

#### 6.5 Core Shack and Racks-NO DRILLING WILL BE DONE IN 2009

No core shack will be situated on the claims, as core logging will be undertaken on a site near Nueltin Lake Lodge.

All drill core will be properly stored in proper core racks. Gamma radiation levels at long term core storage facilities shall not exceed 1.0 uSv measured 1 m from the surface and in no instance shall exceed 2.5 uSv.

# 6.6 Drill Sites-NO DRILLING WILL BE DONE IN 2009

At the completion of the drill program the drill will be dismantled and all drilling supplies will be removed from the drill site. The drill will either be demobilized from the project (back to its base of operation) or wintered at the camp site if such arrangements are made with the drilling contractor. In this latter case, the drill will be winterized and all components secured.

As discussed above, drill sites will be progressively restored immediately after the drill has been removed. However, at the end of the season all drill sites will be

inspected to ensure they have been adequately cleaned and reclaimed.

# **Contamination Clean-Up**

Temporary fuel caches will be inspected for soil contamination that was not noted previously. Any contaminated soil will be treated as outlined in the Spill Response Plan.

#### 6.8 Inspection and Documentation

All disturbed sites (drill sites, camp, and fuel caches) will be catalogued and inspected prior to the seasonal closure. The final state of these sites will be documented and photographed. The results of these inspections will be provided in annual reports to the water resource inspector, NWB, and INAC.

### 7.0 FINAL ABANDONMENT AND RESTORATION

The following plans are made for final abandonment and restoration of the project once all exploration on the projects ceases and prior to expiration of the land and water use permits.

#### 7.1 **Buildings and Contents**

All equipment and buildings from the temporary camp will be removed from the site.

Final inspection will be made after restoration of the project to ensure that no waste or materials remain. Photos will be taken to record the final condition.

#### 7.2 Fuel Caches and Chemical Containers

Since containers will be removed throughout the program, final remediation will be minimal. All remaining containers from fuel caches will be removed. Fuel cache sites will be inspected, all debris and berms removed, and final photos will be taken of all sites. Any contaminated soils will be treated as outlined in the Spill Contingency Plan.

#### 7.3 Air Strips

Access to the property will be by helicopter with possibly a minor amount of float plane support. Therefore, no aircraft landing strips will be used.

#### **7.4 Sumps**

All sumps will be filled, inspected, and leveled. Final photos and GPS locations will be collected and the information supplied to the Nunavut Water Board.

#### 7.5 Drill Sites-NO DRILLING WILL BE DONE IN 2009

Final inspection will be made to ensure that all drilling equipment, rods, and timbers have been removed from the project area. Sites will be inspected for contamination (treated according to the spill response plan if necessary), leveled,

and covered.

# 7.6 Revegetation

Disturbing of natural vegetation will be minimal, restricted only to drill pads and sumps. These will be left to revegetate naturally and monitored. If necessary, sites may be fertilized to facilitate revegetation.

# 7.7 <u>Core Storage</u>

The core storage site (located on the Nueltin Lake Lodge property) will be properly cleaned and maintained to ensure longevity. Radiation levels will be ensured to be below regulation limits (1 uSv/hr at 1 m).

### 7.8 Contamination Clean-up

All sites will be inspected for contamination and if necessary treated according to the Spill Contingency Plan. Any sites requiring cleanup will be documented by GPS locations and photographs. All chemicals will be removed from the site at the end of the project.

# 7.9 Final Inspection and Documentation

Upon completion of the final abandonment and restoration, photos will be taken and activities documented. This information will be provided in a final report to the appropriate licensing agencies.