AREVA Resources Canada Inc.

Kiggavik Project, Nunavut

WASTE MANAGEMENT PLAN

May 2013 – Version 5, Revision 2

REQUIRED USERS

Required and other users are responsible for using the current version of the Waste Management Plan as posted on Q:\Exploration\IMS. Users may print copies of this plan, but are ultimately responsible for ensuring they are using a current copy as posted. Users are requested to destroy all previously printed copies of the plan when they are informed of revisions.

HISTORY OF REVISIONS

Version	Revision	Date	Details of Revision
01	00	March 2007	Original submission
02	00	October 2007	Update to reflect changes in field activities/capabilities and goals of continual improvement
03	00	January 2009	Update to reflect changes in field activities/capabilities and goals of continual improvement
04	00	January 2010	Update to reflect changes in field activities/capabilities and goals of continual improvement
05	00	May 2011	Update to reflect changes in field activities/capabilities and goals of continual improvement
05	01	May 2012	Updated to reflect personnel changes
05	02	May 2013	Updated to reflect personnel changes

Original Copy of this Manual:

Approved and Signed by title: **Naomi Stumborg**

Safety Health Environment and Quality Supervisor, Exploration

Approved by: Naomi Stumborg
Signature and Date May 16, 2013

Approved and Signed by title: **Patrick Ledru**

Vice President, Exploration

Approved by: Patrick Ledru
Signature and Date May 16, 2013

The original hard copy of this approval page has been signed and is located at the AREVA Resources Canada Inc. corporate office.

TABLE OF CONTENTS

LIST OF TABLES

1 INTRODUCTION

The AREVA Resources Canada Inc. (ARC) Waste Management Plan applies to the Kiggavik Project (Project) located about 80 km west of Baker Lake, Nunavut. ARC is committed to ensuring that all wastes generated by the Kiggavik Project are collected, stored, transported, and disposed of in a safe, efficient and compliant manner.

1.1 Purpose and Scope

The Waste Management Plan principles are fulfilled by using proven strategies and applying modern technologies to ensure materials are used efficiently and disposed of in an environmentally conscious manner. General strategies include the following:

- The implementation of a waste manifesting system to enable waste identification and tracking.
- The most environmentally suitable materials, equipment, and products are used where practical.
- Procurement procedures consider product substitution for materials that are hazardous to handle, generate hazardous wastes, or create an environmental liability.
- All site personnel attend an orientation, which addresses waste management and handling of hazardous goods, prior to being exposed to the worksite. The site orientation for short-term visitors includes a waste management component.
- Proper sorting, disposal, storage and handling of all waste streams.

1.2 Revision to Manual

The Kiggavik Waste Management Plan is reviewed on an annual basis and is updated as required to keep the information current and consistent with regulatory and procedural changes. A History of Revisions can be found at the front of this manual.

1.3 Responsibilities

The District Geologist, Nunavut is responsible to ensure that this plan is implemented. Implementation may be completed by:

- Project Geologist
- Safety, Health, Environment, and Quality (SHEQ) Supervisor
- Or designate

The Vice President, Exploration is ultimately responsible for any activity being carried out by Kiggavik Project personnel.

2 WASTE REDUCTION, REUSE, AND RECYCLING

2.1 Waste Reduction

Efforts to, wherever practical, reduce waste at source, for example:

- refillable pump bottles instead of aerosol cans;
- reduction of paper consumption by promoting the use of electronic mail, voice messaging, electronic transmittals, etc.;
- reduction of disposable cups and containers by encouraging use/re-use of refillable mugs for beverages; and
- storage of bulk liquids in large containers and dispensing the liquids into smaller, refillable bottles and containers, instead of several smaller containers.

Means of reducing the volume of waste generated continue to be developed as the project progresses.

2.2 Waste Reuse

Waste is reused to the furthest practical extent. Examples of waste reuse include the use of cribbing from shipping of materials and equipment.

2.3 Waste Recycling

Waste is recycled where practical. Materials that may offer recycling opportunities in the future are investigated on an on-going basis during operations in an effort to reduce waste. For example, ARC may store materials such as tires, fluorescent lamp ballasts and other chemicals on-site for future shipment off-site for recycling.

3 WASTE SOURCES

The sources and types of wastes that are potentially generated are presented in Table 3-1:

Table 3-1 Sources of Waste Generation

Source of Waste	Types of Waste
Chemical handling and storage operations	waste petroleum products, used chemicals
Sewage	biological sludge
Equipment maintenance	used batteries, engine oil, oil filters, tires, scrap metals, *etc*.
Building maintenance	used transformers, fluorescent lighting ballasts/tubes, glycol, construction scraps (wood, piping, carpets, *etc.)*
Domestic waste from: - camp and drill sites - admin offices - kitchen facilities	domestic garbage, food wastes, paper, cardboard
Inert waste from camp and drill sites	cement, sand, used materials, metals, pipe, glass, insulation etc.
Biological waste from medical facility	biological waste, needles, syringes, blood, human tissue, gauze pads
Drilling	clean or radiologically contaminated drill cuttings

4 IDENTIFICATION, STRATEGY, AND DISPOSAL PLAN

Table 4-1 shows treatment strategies and disposal plans for wastes during the exploration program.

Table 4-1 Treatment Strategies and Disposal

Waste Type	Treatment Strategy	Disposal Plan
Petroleum based		
Used oil	Dispose or recycle off-site	Collect in bunged drums. Store in lined/bermed storage area. Ship off-site
Used hydraulic fluid	Dispose or recycle off-site	Collect in bunged drums. Store in lined/bermed area. Ship off-site
Oil filters	Recycle/recover	Collect in ring lidded drums. Store in lined/bermed storage area. Store for shipment off-site.
Contaminated soils	Excavate	Store for shipment off-site or landfarming (upon approval)
Waste batteries	Recycle off-site	Drain (if required) and neutralize acid. Store for shipment off-site
Aerosol cans	Reduce/recycle	Puncture, drain, and collect in ringed drums for shipment off-site.
Paint	Dispose off-site	Collect and store cans in drums for shipment off-site
Chemicals		
Glycol	Dispose or recycle off-site	Collect in bunged drums. Store for shipment off-site
Solvents	Reduce/dispose off-site	Use non-toxic solvents where possible. Store in drums for shipment off-site
Domestic wastes		
Food	Incinerate	Collect and store in designated containers. Incinerate daily.
Paper/cardboard	Reuse/incinerate	Reuse where possible or incinerate
Plastics	reuse/dispose off-site	Reuse where possible
General camp wastes	Incinerate	Sort to retrieve non-burnable. Incinerate.
Inert Bulk Wastes		
Buildings/bulk debris	Reuse off-site/dispose off-site	Store for future shipment off-site
Wood	Incinerate, dispose	Sort wood, incinerate non-treated wood, ship treated wood off-site to approved disposal facility
Incinerator ash	Dispose off-site	Collect in drums for shipment off-site
Scrap metal	Dispose off-site	Store for shipment off-site
Organic Wastes		
Sewage sludge	Incinerate	Bag and incinerate solid waste from pacto toilets; liquid waste is directed with greywater
Biological wastes	Incinerate/dispose off-site	Store in special waste receptacles. Incinerate/ship off-site
Drill cuttings - clean		Disposed in a low lying area in the receiving environment
Drilling cuttings - radiologically contaminated		Collected at the drill site in totes and stored in the radioactive storage compound for future handling, or shipped to an existing mining operation if the current exploration project does not proceed to development

5 WASTE MANAGEMENT

5.1 Sorting

Waste must be sorted at the source before it can be disposed or transported to specific designated areas to ensure proper disposal. Measures that are implemented for sorting include, but are not be limited to, the following:

- Containers are available for the collection of burnable, non-burnable, and recyclable wastes, such as scrap metal, timber, unsalvageable equipment, etc. The contents of the containers are sorted and stored for future handling, which consists of incineration off-site disposal or recycling.
- Stored wastes are kept in a neat and tidy fashion and are transported off-site during the winter haul season in accordance with the Winter Road Plan.
- The waste manifest tracking will be updated upon removal of waste items from site.

5.2 Waste Storage

5.2.1 Containers

Containers used for storage of waste are selected based on physical and regulatory requirements prevention of wildlife attraction (i.e., steel or heavy duty plastic containers with positive clamping lids) and transport requirements (helicopter, truck, forklift, etc.). All containers are properly labelled to identify only those wastes for which the containers are being used to collect.

5.2.2 Waste Storage-Areas

All waste(s) collected in drums that are susceptible to damage which may lead to a leak or spill are stored in lined/bermed areas (arctic berms) for future handling and removal from site. The lined/bermed areas (arctic berms) have been identified as the location in which used or generated hazardous materials are to be stored prior to off-site shipment.

5.2.3 Incinerator

An incinerator is used on a daily basis for the incineration of non-hazardous, combustible waste materials, which includes paper, food waste, sewage and non-treated wood. Incinerator ash is collected regularly (frequency depending on ash loading) in sealed, wildlife resistant containers and transported off-site for disposal.

5.3 Food Waste Handling

Food wastes are collected from the camp, drills and other facilities as required, and immediately placed in plastic bags. The bagged waste is then transported directly to the incinerator which is

located within 50 m of the kitchen. Typically, food wastes are incinerated daily to avoid potential wildlife attraction. Food wastes are not stored outside the incinerator area.

To prevent wildlife attraction, food, beverages and their containers are not disposed of outdoors. Designated snack and break areas for personnel are provided to prevent food and wastes from being generated uncontrollably around the site.

5.4 Non-Food Waste Handling

5.4.1 Sewage

When pacto-toilets are used, the sewage removed from the washrooms is collected in bags and immediately incinerated.

Liquid sewage from the urinals is currently mixed with the camp grey water for discharge into a designated low-lying area, which is at minimum 30 m south of camp. The grey water from the kitchen and washroom facilities is diverted to the grey water collection sump area. The grey water sump consists of a barrel that was punctured with drainage holes and buried to allow drainage and filtration of the water.

5.4.2 Chemicals

Chemicals are collected in appropriate containers, and stored in a lined/bermed area for future shipment off site for disposal or recycling at an approved facility.

5.4.3 Waste Oil

Waste oil is collected in bunged drums and stored in the lined/bermed area for future shipment off-site for handling at an approved facility.

5.4.4 Domestic Wastes

Non-toxic, non-food solid wastes is sorted into recyclable, reusable, combustible, and non-combustible categories. Combustible items are burned in the incinerator, while non-combustible items are stored until they are shipped off-site for recycling.

Aerosol cans are punctured and drained prior to being shipped off-site.

Toxic materials are to be stored in sealed, steel or plastic drums in a lined/bermed area and shipped off-site for proper disposal.

5.4.5 Inert Bulk Wastes

Inert bulk wastes that cannot be readily recycled or reused, such as chemically treated wood, general debris, incinerator ash, tires, etc. are stored and appropriately labelled prior to shipment off-site to an approved facility.

5.4.6 Hazardous Wastes

Other hazardous, non-combustible waste and contaminated materials not identified above are temporarily stored in appropriate containers and shipped off-site for disposal or recycling.

During normal operations, hazardous materials are stored in other various locations associated with their intended use to minimize site transport and handling requirements. These materials and locations are as follows:

- oils and greases are stored in drums, pails, and bottles in the maintenance shop or drill laydown area
- batteries of all types are stored in a storage area;
- ethylene glycol is stored in drums in the lined/bermed area

5.4.7 Drill Cuttings

When drilling in non-mineralized zones, drill mud solids or cuttings are deposited in designated low-lying areas. When mineralized core, greater than 0.05% uranium, is intercepted, all drill mud and cuttings are disposed of down hole where possible or collected in appropriate containers and stored in the radioactive storage area. This is in accordance with *Work Instruction EXP-740-05, Management and Disposition of Radioactive Drill Cuttings* and the Abandonment and Restoration Plan.

6 REFERENCES

Abandonment and Restoration Plan

EXP-740-05, Management and Disposition of Radioactive Drill Cuttings

Winter Road Plan