Prairie Creek Mine

DRAFT HAZARDOUS SUBSTANCE PLAN

September, 2012

Preamble

This *Hazardous Substance Plan* applies to the Prairie Creek Mine site.

The following formal distribution has been made of this plan:

Mackenzie Valley Land and Water Board

Canadian Zinc Corporation - Prairie Creek Mine Office

Canadian Zinc Corporation - Vancouver Office

Additional copies and updates of this Plan may be obtained by writing to:

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TABLE OF CONTENTS

TABLES

FIGURES

HAZARDOUS SUBSTANCE PLAN

1.0 INTRODUCTION

Canadian Zinc Corporation (CZN) plans to develop the Prairie Creek Mine (the Mine). The purpose of this document is to provide a Hazardous Substance Plan for the Mine site.

The Mine will consist of:

- underground mine workings
- a processing plant or Mill, including dense media separation (DMS) and paste backfill plants
- a concentrate bagging plant and storage shed
- an ore stockpile
- a waste rock pile
- an explosives plant
- a water storage pond
- a water treatment plant
- a sewage treatment plant
- runoff management structures
- an administration building an Mine 'dry'
- a kitchen/accommodation unit
- maintenance shops
- a tank farm and power house
- a solid waste facility and incinerator

A layout of the Mine showing many of these facilities is shown in Figure 1. In terms of waste management, most of the waste streams from the above noted facilities are addressed by other management plans, as follows:

- Tailings Management Plan
- Waste Rock Management Plan
- Water Management Plan
- Explosives Management Plan
- Waste Management Plan (non-hazardous solid waste)

This Hazardous Substance Management Plan (WMP) addresses the items listed in Table 1.

2.0 HAZARDOUS SUBSTANCE TYPES

CZN intends to have the existing infrastructure surveyed for asbestos-containing materials (ACM's) before construction of new or modified facilities. If any ACM's are found, a removal program will occur.

Glycol will be used to recover heat from the power generators.

Mill process and water treatment chemicals are included on the hazardous substance list, but they are not expected to become waste sources. Many of the mill process chemicals are not considered to be hazardous. The chemicals will mostly be stored in covered warehousing until ready for use. Sulphuric acid will have a separate, dedicated storage tank facility. It is assumed all of the substances will be completely consumed.

Medical wastes, solvents/degreasers, oil filters, grease, batteries and florescent tube ballasts will represent independent waste collection and disposal streams.

3.0 HAZARDOUS WASTE MANAGEMENT

CZN will operate a Waste Transfer Area where drummed hazardous waste will be collected for off-site disposal. Wastes will include cleaners/degreasers, oil filters, paint, batteries, grease, glycol and biomedical waste. The Waste Transfer area will be located in the Main Yard.

Management and transport of hazardous wastes will comply with GNWT‟s *Guideline for General Management of Hazardous Waste*. CZN will adopt a waste colour code system similar to that developed and used by Diavik Diamond Mines Inc. (see Figure 2). The waste will be transported off-site by a registered hazardous waste carrier to a registered receiver approved to manage the wastes, and with the appropriate manifests. The transportation of all hazardous materials transported to and from the site will be conducted in accordance with existing territorial and federal regulations, including the Transportation of Dangerous Goods guidelines.

Any waste containing asbestos will be buried in a landfill within the footprint of the Waste Rock Pile. The GNWT‟s *Environmental Guideline for Waste Asbestos* will be followed.

TABLE 1: HAZARDOUS SUBSTANCES

Waste Stream	Description	Volume	Unit	Handling	Disposal	Key Considerations/ Observations
Construction						
Asbestos	Asbestos				Seal in bags and Landfill	Follow special handling procedures.
Reagents/ Consumables						
Glycol 60/40 EG Coolant	Waste Heat Chemical			Drums	Off-site	
DF067	Flotation Reagent	10.2	t/yr			
SIBX	Flotation Reagent	38.3	t/yr			
MIBC	Flotation Reagent	0.7	t/yr			
P82	Flotation Reagent	44.5	t/yr			
AQ4	Flotation Reagent	171.1	t/yr			
Copper Sulphate	Flotation Reagent	448.6	t/yr			
3894	Flotation Reagent	5.1	t/yr	Plastic totes		
RTR3	Flotation Reagent	3.7	t/yr			
SIL N	Flotation Reagent	118.5	t/yr			
Na2S	Flotation Reagent	204.4	t/yr			
Sulphuric Acid 93%	Water Treatment	655.0	t/yr			
Sodium Sulphide (Na2S)	Water Treatment	39.0	t/yr			
Ferric Sulphate (FeSO4)	Water Treatment	86.9	t/yr	Plastic totes		Non returnable
Camp/ Offices						
Medical wastes	Bio-hazardous waste (needles, syringes, blood, medications, bandages, etc.)			Drum	Off-site	
Maintenance						
Solvents/ Degreasers	Paint thinner, acetone, varsol			Drum	Off-site	
Oil Filters	Oil Filters			Drum	Off-site	
Grease	Grease	750	l/yr	46 gallon Drums	Off-site	Off-site recycling
Mobile & Stationary Equipment Batteries	Batteries	20	Units/ yr	Pallets	Off-site	Off-site recycling
Florescent tubes	Florescent tubes			wood crate	Landfill (glass); off-site recycling (mercury)	Use tube crusher and mercury recovery unit..

Figure 1: Prairie Creek Mine Site Layout

Mine Facilities:

1 - Water Storage Pond - Cell A
2 - Water Storage Pond - Cell B
3 - Flood Berm
4 - Sewage Treatment Plant
5 - Staff Accommodation Block
6 - Temporary Backfill Storage
7 - Concentrate Storage Shed
8 - Acid Storage Tanks
9 - Power Plant
10 - Bagging Plant
11- Paste Plant
12 - Catchment Pond
13 - DMS Plant
14 - Waste Rock Pile
15 - Fuel Tank Farm

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Figure 2: Waste Management Code System

Disposable Batteries

Stored in Drums

Transfer to the Waste Transfer Area

Oily Rags, Grease Tubes & Used Absorbent Pads

Stored in Drums

Transfer to the Waste Transfer Area

Used Floor Dry

Stored in Drums

Dispose in Lined Area in Waste Transfer Area

Oil Filters

Stored in Drums

Transferred to the Waste Transfer Area

Used Grease

Stored in Drums

Transfer to the Waste Transfer Area

Aerosol Cans (Do not puncture)

Stored in Drums

Transfer to the Waste Transfer Area

Used Glycol

Store in Drums

Transfer to the Waste Transfer Area

Burnable Wood , Cardboard, Paper and Air Filters

Burned

Ashes Transferred to Approved Landfill

Landfill Waste Steel, Plastic, and Glass

Disposal

Approved Landfill

Waste	Container	Disposal
Oil Filters	Labeled 45 Gallon Drum	Waste management Building
Batteries	Labeled 45 Gallon Drum	Waste Transfer Area
Large Equipment Batteries	Place on Pallets	Waste Transfer Area
Tires		Recycle or dispose in Landfill

Batteries and Aerosol cans in camp (found in dorm laundry rooms)

If you are uncertain about a specific waste, contact the Environmental Department or Waste Management Personnel.

Note: All food waste must be in incinerated. This includes paper plates, paper cups, and lunch bags!
These can NOT go into burnable or non-burnable bins!

*Source: Diavik Diamond Mines Inc.