



## Facsimile Coversheet

File: MV2003L2-0013

To:	<b>BHPB Distribution List</b>	From:	<b>Lynn Carter</b>
Fax:	Various	Pages:	7
Phone:	--	Date:	<b>November 16, 2006</b>
Re:	<b>Review of Hydrocarbon-Impacted Materials Management Plan</b>	CC:	

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● **Comments:**

Attached for your review and comments is the *Hydrocarbon-Impacted Materials Management Plan*. Note that a pdf version of this plan can be found on the website ([www.mvlwb.com](http://www.mvlwb.com), WLWB registry).

Please submit your comments in writing by **December 8, 2006**.

Thanks,

*Lynn Carter*

		ENVR-SWP-XXX-xx	
		Hydrocarbon-Impacted Materials Management Plan	
<b>Owner:</b> Environment Compliance Specialist	<b>Approver:</b> Chief Environment Officer Operations	<b>Issue Number:</b> 0	<b>Creation Date:</b> September 20, 2006
			<b>Revision Date:</b>

### Objective

This document provides a framework and guideline for the management of Hydrocarbon-Impacted Materials at the EKATI Diamond Mine (EKATI) in accordance with our legal requirements as stated in Water Licence MV2003L2-0013. Activities carried out under this plan are reported to the Wek'eezhli Land and Water Board in the Annual Report.

### Scope

This procedure applies to all BHP Billiton Diamond Inc. employees, alliance partners, and contractors. The procedure will be amended on an as-needed basis, based on operational changes to affected facilities.

### Introduction

This document details the management of hydrocarbon-impacted materials at EKATI. It identifies materials generated through operation of the mine, and provides instructions regarding the management of each hydrocarbon-impacted waste stream.

The chemical composition of material at each facility will vary over time and as treatment progresses, and will depend on the input materials. In general, material stockpiled will contain hydrocarbons in the form of diesel, hydraulic oil, and other oils used on site.

Efforts to reduce the generation of hydrocarbon-impacted materials are ongoing in the form of site-based education on effective spill response and prevention, and in preventative maintenance conducted on onsite equipment.

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**ENVR-SWP-XXX-xx****Hydrocarbon-Impacted Materials  
Management Plan****Definitions**

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<b>Berm</b>	Embankments that are part of the Contaminated Snow and Ice Containment Facility and Landfarm used to contain fluids and control runoff. Berms are lined and engineered portions of these facilities.
<b>Contaminated Snow and Ice Containment Facility (CSCF)</b>	A lined engineered facility designed and constructed for the containment of hydrocarbon-impacted snow and ice. This facility is situated within the Panda/Koala Waste Rock Storage Area, and is visually inspected on a regular basis to ensure integrity of containment, and to monitor for migration, leakage and seepage of hydrocarbon materials. Figures 1 and 2 illustrate this location. Operational details of this facility are described in Sections 1.0, 4.0 and 5.0.
<b>Free Phase Hydrocarbons</b>	A hydrocarbon product that is present in a pure product phase, usually a liquid in the case of hydrocarbons, such as diesel fuel.
<b>Hydrocarbons</b>	Organic compounds containing carbon and hydrogen atoms. These compounds are found in diesel, glycol, gasoline, kerosene, jet fuels, hydraulic oil, transmission fluid and lube oil.
<b>Hydrocarbon-Impacted Snow and Ice</b>	Snow and ice that has been impacted with hydrocarbons (diesel, glycol, gasoline, kerosene, jet fuels, hydraulic oil, transmission fluid and lube oil) through operational spills.
<b>Landfarm</b>	A lined, engineered facility with a berm and leachate collection system. This facility is located on the Panda/Koala Waste Rock Storage area, across from the Panda Portal. The facility is visually inspected on a regular basis to ensure integrity of containment, and to monitor for migration, leakage and seepage of hydrocarbon materials. Figures 1 and 3 illustrate this location. Operational details of this facility are described in Sections 2.0, 4.0 and 5.0.

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**ENVR-SWP-XXX-xx Hydrocarbon-Impacted Materials Management Plan****Long Lake  
Containment  
Facility (LLCF)**

The LLCF is located west of the Ekati main camp, and covers approximately 1340 hectares. The containment facility is divided into five cells. A frozen core dam at the outlet of the facility controls outflow from the facility. Cell B of this facility receives excess water decanted from the Landfarm, Contaminated Snow/Ice Containment Facility, and truck shop sumps which were previously deposited into the Race Track. Figures 1 and 4 illustrate this location.

**Race Track (Sump  
Water Disposal  
Area)**

The Race Track was decommissioned in September, 2006. It was previously used as a designated area located within the footprint of the Coarse Kimberlite Reject Storage Area used for the disposal of excess water that has been decanted from the Landfarm, Contaminated Snow/Ice Containment Facility, and truck shop sumps. Figures 1 and 5 illustrate this location.

**Skimmer**

A unit designed to collect and remove free phase hydrocarbons from a water surface.

**Waste  
Management  
Building**

The Waste Management Building is an enclosed transfer facility where waste is stored, and if possible, processed for recycling and/or disposal. Waste is accepted from all areas of site.

**Zone S**

There are two locations known as Zone S. The first is located within the footprint of the Panda/Koala Waste Rock Storage Area, and the second is off the southeast side of the Fox Pit. These areas accept hydrocarbon-impacted rock and soil with an average diameter greater than 4cm. Operational details of this facility are described in Section 3.0.

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**ENVR-SWP-XXX-xx****Hydrocarbon-Impacted Materials  
Management Plan****Hazards**

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**Hydrocarbons –  
Environmental  
Hazards**

Hydrocarbons allowed to contact the natural environment can cause negative impact to soils and to water quality. While the majority of spills at EKATI occur in the pits where they do not pose a risk to the receiving environment or water bodies, the prompt cleanup of spills to soil will reduce environmental effects, and minimize the potential for lasting environmental effects to the receiving environment.

**Hydrocarbons –  
Inhalation and  
Dermal Hazards**

Personnel working with hydrocarbon-impacted material may come into contact with hydrocarbons. Lighter end hydrocarbons will have moderate to high volatility while heavier end hydrocarbons will have low volatility. All personnel working within in the CSCF must wear appropriate personal protective equipment (PPE) and be aware of potential inhalation hazards. Refer to ENVR-JHA-MTL-02 for details on the safety hazards associated with working in the CSCF.

**Hydrocarbons –  
Ignition Hazard**

Smoking is prohibited at all facilities where hydrocarbon impacted materials are stored. Open flames or other potential sources of ignition are not allowed in these areas.

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ENVR-SWP-XXX-xx

**Hydrocarbon-Impacted Materials  
Management Plan****Elements**

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**WASTE****MATERIAL DISPOSAL LOCATIONS**

The following Material Disposal Locations are in operation at EKATI. These facilities are shown on Figure 1. A conceptual plan of hydrocarbon waste management at EKATI is shown in Figure 6:

- Contaminated Snow Containment Facility (CSCF)
- Landfarm
- Zone S
- Long Lake Containment Facility, Cell B
- Waste Management Building
- Incinerators
- Landfill

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**ENVR-SWP-XXX-xx****Hydrocarbon-Impacted Materials  
Management Plan****1.0 Snow and  
Ice**

Impacted snow and ice resulting from unintentional hydrocarbon based spills during the winter (fuel, lubricants, glycols etc.) is collected and transferred to the lined Contaminated Snow Containment Facility (CSCF). To prevent uncontrolled dumping and ensure all waste deposited into this facility is recorded, the following measures are implemented:

- A permanent gate with a keyed lock exists at the entrance of the CSCF. This key is controlled by Mine Services;
- The gate is locked at all times (except when in use); and
- There is a sign at the CSCF entrance which provides the following information (Figure 2):

**EKATI CONTAMINATED SNOW AND ICE CONTAINMENT  
FACILITY**

**HYDROCARBON-IMPACTED SNOW AND ICE ONLY  
NO SMOKING BEYOND THIS POINT**

**FOR AUTHORIZATION  
TO PLACE SNOW IN FACILITY,  
CONTACT MINE SERVICES AT CHANNEL 6  
OR 880-2012**

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**ENVR-SWP-XXX-xx****Hydrocarbon-Impacted Materials  
Management Plan****2.0 Rock and  
Soil <4cm**

Hydrocarbon-impacted rock and soil with average diameter less than 4 cm is placed into the Landfarm (Figure 1, 3). Materials with a diameter larger than 4 cm will not be treated at this location, as described below. Materials placed in the Landfarm are aerated and treated with amendments such as the addition of fertilizer to promote the natural breakdown of hydrocarbons through bioremediation. Volumes treated and hydrocarbon content in the Landfarm are monitored. Treated material which meets GNWT's Industrial remediation criteria will be deposited at Old Camp storage area, and this information will be provided to the Wek'eezhii Land and Water Board through the Annual Report.

The Landfarm may also be used as secure temporary storage for hydrocarbon-impacted material which is unsuitable for bioremediation, prior to these materials being sent offsite for disposal.

Hydrocarbon-impacted soil is also stored at the Old Camp, and the former Klempe facility, and is monitored as part of the Closure and Reclamation Program. Figure 1 illustrates these locations.

**3.0 Rock and  
Soil >4cm**

Hydrocarbon-impacted rock and soil with an average diameter greater than 4cm is placed in to Zone S either at the Panda/Koala Waste Rock Storage Area, or the southeast side of the Fox Pit.

**4.0 Skimmed  
Oil from Sumps**

Routine maintenance of the CSCF and the Landfarm includes the periodic skimming of free phase hydrocarbons and subsequent draining of the sumps at these locations. Skimmed water may originate from other sources such as spills to land. Oil skimmed from these sumps is placed into totes and stored in the Waste Management Building to await shipping offsite, if the oil is not contaminated with other substances it may be burnt on site in one of several burners.

**5.0 Sump  
Water**

Water drained from sumps at the CSCF and the Landfarm is sampled, and tested for hydrocarbons as required by the Water Licence, and disposed of into Cell B of the LLCF. The Racetrack was a designated area located within the Coarse Rejects Storage Area, used for the disposal of water from the CSCF, the Landfarm, collection ponds, and mine sumps.

**6.0  
Underground  
Spills**

Hydrocarbon spills from underground mining operations combine with saline connate water. These liquids are collected as a component of the site dewatering system and transported to the LLCF.

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**ENVR-SWP-XXX-xx****Hydrocarbon-Impacted Materials  
Management Plan****7.0 Used Oil  
Filters and Fuel  
Filters**

Used filters are taken to the Waste Management Building, where they are drained, crushed if possible, and shipped offsite for recycling or disposal.

**8.0 Oil-Based  
Paint Cans**

Paint cans are taken to the Waste Management Building, where they are drained of their contents and shipped offsite for recycling or disposal by a waste broker acting on behalf of the company.

**9.0 Empty  
Containers  
with  
Hydrocarbon  
Residue**

Empty drums are stored outside the Waste Management Building. Empty metal drums which are no longer useable are shipped off site. Empty plastic drums which are no longer useable have their residue removed and are then crushed and deposited in the Landfill.

Empty 20L pails formerly containing gear oil, grease, etc. are taken to the Waste Management Building where they are drained, and any remaining residue is wiped out prior to being deposited in the landfill.

**10.0 Other  
Hydrocarbon-  
Impacted  
Debris**

Materials such as rags, gloves, absorbent pads or sorball pellets become hydrocarbon-impacted through maintenance operations such as vehicle and equipment repair, and through spill cleanup. These materials are segregated and incinerated.

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**ENVR-SWP-XXX-xx**

**Hydrocarbon-Impacted Materials  
Management Plan**

**Documents and Records**

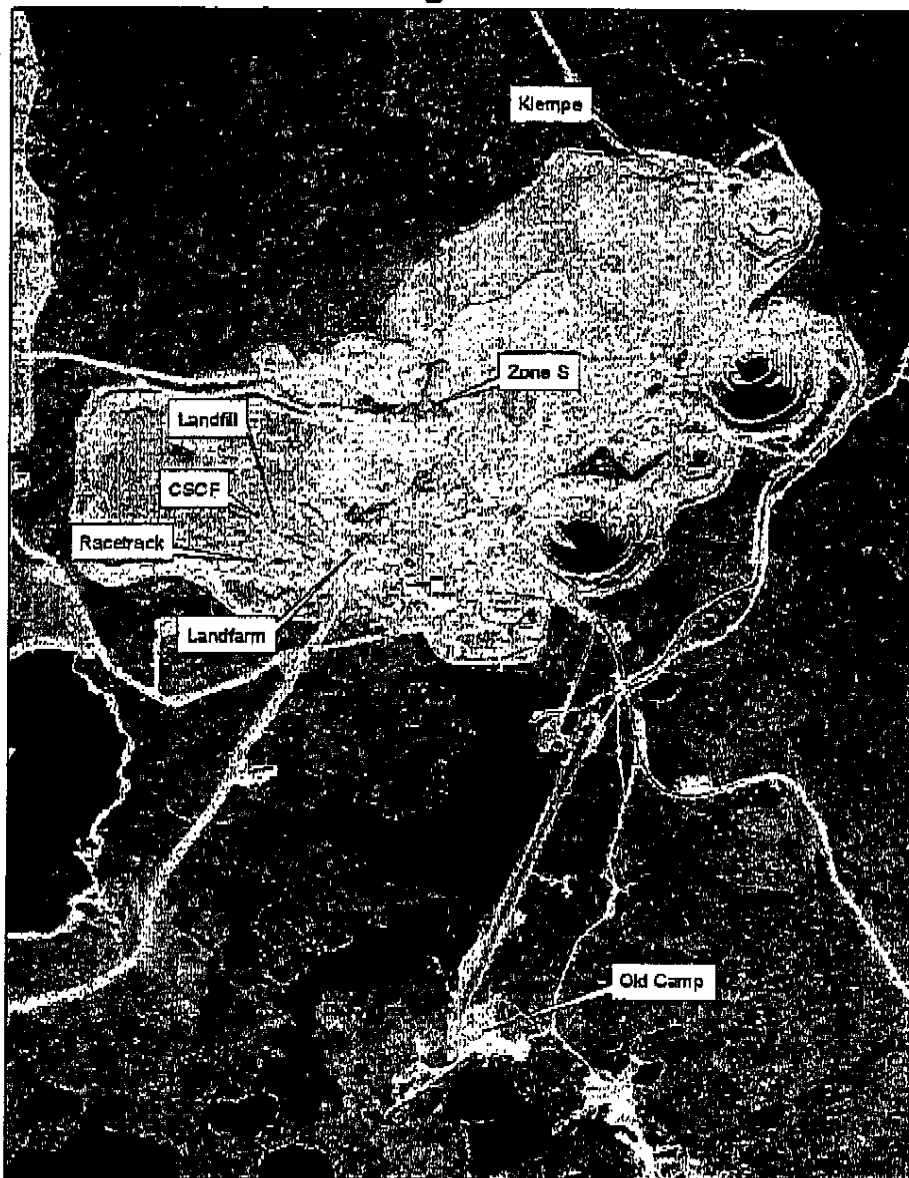
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- ENVR-JHA-MTL-01: Working in the Landfarm
- ENVR-JHA-MTL-02: Working in the Contaminated Snow and Ice Containment Facility
- ENVR-SOP-MTL-03: Landfarm and Contaminated Snow Containment Facility Inspection
- ENVR-SOP-MTL-04: Landfarm and Contaminated Snow Containment Facility Record Management
- ENVR-SOP-MTL-06: Removal of Water from the Landfarm and Contaminated Snow Containment Facility
- ENVR-SOP-MTL-08: Removing Hydrocarbon-Contaminated Soil from Contaminated Snow Containment Facility to Landfarm
- ENVR-SOP-MTL-09: Contaminated Snow/Ice Containment Facility Water Sampling
- ENVR-SOP-WLF-06: Waterfowl Management at Landfarm and Contaminated Snow Containment Facility

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Figure 1



Scale: 1:30000  
 Image Dated: 18 Jul 2006  
 Produced by: Dan Karau

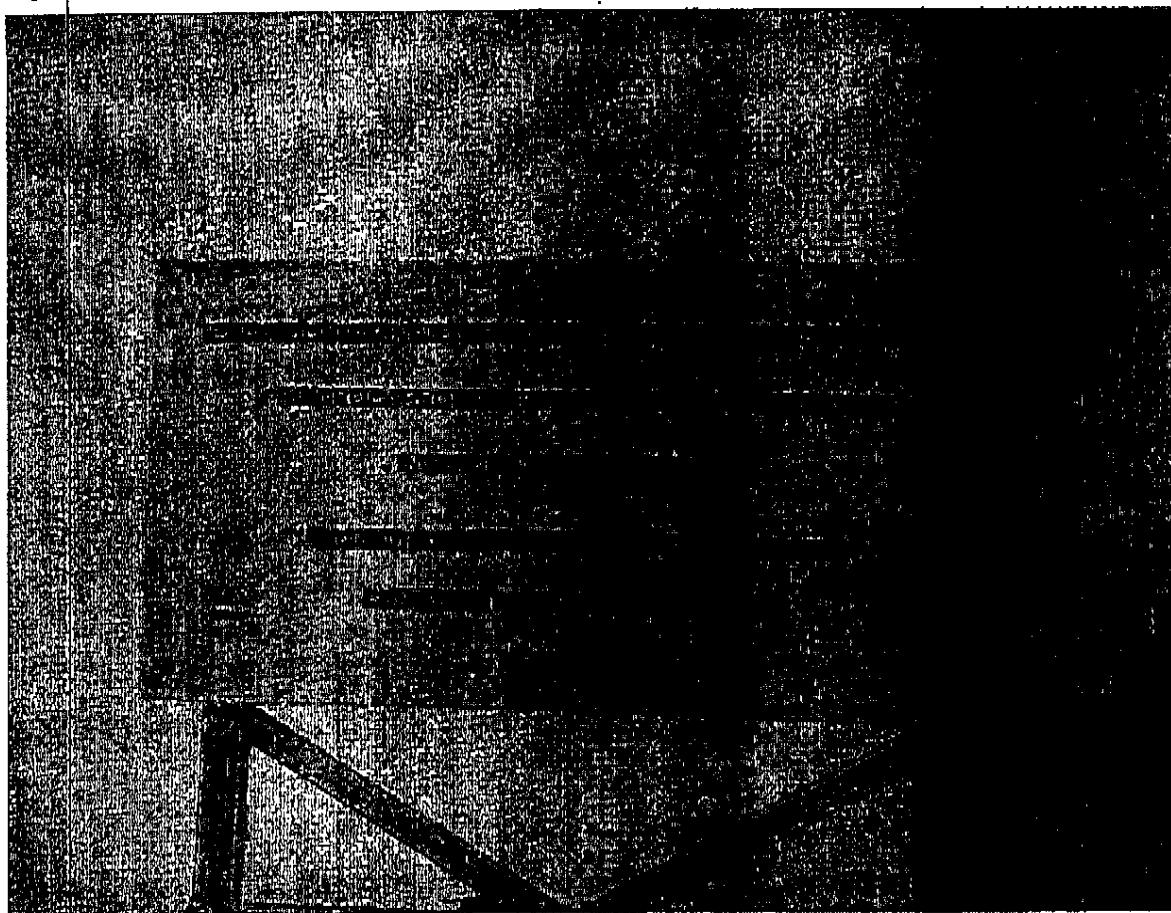
0 250 500 1,000 1,500 2,000  
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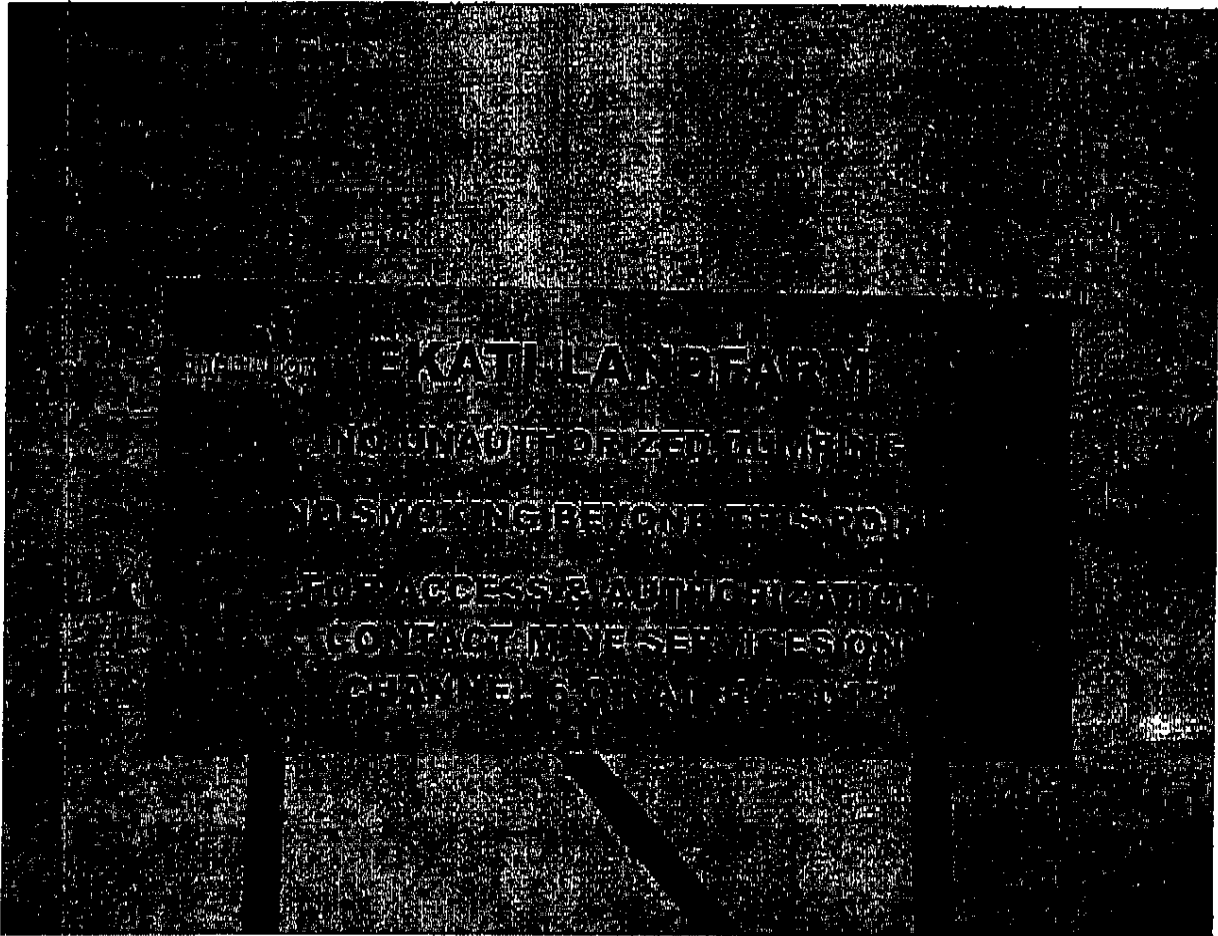
Figure 2: Photo of Sign at CSCF Facility



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Figure 3: Photo of Sign at Landfarm



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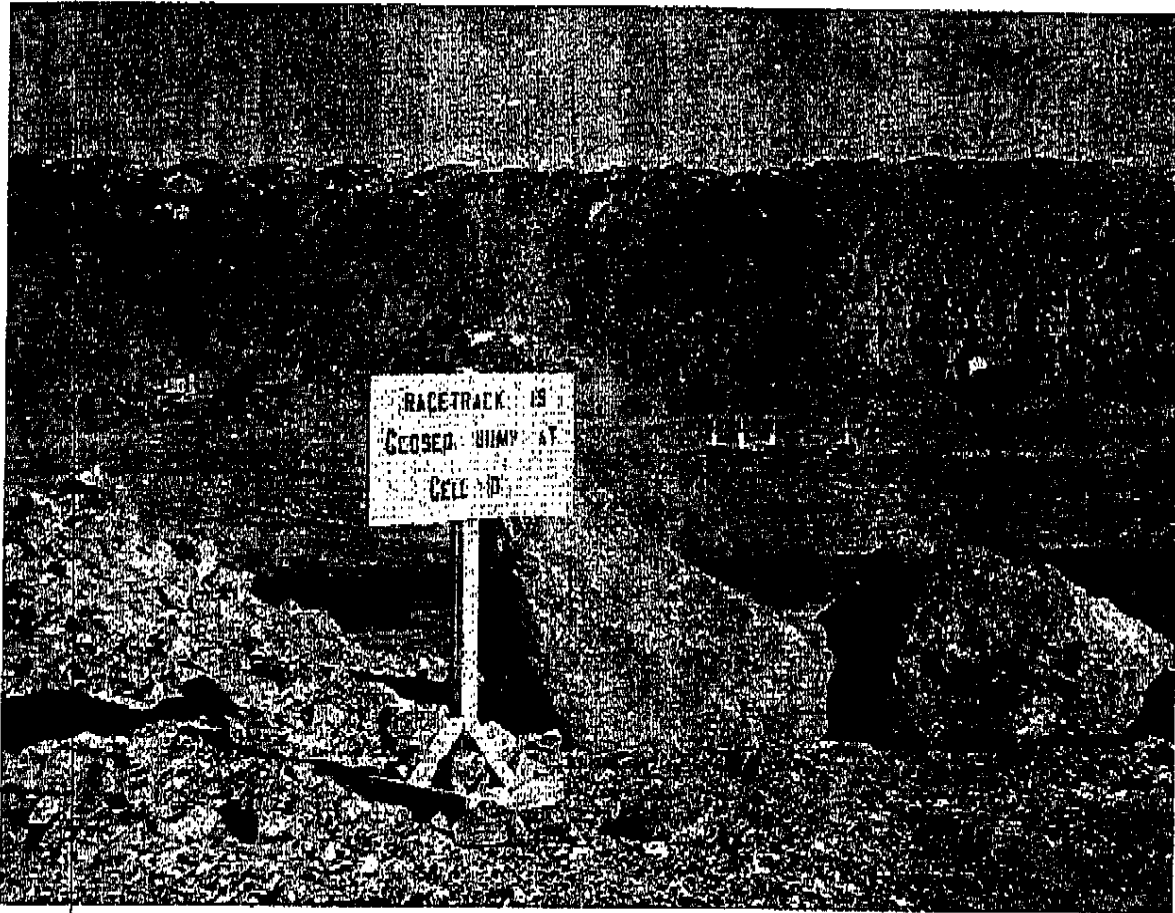
Figure 4: Long Lake Containment Facility – Cell B



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Figure 5: Former Race Track Facility



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**ENVR-SWP-XXX-xx Hydrocarbon-Impacted Materials Management Plan**

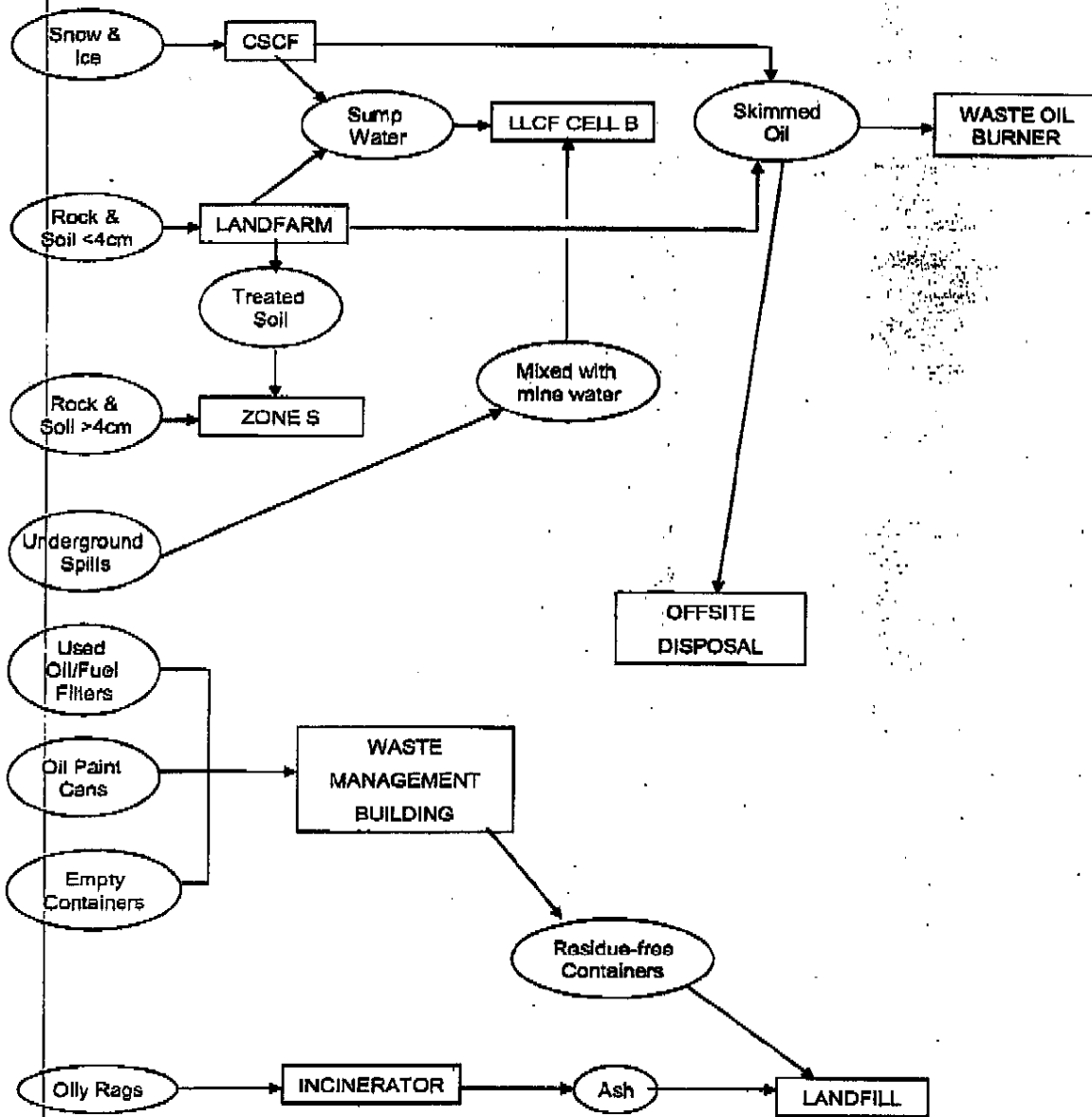


Figure 6: Hydrocarbon Impacted Material Flow Chart

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**Wek'èezhì**  
Land and Water Board

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Date: November 16, 2006

Application MV2003L2-0013

**BHPB Distribution List**

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Monica Krieger	Lutsel K'e Dene First Nation	<input checked="" type="checkbox"/> 867-370-3010
President Bill Enge	North Slave Métis Alliance	<input checked="" type="checkbox"/> 867-669-7442
President North Douglas	Behchoko Métis Local #64	<input checked="" type="checkbox"/> 867-371-5406
Stephen Ellis	NWT Treaty 8 Tribal Corporation – Akaitcho IMA Implementation Office	<input checked="" type="checkbox"/> 867-370-3208
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Chief Leon Lafferty	Behchoko Community Government	<input checked="" type="checkbox"/> 867-392-6139
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Jason McNeill	GNWT – ENR	867-873-4021 <input checked="" type="checkbox"/> Internal Mail
Greg Brady	GNWT – ITI	<input checked="" type="checkbox"/> 867-873-0645

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Denise Mazur	Lands Administration - INAC	<input type="checkbox"/> 867-669-2705 <input checked="" type="checkbox"/> Internal Mail
Lionel Marcinkoski	Environment and Conservation - INAC	<input checked="" type="checkbox"/> Internal Mail
Kathleen Racher	Water Resources Division - INAC	<input type="checkbox"/> 867-669-2716 <input checked="" type="checkbox"/> Internal Mail
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David Scott	BHP Billiton Diamonds Inc.	<input checked="" type="checkbox"/> 867-669-9293

*letter only*