



January 30, 2014

Ms. Violet Camsell-Blondin  
Chair  
Wek'èezhii Land and Water Board  
#1, 4905-48th Street  
Yellowknife, NT, CA X1A 2P6

Dear Ms. Camsell-Blondin:

**RE: Ekati Diamond Mine Spill Contingency Plan**

Dominion Diamond Ekati Corporation (DDEC) is pleased to provide the updated Spill Contingency Plan Version 8.1. This version of the plan incorporates changes suggested by the Wek'èezhii Land and Water Board after review of Version 8.0 Submitted October 30. The changes are listed below.

- Contact Information in Table 9 has been corrected and the NWT Spill Line has been identified as the primary contact for reportable spills
- Sections under Post Emergency Procedures – Remediation and Clean-up on p.55, and Spill Response Actions on p.48 have been updated to include direction to consult with appropriate regulatory agencies before any long term or out of the ordinary clean-up and containment work is undertaken.

DDEC trusts that you will find the revisions acceptable. Please contact Jamie Steele, Environmental Advisor - Compliance at [jamie.steele@ekati.ddcorp.ca](mailto:jamie.steele@ekati.ddcorp.ca) or 867-880-2281 and the undersigned at [claudine.lee@ekati.ddcorp.ca](mailto:claudine.lee@ekati.ddcorp.ca) or 867-880-2232 should you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Claudine Lee'.

Claudine Lee, M.Sc. P.Geol.  
Superintendent – Environment Operations

## EKA PRO.2104 Spill Contingency Plan

<b>Version:</b>	8.1
<b>Replaces:</b>	8.0
<b>Creation Date:</b>	February 2000
<b>Scheduled Review Date:</b>	October 2014
<b>Review Date:</b>	October 2013
<b>Document Team Members:</b>	Jamie Steele – Environment Advisor-Compliance Claudine Lee – Superintendent Environment-Operations Glenn Power – Hydrocarbon Services Dave Heathfield / Dave English – Safety Advisors-ERT
<b>Document Owner:</b>	Claudine Lee – Superintendent Environment-Operations
<b>Document Approver:</b>	Claudine Lee – Superintendent Environment-Operations
<b>Related Documents:</b>	Emergency Response Plan Tibbitt to Contwoyto Winter Road Joint Venture Spill Plan
<b>Key Contacts:</b>	Jamie Steele – Environment Advisor-Compliance
<b>Change Requests:</b>	Jamie Steele – Environment Advisor-Compliance
<b>Brief Description:</b>	The Spill Contingency Plan ensures immediate and effective handling of a major environmental emergency, and minimizes danger to personnel, property and the environment.

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## Corporate Statement

On April 10, 2013, Dominion Diamond Corporation (the “Company”) acquired from BHP Billiton Canada Inc. (and its various affiliates) all of BHP Billiton’s diamond assets, including BHP Billiton’s controlling interest in the Ekati Diamond Mine as well as the associated diamond sorting and sales facilities in Yellowknife, Northwest Territories and Antwerp, Belgium. The Ekati Diamond Mine consists of the Core Zone, which includes the current operating mine and other permitted kimberlite pipes, as well as the Buffer Zone, an adjacent area hosting kimberlite pipes having both development and exploration potential. As of the closing of the transaction, the Company acquired BHP Billiton’s 80% interest in the Core Zone and 58.8% interest in the Buffer Zone, with the remaining interests held by other joint venture parties. The Company’s indirect wholly-owned subsidiary, Dominion Diamond Ekati Corporation, is the current operator of the Ekati Diamond Mine.

Dominion Diamond Corporation has assumed all of the Environmental Obligations and Agreements including the Environmental Agreement and Water Licences, land use permits and other statutory obligations that this Spill Contingency Plan would apply.

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## Intent and Scope

This Spill Contingency Plan (Plan) was developed to establish and document practices for responsible management of controlled substance spills at the Ekati Diamond Mine. Guiding the development and implementation of the Plan has been the principle that an effective and high quality Spill Contingency Plan must provide:

- A clear chain of command for all spill related emergency activities.
- Accountability for the performance of the spill response.
- Well-defined expectations regarding spill response and subsequent clean-up programs.
- Well-defined task and operational hazards/risk.
- Comprehensive hazard prevention and control methods.
- Reporting and record keeping requirements to track program progress.

This Spill Contingency Plan has been developed with Ekati and area specific hazardous/risk analysis in mind. It outlines the necessary resources, personnel, logistics and initial actions to facilitate a prompt, coordinated and rational approach to emergency incidents. This Spill Contingency Plan also contains sufficient detail to enable those who are involved to respond effectively. Each person within the facility must know their role as well as the roles of those with whom they will interact.

This Plan has been prepared to address any environmental emergency that may occur at the Ekati Diamond Mine operating sites including satellite facilities such as Misery Camp and Exploration activities. This Plan identifies actions and measures to be taken in the event of a spill at any of the Ekati Diamond Mine operating sites. This plan does not cover the transportation activities along the Winter Road. A separate plan exists to address spills and contingency planning along the Winter Road from Tibbitt Lake to Contwoyto Lake (Tibbitt to Contwoyto Winter Road Joint Venture Spill Plan).

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## Application – Who This Applies To

This plan applies to all Employees and Contractors working for Dominion Diamond Ekati Corporation at the Ekati Diamond Mine and its operations.

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## Regulatory Framework

This Plan has been developed to satisfy the following requirements:

- Class A Water License W2012L2-0001
- Environmental Agreement (clause 6.1)
- NWT Environmental Protection Act
- NWT Guidelines for Spill and General Contingency Plans
- NWT Spill Contingency Planning and Reporting Regulations
- NWT Mine Health and Safety Act and Regulations
- National Fire Code of Canada
- Canadian Environmental Protection Act (CEPA 1999) Environmental Emergency Regulations
- Canadian Environmental Protection Act (CEPA 1999) Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations
- ISO 14001 Emergency Preparedness and Response

Several federal and territorial government agencies are responsible for enforcement of the above requirements, and provide oversight of spill clean-up and reporting.

### Wek'eezhii Land and Water Board (WLWB)

The WLWB issues water licenses and land use permits in accordance with the Mackenzie Valley Resource Management Act and the Northwest Territories Waters Act. Conditions of these licenses and permits include authorized limits for water

use, sources of water used, effluent discharge limits, and monitoring and reporting requirements. These licenses require spill contingency plans be submitted for approval and reviewed and revised annually.

#### Government of Canada

##### **Aboriginal Affairs and Northern Development Canada (AANDC)**

Enforcement of the provisions of the water licences is carried out through the Operations Directorate of AANDC by Resource Management Officers. Reported spills are routinely inspected by the AANDC Inspector. Spill reports are officially closed by the AANDC Inspector, when the Inspector is satisfied with the clean-up and mitigation activities.

##### **Environment Canada (EC)**

The Environmental Protection Branch (EPB) of Environment Canada administers the Canadian Environmental Protection Act (CEPA, 1999) and Section 36 of the Fisheries Act. Regulations enacted under CEPA, 1999 require Environmental Emergency (E2) Plans and notifications. Inspectors for Environment Canada occasionally visit spill sites to investigate.

A cross reference to the requirements of CEPA 1999 Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations can be found in Appendix 4.

##### **Fisheries and Oceans Canada (DFO)**

Fisheries and Oceans Canada (DFO) administers the habitat protection provisions of the Fisheries Act. This includes prohibiting the blocking of fish passageways and the destruction of fish habitat. On occasion, DFO Inspectors visit spill sites to investigate possible impacts to fish habitat.

#### Government of Northwest Territories (GNWT)

##### **Department of Environment and Natural Resources (ENR)**

The Environmental Protection Division of ENR is responsible for the Environmental Protection Act (EPA) and the Spill Contingency Planning and Reporting Regulations for the NWT. These regulations require:

- a contingency plan be prepared and filed for facilities where petroleum, chemicals and other contaminants are stored; and
- the reporting of spills.

Inspectors appointed under the CEPA can issue clean up orders for spills and other environmental incidents occurring on Commissioner's Land within NWT.

##### **Workers Safety and Compensation Commission (WSCC)**



The Prevention Division of the WSCC is responsible for enforcement of the NWT Mine Health and Safety Act and Regulations, which include the provision for the establishment of an Emergency Response Team to address site emergencies such as spills.

The WSCC also enforces compliance with technical safety legislation such as the Work Site Hazardous Materials Information System (WHMIS). WHMIS mandates the use of material safety data sheets (MSDS) that outline specific storage and handling requirements for process chemicals. MSDS documents form a component of this Plan.

### **Department of Transportation**

The NWT Department of Transportation, Motor Vehicles Division, is responsible for administering the Transportation of Dangerous Goods Act and Regulations (NWT). The Department is also responsible for driver, vehicle and load safety under additional transport legislation.

### **Department of Municipal and Community Affairs, Territorial Fire Marshall**

The operation of bulk fuel storage and handling facilities at Ekati must meet the National Fire Code of Canada (NFCC) regulations under the Fire Prevention Act of the Northwest Territories. The Fire Prevention Act adopts the CCME Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products (2003).

### **National Fire Code**

Section 4.1.5.6 "Emergency Planning" and Section 4.1.6.3 "Spills and Leaks" of the Code requires that emergency planning measures shall be provided for areas where flammable liquids or combustible liquids are stored. The Code also requires that maintenance and operating procedures be established to minimize potential impacts of spills and leaks of flammable or combustible liquids.

In compliance with its regulatory obligations, DDEC commits to reviewing and revising the Plan annually, or more frequently if there are changes of a material nature. In the event of a material change to the Plan, it will be submitted for approval as per our regulatory requirements. However, DDEC reserves the right to update certain portions of the Plan as and when operational changes necessitate, without the need for WLWB approval. The scope of these updates shall include contact lists, roles and responsibilities, and format changes.

## Ekati Spill Contingency Plan

The main objectives of this plan are to:

1. Ensure immediate and effective handling of any emergency
2. Minimize danger to the public and all personnel
3. Minimize impact on the local and surrounding environment
4. Minimize loss of property and production
5. Facilitate and ensure effective communication to all parties impacted by or involved in response to an emergency.

### Facility Description

The Ekati Diamond Mine is located at Latitude 64°, 42 minutes, Longitude 110°, 37 minutes, and approximately 300 kms northeast of Yellowknife, Northwest Territories. Access to the site is by winter road or aircraft. The facility was commissioned in October 1998. Site location and the access roads are shown on Figure 1. The Ekati Diamond Mine is located in a remote pristine area. DDEC regards all undisturbed land as environmentally sensitive and treats any work on undisturbed land as a high risk activity requiring due diligence and preventative measures.

The main site includes an accommodation building that can house 700 people at a time, a central processing facility, a 26.4 MW power plant, ore crushing and storage facility, explosives manufacturing plant, maintenance garage, truck shop, and a fuel tank farm. In addition to the main camp, the Misery camp is located 29 kms southwest of the site. Misery has a bulk diesel storage facility. Currently Misery camp is operational and can house approximately 115 people. The layout of the Ekati main camp and the Misery camp are shown in Figure 2 and Figure 8.

Ekati has 80 hydrocarbon storage tanks in 3 tank farms and various auxiliary above ground storage tanks with a storage capacity of approximately 100 million litres. Details and characteristics of these storage tanks and locations can be found in Table 1 and figures 3 through 8. Information about the location and annual quantity of other potentially hazardous materials that are stored and utilized at the Ekati Diamond Mine are provided in Table 2. In addition to this plan DDEC maintains a GIS file with tank locations and geographical features to aid in predicting potential effects to nearby environmental receptors.

Surface mining activities at the Ekati Diamond Mine are currently underway at Fox Pit and Misery Pit. Underground mining is currently underway at the Koala and Koala North Pipes. Current exploration activities proposed for 2014 are located in Lac de Sauvage, Duchess Lake and Lynx Lake work areas. Figure 9 shows an example of Exploration work areas.

Figure 1 – Location of the Ekati Diamond Mine

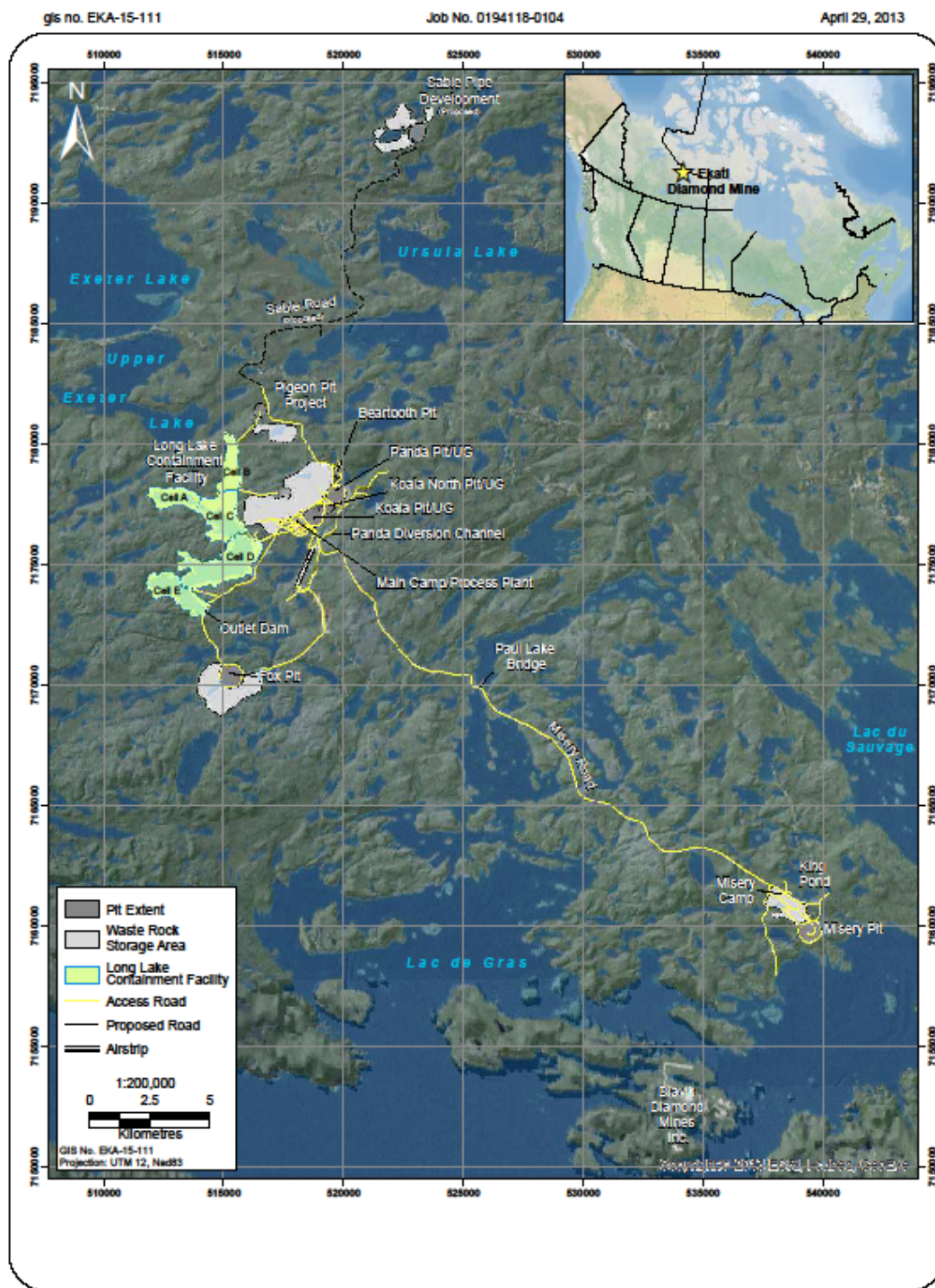
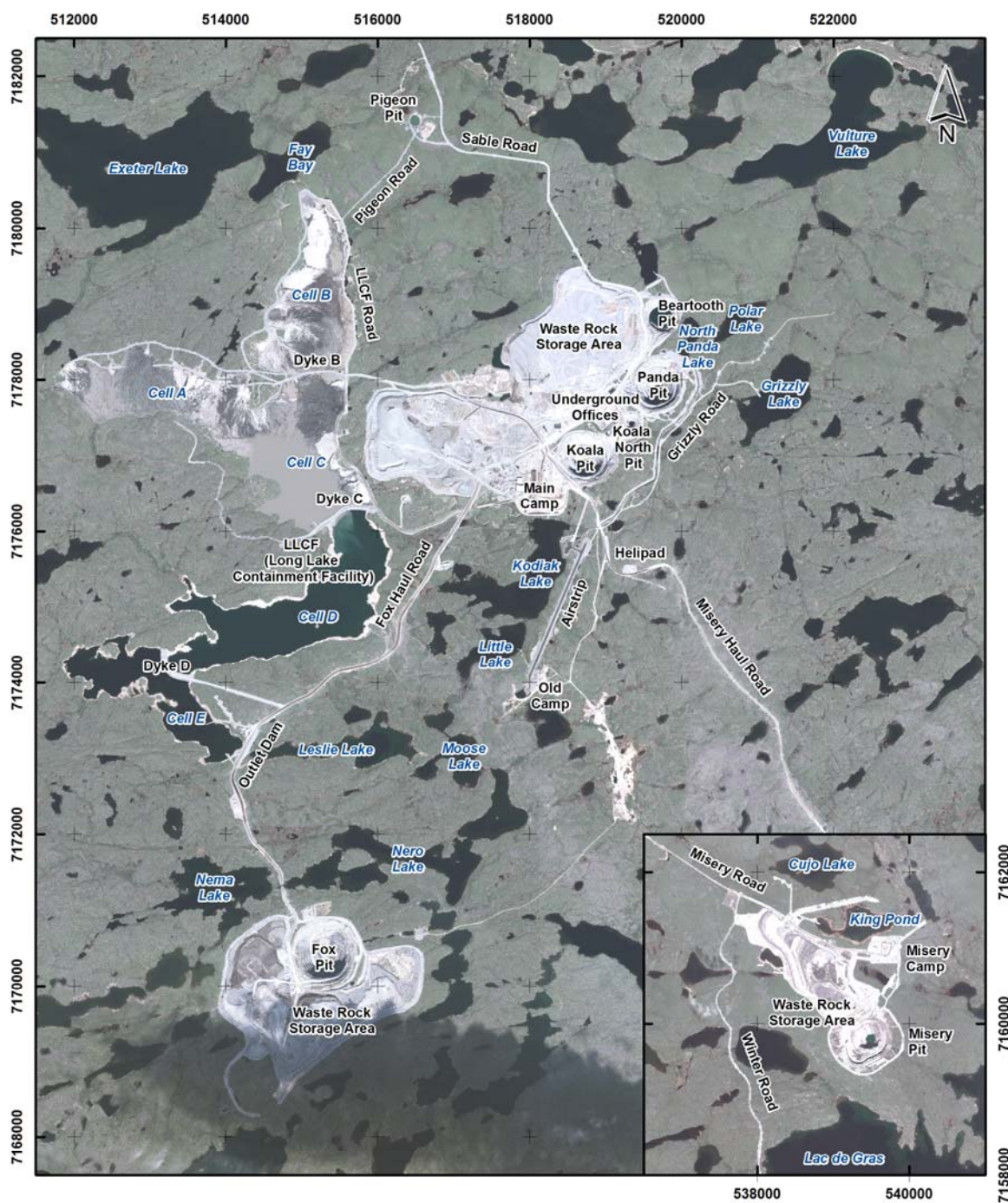




Figure 2 – Ekati Site Map with Misery Inset



### EKATI Diamond Mine Satellite Imagery

1:65,000

Imagery Acquired July 2013 / Map Revised 12 Aug 2013

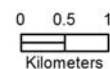


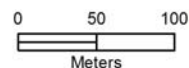


Figure 3 – Satellite Image – Main Camp Tanks

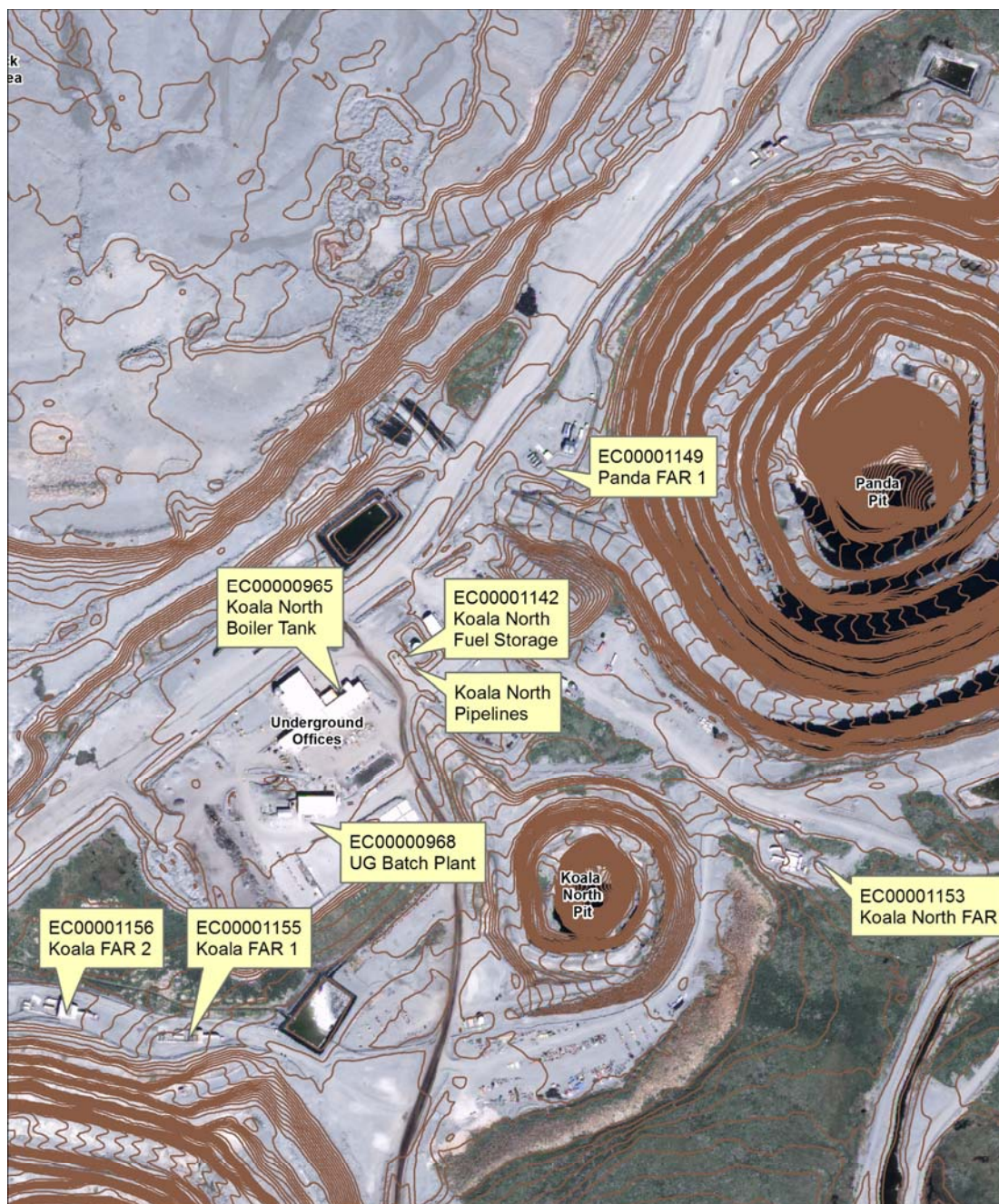


### EKATI Diamond Mine Hydrocarbons Storage - Main Camp

Image Acquired July 2013 / Map Revised 8 Oct 2013

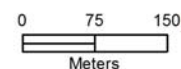




**Figure 4 – Satellite Image – Underground Complex Tanks**

### EKATI Diamond Mine Hydrocarbons Storage - Panda-Koala

Image Acquired July 2013 / Map Revised 8 Oct 2013





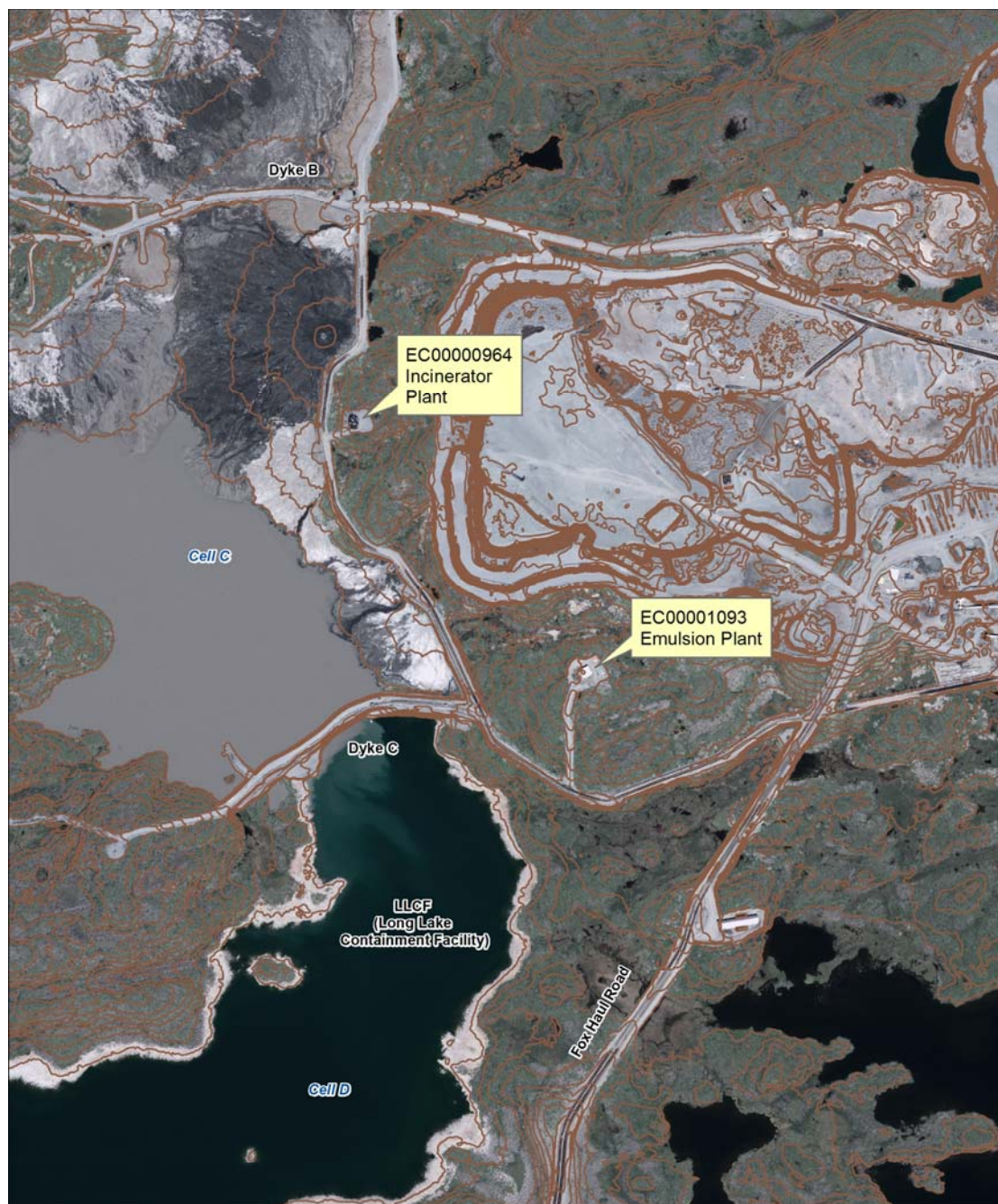
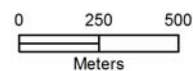
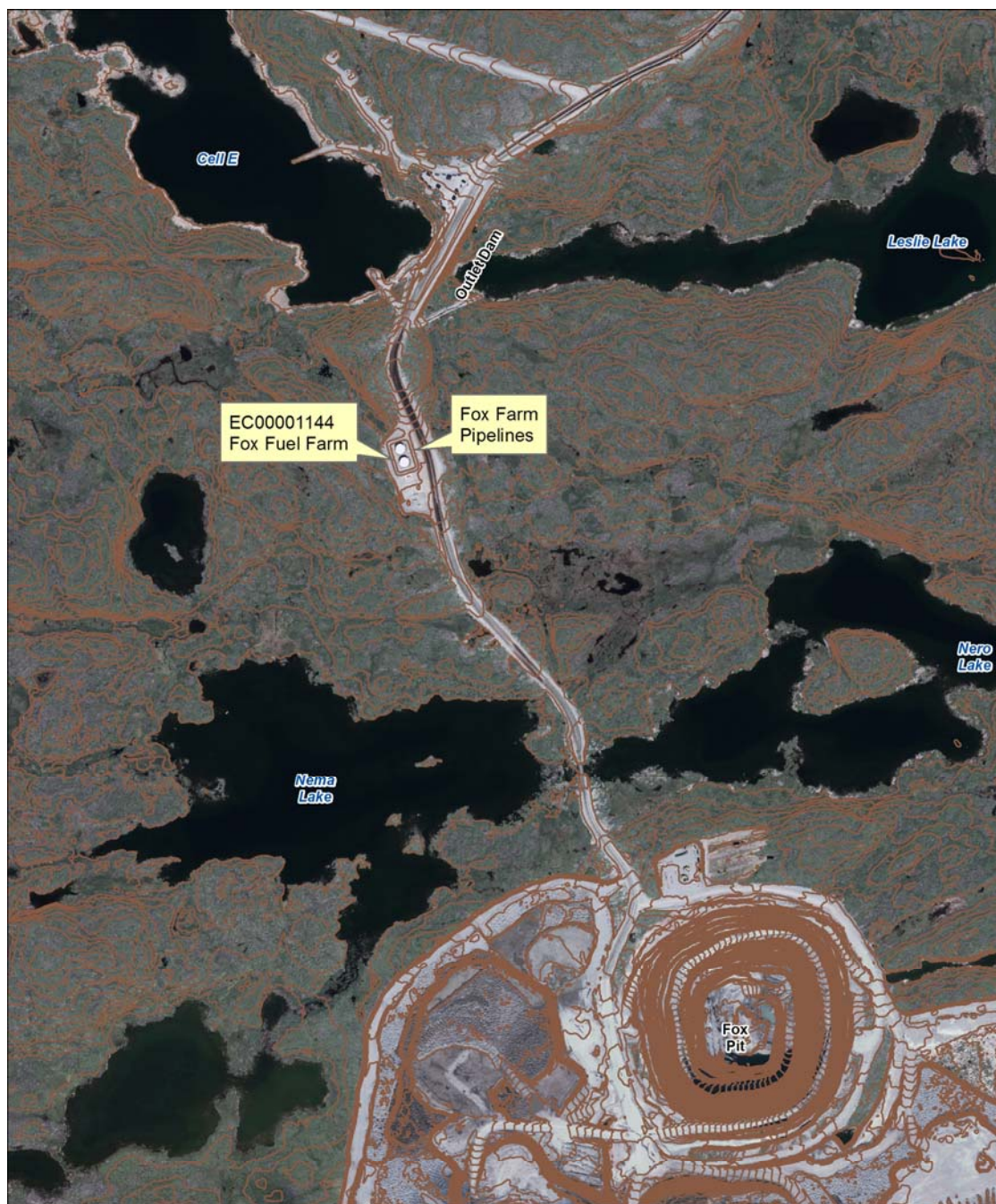
**Figure 5 – Satellite Image – LLCF Tanks****EKATI Diamond Mine  
Hydrocarbons Storage - LLCF**

Image Acquired July 2013 / Map Revised 8 Oct 2013





**Figure 6 – Satellite Image – Fox Pit Tanks**

**EKATI Diamond Mine  
Hydrocarbons Storage - Fox Area**

Image Acquired July 2013 / Map Revised 8 Oct 2013

0 250 500  
Meters



**Figure 7 – Satellite Image – Airport and Helipad Tanks**

**EKATI Diamond Mine  
Hydrocarbons Storage - Aviation**

Image Acquired July 2013 / Map Revised 8 Oct 2013

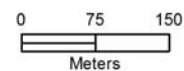
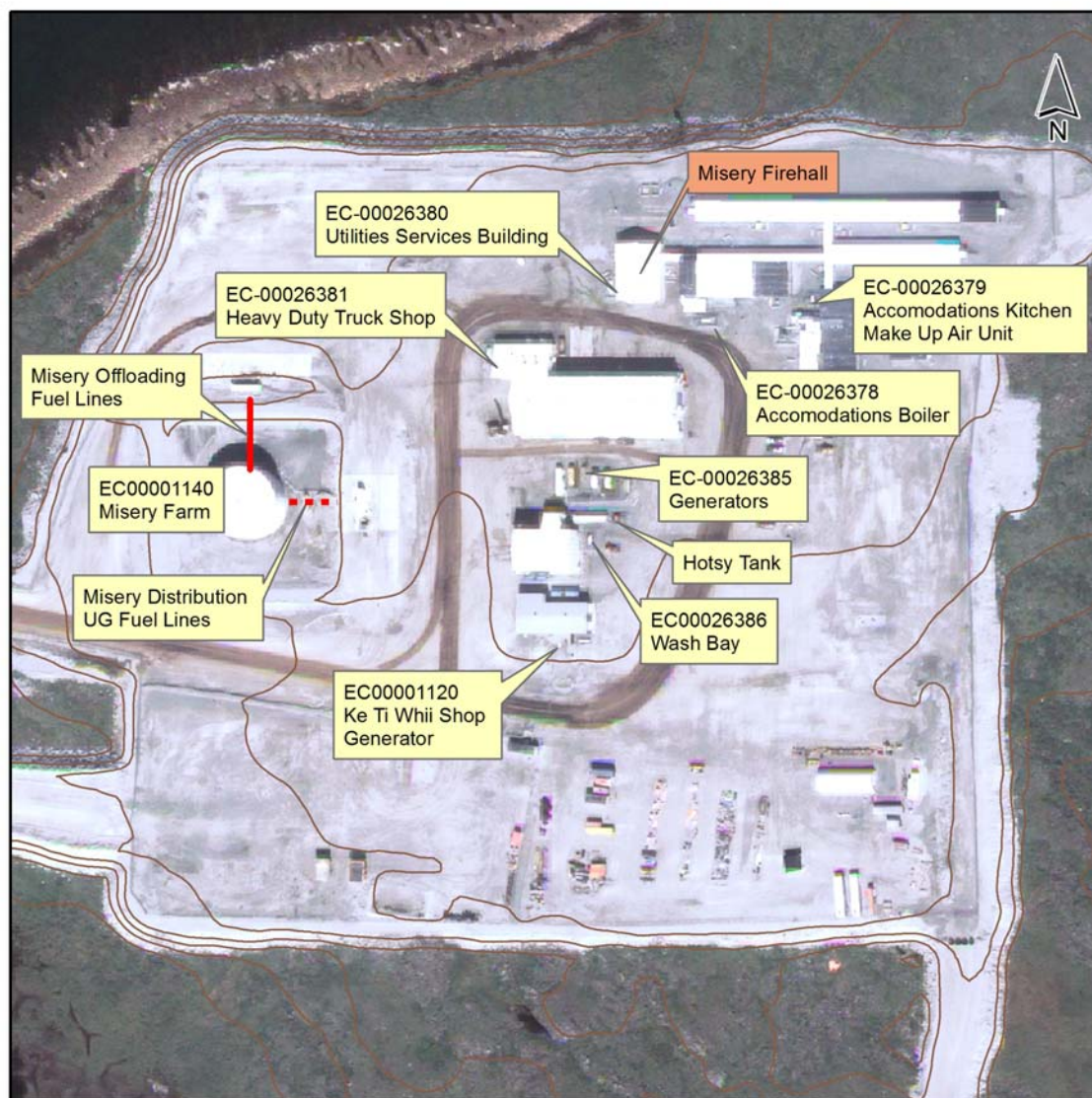




Figure 8 – Satellite Image – Misery Camp Tanks



### EKATI Diamond Mine Hydrocarbons Storage - Misery Camp

Image Acquired July 2013 / Map Revised 8 Oct 2013

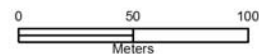
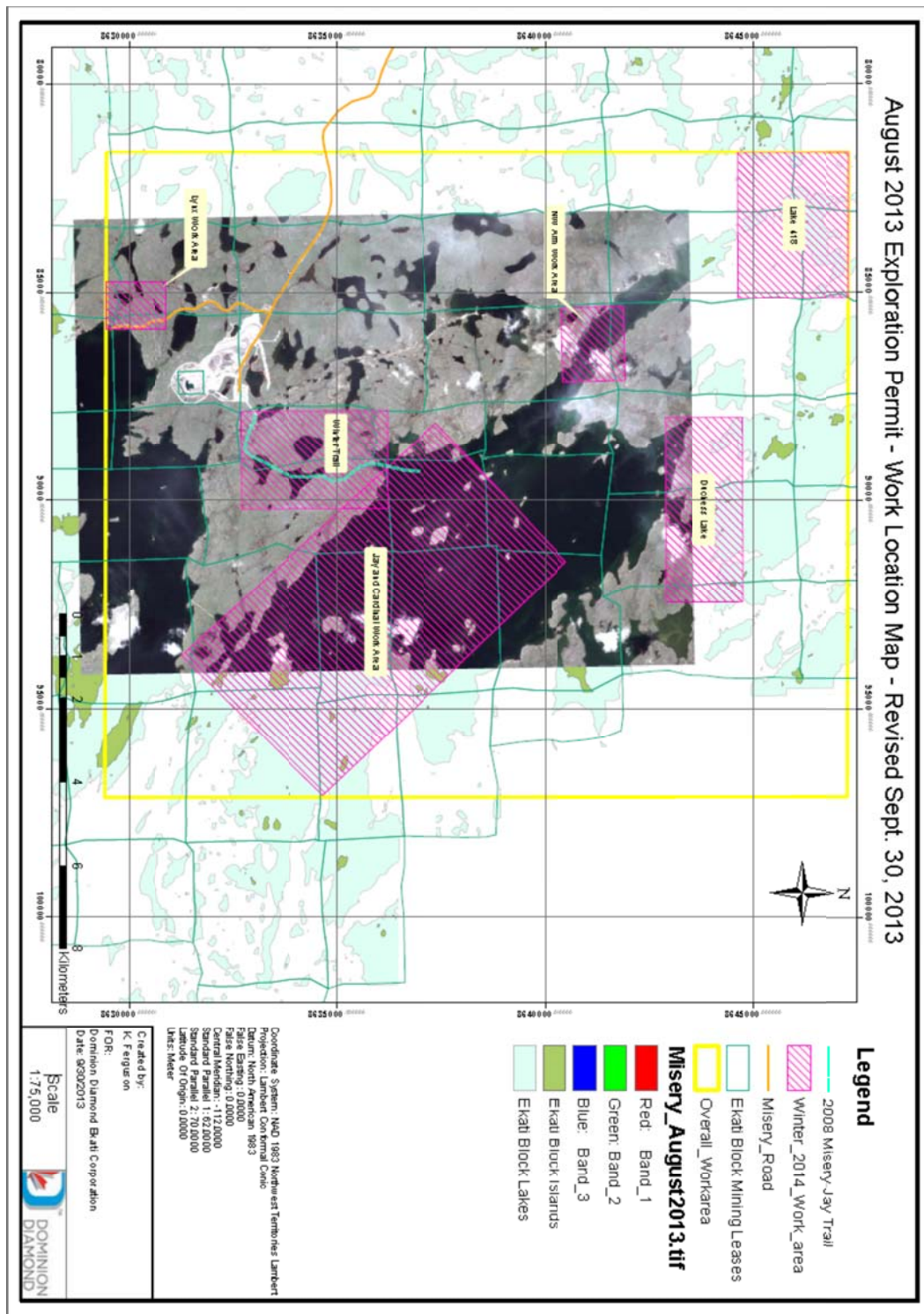


Figure 9 - Exploration Work Location Map



**Table 1 - Fuel and Lubricants Bulk Storage Locations and Characteristics**

Tank ID	UTM x	UTM y	Description/Location	Substance	Capacity (L)	Nearest Environmental Feature	Bearing	Distance from Feature (m)	Secondary Containment
TK-1	519340	7175536	Helipad Aviation	Jet A-1	50000	STREAM	-53	220	Double Wall Tank
TK-2	519340	7175536	Helipad Aviation	Jet A-1	50000	STREAM	-53	220	Double Wall Tank
TK-3	519340	7175536	Helipad Aviation	Jet A-1	50000	STREAM	-53	220	Double Wall Tank
TK-4	519340	7175536	Helipad Aviation	Jet A-1	50000	STREAM	-53	220	Double Wall Tank
TK-5	518523	7175708	Airport Aviation Tank	Jet A-1	14858	LAKE	-126	84	Double Wall Tank, Earthen Dike, Liner
53-TK-921	518064	7176544	Main Camp Powerhouse Day Tank	Engine Oil	15000	LAKE	-143	306	Single Wall Tank, Concrete Walls & Floor
53-TK-922	518064	7176544	Main Camp Powerhouse Day Tank	Used Oil	6000	LAKE	-143	306	Single Wall Tank, Concrete Walls & Floor
53-TK-961	518064	7176544	Main Camp Powerhouse Day Tank	Glycol	6000	LAKE	-143	306	Single Wall Tank, Concrete Walls & Floor
53-TK-962	518064	7176544	Main Camp Powerhouse Day Tank	Glycol	6000	LAKE	-143	306	Single Wall Tank, Concrete Walls & Floor

Tank ID	UTM x	UTM y	Description/Location	Substance	Capacity (L)	Nearest Environmental Feature	Bearing	Distance from Feature (m)	Secondary Containment
53-TK-963	518064	7176544	Main Camp Powerhouse Day Tank	Glycol	6000	LAKE	-143	306	Single Wall Tank, Concrete Walls & Floor
53-TK-964	518044	7176571	Main Camp Powerhouse Propylene Bulk Tank	Propylene Glycol	30000	LAKE	-140	308	Single Wall Tank, Concrete Walls & Floor
54-TK-001	518257	7176540	Ekati Main Camp Bulk Fuel Storage	Diesel	3992817	STREAM	-34	332	Single Wall Tank, Earthen Dike, Liner
54-TK-002	518257	7176540	Ekati Main Camp Bulk Fuel Storage	Diesel	3994213	STREAM	-34	332	Single Wall Tank, Earthen Dike, Liner
54-TK-003	518257	7176540	Ekati Main Camp Bulk Fuel Storage	Diesel	1019217 1	STREAM	-34	332	Single Wall Tank, Earthen Dike, Liner
54-TK-004	518257	7176540	Ekati Main Camp Bulk Fuel Storage	Diesel	1019859 2	STREAM	-34	332	Single Wall Tank, Earthen Dike, Liner
54-TK-005	518257	7176540	Ekati Main Camp Bulk Fuel Storage	Diesel	1019309 2	STREAM	-34	332	Single Wall Tank, Earthen Dike, Liner
54-TK-006	518257	7176540	Ekati Main Camp Bulk Fuel Storage	Diesel	1019945 1	STREAM	-34	332	Single Wall Tank, Earthen Dike, Liner



Tank ID	UTM x	UTM y	Description/ Location	Substance	Capacity (L)	Nearest Environmental Feature	Bearing	Distance from Feature (m)	Secondary Containment
54-TK-007	518257	7176540	Ekati Main Camp Bulk Fuel Storage	Diesel	9551080	STREAM	-34	332	Single Wall Tank, Earthen Dike, Liner
54-TK-008	518257	7176540	Ekati Main Camp Bulk Fuel Storage	Diesel	9552468	STREAM	-34	332	Single Wall Tank, Earthen Dike, Liner
54-TK-009	539571	7160997	Misery Camp Bulk Fuel Storage	Diesel	9547457	LAKE	126	165	Single Wall Tank, Earthen Dike, Liner
54-TK-010	514144	7172434	Fox Bulk Fuel Storage	Diesel	9549589	LAKE	-61	438	Single Wall Tank, Earthen Dike, Liner
54-TK-011	514144	7172434	Fox Bulk Fuel Storage	Diesel	9558180	LAKE	-61	438	Single Wall Tank, Earthen Dike, Liner
54-TK-012	519160	7177718	Koala North Bulk Fuel Storage Tank	Diesel	1039464	STREAM	-45	530	Single Wall Tank, Earthen Dike, Liner
54-TK-019	517993	7176578	Process Plant Incinerator Day Tank	Diesel	9000	LAKE	-132	275	Double Wall Tank

Tank ID	UTM x	UTM y	Description/Location	Substance	Capacity (L)	Nearest Environmental Feature	Bearing	Distance from Feature (m)	Secondary Containment
54-TK-029	518048	7176482	Emergency Generators Day Tank	Diesel	35000	LAKE	-152	259	Double Wall Tank
54-TK-043	518003	7176355	Main Camp Boiler Diesel Day Tank	Diesel	35000	STREAM	-132	159	Double Wall Tank
54-TK-051	518254	7176302	Main Camp Incinerator Bulk Tank	Diesel	9000	LAKE	-88	142	Double Wall Tank, Earth Dike
54-TK-054	518093	7176985	Koala Mine Haul Day Tank	Diesel	54900	STREAM	-2	441	Double Wall Tank, Earth Dike
54-TK-055	518093	7176985	Koala Mine Haul Day Tank	Diesel	54900	STREAM	-2	441	Double Wall Tank, Earth Dike
54-TK-056	518207	7176709	Warming Shed Day Tank	Diesel	9000	STREAM	38	417	Double Wall Tank, Earth Dike
54-TK-057	518258	7176560	Main Camp Light Vehicle Day Tank	Diesel	35000	STREAM	-36	344	Double Wall Tank
54-TK-058	518585	7175857	Airport Emergency Gen Set Day Tank	Diesel	5000	STREAM	11	63	Double Wall Tank
54-TK-301	518011	7176770	Lube Facility Bulk Tank	Diesel	4500	LAKE	-117	445	Double Wall Tank, Steel Dike
54-TK-601	516389	7176454	Emulsion Plant Polar Explosives Day Tank	Diesel	22000	STREAM	93	123	Double Wall Tank
54-TK-702	539683	7160934	Misery Camp Shop Generator Fuel Storage	Diesel	4500	LAKE	105	260	Double Wall Tank, Metal Berm

Tank ID	UTM x	UTM y	Description/Location	Substance	Capacity (L)	Nearest Environmental Feature	Bearing	Distance from Feature (m)	Secondary Containment
54-TK-704	539571	7160997	Misery Fuel Dispensing Day Tank	Diesel	25000	LAKE	126	165	Double Wall Tank, Earthen Dike, Liner
54-TK-804	514144	7172434	Fox Fuel Dispensing Day Tank	Diesel	25000	LAKE	-61	438	Double Wall Tank, Earthen Dike, Liner
54-TK-901	518045	7176571	Main Camp Powerhouse Day Tank	Diesel	47500	LAKE	-140	308	Double Wall Tank
54-TK-902	518045	7176571	Main Camp Powerhouse Day Tank	Diesel	47500	LAKE	-140	308	Double Wall Tank
54-TK-911	519160	7177718	Koala North Fuel Dispensing Day Tank	Diesel	10000	STREAM	-45	530	Double Wall Tank, Earthen Dike, Liner
58-TK-101	518306	7176659	Waste Management / Water Separator Tank	Used Oil	2200	STREAM	-31	364	Double Wall Tank, Concrete Walls & Floor
58-TK-102	518306	7176659	Waste Management Bulk Tank	Used Oil	2200	STREAM	-31	364	Double Wall Tank, Concrete Walls & Floor
58-TK-203	518681	7177309	Koala Heat Recovery Bulk Tank	Glycol	30000	STREAM	-113	370	Double Wall Tank, Earthen Dike



Tank ID	UTM x	UTM y	Description/Location	Substance	Capacity (L)	Nearest Environmental Feature	Bearing	Distance from Feature (m)	Secondary Containment
59-TK-010	518005	7176749	Lube Facility Bulk Tank	Used Oil	306000	LAKE	-118	424	Single Wall Tank, Concrete Walls & Floor
59-TK-011	518005	7176749	Lube Facility Bulk Tank	Used Oil	306000	LAKE	-118	424	Single Wall Tank, Concrete Walls & Floor
59-TK-012	518005	7176749	Lube Facility Bulk Tank	Engine Oil	306000	LAKE	-118	424	Single Wall Tank, Concrete Walls & Floor
59-TK-013	517982	7176752	Lube Facility Waste Bulk Storage Tank	Glycol	306000	LAKE	-115	416	Single Wall Tank, Concrete Walls & Floor
59-TK-014	517982	7176752	Lube Facility HD Antifreeze 60/40 Premix Bulk Tank	HD Antifreeze 60/40 Premix	306000	LAKE	-115	416	Single Wall Tank, Concrete Walls & Floor
59-TK-015	518005	7176749	Lube Facility Bulk Tank	Engine Oil	306000	LAKE	-118	424	Single Wall Tank, Concrete Walls & Floor
59-TK-016	518005	7176749	Lube Facility Trans Extra Bulk Tank	Hydraulic Oil	306000	LAKE	-118	424	Single Wall Tank, Concrete Walls & Floor

Tank ID	UTM x	UTM y	Description/Location	Substance	Capacity (L)	Nearest Environmental Feature	Bearing	Distance from Feature (m)	Secondary Containment
59-TK-017	518005	7176749	Lube Facility Trans Extra Bulk Tank	Hydraulic Oil	306000	LAKE	-118	424	Single Wall Tank, Concrete Walls & Floor
59-TK-018	518005	7176749	Lube Facility Trans 30 Bulk Tank	Transmission Oil	100000	LAKE	-118	424	Single Wall Tank, Concrete Walls & Floor
59-TK-019	518005	7176749	Lube Facility Trans 30 Bulk Tank	Transmission Oil	100000	LAKE	-118	424	Single Wall Tank, Concrete Walls & Floor
59-TK-020	518005	7176749	Lube Facility Trans 50 Differential Bulk Tank	Gear Oil	100000	LAKE	-118	424	Single Wall Tank, Concrete Walls & Floor
59-TK-021	518005	7176749	Lube Facility Trans 30 Bulk Tank	Transmission Oil	100000	LAKE	-118	424	Single Wall Tank, Concrete Walls & Floor
61-TK-044	518059	7176676	Truck Shop Day Tank	Engine Oil	30000	LAKE	-130	393	Single Wall Tank, Concrete Walls & Floor

Tank ID	UTM x	UTM y	Description/Location	Substance	Capacity (L)	Nearest Environmental Feature	Bearing	Distance from Feature (m)	Secondary Containment
61-TK-045	518059	7176676	Truck Shop Trans 30 Day Tank	Transmission Oil	30000	LAKE	-130	393	Single Wall Tank, Concrete Walls & Floor
61-TK-047	518059	7176676	Truck Shop Trans 50 Differential Day Tank	Gear Oil	30000	LAKE	-130	393	Single Wall Tank, Concrete Walls & Floor
61-TK-048	518059	7176676	Truck Shop Day Tank	Hydraulic Oil	30000	LAKE	-130	393	Single Wall Tank, Concrete Walls & Floor
61-TK-049	518059	7176676	Truck Shop Day Tank	Hydraulic Oil	30000	LAKE	-130	393	Single Wall Tank, Concrete Walls & Floor
63-TK-229	515583	7177301	Incinerator Plant Bulk Tank	Diesel	2200	LAKE	139	270	Double Wall Tank, Concrete Walls & Floor
63-TK-230	515583	7177301	Incinerator Plant Bulk Tank	Diesel	15000	LAKE	139	270	Double Wall Tank, Earthen Dike, Liner
245-TK-01	519303	7177924	FAR Panda No.1 Day Tank	Diesel	25000	STREAM	-68	623	Double Wall Tank, Earthen Dike, Liner
245-TK-02	519303	7177924	FAR Panda No.1 Day Tank	Diesel	50000	STREAM	-68	623	Double Wall Tank, Earthen Dike, Liner

Tank ID	UTM x	UTM y	Description/Location	Substance	Capacity (L)	Nearest Environmental Feature	Bearing	Distance from Feature (m)	Secondary Containment
245-TK-03	519303	7177924	FAR Panda No.1 Day Tank	Diesel	25000	STREAM	-68	623	Double Wall Tank, Earthen Dike, Liner
245-TK-04	519303	7177924	FAR Panda No.1 Bulk Tank	Used Oil	50000	STREAM	-68	623	Double Wall Tank, Earthen Dike, Liner
245-TK-05	519531	7178222	FAR Panda No. 3 Day Tank	Diesel	25000	STREAM	40	296	Double Wall Tank, Earthen Dike, Liner
245-TK-06	519531	7178222	FAR Panda No. 3 Day Tank	Diesel	50000	STREAM	40	296	Double Wall Tank, Earthen Dike, Liner
245-TK-07	518878	7177271	FAR Koala No. 1 Day Tank	Diesel	25000	STREAM	-139	458	Double Wall Tank, Earthen Dike, Liner
245-TK-08	518878	7177271	FAR Koala No. 1 Bulk Tank	Diesel	50000	STREAM	-139	458	Double Wall Tank, Earthen Dike, Liner
245-TK-09	518719	7177307	FAR Koala No. 2 Day Tank	Diesel	25000	STREAM	-119	385	Double Wall Tank, Earthen Dike, Liner

Tank ID	UTM x	UTM y	Description/Location	Substance	Capacity (L)	Nearest Environmental Feature	Bearing	Distance from Feature (m)	Secondary Containment
245-TK-10	518719	7177307	FAR Koala No. 2 Bulk Tank	Diesel	50000	STREAM	-119	385	Double Wall Tank, Earthen Dike, Liner
265-TK-001	519030	7177527	Underground Batch Plant Bulk Tank	Diesel	35000	STREAM	-20	538	Double Wall Tank, Concrete Dike
267-TK-201	519058	7177680	Koala North Boiler Bulk Tank	Diesel	24315	STREAM	-35	584	Double Wall Tank, Concrete Dike
MP-7-FTK-3	539709	7160990	Misery Hotsy Tank	Diesel	2050	LAKE	105	213	Double Wall Tank
MP-2C-FTK-1	539753	7161074	Misery Accommodations Boiler	Diesel	4530	LAKE	105	148	Double Wall Tank
MP-2F-FTK-1	539796	7161087	Misery Accommodations Kitchen	Diesel	4550	LAKE	105	151	Double Wall Tank
MP-3A-FTK-1	539710	7161091	Misery Utilities Services Building	Diesel	10000	LAKE	105	117	Double Wall Tank
MP-5-FTK-1	539656	7161058	Misery Heavy Duty Truck Shop	Diesel	10000	LAKE	105	133	Double Wall Tank
MP-6-FTK-1	539696	7161011	Misery Generators	Diesel	22500	LAKE	105	190	Double Wall Tank
MP-7-FTK-1	539699	7160980	Misery Wash Bay	Diesel	4350	LAKE	105	221	Double Wall Tank

**Table 2 - Storage Locations of Potentially Hazardous Material**

Storage Location	Material	Quantity (kg)	Purpose
AN building	Ammonium nitrate	14,500,000	Explosive agent
Sea cans at Emulsion Plant	Emulsifier - N23	56,000	Polymer
Sea cans at Emulsion Plant	Emulsifier - N7	60,000	Polymer
Sea cans at Emulsion Plant	Sodium Nitrate	8,000	"Lightening" Product for Explosives
Sea cans at Emulsion Plant	Glacial Acetic Acid	47,000	Controls speed of lightening
Sea can at Emulsion Plant	Nitric Acid	364	pH adjustment
Sea can at Emulsion Plant	Fuel dye for ANFO	412	Colourant
Sea can at Emulsion Plant	Sodium Thiocyanate	24,000	"Lightening" product for explosives
Sea can at Emulsion Plant	Soda Ash	94	pH adjustment
Sea can at Emulsion Plant	Sodium Formate	91	Emulsion agent
Truck Shop Laydown	Ethylene Glycol	20,000	Freeze protection
Process Plant Storage Yard and Laydown 6	Ferrosilicon	4,072,000	Heavy Medium in HMS
Process Plant Storage Yard and Laydown 6	Magnafloc 156	630,400	Anionic flocculant
Process Plant Storage Yard	Magnafloc 368	198,400	Cationic coagulant

## Materials Safety Data Sheets (MSDS)

The Ekati Diamond Mine has thousands of products on site and in inventory. MSDS sheets for all hazardous materials are stored in a centralized database accessible to all employees. The MSDS database is updated regularly to include new materials coming to site, delete old sheets for products that are no longer in use, and to ensure that the MSDS sheets are current and no older than 2 years. Managing MSDS sheets in this way ensures that current information is always available and prevents several paper libraries around site that become tedious and time consuming to maintain.

The MSDS database is located on the DDEC intranet portal under Health, Safety, Environment, and Community Applications.

<http://minyoya-iis/Intranet/index.html>

## Spill Prevention

Spill prevention is the first line of defense in avoiding an environmental emergency. Controls implemented through state of the art hydrocarbon management infrastructure, preventative maintenance programs for equipment, and individual training all help to prevent a spill before it occurs. The items listed below outline spill prevention activities at the Ekati Diamond Mine.

### Prevention Through People

Prevention through people works encouraging everyday behaviors that promote sustainability and a culture of Zero Harm to people and the environment.

All staff and contractors at the Ekati Diamond Mine are required to perform pre- and post- operational checks on equipment and forward any concerns to the maintenance department. This helps to identify potential maintenance problems early, and prevent unnecessary equipment breakdowns.

The Ekati Emergency Response Team is trained in spill response in order to mitigate a large spill and prevent unnecessary harm to people and the environment. More information on training and competence can be found in section 5.7.

### Reliable Inventory Control and Reconciliation

Fuel off-loading stations have been upgraded so accurate fuel reconciliation can be performed. The MIDCOM Fuel Reconciliation Program is upgraded to ensure accurate and standardized fuel use/inventory control with an independent company providing a certificate of accuracy for each meter used. Updates are performed on the fuel database to reflect all current information. The overall outcome of the technological update is a fuel management system that will provide real-time fuel inventory management with gross volume inventory, density, fuel temperature and net volume for each storage tank at the Ekati Diamond Mine. Additional to controlling fuel distribution, bulk storage of lubricants is controlled through a locked and secured Lube Storage Facility. Only authorized personnel have access to the facility and control the distribution.

### Secondary Containment

Stationary equipment and storage tanks at the Ekati Diamond Mine are outfitted with secondary containment trays or berms to prevent spills to the environment from primary containment failures, leaks or spills from equipment breakdown, or human error such as overfilling tanks or spillage during refuelling.

### Preventative Maintenance Programs

The Maintenance department maintains all equipment and infrastructure at the Ekati Diamond Mine. Each piece of equipment has a maintenance schedule to ensure that it is receiving required maintenance to reduce breakdowns.

### Inspection Programs

Regular inspections of work areas, storage tanks and distribution systems provide early warnings of potential weaknesses. Inspections are performed daily, monthly and annually. A training program has been developed for personnel undertaking the inspections and a system of record keeping is in place.

### Investigations and Continuous Improvement

It is recognized that even with the most effective prevention measures in place, incidents will occur. Investigations are undertaken following significant or recurring spills to identify the root cause and corrective actions that will prevent future incidents.

Investigations may take several paths including compliance auditing, risk reduction and/or training efficiency assessments.

The root cause analysis process is driven by the “Incident, Cause, Analysis Method” (ICAM) using the MINICAM Investigations Guide.

Investigation findings of significant incidents are used in a proactive manner to communicate learning’s site wide at the Ekati Diamond Mine.

## Emergency Preparedness

This section describes the level of preparedness to respond to a spill or environmental emergency. It outlines the required training for response personnel; available resources for equipment and manpower; and assigns roles and responsibilities.

### General Preparedness

The Spill Contingency Plan is reviewed annually, and updated as necessary to reflect administrative and operational changes at the Ekati Diamond Mine. It is available electronically to all site personnel through the shared network and is available in hard copy at the Environment office area in the Truckshop and at the Ekati Firehall.

Spill training is provided annually to key personnel in the Environment Department and several members of the Emergency Response Team (ERT). Training includes review and update of the plan, inventory and testing of spill response equipment, and a series of desktop exercises.

Spill kits are available on site. Each work area is equipped with a spill kit and extra spill kits can be purchased from the Warehouse. The kits are packed inside labeled yellow drums. Each kit contains personal protective equipment, spill containment materials and items specific to the location of the kit and the anticipated emergency. Spill Kit contents and warehouse stock numbers are listed in Table 4.

In addition to the spill kits, the Ekati Diamond Mine has two Spill Response Trailers, one located at the ERT Fire Hall and the other located at the Misery Fire Hall. The trailers contain a large inventory of equipment and materials listed in Table 3.

This Spill Contingency Plan is intended to cover current mining activities at The Ekati Diamond Mine and Misery Camp as well as other activities conducted by DDEC in the area including exploration. Exploration consists of a systematic and progressive series of activities from regional prospecting (preliminary soil sampling), through increasingly sophisticated and detailed geological and geophysical or geochemical surveys over large prospective areas, to localized trenching to exploration drilling (percussion, reverse circulation, diamond drill) in areas of high mineral potential. The final phase of an exploration program typically involves bulk sampling of bedrock material by pilot-plant (small-scale) treatment methods. DDEC exploration activities are intended to be supported by the Ekati Diamond Mine infrastructure; therefore, no additional fuel storage will be needed at the exploration sites. This reduces potential for spills and environmental impact.

Each exploration project requires a detailed project plan. Each project plan will contain details on the types of exploration activities such as detailed drill plans with locations and other specific information to the project. This Spill Contingency Plan is intended to be a tool used to formulate the project plan that will include a Risk Assessment and an Emergency Response Plan. Resources and protocols identified in this Spill Contingency Plan are intended to be available to all exploration activities.



## Inventory of Response and Clean Up Equipment

Information about resources that are available for spill response at the Ekati Diamond Mine is grouped as follows:

- Spill Response Kits and ERT Spill Trailer Tables 3 and 4
- Mobile Equipment Table 5
- Protective Equipment Table 6
- Neighbouring Sites

**Table 3 - Inventory of ERT Spill Trailer**

Item	Amount	Item	Amount
Copy of Spill Contingency Plan	1	20' x 30' poly tarps	2
Pop up Pools	3	Sets of folding warning triangles	3
Oil selective spill pads (100 per pkg.)	3 pkg.	Bundle of pickets	1
Absorbent material, 150 ft.	1 roll	Spool of ½" poly yellow rope (335 ft.)	1
Plastic 10 x 14 foot tarps	3	Husqvarna 394 XP Chainsaw	1
Gas Powered Generator	1	<b>Rubbermaid Container #1</b>	
Bags of Industrial Absorbent Material	4	Splash resistant goggles	4
10' absorbent socks	5	Respirators ½ facemasks	5
10,000 litre Porta Tank	1	Respirators cartridges combination type	1
Gas Powered Ice Auger	1	XXXL Tyvek suits	1
Ice Auger Bit	1	Neoprene gloves	1
Pieces of 2 1/2" suction hose (20 ft. ea)	2	<b>Rubbermaid Container #2</b>	
500 Watts Halogen light with stand	1	Tool kit, 107 pieces	1
Roll of 6 mil. Poly (10'x100')	1	500W Halogen lights	1
Shovels	4	<b>Rubbermaid Container #3</b>	
Ice Chippers	2	Flashlights	2
Straw Brooms	2	D' cell batteries	2
2' Rubber hose (100 ft. length)	1	Large plastic bags	1
Spare Broom Handles	2	Barricade Caution tape	2
5 gallon pails	3	Flares	3
Milk Crates	3	Orange flagging	3
Fire Extinguisher, ABC, 20 Lbs.	1	#2 NWT first aid kit	1
XL Rain Suits	4	<b>Outside Front Cage</b>	
Extension Cord (15m)	1	- traffic cones	8
Bungee Cords	15	- tiger torch and propane cylinder	1
Rubber Boots, size 10	4	- 5 gallon jerry cans and gas	2
Rolls Duct Tape	12	- spare tire	1

The Truckshop Warehouse is stocked with spill response materials. These materials can be used to provide extra resources during a spill and to re-stock the spill kits. Warehouse items are listed in Table 4.

**Table 4 - Spill Kit Contents**

Item	GSAP Number
45 Gallon Emergency Spill Kit Drum	60232340
Spill Pool	60183350
White hydrocarbon absorbent pad	60179534
White glycol absorbent pad	60181723
Tyvek coveralls	60180583
Protective Goggles	60183846
Nitrile Gloves	60183083
Dust Masks	60184440
Garbage Bags	60183118
Large Spill Booms (water)	60181224
Small Spill Booms	60181989
Sphag Sorb (dry floor absorb)	60179537
Sphag Sorb (4 cu. ft.)	60181458

Mobile Equipment – Mobile Equipment can be used during a spill response to create earth berms and diversion trenches. Mobile equipment is also used during spill cleanup and remediation.

**Table 5 - Mobile Equipment**

Production Support Services	Production Support Services	Mine Operations
426 Backhoe	Low Bed Truck Float	Light Vehicles
Excavators	Truck Freightliner	Cat Tow Truck
D-300 Articulated Dump Truck	Hydro-vac Truck	777 Water Truck
Production Loaders	Genie Lifts	
Track Dozers	Haul Max Haul Trucks (Misery)	Kingland Ford
Graders	Misc. Hoses and Piping	Forklifts
Cranes	Mine Operations	Compressors
Small Wheel Loaders	Excavators	Generators
Buses	Cat 777 Trucks	10 ton Bucket Truck
Trailers	Cat 789 Trucks	Welding Trucks
Generators	Cat 793 Trucks	Bobcats
Water Pumps	Production Loaders	
Light Vehicles	Track Dozers	Emergency Response Team
Scissor Lifts	Graders	Fire Truck
10 ton Hiab L9000 Truck	Wheel Dozers	Mobile Spill Response Unit
Flat Deck	Small Wheel Loaders	
Roll Off Trucks	Buses	Environment Department
Fuel Truck	Light Plants	Small Boats and Motors

Personal Protective Equipment – Safety and protective equipment are available from inventory at Ekati and are the responsibility of the Safety Team Leader. These Items are summarized in Table 6.

**Table 6 - Personal Protective Equipment**

Item
Self Contained Breathing Apparatus (SCBA)
1 hr. SCBA Air Tank (Spare)
Explosive Meter
Electronic Gas Detector
Multi Gas Detector
Air Lifting bags
Dry suits
Compressors
Class A and Class B Foam
First Aid Kits
Rain Suits
Steel toe rubber boots
Tyvek Suits
Nitrile Gloves

Neighboring Sites – In the event of a major spill requiring additional resources, equipment and manpower will be made available through mutual aid agreements with the Diavik Diamond Mine, the Snap Lake Diamond Mine, and local fuel suppliers.

### Response Organization

The primary responsibility for responding to an environmental emergency or spill event resides with the department that has ownership or is in control of the substance prior to an uncontrolled release.

The department's Team Leader has a responsibility to conduct an initial hazard assessment of the spill site; determine the appropriate level that will drive the response; determine the need for additional specialized support and/or advice; and to activate the Plan.

A process map showing the spill response flow plan is shown in Figure 9. Hazard assessment will identify inherent and potential hazards that may be encountered as a result of the spill, and risk associated with response activities to the spill.

Key contacts and personnel are identified in Tables 7, 8 and 9. Section 5.3.5 assigns responsibilities for key personnel, emergency responders, and support personnel. Responsibilities and actions are summarized in Table 10.

**Table 7 - Key Ekati Response Contacts**

Contact	Phone Number
Ekati Emergency Telephone	867-880-4444
Ekati 24-Hour General Security	867-880-2201
Environment Team Leader	867-880-2157 / Security (evenings)
Environment Superintendent–Operations	867-880-2232
Health and Safety – Manager	867-880-2154
Mine Services – Team Leader	867-880-2012
Mobile Maintenance – Superintendent	867-880-2098
Surface Mining – Superintendent	867-880-2247
Maintenance Services – Team Leader	867-880-2253
Process Plant – Team Leader	867-880-2043
Process Plant Control Room	867-880-2045
President and COO	867-880-2133
Head of Environment and Communities	867-669-6156

**Table 8 - Key Contractor Response Contacts**

Contact	Phone Number
Finning – Service Manager	867-880-2121
Kingland Ford – Manager	867-880-2178
Polar Explosives – Supervisor	867-880-4613
Tli-Cho Domco Ltd. - Manager	867-880-2428
Hydrocarbon Services	867-880-2140

**Table 9 - External Contacts**

Contact	Phone Number
24-Hour Spill Report Line (first point of contact for reportable spills)	867-920-8130
NWT Environment and Natural Resources	867-873-7181
Workers' Compensation Board	867-920-6134
NWT Fire Marshal	867-873-7469
RCMP – Yellowknife	867-669-1111
Aboriginal Affairs and Northern Development Canada (AANDC)	867-669-2760
Wek'eezhii Land and Water Board (WLWB)	867-765-4592
AANDC Water Resources Division	867-669-2650
Fisheries and Oceans Canada (DFO)	867-669-4900
CANUTEC	613-996-6666
Diavik (Rio Tinto) Security	867-766-5903
Diavik (Rio Tinto) Emergency Response Team Coordinators	867-766-5900 ext. 5462
Snap Lake (De Beers) Security	867-767-8506
Snap Lake (De Beers) Emergency Response Team Coordinators	867-767-8536

## Emergency Levels

### Level 1 Emergency

No immediate hazard to the environment or human health and the situation is localized to a specific area of the site.

#### Conditions

1. Small spill contained and controllable.
2. An unexpected release of hydrocarbon vapors has been confined with hazardous concentrations localized to a specific area of the site.
3. A hydrocarbon/chemical spill or leak requiring immediate reporting to regulatory authorities and which is confined to an area of the site and having a minimum potential threat to the environment.
4. The spill can be managed with resources immediately available on site by the responsible department.

### Level 2 Emergency

This spill is localized within the broader site area. Realistic and potential hazard to the environment or human health exists but is not yet being experienced.

#### Conditions

1. A significant uncontrolled discharge of a controlled product has occurred with impacts contained within the facility site.
2. An unexpected release of hydrocarbon vapors is present and is impacting other areas of the site.
3. A significant hydrocarbon/chemical spill or leak has occurred with more widespread site impacts causing a hazard to on-site personnel and/or a realistic potential off-site hazard to the public or the environment.
4. The responsible department may not have adequate resources immediately and readily available to adequately respond to the incident.

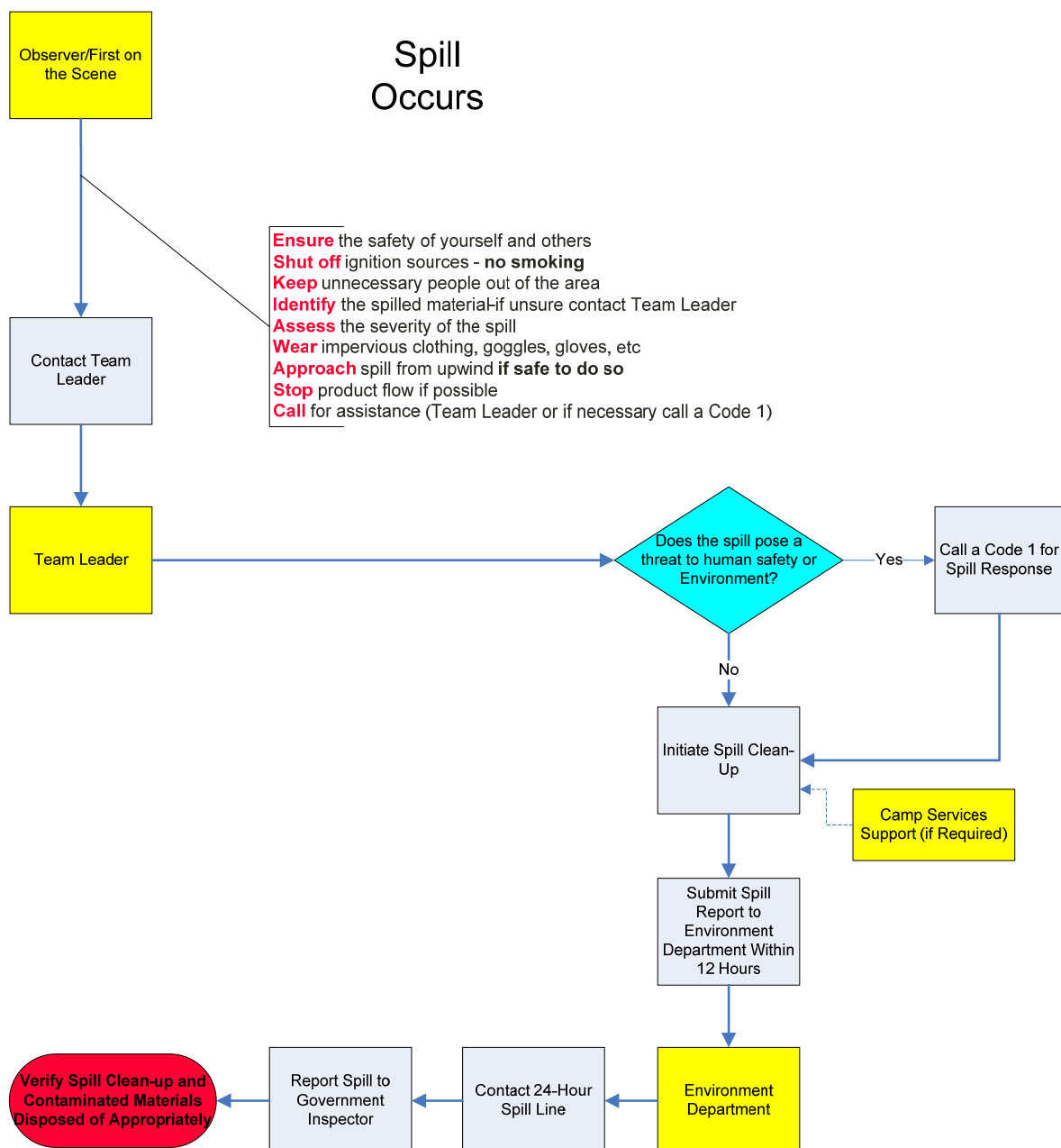
### **Level 3 Emergency**

The situation has resulted in serious impacts outside of the facility site area and serious hazard to off-site and/or sensitive environmental receptors exist.

#### Conditions

1. A major uncontrolled release of a controlled substance has occurred causing threat to facility personnel, operations, or the natural environment.
2. An unexpected release of hydrocarbon vapours has occurred with serious impacts being experienced outside of the facility site.
3. A major hydrocarbon/chemical spill or leak has occurred with hazardous impacts being experienced outside the facility site.
4. A hydrocarbon/chemical spill or leak has occurred with potential impact on sensitive environmental receptors such as a natural watercourse.

Figure 10 - Spill Response Flow Chart





## Responsibilities

### Actions

The following list responses by position (responsibilities are assigned to individuals or their designates) for each emergency stage.

Facility Attendant / First on the Scene

Levels 1, 2 and 3

- Assess the situation.
- Turn off master control, activate emergency shut-down switch or shut down individual pumps as appropriate. Shut down electrical main switch (breaker) and/or fuel supply line.
- Ensure safety of people in the immediate area.
- Remove unnecessary personnel from the immediate area as necessary.
- Notify team leader.
- If unable to contact team leader, notify alternate.
- Contact emergency services as required.

Note: Security and the Environment Department must be notified in situations involving large spills or small amounts if hazardous conditions exist or if potential impact to sensitive environmental receptors can be anticipated (Level 3). Initiate Code One.

- If spill occurs during fuelling of a vehicle, do not remove nozzle from vehicle.
- If the incident involves the leakage of compressed gasses such as propane, evacuate area immediately and initiate Code One.

Team Leader (Responsible Department) or Alternate

Level 1

- Assess the situation.
- Declare severity level.
- Confirm that sufficient equipment and resources are available to response to spill incident.
- Initiate action as specified in SOP specific for the substance provided in Appendix A of this Plan and available on Ekati Intranet system.
- Confirm safety of all personnel on-site.
- Request systems from specialized corporate services as required.
- Document circumstances of spill event and actions initiated.
- Ensure notification of Environment Department as soon as practical.

Level 2

All of the above plus:

- Proceed to scene as necessary.
- Contact Environment Department representative.
- Ensure area has been evacuated if required.

- Ensure monitoring of hazardous concentrations of materials in immediate site area is initiated as appropriate.
- Ensure that the operations of the facility are secure.
- Establish on-scene command post as required.
- Contact Mine Services for additional resources as necessary.
- In consultation with the Environment Department, develop site-specific strategy to minimize the impact of the spill.
- Initiate clean-up / remediation activities.

### Level 3

All the above plus:

- Initiate Code One.
- Proceed to scene.
- In consultation with the Emergency Response Team Coordinator, assume role as on-scene commander.
- Identify exclusion zone.
- Initiate clean-up / remedial action.

### Environment Department

The role and responsibility of the Environment Department is that of scientific authority and specialist advisor to the responsible department team leader, the on-site commander or the Emergency Response Team Coordinator.

The Environment Department is also responsible for all communications and reporting functions to regulatory agencies.

### Level 1

- Receive and analyze spill reports from responsible department and report to regulatory agencies.
- Provide advice, support relating to clean-up/remediation activities as appropriate.
- Verify remediation results and report as appropriate.

### Level 2

All the above plus:

- Establish and maintain contact with responsible department team leader.
- Assist with the evaluation of the situation in conjunction with the responsible department team leader and declare/confirm severity level of spill.
- Give technical advice and support to responsible team leader as requested.

### Level 3

All the above plus:

- Respond to Code One, as requested by ERT.
- Confirm nature and extent of environmental contamination.
- Proceed to scene to assist with situation assessment.
- Develop and initiate monitoring strategy for hazardous conditions.
- Maintain a record of all monitoring results.
- In consultation with the Emergency Response Team Coordinator, assist with development and implementation of contaminant and site specific spill control measures.

- Provide technical assistance and advice to on-scene commander regarding remediation strategy.
- Monitor and report attainment of remediation objectives.

#### Mine Services

The primary responsibility of Mine Services is to provide equipment and manpower to assist the responsible department team leader or the on-scene commander in the control of a spill and subsequent remediation activities.

Mine Services will work under the direction of the responsible department team leader (Level 1 and Level 2 emergencies) or the on-site commander (Level 3 emergencies).

#### Level 1

Stand by and provide assistance as requested.

#### Level 2

All the above plus:

- Provide specialized equipment and manpower to control spill.
- Under the direction of the responsible department team leader, provide equipment and services to facilitate effective site remediation.

#### Level 3

All the above plus:

- Respond to Code One, as requested by ERT.
- Proceed to the scene to assist with construction activities and maintenance activities as required.
- Alert/mobilize equipment and personnel as appropriate.
- In consultation with the ERT Coordinator, ensure utilities are shut off as may be required.
- Coordinate, procurement, staging and other logistics requirements, if needed.
- Provide equipment and manpower resources for remedial activities.
- Assist with the investigation and response assessment, and provide input to plan improvement as appropriate.

#### Safety & Security Department

The primary responsibility of the Health and Safety Department is to provide professional advice and on-scene command in the event of a significant spill event. If ongoing safety concerns or hazards exist on-site, the ERT Coordinator will ensure the area is secure as necessary (e.g., ignition source is eliminated, area access restricted, etc.), ensure all the response personnel on-site are wearing appropriate personal protection equipment as required, determine the need for additional safety manpower or equipment on-site (e.g., breathing apparatus, explosive vapour / chemical monitors, fire equipment, medical supplies), determine the need for specialized services/equipment from Mine Services. Considerations may include the need for spill containment, contaminant recovery and waste disposal.

#### Level 1

- Stand by and make professional services available as requested.

#### Level 2

All the above plus:

- Liaise with and provide professional support to responsible department team leader as appropriate.
- If ongoing safety concerns or hazardous conditions are present, ensure area is secured as necessary.
- Ensure all response personnel are properly equipped.

- In consultation with responsible department team leader, determine the need for specialized services/equipment from Mine Services or other sources.

### Level 3

All the above plus:

- Respond to Code One.
- Undertake initial assessment of the incident in conformance with SOP SAFE-SWP-EME-03.
- Assume role of on-scene commander.
- Coordinate site safety and environmental requirements as needed.
- Document/record information relating to all ongoing activities (including log, photographs, etc.) is maintained.

Note: Avoid statements that offer speculation as to cause or responsibility.

Note: At each stage of emergency, designated individuals have the responsibility to ensure that the following assigned tasks are carried out. In their absence, this responsibility is assigned to their designated alternate or may be assumed by other Emergency Response Team personnel.

A summary of roles and responsibilities on an emergency level basis is presented in Table 10, Spill Contingency Plan – Summary Action Plan.

Table 10 – Summary Action Plan

Emergency Level	First on Scene	Team Leader Responsible Department	Emergency Response Team	On-Scene Commander	Mine Services	OHS-Security	Environment Department	Community & External Affairs	General Manager	President
<b>Level 1</b>										
Situation localized to one area. No off-site risks, no risk to sensitive environmental receptors	<ul style="list-style-type: none"> <li>- Assess initial severity of spill</li> <li>- Assess safety concerns</li> <li>- Identify source of spill</li> <li>- Report to Team Leader</li> <li>- Participate in clean-up</li> </ul>	<ul style="list-style-type: none"> <li>- Confirm initial severity of spill</li> <li>- Confirm any safety concerns</li> <li>- Initiate spill response plan</li> <li>- Gather information / facts</li> <li>- Prepare internal spill report, submit by First Priority</li> <li>- Act as spill clean-up Team Leader</li> <li>- Take initial action to control source of spill</li> </ul>	<ul style="list-style-type: none"> <li>- Provide professional advice as required</li> </ul>		<ul style="list-style-type: none"> <li>- Provide services as required</li> </ul>	<ul style="list-style-type: none"> <li>- Ensure PPE is appropriate and is being used</li> </ul>	<ul style="list-style-type: none"> <li>- Ensure that internal spill report is complete</li> <li>- Ensure that spill is reported as per license and regulatory requirements</li> <li>- Verify clean-up</li> </ul>	<ul style="list-style-type: none"> <li>- Provide support as required</li> <li>- Monitor spill events</li> </ul>		

Emergency Level	First on Scene	Team Leader Responsible Department	Emergency Response Team	On-Scene Commander	Mine Services	OHS-Security	Environment Department	Community & External Affairs	General Manager	President
<b>Level 2</b>										
Situation is not contained in one area and there is a potential hazard to the Environment and Plant Production	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- Ensure safety of people in the area</li> </ul>	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- Proceed to spill site</li> <li>- Contact Environment Department</li> <li>- Evacuate area, if required</li> <li>- Ensure facility operations are secure</li> <li>- Contact Mine Services for additional resources as needed</li> <li>- Consult with Environmental Specialist</li> <li>- Develop control strategy to minimize impact</li> </ul>	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- In conjunction with Responsible Department Team Leader, make Emergency Response Team response available as required</li> </ul>	<ul style="list-style-type: none"> <li>- Monitor potential escalation of initial emergency level assessment</li> </ul>	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- Provide additional resources to control spill</li> <li>- Provide equipment and manpower for remediation</li> </ul>	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- Monitor ongoing safety concerns</li> </ul>	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- Establish contact with Responsible Department Team Leader</li> <li>- Assist with the evaluation of the situation</li> <li>- Confirm severity level</li> <li>- Provide technical support to Responsible Department Team Leader</li> </ul>	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- Determine need for incident investigation</li> </ul>	<ul style="list-style-type: none"> <li>- Ensure facility operations are secure</li> <li>- Monitor events</li> </ul>	

Emergency Level	First on Scene	Team Leader Responsible Department	Emergency Response Team	On-Scene Commander	Mine Services	OHS-Security	Environment Department	Community & External Affairs	General Manager	President
<b>Level 3</b>										
Significant impacts are observed to off-site areas, sensitive environmental receptors, potential disruption of Plant Operations	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- Shut down power supply</li> <li>- Shut down pumps as necessary</li> <li>- Isolate fuel storage as necessary</li> </ul>	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- Initiate Code One</li> <li>- Identify exclusion zone</li> </ul>	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- Secure and contain site</li> <li>- Assess risk to operations, environment</li> <li>- Commence logistic planning</li> <li>- Monitor signs of escalation</li> </ul>	<ul style="list-style-type: none"> <li>- Assume role of on-scene commander</li> <li>- Establish on-scene command post</li> <li>- In consultation with Environment Department, develop containment strategy</li> <li>- In consultation with Site Security, initiate evacuation as necessary</li> <li>- Determine need for additional specialized services</li> <li>- Initiate log of events</li> </ul>	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- Respond to Code One</li> <li>- Provide coordination of equipment and manpower as needed</li> <li>- Under the direction of on-scene commander, provide resources for containment, recovery and clean-up</li> </ul>	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- Respond to Code One</li> <li>- In consultation with on-scene commander, provide site security services as needed</li> </ul>	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- Respond to Code One</li> <li>- In consultation with on-scene commander, assess environmental risks</li> <li>- Develop containment plan</li> <li>- Develop remediation plan</li> <li>- Monitor plan implementation</li> <li>- Progress reports</li> <li>- Determine need for long-term management / monitoring of spill site</li> <li>- Assess residual impacts</li> </ul>	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- Respond to Code One</li> <li>- Proceed to site</li> <li>- Monitor response</li> </ul>	<ul style="list-style-type: none"> <li>- Same as above plus:</li> <li>- Provide information to President</li> <li>- Assess impacts on plant operations as necessary</li> </ul>	<ul style="list-style-type: none"> <li>- Screen all external communications</li> <li>- Approve external communication strategy</li> </ul>



Emergency Level	First on Scene	Team Leader Responsible Department	Emergency Response Team	On-Scene Commander	Mine Services	OHS-Security	Environment Department	Community & External Affairs	General Manager	President
<i>Post Emergency Procedures</i>										
	<ul style="list-style-type: none"> <li>- Assist with business resumption as appropriate</li> <li>- Assist with incident investigation as required</li> </ul>	<ul style="list-style-type: none"> <li>- Initiate incident investigation in conjunction with EC &amp; EA as directed by OHS &amp; Security Manager or VP Operations</li> <li>- Coordinate business resumption</li> </ul>	<ul style="list-style-type: none"> <li>- Assist with incident investigation and follow-up reports/activities</li> </ul>	<ul style="list-style-type: none"> <li>- Level III emergency - coordinate clean-up remediation activities</li> </ul>	<ul style="list-style-type: none"> <li>- Ensure emergency equipment is operational</li> <li>- Assist with remediation as required</li> </ul>	<ul style="list-style-type: none"> <li>- Assist Responsible Department Team Leader with post emergency responsibilities</li> </ul>	<ul style="list-style-type: none"> <li>- Ensure written reports and logs are complete as required</li> <li>- Undertake long-term site monitoring as required</li> <li>- Complete clean-up verification report</li> </ul>	<ul style="list-style-type: none"> <li>- Debrief Emergency Response Team</li> <li>- In consultation with VP of Operations, initiate critical incident investigation</li> </ul>	<ul style="list-style-type: none"> <li>- In consultation with EC &amp; CA, determine need for root cause analysis</li> </ul>	<ul style="list-style-type: none"> <li>- Control of external corporate communications, news releases or other media response activities</li> </ul>

## Spill Response Actions

To assist in the investigation of the cause of an incident and effectiveness of the company's response activities, each person involved in an incident should keep an accurate record of the events in which they are involved.

Where an immediate report is required under government regulations, only specific facts describing the emergency should be disclosed. No statement should be made that offers speculation as to the cause or blame since any report may be utilized in the event of litigation.

Responders dealing with environmental emergencies should keep accurate records as to what happened and corrective action taken. This is essential to facilitate long term reclamation of the spill site as well as reporting.

Unlike other normal reporting procedures, when requested by federal or territorial agencies, all written reports and communication by DDEC personnel that relate to the incident should be prepared by authorized personnel in the Environment Department.

In the event of a Level 3 spill (see definition of Level 3 Emergency in this section of the Plan), where significant off site impacts or impacts of sensitive environmental receptors are anticipated or if personal injury occurred, the Legal Department must review reports prior to external release. This section of the Plan provides generic information for planning spill response strategies and procedures depending on the receiving environment, transport mechanisms, and rate of release for the most significant material categories.

Spills of petroleum-based products are most common at Ekati or related sites. This category includes diesel fuel, hydraulic fluids, lubricating oils, and ethylene glycol-based antifreeze; however, other chemicals such as ammonium nitrate, sodium hydroxide, various acids, sodium hydrochloride, etc. also have a high potential to cause environmental damage.

Spills may be in the form of liquids (most petroleum products) or solids. Spills may take place on land/tundra, snow and ice, or water (lakes or streams), or a combination of any of these receiving mediums, depending on the conditions at the time of spill in northern climates.

This section of the Plan provides generic information in the following areas:

- Spills on land
- Spills on tundra
- Spills on or near bodies of water
- Spills on snow and ice

This section also provides generic guidance for the management of spill cleaning materials for hydrocarbon-contaminated snow, hydrocarbon-contaminated soil, and various absorbents.

It is important that the appropriate regulatory agency be consulted before any long term or out of the ordinary clean-up or containment work is undertaken because certain types of remedial work may require regulatory approval.

## Planning and Logistics

Feasibility to contain and recover spilled materials will largely be determined by the spill location, the size and rate of release, transport, terrain and weather conditions. This information should be compared with the time needed to deploy response personnel, equipment and construction in order to evaluate what containment operation can be effectively implemented. The following response elements must be considered:

- Equipment and support material mobilization time

- Personnel mobilization, and assembly at spill site
- Actual equipment set-up and deployment time
- Assess the situation and in events of severe weather, ensure that it is safe to respond. Consult with the Weather Advisory Procedure for guidance on severe weather.
- Determine whether or not a spill has entered a waterway and whether or not access by land or water to control points is possible so that booms, absorbents, skimmers and/or vacuum equipment can be deployed.
- Establish priorities to optimize utilization of personnel and equipment/materials required for containment, recovery, storage, transportation and final disposal of all materials.

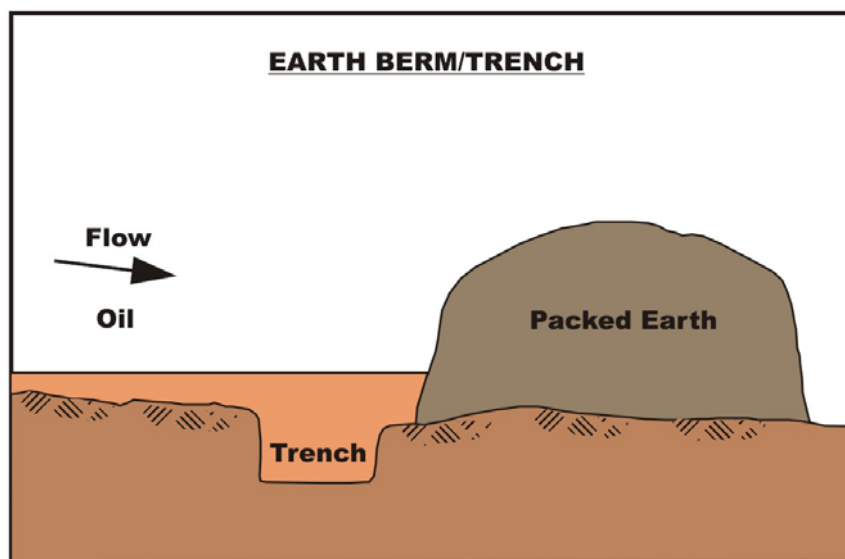
## Spills on Land

Regardless of the chemical spilled, the containment activity must be as close to the spill site as safely possible. It is important that the potential for the spilled material reaching a body of water be minimized.

The following two options are available for containing the site of a spill:

- Berms or dykes surrounding the spill
- Trench or ditch intersecting the flow of spilled materials
- Berms and dykes may be constructed of soil, snow or sandbags

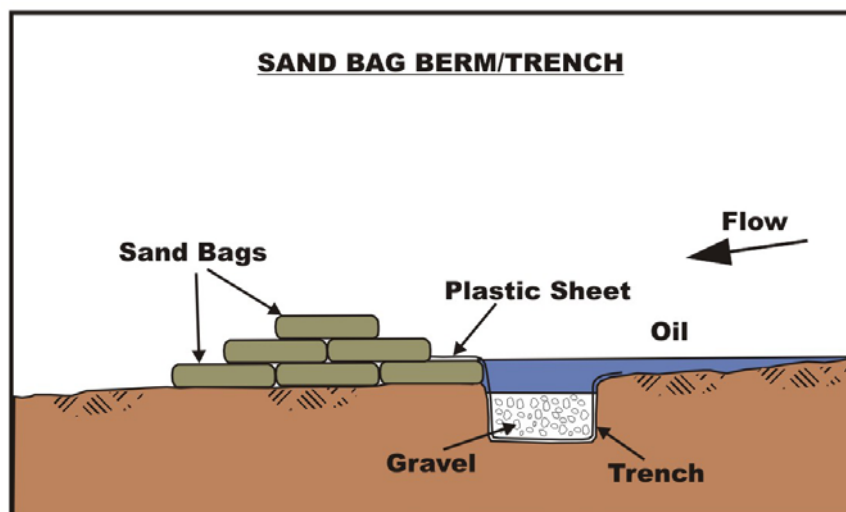
The berm/trench should be constructed downslope of the spill site if it is sloping terrain and it should be far enough away so that construction may be completed before the spilled material reaches the site. The trench should be perpendicular to the natural drainage contour of the site. The excavated material from the trench can be used for the construction of the berm along with other available materials.



Trenching and ditching is a good method for containing or intercepting the spread of liquid spills on land, especially if the spill occurs on steep terrain. Trenches and ditches should terminate in local, low-lying area, away from water bodies,

where the spilled material can be accumulated for recovery or absorption and should be lined with plastic sheeting if available.

The trench or ditch should be approximately 40 to 50 cm deep intersecting the flow of spilled material.



Sandbags can be used for berm construction if available and if the site is too hard or frozen and it cannot be excavated and compacted. A plastic liner can be used to seal the trench and the sandbags should be anchored with gravel or rocks and be woven between layers of bags.

Containment areas may be lined with a synthetic liner if available to improve impermeability. As an alternate, during winter conditions, the containment area may be sprayed with water and allowed to freeze to minimize potential penetration into the underlying soil layers.

Generally, solid materials are naturally contained. If there is a danger of windblown spreading of the material, a layer of snow placed on the top of the material should be considered, as a temporary measure until a more comprehensive response can be developed.

## Spills on Tundra

Tundra is generally saturated, with poor drainage and absorption capacity. The organic content is highly acidic material with very low soil bacteria and nutrient content. This makes it difficult to achieve any significant levels of bio-degradation of hydrocarbon spills, even in warmer climates.

Any attempts to mechanically clean up the spill on tundra can cause significant damage of the fragile tundra environment. Spraying a high nitrogen content fertilizer and spreading topsoil or peat moss can foster biodegradation. Smaller spills are often best managed by allowing in-situ degradation. Larger spills must be managed to prevent further off-site migration by installing cut-off trenches and attempting to recover the free product.

In all cases, it is important to weigh the advantages of clean-up versus the potential negative impacts on the terrain. Both personnel and equipment on wet or sensitive areas can cause considerable damage. In many cases, the best solution may be to add nutrients to the contaminated area as noted above and monitor the site to ensure that the spill does not migrate to an adjacent sensitive area. In all case, the Environment Department must be consulted before any clean-up or containment work is undertaken.

## Spills on Lakes and Streams

Containing spills in streams, especially fast-flowing or turbulent waters, can be difficult so rapid response is important. Containment of the spill should be as close to the point of entry as practical.

Spills in standing water may be contained by the deployment of absorbent booms so the floating material can be drawn back close to shore where it can be collected with a skimmer, vacuum truck or absorbents.

For the containment of spills and streams, it is important to determine the speed at which the water flows (same as the oil slick) and deploying the floating booms or constructing a temporary berm or inverted interceptor weir of the slick can be achieved.

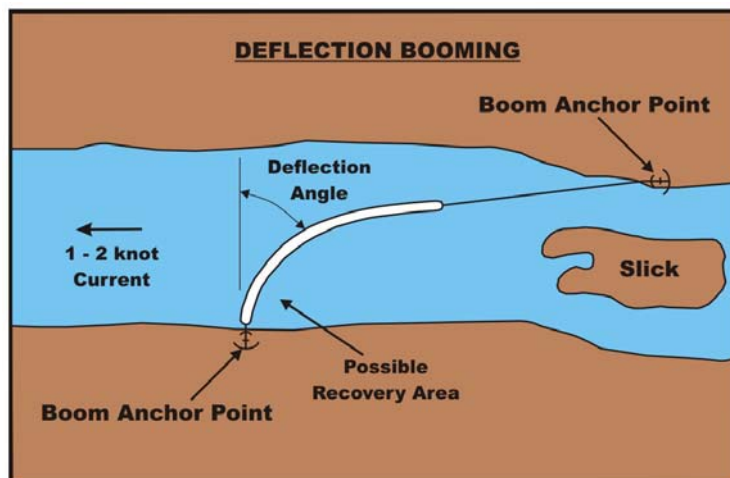
In flowing streams, oil travels at the same speed as the surface current. On slow moving rivers, or in open lake areas, the oil slicks are also transported at a rate of approximately 3.5% of the wind speed. Although a comparatively small effect, it can be an important factor if the wind is at the right angle to the flow of water and if the water surface is expansive. The wind can drift the oil slick to the shoreline of the water body. Long reaches of the river may become contaminated although containment and recovery might also be possible. In smaller streams, the wind will have less impacts and the slick speed can be calculated by placing a small stick in the middle of the stream and measure the length of time required to travel a distance of 10 m.

This information can be quickly converted to speed ( $36/\text{time (sec)} = \text{km/hour}$ ) to determine the estimated travel time to a confluence, other sensitive and/or proposed interceptor construction site.

**Note:** If the construction of temporary berm or interceptor weir is part of the spill response strategy, the potential environmental damage caused by such construction activities should be weighed against the impacts of the uncontrolled spill (especially for smaller spills).

If the waterbody is considered to be a fish habitat spawning stream, the Federal Department of Fisheries and Oceans must be consulted.

Deflecting booms to intercept an oil slick in a stream (especially slow moving waters) are effective strategies. The effectiveness of intercepting booms will decrease as the rate of flow increases. At speeds exceeding 0.5 m/s, hydrocarbons, especially diesel fuel, jet fuel, will become dispersed in the water and will pass under the boom, resulting in poor efficiency. Some improvement can be achieved in waters flowing at a higher rate (not turbulent) if the floating boom is placed at an angle to the shoreline. If the current exceeds a flow rate of 0.75 to 1 m/s, the boom should be deployed at an angle of 30 to 45 degrees to shoreline.

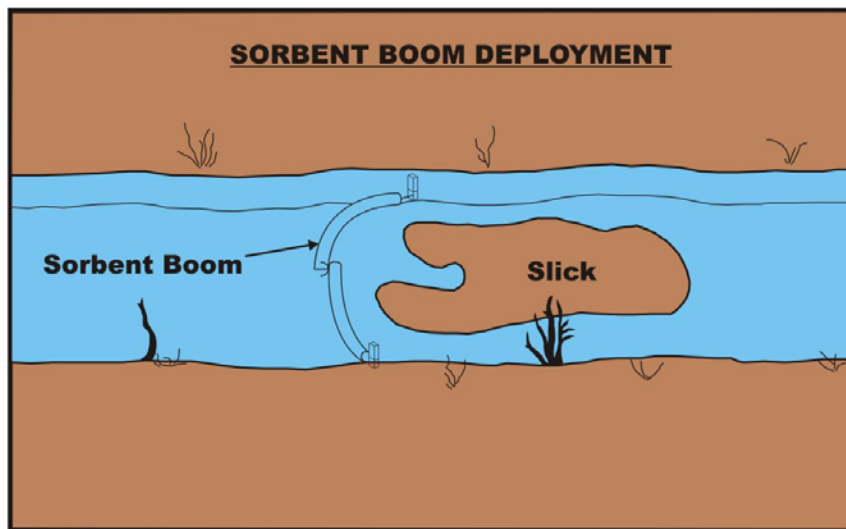


Floating booms must be checked regularly. As they become saturated, they then lose their buoyancy and sink. The absorbent material will lose its capacity and often re-release materials back into the water.

Determining the best possible strategy for containment on water will depend on a number of factors. These are:

- Speed of slick travel
- Location of possible containment site
- Availability of personnel and equipment
- Proximity to environmentally sensitive areas
- Safety of operation

Generally, spills on water can be contained by using floating booms (either absorbent or nonabsorbent) or by constructing a temporary berm or inverted weir. The objective is to build a barrier against which the normally floating oil will pool while allowing the underflow of water.



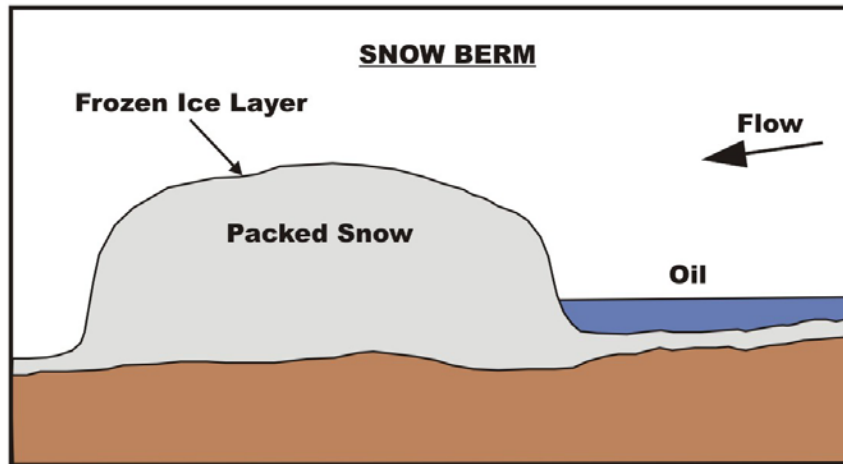
Booming with either absorbent or nonabsorbent booms can also be an effective means of containing spills on slow moving waters and in lakes. Effective containment using conventional booming techniques will be very difficult in rivers where currents exceed 0.7 knots (0.4 m/s). At these speeds, oil will become entrained in the water flowing under the boom, resulting in significant losses. Some improvements can be achieved in waters flowing at 1 to 2 knots (0.5 to 1 m/s) if the boom is deployed at an angle of less than 90° to the direction of the flow.

## Spills on Ice and Snow

Hydrocarbon materials can remain relatively fresh (i.e., in an unweathered state) under snow and ice for several months or more after a spill.

Evaporation rates will still be high when oil is ultimately exposed to the atmosphere, except in very low temperatures. Oil can also move up and down small hills several meters high due to the capillary action of snow.

Snow and ice can be used to create berms to keep spills from spreading. In frozen rivers, angled slots about 1 m wide or holes can be cut in the ice, where safety permits, to allow possible spill recovery. The oil will rise up into the opening where it will concentrate, and be available for recovery using skimmers or pumps.



Oil spills in snow and ice can be sometimes burned if the spill can be isolated from the source. Although there is generally a reduced fire hazard, due attention to safety of operation is still required. If burning is not effective, recovered contaminated material will need to be collected and transferred to a designated disposal facility on site.



## Post Emergency Procedures

Below is a summary of the post emergency process and guidance for resuming work and cleaning up an environmental spill.

### Duties and Responsibilities

#### Responsible Department Team Leader

Debrief on-scene personnel. Audit activities and evaluate.

- Initiate incident investigation and written follow-up report.
- Initiate re-start-up of facility operations as appropriate.
- Prepare internal report and submit to the Environment Department.
- In conjunction with the Environment Department and Mine Services, organize and direct clean-up operations. Coordinate ongoing site remediation.
- Coordinate requirements for major repairs and system testing.
- Release equipment and outside personnel.
- Coordinate incident investigation and follow-up report and actions.
- Coordinate wrap-up of procurement and cost control issues.

#### Environment Department

- Assist responsible department team leader with ongoing remediation requirements.
- Assist with incident investigation and follow-up reports.
- Provide report on spill incident and response action to regulatory agencies. In the event of a major incident, hold a post emergency debriefing with Emergency Response Team.
- Ensure all incident logs and written reports are completed as required and submitted as per procedures outlined in Section H of this plan.

#### Emergency Response Team Coordinator

- Hold post-emergency meeting with team members, responsible department Team Leader and Environment Department representative and assess the efficiency and appropriateness of response.
- Initiate root cause analysis, process according to ICAM or MINICAM investigation guide.
- Provide comments and recommendations, regarding effectiveness and utility of Plan.

## Remediation and Clean-Up

### General

Upon completion of the initial spill response, containment and recovery of contaminants to the maximum extent practically, site remediation must be initiated. The objective of the site remediation program is to ensure and confirm compliance with either the numerical criteria established by regulatory agencies or the approved risk management criteria developed for the specific site and contaminant. This will normally comprise the determination of contaminant concentrations remaining at the site relative to the approved criteria, but may also involve the monitoring of concentrations at potential points of exposure identified during the assessment phase of the response.

In case of long-term remediation measures, additional monitoring and testing will be required at appropriate intervals following implementation of the measures. In the event of a Level 1 or Level 2 spill emergency the Environment Department must be consulted with a view to developing and implementing the most appropriate remediation strategy. Ongoing monitoring and testing will also be required in some cases where the scope of the remediation work, for example the extent of excavation, is not determined at the outset.

It is important that the appropriate regulatory agency be consulted before any long term or out of the ordinary clean-up or containment work is undertaken because certain types of remedial work may require regulatory approval.

### Remediation Methods

In the event of a Level 2 incident the Environment Department should be consulted.

In the event of a Level 3 incident (Code One) regardless of size of the discharge, the remediation strategy must be developed in consultation with and approved by Environment Department.

Excavation and disposal of contaminated soils are most commonly applicable method if the risk of off-site contamination or impacts on sensitive environmental receptors is low.

In the event the spill may impact on surface water quality, the requirements for monitoring and testing during and following remediation are based on the need to ensure that the quality of the surface water is within applicable standards and the effect of the operations on surface water regime are acceptable and controlled. Sampling and analysis of surface water samples will be required periodically to determine concentrations of contaminants. The extent of verification testing required in each case will be dictated by a number of factors including the degree to which the extent of contamination was defined in the initial investigation, the remediation approach adapted and the amount and type of testing conducted during remediation.

### Remediation Plan

Remediation plan developed in consultation with and approved by the Environment Department and the AANDC Inspector must contain the following elements:

- Remediation program
- Implementation strategy
- Operation and monitoring

- Contaminant disposal and treatment
- Reclamation feasibility and impacts
- Spill close-out procedures
- Post-remediation site conditions and any applicable restrictions

The remediation management plan must contain:

- Schedule
- Remediation sequence
- Duration of each remediation activity
- Remediation monitoring (sampling and analysis program)
- Progress reporting
- Long-term management and monitoring requirements, if any
- Identification of any adverse environmental impacts that cannot be fully mitigated by proposed remediation plan
- Analysis of these impacts in terms of alternative remediation strategies

### Waste Management

All contaminated materials resulting from a spill shall be disposed of by approved methods in the Waste Management Plan.

- Contaminated soil is disposed of at the landfarm
- Contaminated snow is disposed on at the Contaminated Snow Containment Facility (CSCF)
- Oily rags and used absorbent material are bagged and labelled and brought to the waste management facility for disposal off site
- Contaminated PPE is bagged labelled and brought to the waste management facility for disposal off site
- Waste spilled material recovered is packaged and labelled appropriately for transportation off site

## Verification of Remediation

Upon completion of the remediation process or, in case of long-term risk management measures, at appropriate intervals during the risk management process, testing will be required to confirm the achievement of remedial criteria. Principally, this will require analysis of contaminant concentrations in soil and/or water samples relative to the accepted risk management objectives or numerical criteria and may also involve the monitoring of concentrations of potential points of exposure identified in risk evaluation.

The requirements for verification of soil and water remediation are discussed in the SOP.

Records of remediation activities and achievement of remedial objectives must be submitted to regulatory authorities.

# Spill Reporting Procedures

## General

According to the Northwest Territories Environmental Protection Act - Consolidation of Spill Contingency Planning and Reporting Regulations (RRNWT 1990, C) a person who causes or permits the release or the person having control of the released substance is responsible for reporting the release and for determining whether there was an adverse effect.

## Internal Reporting

The responsible department Team Leader must report all environmental incidents, including spills, to the Environment Department. Team Leaders are required to complete the Ekati Spill Report Form and submit to the Environment Department via email. The Environment Department must receive the completed Spill Report Form within 12 hours of an incident in order to meet the required 24-hour reporting deadline.

## External Reporting

Regulatory reporting requirements are defined by the Spill Contingency Planning and Reporting Regulations (RRNWT 1990, C). A completed spill report to the NWT Spill Line and AANDC inspector must be submitted within 24 hours of a spill occurrence. In addition, a spill closure report must be submitted to the AANDC inspector after the completion of the cleanup and sign off. Section 9(1) of the Regulations defines reporting requirements. According to Regulations, the owner or person in charge or control of contaminants at the time a spill occurs shall immediately report, any spill and its location, if it is of an amount equal to or greater than the amount set out in Schedule B of the Regulations.

The report must contain the following information:

- Date and time of spill
- Location of spill
- Direction that the spill is moving
- Name and phone number of contact person
- Type of contaminant and quantity spilled (estimated)
- Cause of spill (Note: Only factual information should be reported; speculation as to the cause of the spill or responsibility for the spill should be avoided.)
- Indication as to whether the spill is continuing or has stopped
- Description of existing containment
- Action taken to contain, recover, clean up and dispose of spilled contaminant
- Name, address and phone number of person reporting the spill
- Name of owner or person in charge, management or control of the contaminant at the time of the spill

NT-NU Spill Report Form will be filled out by Environment Department personnel. The spill report form is filed on the internal shared drive with examples and work instructions for filing the report.

Schedule B of Section 9 of the Regulations defines reportable spills according to the Transportation of Dangerous Goods Regulations (TDGR) Classification. (Note: While the Northwest Territories Environmental Protection Act and its



regulations define reportable spills, the Water License may impose more stringent reporting requirements such as all spills must be reported to the AANDC inspector.)

The National Fire Code identifies notification procedures for product loss clause. Reference to the “authority having jurisdiction” refers to an officer in the fire discipline exercising authority in accordance with the Code. In most cases, notification under the Fire Code is made to the Territorial Fire Department. Notification for releases of flammable or combustible liquids, which necessitates immediate attention to mitigate risk of fire or explosion, is to be made to the closest municipal fire department.

Under provisions of the National Fire Code, the owner of a storage tank shall immediately notify the authority having jurisdiction in the event of a spill of more than 50 litres within 24 hours after a leak or discharge is suspected, as indicated by any one of the following:

- a) Any unexplained loss or gain of 2.0% or more of the throughput from an above ground storage tank, for each stored period in a calendar month, as indicated by the recording and reconciliation of inventory records, done in accordance with the Code.
- b) Inventory reconciliations showing five consecutive days of unexplained product losses.
- c) Inventory reconciliations showing 18 days of unexplained losses in one calendar month.
- d) Failure of a precision leakage test which indicates a loss or gain of product.
- e) Failure of hydrostatic pipe test.
- f) The presence of free or dissolved product on-site or off-site in the soil, groundwater, surface water, sewer lines, utility lines, water supply lines, crawlspace or on the ground surface.

## Training and Competence

### General

This section clarifies responsibility and provides guidelines for training Ekati personnel who respond to spills.

Health and safety legislation holds the employers responsible for ensuring responders are competent. Competency includes ensuring the responder has the required knowledge and skills, obtained by way of education, training, experience or a combination thereof. Responders who have not demonstrated competency must work under the direct supervision of a competent responder. WHMIS regulations require that all workers understand the risks posed by the substances to which they may be exposed.

Responders to spills require the capability to analyze an incident, plan a response, implement a planned response, evaluate the progress and terminate the response. These actions are to be performed in a manner consistent with Ekati's Plan and SOPs.

The skills required to respond vary with the complexity of the incident. Response escalation is progressive with the amount and type of material involved and the environmental sensitivity of the site. Responders must be able to recognize their own limitations and identify situations where additional knowledge, skills or resources are required for safe resolution of the incident. In these situations the Plan identifies additional resources on how they may be contacted as per the documented response plans.

Ekati may use its own internal resources to provide training. There is no requirement for external training, minimum training hours or external certification. Records of attendance for Spill Response training presentations are maintained by the Environment Department.

All responders do not necessarily have to be trained to perform all tasks, but collectively the responders must have the required knowledge and skills. The assignment of responsibility to perform the tasks is outlined in the Plan.

DDEC has a commitment for each person involved in emergency response to fully understand their roles during an emergency as well as the roles of those with whom they will interact. In order for this commitment to be achieved, as well as for Ekati personnel to respond effectively, training activities will be carried out as follows.

### General Responsibilities (Orientation)

All members of the Ekati Emergency Response Team and operations personnel who may be involved in spill-related activities will receive an orientation to the Plan. Team Leaders are responsible for the training of their staff and must ensure that employees are familiar with aspects of their response plan.

In order to keep knowledge of the current Plan, a portion of regular safety and/or staff meetings will be devoted to the discussion of emergency response issues on an ongoing basis.

Ekati personnel who may, from time to time, in course of their regular activities are observers or first on site, must be familiar with the following elements of the Plan.

- Report the incident in accordance with the Plan.
- Notify Responsible Department Team Leader.
- Understand why he should not leave the incident scene and the importance of obtaining assistance to report the incident to supervisors.
- Procedures to declare Code One

The preceding items require knowledge of who to contact, their telephone and cell numbers, alternate contact numbers, a means of making contact and understanding the information that is to be communicated during the notification (including location, nature of emergency, extent of emergency, etc.). The Responsible Department Team

Leader must perform procedures in the Plan for which he has been adequately trained and equipped. As a minimum, this should include:

Analyze the incident and plan an initial response if safe to do so. Analysis of the spill may include the following:

- Product identification, hazard description and measures required to protect personnel, company resources and the environment.
- Estimation of hazards to ongoing operations.
- Potential losses/exposures resulting from the spill.
- Identification of prioritized response objectives within the capability of the individual.
- Recognition of the need to escalate the response.
- In addition to the above, training will be required in the following areas:
  - How to secure the area by ensuring persons are in safe locations if deemed necessary.
  - Under what conditions a Code One must be declared and involve a higher level of response.
  - Understanding the requirements for basic personal protection equipment (PPE) and recognize the requirements for more advanced personal protection equipment.
  - Understand the basic fire hazards and measures required for removing possible sources of ignition.
  - Stopping the flow of liquid contaminants by operating shut-off devices or patching leaks with available materials (if appropriate to do so and can be accomplished safely).
  - Blocking off drains, manholes and culverts and potential pathways to sensitive environmental receptors.
  - Constructing dikes and ditches.
  - Using sorbent booms to surround spill areas.
  - Using absorbent materials.
- Assisting Emergency Response Team personnel to manage the response and to minimize residual impacts, risks to the environment and company resources.
- Emergency response training provided to team leaders may be adequate to respond to minor incidents. Team leaders must, however, recognize their limitations and must be capable of escalating the response to involve the Emergency Response Team trained in the tasks required to handle incidents that are more complex.

#### Scientific Advisors

Responders in this category provide information. Responders trained to this level do not enter the exclusion zone identified for the spill scene. These responders are not part of an organized response team but they are the scientific authority to provide expertise in determining most appropriate control and remediation strategies. Such responders must have the knowledge and skills to safely perform the following duties and tasks.

- Provide information on hazards and harmful effects of the spilled material.
- Advise the Responsible Department Team Leader or the On Site Commander on the hazards and harmful effects of the spilled substance.

- Understand the product information available from Canadian Transport Emergency Centre (CANUTEC) and demonstrates capability to contact CANUTEC and suppliers to provide additional hazard information (see Table 9 for contact information).
- Understand critical product information on relevant MSDSs.
- Provide information on potential response options for the substance or site-specific conditions.
- Understand Ekati's internal and external notification requirements.
- Understand how an incident management system is implemented at incident scene (not expected to implement an incident management system).
- Understand the "disciplined approach to emergency response" (not expected to lead the disciplined approach process).
- Understand Ekati's plans for all external communications (not required to present information to public or the media).
- Ability to evaluate various control and remedial options.
- Ability to develop a remediation plan.
- Skills to undertake ongoing monitoring of spill sites and evaluate success of remedial action.

#### Emergency Response Team Training

Members of the Ekati Emergency Response Teams (ERT) must have valid WHMIS certificates, familiar with the use of MSDS, training in the use of spill kits, use of personal protection equipment, use of fire extinguishers, and related equipment.

#### Plan Exercises

A regular program of exercises for Ekati Emergency Response Team(s) will be utilized to facilitate the readiness of all personnel.

Exercises will be planned by the ERT Coordinator. Exercises will be conducted according to the following program.

**Communication exercises** should be carried out with the cooperation of all departments who may be called upon to respond to emergencies.

- Contacts should be limited to Ekati personnel and key government agencies.
- Exercises may be initiated by the Occupational Health and Safety Superintendent.

**Tabletop exercises** will be carried out once per year for Ekati's Emergency Response Team.

- Program will include a pre-scenario briefing followed by the exercises and de-briefing session.

- Scenarios that will be used will be developed by the Occupational Health and Safety Superintendent in conjunction with appropriate department team leaders and the manager of the Environment Department.

**Logistics exercises** will be carried out on a periodic basis as determined by the Occupational Health and Safety Superintendent.

As appropriate, the exercises will include the following groups:

- Mine Operations
- Process Plant
- Supply and Operations Services
- Underground Operations
- Appropriate contractors (e.g. Polar Explosives)

**Planning** for exercises will be coordinated with the assistance of the Emergency Response Team(s). Scenarios to be used will be developed in consultation with the Environment Department.



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## Accountabilities

POSITION TITLE	ROLE	DESCRIPTION OF ACCOUNTABILITY
Environment Advisor-Compliance	Update Plan	Update plan with relevant administrative and operational changes annually.
Environment Advisor-Compliance	Training	Annual ERT training and awareness of the plan, includes practical and table-top exercises.
Environment Advisor-Compliance	Implementation	Insure the plan is available site wide and the workforce is aware of its contents.
Health and Safety Advisors	Execute Plan	In the event of an emergency the ERT must be able to execute the plan.
Environment Superintendent-Operations	Approval	Review and approve the plan.
DDEC President and Chief Operating Officer	Resource Allocation	Allocation of sufficient resources to execute the plan.

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## Appendices

### Appendix 1 – Definitions and Abbreviations

TERM	DESCRIPTION
<b>Emergency</b>	An emergency is defined as any unexpected occurrence either resulting in or having the likely potential to pose a threat to on-site personnel or the general public, result in environmental impacts, impact production, or potential damage to company or public property. The response to such incidents will require immediate notification and action.
<b>Levels of an Emergency</b>	A subjective measure of the overall severity of the emergency.
<b>Level 1 Emergency</b>	Confirmed emergency has or is occurring with effects confined to one area of the facility site – no immediate hazards to off-site or sensitive environmental receptors exist.

<b>Level 2 Emergency</b>	Emergency has broader site-wide impacts and/or minimal potential for impacts off site; some minor hazards to sensitive environmental receptors may exist.
<b>Level 3 Emergency</b>	Emergency with potential serious impacts outside the immediate area of the emergency – definite and serious hazards to off-site or sensitive environmental receptors exist, or interruptions of facility operations are anticipated.
<b>Adverse effect</b>	Impairment of or damage to human health, safety, the environment or property.
<b>AANDC</b>	Aboriginal Affairs and Northern Development Canada
<b>Code One</b>	A site-wide notification that an emergency is in progress. All Team Leaders are responsible to stop work that may cause additional risk of injury or fire, and require the emergency response team (ERT).
<b>Company</b>	Refers to Ekati Diamond Mine, a facility operated by Dominion Diamond Ekati Corporation (DDEC)

TERM	DESCRIPTION
<b>Criteria</b>	Maximum allowable concentrations of a contaminant in soil or water.
<b>Critical Incident Stress</b>	Physical or mental stress that may be experienced by individuals involved in any emergency situation. This may occur during, shortly after, or in certain individuals, sometime after a period of high stress. Professional counseling may be required to assist individuals.
<b>Emergency Action Team</b>	A predetermined group of individuals whose purpose is to provide on-site expertise and manpower to assist the on scene commander in bringing the emergency to an early, successful conclusion.
<b>Emergency Log</b>	A detailed written account of times, events and actions taken during an emergency.
<b>Emergency Response Centre</b>	A predetermined area established by management, designed to facilitate coordination of overall company response.
<b>Emergency Response Procedures</b>	An outline of specific tasks required to implement the counter measures called for in the Emergency Response Plan. These tasks are often part of existing operating procedures for the facility.
<b>Emergency Response Team (ERT)</b>	The pre-established team of specially trained personnel, appropriately equipped, to response to significant emergency situations at the Ekati site, and nearby locations, as appropriate, including the management/control of releases of hazardous substances that represent a risk to human health, the environment or company operations.
<b>Evacuation Assembly Areas</b>	Pre-designated points located outside the site where evacuated personnel assemble in the event of a facility evacuation.
<b>Evacuation Coordinator</b>	The individual assigned to coordinate the evacuation of personnel or the public from the emergency area.
<b>DDEC</b>	Dominion Diamond Ekati Corporation
<b>Hazard Area</b>	Any area where hazardous conditions exist, either during or as the result of an emergency. All non-essential personnel should be excluded from this area.

TERM	DESCRIPTION
<b>On Scene Commander (OSC)</b>	Individual in charge of managing emergency response activities at the immediate scene of an emergency.
<b>On Scene Command Post</b>	A location at the actual emergency scene where site management and control of emergency response activities at the scene originates.
<b>Post Emergency Procedures</b>	An outline of specific tasks required to debrief all individuals involved in an emergency.
<b>Responsible Department</b>	Department or operating unit that is in control of the substance immediately prior to the uncontrolled/unplanned release (spill incident).
<b>Risk Assessment</b>	Characterization of the nature, magnitude and likelihood of adverse effects on human health or ecosystems from exposure to one or more contaminating substances through various routes of exposure.
<b>Spill Contingency Plan</b>	A comprehensive plan providing guidance on the counter measures needed to minimize or eliminate the consequences of specific hazards impacting on the environment, facilities or operations. It also identifies the resources and their locations that are needed to implement the counter measures.

## Appendix 2 – Approvals Framework

Approvals for the Procedure including related documents:

APPROVAL SIGNATURES RECORD EKA PRO. 2104			
REVIEWER ROLE	NAME	SIGNATURE	DATE
Environment Advisor-Compliance	Jamie Steele		October 29, 2013
<b>APPROVED BY</b>			
<b>Superintendent Environment-Operations</b>	Claudine Lee		October 29, 2013

APPROVAL SIGNATURES RECORD EKA PRO. 2104			
REVIEWER ROLE	NAME	SIGNATURE	DATE
Environment Advisor-Compliance	Jamie Steele		January 29 2014
<b>APPROVED BY</b>			
<b>Superintendent Environment-Operations</b>	Claudine Lee		January 29 2014



## Appendix 3 – Track Changes

[All changes within this document must be recorded]

REVISION NUMBER	PAGE NUMBER(S)	CHANGE EFFECTED	DATE OF CHANGE
1	5	Update Corporate Statement	July 2013
2	All	Change EKATI to Ekati	July 2013
3	All	Replace BHP Billiton with Dominion Diamond Ekati Corporation. BHPB with DDEC	July 2013
4	19	Updated Table 1 - deleted decommissioned tanks and added the new Misery camp tanks.	July 2013
5	30	Update to Section Spill Prevention - Added more text on preventative maintenance of equipment, infrastructure and prevention through people.	July 2013
6	36	Updated and tested phone #'s for key contacts	July 2013
7	10-18	Updated maps w/ 2013 imagery and DDEC logo	October 2013
8	All	Extensive reformatting into DDEC template	October 2013
9	31	Updated information on exploration activities and satellite facilities	October 2013
10	29	Updated information on MSDS locations	October 2013
11	72	Included Cross Reference to AANDC Spill Contingency Guidelines	October 2013

## Appendix 4 – Environment Canada Cross-reference to Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations

STS Regs reference	Information required	Location of information in this emergency plan
s. 30(1)	The owner or operator of a storage tank system must prepare an emergency plan taking into consideration the following factors:	
s. 30(1)(a)	- the properties and characteristics of each petroleum product (i.e. Jet A1) or allied petroleum product stored in each tank of the system and	Table 1 in the Plan page 19  Properties of all substances can be found in the Ekati MSDS Database
s. 30(1)(a) continued	- the maximum expected quantity of the petroleum product or allied petroleum product to be stored in the system at any time during any calendar year; and	Table 1 in the Plan page 19
s. 30(1)(b)	- the characteristics of the place where the system is located and of the surrounding area that may increase the risk of harm to the environment or of danger to human life or health.	Table 1 on page 19 and figures 3,4,5,6,7,8. On pages 12 through 18 Additionally a GIS file has been created with all geographical features of the storage tank locations.
s. 30(2)	The emergency plan must include:	
s. 30(2)(a)	- a description of the factors considered under s. 30(1)	- See the rows above.
s. 30(2)(b)	- a description of the measures to be used to prevent, prepare for, respond to, and recover from any emergency that may cause harm to the environment or danger to human life or health;	<ul style="list-style-type: none"> <li>• Prevention – Spill Prevention page 30</li> <li>• Prepare for –Training and competence page 59</li> <li>• Respond to – Emergency Response Action Plan, Spill Response Actions page 48</li> <li>• Recover From –Post Emergency Procedures page 54</li> </ul>
s. 30(2)(c)	- a list of the individuals who are required to carry out the plan and a description of their roles and responsibilities;	Tables 7,8,9,10 on page 36 through 44 (contacts and summary action plan) and Responsibilities on page 54

STS Regs reference	Information required	Location of information in this emergency plan
s. 30(2)(d)	- identification of the training required for each of the individuals listed under  s. 30(2)(c);	Training and Competence page 59
s. 30(2)(e)	- a list of the emergency response equipment included as part of the plan, and the equipment's location; and	Tables 3,4,5,6 (lists of emergency response equipment) and Inventory of Response and Cleanup Equipment pages 32 through 35
s. 30(2)(f)	- the measures to be taken to notify members of the public who may be adversely affected by the harm or danger referred to in  s. 30(2)(b)	Table 10 – Summary Action Plan page 44
s. 30(3)	The owner or operator of a storage tank system must ensure that the emergency plan is ready to be implemented:	
s. 30(3)(a)	- in the case of a storage tank system that is installed before the coming into force of these Regs, no later than two years after the day on which these Regs come into force  (i.e. by 12 Jun 2010); and	Plan is well established and is readily accessible to the workforce
s. 30(3)(b)	- in any other case, before the day on which the first transfer of petroleum products or allied petroleum products into any tank of the storage tank system occurs.	See note above

STS Regs reference	Information required	Location of information in this emergency plan
s. 31(1)	<p>The owner or operator of a storage tank system must keep:</p> <ul style="list-style-type: none"> <li>- the emergency plan up-to-date and</li> <li>- keep a copy of it readily available for the individuals who are required to carry it out,</li> <li>- as well as a copy at the place where the storage tank system is located if that place is a place of work.</li> </ul>	<p>Regulatory Framework page 6</p> <p>Plan is reviewed annually and updated as necessary. Plan is readily available in document repository and web portal link.</p>
s. 31(2)	The owner or operator must notify the Minister of the civic address of each location where the emergency plan is kept.	Facility description page 9
s. 32(1)	If the owner or operator of a storage tank system has prepared an emergency plan with respect to the system on a voluntary basis or for another government or under an Act of Parliament and the plan meets the requirements of s. 30(1) and (2), they may use that plan for the purposes of meeting those requirements.	Regulatory Framework page 6
s. 32(2)	If the plan does not meet all of the requirements of s. 30(1) and (2), the owner or operator may use the plan if they amend it so that it meets all of those requirements.	NA

## Appendix 5 – AANDC Cross-reference to Guidelines for Spill Contingency Planning April 2007

AANDC Guideline Reference	Location of Information in this emergency plan
<b>2.1 Introduction and Project Details</b>	
Company Name Site Name and Location	Page 1
Effective date of plan, recently revised sections and revision dates	Page 1 and Appendix 3
distribution list	Cover Letter of Plan submission
purpose and scope of the plan	Page 5 Intent and Scope
company environmental policy related to regulatory compliance, environmental protection, safety, spill response and clean-up	Page 5 Corporate Statement and Page 6 Regulatory Framework
Project description	Page 9 Facility Description
site description including size, location topography, buildings and infrastructure	Page 9 Facility Description
identification of potentially impacted communities, traditional use areas, other developments and environmentally sensitive areas.	Page 9 Facility Description
list of type and amount of hazardous materials normally stored on site, storage capacity and the type and number of storage containers. The storage locations for each of these materials should appear on the map of the site.	Table 1 on page 19 and in figures 2 through 9 on pages 11 through 18
MSDS for each hazardous material should be included in an Appendix.	Reference to MSDS location is on page 29 Materials Safety Data Sheets
existing preventative measures should be outlined such as secondary containment, fuel handling procedures etc.	Page 30 Spill Prevention
relationship of the spill contingency plan to territorial or local community contingency plans	The Ekati Spill Contingency Plan is a stand-alone document. DDEC is prepared to respond to any spill likely to occur at the Ekati Diamond Mine and its satellite facilities. If needed extra resources will be made available through the Mutual Aid Agreement referenced on Page 35



AANDC Guideline Reference	Location of Information in this emergency plan
details on how to obtain copies of the plan	Page 31 Emergency Preparedness
<p>The plans should include maps showing:</p> <ul style="list-style-type: none"> <li>-buildings, roads, culverts, airstrips and other infrastructure</li> <li>-all surface water bodies and direction of water flow including catchment basins</li> <li>-storage locations of each hazardous material</li> <li>-probable locations and direction of flow on land and water</li> <li>-locations of all response equipment</li> <li>-environmentally sensitive areas</li> <li>-any approved disposal sites</li> <li>-topography</li> <li>-any important on or off site features</li> </ul>	<p>Site Maps are presented in Figures 1 through 9. On pages 10 through 18. Area description can be found on Page 9 Facility Description.</p>
<b>2.2 Response Organization</b>	
Identify response personnel and duties	Response personnel and duties can be found on pages 35 through 47, Figure 10 on page 39 and Table 10 on page 44.
Contact Information	Contact information for key response contacts and external contacts can be found on Tables 7 through 9 on pages 36 and 37.
<b>2.3 Action Plan</b>	
<p>The following procedures should be described in the action plan:</p> <p>1. Procedures for initial action. These procedures are for the first person arriving at the scene of a spill and should cover:</p> <ul style="list-style-type: none"> <li>a) protecting the safety of personnel at the site and notification of all personnel of spill occurrence</li> <li>b) shutting of ignition sources, if safe to do so</li> <li>c) activating the Spill Response Team</li> <li>d) identifying the spilled material</li> <li>e) locating the likely source of the spill</li> <li>f) stopping the spill at its source, if it is safe to do so</li> <li>g) take actions to contain and clean up the spilled material</li> <li>h) recording relevant information for reporting purposes</li> </ul>	<p>Response actions can be found on pages 39 through 47, Figure 10 on page 39 and Table 10 on page 44.</p>
<p>2. Spill reporting procedures. This part of the plan describes the communication system put in place by the plan holder to ensure an expedient response to a spill. The procedures should include:</p>	Page 57 Spill Reporting Procedures

AANDC Guideline Reference	Location of Information in this emergency plan
a) telephone numbers of company officials, off-site spill response contractors and government officials who can provide technical assistance (e.g. include in response organization flowchart)	Contact information for key response contacts and external contacts can be found on Tables 7 through 9 on pages 36 and 37.
b) instructions for when and how to report spills to the NWT 24-Hour Spill Report Line (1-867-920-8130).	Page 57 Spill Reporting Procedures
c) if the public may be impacted by a spill, include notification procedures to alert the public.	External communications relating to an emergency situation are controlled and the responsibility of key individuals indicated on Table 10 on page 44 and explained on page 48 Spill Response Actions
3. Procedures for containing and cleaning up the spill. This is one of the most important sections of your spill contingency plan. The procedures should identify the containment and clean up strategies for various spill scenarios, with detailed instructions for how to achieve the strategies. Procedures will vary depending on whether the spill is on land, water, snow, or on or under ice. Provide criteria and procedures for scenarios which might require ignition and burning of oil or fuel spills.	Pages 54 through 56 Post Emergency Procedures includes detailed information on Remediation and Clean-Up
4. Procedures for transferring, storing, and managing spill-related wastes. If materials are to be disposed on or off-site, the plan should describe the disposal method and approved location. Be sure to identify any regulatory steps that must be taken to acquire regulatory approval for the waste management options outlined in the plan.	Pages 54 through 56 Post Emergency Procedures includes clean-up and disposal methods
5. Procedures for restoring affected areas, providing Inspectors with status updates and cleanup completion. Determining the required level of final cleanup and restoration is to be completed in consultation with, or to the satisfaction of, the Aboriginal Affairs and Northern Development Canada (AANDC) Inspector. Site specific studies may need to be performed to determine the appropriate final clean up levels. Where appropriate, the procedures outlined above should discuss alternative actions to be taken in the case of impeding environmental conditions (e.g. poor visibility in blizzards, limited daylight hours, extreme cold, difficult terrain, etc.)	Pages 54 through 56 Post Emergency Procedures includes detailed information on Remediation and Clean-Up
<b>2.4 Resource Inventory</b>	
<p>The resource inventory should include:</p> <ul style="list-style-type: none"> <li>-personnel and an inventory of and the location of clean-up materials, tools and equipment</li> <li>-On site resources including location and quantity</li> <li>-Off site resources including how to obtain off-site resources</li> </ul>	Page 31 General Preparedness; Tables 3 through 6 on pages 32 through 35 outline tools and equipment available.

AANDC Guideline Reference	Location of Information in this emergency plan
<b>2.5 Training Program</b>	
<p>Include a training schedule including when training is to occur</p> <ul style="list-style-type: none"> <li>-a commitment to notify AANDC inspector and other relevant regulators of planned upcoming mock spill exercises</li> <li>-a description of the record keeping procedures that will document which employees have received training and when</li> <li>-records of recent</li> </ul>	Page 59 Training and Competence

## Appendix 6 – Spill Response – Acetic Acid

*Consider action only if safety permits!*

**Avoid contact with acetic acid - it is a corrosive liquid!**

**Eliminate ignition sources.**  
Stop source if safe to do so.

<b>On Land</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by diking with earth, sand or other barrier. Remove minor spills with universal sorbent. Remove large spills with pumps or vacuum equipment. Neutralization with lime or sodium bicarbonate can be tried.
<b>On Snow &amp; Ice</b>	Block entry into waterways Do not flush into ditches or drainage systems. Contain spill by diking with snow or other barrier. Remove minor spills with universal sorbent. Remove large spills with pumps or vacuum equipment. Remove contaminated snow with shovels or mechanical equipment.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove pooled acetic acid with pumps. Burning is not recommended. Minimize damage caused by equipment and excavation. Low pressure water flushing can be tried, if feasible.
<b>On Water</b>	Acetic acid sinks and mixes with water. Isolate/confine spill by damming or diversion. Water flushing can be tried to disperse acid. Neutralization with lime or sodium bicarbonate can also be tried.
<b>Storage &amp; Transfer</b>	Store closed labelled containers in cool, ventilated areas away from incompatible materials, e.g., organics, finely divided metals and oxidizable materials.
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with the Ekati Environment Department for any post spill requirements.

## Appendix 7 – Spill Response – Acetylene and Propane

**Consider action only if safety permits!**

**Gases stored in cylinders can explode when ignited!  
Keep vehicles away from accident area.**

Refer to MSDS

- Vapours cannot be contained when released.
- Water spray can be used to knock down vapours if there is NO chance of ignition.
- Small fires can be extinguished with dry chemical or CO<sub>2</sub>.
- Personnel should withdraw immediately from area unless a small leak is stopped immediately after it has been detected.
- If tanks are damaged, gas should be allowed to disperse and no attempt at recovery should be made.
- Personnel should avoid touching release point on containers since frost quickly forms.
- Keep away from tank ends.

## Appendix 8 – Spill Response – Ammonium Nitrate

*Consider action only if safety permits!*

**Prolonged contact and repeated skin contact can cause irritation.**

**Eliminate ignition sources.**  
Stop source if safe to do so.

<b>On Land</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by diking with earth, sand or other barrier. If liquid remove minor spills with sorbent, large spills with pumps or vacuum equipment. Prills/granules can be shovelled or removed mechanically. On tundra, spread and leave as fertilizer, if feasible to do so.
<b>On Snow &amp; Ice</b>	Block entry into waterways; dike using snow or other barrier. Remove ammonium nitrate and contaminated snow with shovels or other mechanical means.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove ammonium nitrate with shovels or other mechanical means if feasible to do so. Burning is not a feasible response option. Minimize damage caused by equipment and excavation. Low pressure water flushing can be tried, if feasible. Minor spill amounts can be left in place to serve as a fertilizer.
<b>On Water</b>	Ammonium nitrate is completely soluble in water. Isolate/confine spill by damming or diversion if feasible. Water flushing can be tried to disperse spill.
<b>Storage &amp; Transfer</b>	Store closed, labelled containers in cool, ventilated areas away from incompatible materials, e.g., oxidizable materials.
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with the Ekati Environment Department for any post spill requirements.



## Appendix 9 – Spill Response ANFO (Ammonium Nitrate/Fuel Mixture)

***Potential explosive – consider action only if safety permits!***  
**ANFO may detonate in fire or under severe impact or confinement**

**Eliminate ignition sources.**  
Stop source if safe to do so.

<b>On Land</b>	Oil may be released from pellets. Do not flush into ditches or drainage systems. Contain any spill by diking with earth or other barrier. Prevent contact with water; block entry into waterways. If ammonium nitrate contacts water, confine to as small an area as possible. On dry surfaces, shovel ANFO into containers. On tundra, spread and leave as fertilizer, if feasible to do so.
<b>On Snow &amp; Ice</b>	Block entry into water; dike using snow. Pick up with shovels or other mechanical means.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Leave small releases of ammonium nitrate in place if clean-up will result in more damage than the spill. Burning is not likely safe or feasible. Minimize damage caused by equipment and personnel.
<b>On Water</b>	Ammonium nitrate mixes with water and is difficult to recover Released oil will float to surface. Isolate/confine spill by damming or diversion. Remove oil using sorbent pads. Ammonium nitrate can be toxic to aquatic life in concentrations as low as 10 ppm. Flush and disperse with water, if feasible.
<b>Storage &amp; Transfer</b>	Place collected material in waterproof containers. Store closed, labelled containers in cool ventilated areas away from incompatible materials.
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with the Ekati Environment Department for any post spill requirements.

## Appendix 10 – Spill Response – Caustic Soda (NaOH)

*Consider action only if safety permits!*

**Avoid contact with caustic soda - it is a corrosive liquid!**

**Contact with metals may evolve flammable hydrogen gas**  
Stop source if safe to do so.

<b>On Land</b>	Block entry into waterways or confined areas Do not flush into ditches or drainage systems. Contain spill by diking with earth, sand or other barrier. Remove minor spills with dry earth, sand or other non-combustible material. Remove large spills with pumps or vacuum equipment. Neutralization with dilute hydrochloric acid can be tried in unconfined areas.
<b>On Snow &amp; Ice</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by diking with snow or other barrier. Remove minor spills with dry earth, sand or other non-combustible sorbent. Remove contaminated snow with shovels or mechanical equipment.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove pooled caustic soda after neutralization with pumps. Burning is not feasible. Minimize damage caused by equipment and excavation. Low pressure water flushing can be tried, if feasible.
<b>On Water</b>	Caustic soda sinks and mixes with water generating heat. Isolate/confine spill by damming or diversion. Water flushing can be tried to disperse the caustic soda. Neutralization with dilute hydrochloric acid can also be tried.
<b>Storage &amp; Transfer</b>	Store closed, labelled containers in cool, ventilated areas away from incompatible materials, e.g., finely divided metals and combustible materials. Do not get water inside any storage container.
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with the Ekati Environment Department for any post spill requirements.

## Appendix 11 – Spill Response – Diesel, Hydraulic, Lube and Waste Oil

*Consider action only if safety permits!*

**Eliminate ignition sources.**  
Stop source if safe to do so.

<b>On Land</b>	Do not flush into ditches or drainage systems. Block entry into waterways and contain with earth or other barrier(s). Remove small spills with sorbent pads. On tundra use peat moss and leave in place to degrade, if practical.
<b>On Snow &amp; Ice</b>	Block entry into waterways and contain with snow or other barrier Remove minor spills with sorbent pads and/or snow. Use ice augers and pump when feasible to recover diesel under ice. Slots in ice can be cut over slow moving water to contain oil. Burn using Tiger Torches if unrecoverable by other methods, feasible and safe to do so.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove pooled oil with sorbent pads and/or skimmer. Flush with low pressure water to herd oil to collection point. Burn only in localized areas, e.g., trenches, piles or windrows. Do not burn if root systems can be damaged (low water table). Minimize damage caused by equipment and excavation.
<b>On Water</b>	Contain spill as close to release point as possible. Use spill containment boom to concentrate slicks for recovery. On small spills, use sorbent pads to pick up contained oil. On larger spills, obtain and use skimmer on contained slicks.
<b>Rivers &amp; Streams</b>	Prevent entry into water, if possible, by building a berm or trench Intercept moving slicks in quiet areas using (sorbent) booms. Do not use sorbent booms/pads in fast currents and turbulent water.
<b>Storage &amp; Transfer</b>	Store closed labelled containers outside away from flammable items Electrically ground containers and vehicles during transfer to designated disposal/treatment area
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with Ekati Environment Department for any post spill requirements.

## Appendix 12 – Spill Response – Ethylene Glycol (Antifreeze)

Consider action only if safety permits!

<b>On Land</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by diking with earth or other barrier. Remove minor spills with universal sorbent. Remove large spills with pumps or vacuum equipment.
<b>On Snow &amp; Ice</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by diking with snow or other barrier. Remove minor spills with universal sorbent. Remove contaminated snow with shovels and mechanical equipment.
<b>On Muskeg</b>	Remove pooled antifreeze with pumps. Do not deploy personnel and equipment on marsh or vegetation. Burning is not feasible. Minimize damage caused by equipment and excavation.
<b>On Water</b>	Ethylene glycol sinks and mixes with water. Isolate/confine spill by damming or diversion.
<b>Storage &amp; Transfer</b>	Store closed, labelled containers in cool, ventilated areas away from incompatible materials, e.g., organics, finely divided metals and oxidizable materials.
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with Ekati Environment Department for any post spill requirements.

## Appendix 13 – Spill Response – Ferrosilicon

***Consider action only if safety permits!***  
**May produce flammable and toxic gases on contact with water!**

**Eliminate ignition sources.**  
Stop source if safe to do so.

<b>On Land</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by diking with earth, sand or other barrier. Remove spills with shovel without generating dust.
<b>On Snow &amp; Ice</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by diking with snow or other barrier. Remove spills with shovels or mechanical means.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove spilled material manually. Minimize damage caused by equipment and excavation. Depending on situation covering spilled material with dry earth or sand may be the preferred option.
<b>On Water</b>	Ferrosilicon is insoluble in water but impurities may dissolve. Isolate/confine spill by damming or diversion. Material may generate hydrogen and acetylene gases when exposed to water.
<b>Storage &amp; Transfer</b>	Store closed, labelled dry containers in cool, ventilated areas away from incompatible materials, e.g., caustic soda, acids and oxidizers. Do not seal damp or wet materials in containers.
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with Ekati Environment Department for any post spill requirements.

## Appendix 14 – Spill Response – Flocculants and Coagulants

*Consider action only if safety permits!*

<b>On Land</b>	Prevent contact with water and block entry into waterways. Do not flush into ditch or drainage systems. Contain spill by diking with earth or other barrier. Attempt to avoid wetting any spills of the dry white granular powder. Remove minor spills with shovels. Remove large spills with backhoes, other mechanical methods.
<b>On Snow &amp; Ice</b>	Confine and contain spill to as small an area as possible. Recover using shovels and place in waterproof containers. Small spills can be removed by picking up snow.
<b>On Muskeg</b>	Remove accumulations manually with shovels. Do not deploy personnel and equipment on marsh or vegetation. Burning is not a feasible response option. Minimize damage caused by equipment and personnel.
<b>On Water</b>	Flocculants and coagulants are soluble in water. Isolate/confine spill by damming or diversion. Water flushing can be tried to disperse spills into water.
<b>Storage &amp; Transfer</b>	Place in waterproof container(s). Store closed labelled containers in cool, ventilated areas away from incompatible materials.
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with Ekati Environment Department for any post spill requirements.

***Spilled flocculants and coagulants within the processing plant can create a hazard because of their slippery nature.***



## Appendix 15 – Spill Response Fuel Dye

*Consider action only if safety permits!*

**Fuel Dye which contains benzene and xylene forms vapours that can explode and ignite!**

**Eliminate ignition sources.**  
Stop source if safe to do so.

<b>On Land</b>	Block entry into waterways by diking with earth or other barrier. Do not flush into ditches or drainage systems. Do not contain spill if there is any chance of igniting vapours On shop floors and in work yards, apply inert absorbents such as dry clay or commercial particulate sorbents. On tundra use peat moss and leave to degrade if feasible to do so.
<b>On Snow &amp; Ice</b>	Block entry into waterways by diking with snow or other barrier(s). Do not contain spill if there is any chance of igniting vapours. Soak up with sawdust, sand or dry clay/earth. Remove minor spills with universal sorbent. Remove contaminated snow with shovels or mechanical equipment.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove pooled fuel dye with pumps, if safe to do so. Burning is not recommended. Minimize damage caused by equipment and excavation. Low pressure water flushing can be tried to disperse small spills, if feasible.
<b>On Water</b>	Do not attempt to contain or remove spills. Use booms to protect water intakes and sensitive areas.
<b>Storage &amp; Transfer</b>	Store closed, labeled containers in cool ventilated areas away from incompatible materials, e.g., oxidizing and reducing agents Ensure containers are tightly closed.
<b>Disposal</b>	Segregate waste types, if necessary. Place contaminated materials into marked containers. Consult with Ekati Environment Department for any post spill requirements.

## Appendix 16 – Spill Response – Gasoline and Jet A Aviation Fuel

*Consider action only if safety permits!*  
**Gasoline and Jet A form vapours that can ignite and explode!**  
**No smoking!**

**Eliminate ignition sources.**  
Stop source if safe to do so.

<b>On Land</b>	Block entry into waterways by diking with earth or other barrier. Do not contain spill if there is any chance of igniting vapours. On shop floors and in work/depot yards, apply particulate sorbents. On tundra use peat moss and leave to degrade if feasible to do so.
<b>On Snow &amp; Ice</b>	Block entry into waterways by diking with snow or other barrier(s). Do not contain spill if there is any chance of igniting vapours. In work/depot yards, apply particulate sorbents.
<b>On Muskeg</b>	Remove pooled gasoline or Jet A with pumps, if safe to do so. Do not deploy personnel and equipment on marsh or vegetation. Low pressure flushing can be tried to disperse small spills. Burn <b>carefully</b> only in localized areas, e.g., trenches, piles or windrows. Do not burn if root systems can be damaged (low water table). Minimize damage caused by equipment and excavation.
<b>On Water</b>	Do not attempt to contain or remove spills. Use booms to protect water intakes and sensitive areas.
<b>Storage &amp; Transfer</b>	Store closed labeled containers in cool ventilated areas away from incompatible materials Electrically ground containers and vehicles during transfer to designated disposal/treatment area.
<b>Disposal</b>	Segregate waste types, if necessary. Place contaminated materials into marked containers. Consult with Ekati Environment Department for any post spill requirements.

## Appendix 17 – Spill Response – Hydrochloric Acid (HCL)

*Consider action only if safety permits!*

**Avoid contact with hydrochloric acid, it is a strong acid**

**First aid and medical treatment for HCl exposure is very specific and critical.  
Always use complete protective equipment in response to a HCl spill or leak.**

<b>On Land</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by diking with earth or other non-combustible absorbent material. Small spills can be neutralized by carefully covering with soda ash or lime. Remove small spills with vermiculite or earth sorbents.
<b>On Snow &amp; Ice</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by dyking with snow or other barrier. Remove minor spills with vermiculate or earth sorbents. Remove contaminated snow with shovels.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove pooled HCl with pumps only after neutralization. Burning is not feasible. Minimize damage caused by equipment and excavation. Low pressure water flushing can be tried, if feasible.
<b>On Water</b>	HCl readily mixes with water producing a vigorous exothermic reaction. Isolate/confine spill by damming or diversion. Water flushing can be tried to disperse acid. Neutralization with lime or soda ash can also be tried.
<b>Storage &amp; Transfer</b>	Store in a cool, dry place away from incompatible materials. Avoid contact with glass, concrete, metals, other acids, oxidizers, reducers, alkalis, combustibles, organics and ceramics.
<b>Disposal</b>	Carefully place spilled material into clean dry polyethylene containers. Recommended safety apparel in handling includes goggles, face shield, neoprene gloves and acid resistant apron.  Consult with Ekati Environment Department for any post spill requirements.

## Appendix 18 – Spill Response – N-7 Emulsifier (Sorbitan Monooleate)

Flammability rating is slight

No evidence of adverse health effects on exposure to N – 7

<b>On Land</b>	Avoid flushing to ditches or drainage systems. Block entry into waterways. Contain spill by diking with earth or other barrier. Remove small spills with shovels. On tundra, mechanically remove, if feasible to do so.
<b>On Snow &amp; Ice</b>	Block entry into water since emulsifier is moderately soluble. Remove minor spills with shovels. Use ice augers and pump when feasible to recover under ice. Burning emulsifier is not practicable. Mechanical removal (scraping) can be tried.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove accumulations of emulsifier with shovels if possible. Minimize damage caused by equipment and personnel. Burning is not practicable.
<b>On Water</b>	Contain spill as close to release point as possible. Try containment boom to concentrate spill for pumping. On small spills, pump to storage or flush with large amounts of water. On larger spills, pumping and dispersal might have to be tried. Do not deploy personnel and equipment on marsh or vegetation.
<b>Storage &amp; Transfer</b>	Store closed labelled containers outside. Drums can be used for containing collected emulsifier.
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with Ekati Environment Department for any post spill requirements.

## Appendix 19 – Spill Response – N 23 Emulsifier

*Consider action only if safety permits!*

**N 23 Emulsifier is primarily mineral oil but has characteristic petroleum odour**

**If burned may produce carbon monoxide and/or nitrogen oxide.**

<b>On Land</b>	Do not flush into ditches or drainage systems. Block entry into waterways. Contain spill by diking with earth or other barrier. Remove small spills with sorbent pads. On tundra, use peat moss and leave to degrade, if feasible to do so.
<b>On Snow &amp; Ice</b>	Block entry into water; dike using snow or other barrier. Remove minor spills with sorbent pads and/or snow. Use ice augers and pump when feasible to recover N 23 under ice. Burning N 23 will not likely be feasible. Mechanical removal (scraping) can be tried.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove pooled N 23 with pumps and skimmers. Flush with low pressure water to herd emulsifier to collection point. Minimize damage caused by equipment and personnel. Burning is not likely possible
<b>On Water</b>	Contain spill as close to release point as possible. Use spill containment boom to concentrate slicks for recovery. On small spills, use sorbent pads to pick up contained oil. On larger spills, use skimmer on contained slicks. Do not deploy personnel and equipment on marsh or vegetation.
<b>Storage &amp; Transfer</b>	Store closed labelled containers outside away from flammable items. Drums can be used for containing collected N 23 Emulsifier.
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with Ekati Environment Department for any post spill requirements.

## Appendix 20 – Spill Response – Nitric Acid

*Consider action only if safety permits!*

**Avoid breathing in/contact with skin and eyes - nitric acid is a severe irritant!**

**Reacts violently with water and fuels**  
Stop source if safe to do so.

<b>On Land</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by diking with earth, sand or other barrier. Remove minor spills with dry earth, sand or fly ash. Remove large spills with pumps or vacuum equipment after neutralization. Neutralization with lime, sodium bicarbonate or crushed limestone.
<b>On Snow &amp; Ice</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by diking with snow or other barrier. Remove minor spills with dry earth, sand or fly ash. Remove large spills with pumps or vacuum equipment after neutralization. Remove contaminated snow with shovels or mechanical equipment.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove pooled nitric acid after neutralization with pumps. Burning is not recommended. Minimize damage caused by equipment and excavation. Low pressure water flushing can be tried, if feasible.
<b>On Water</b>	Nitric acid sinks and mixes with water producing a violent reaction. Isolate/confine spill by damming or diversion. Water flushing can be tried to disperse acid. Neutralization with lime or sodium bicarbonate can be tried
<b>Storage &amp; Transfer</b>	Store closed, labelled containers in cool, ventilated areas away from incompatible substances such as wood, oil, oxidizable materials
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with Ekati Environment Department for any post spill requirements.



## Appendix 21 – Spill Response – Processed Kimberlite

During the operational life of the project, the diamond processing plant will produce 133 million tonnes of kimberlite material at an initial rate of 9000 tonnes/day, rising to 14,000 tonnes/day after ten years of operation. The processed kimberlite will be generated and disposed of at the existing processed kimberlite impoundment area located immediately west of the processing plant. Any discharges or seepages of processed kimberlite that may occur as a result of a malfunction of the processed kimberlite impoundment dams or discharge lines must be recognized as a spill. The Initial Action Plan must be initiated and the spill reported through the On-Scene Co-ordinator.

### On Land

- Block entry into waterways and runoff channels.
- Do not flush into ditches or drainage systems.
- Contain spill by diking with earth or other barrier.
- Consider installation of a silt curtain or fence if runoff is occurring at the spill site.
- Remove contained liquid fraction with pumps and pump back into processed kimberlite pond.
- Remove the solid fraction manually.
- Minimize damage caused by personnel or equipment.
- Dispose of solid fractions into the processed kimberlite dam.

### On Water

- Construct a coffer dam or sediment trap to contain released material.
- A silt curtain or fence may be useful to minimize turbidity, depending on topography. Turbidity can harm fish or fish habitat.

Consult with Ekati Environment Department for any post spill requirements.

## Appendix 22 – Spill Response – Raw Sewage

*Consider action only if safety permits!*

<b>On Land</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by diking with earth or other barrier. Remove spills with pumps or vacuum equipment. On tundra, use peat moss and leave in place to degrade, if feasible.
<b>On Snow &amp; Ice</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by diking with snow or other barrier. Remove contaminated snow with shovels or mechanical equipment.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove pooled sewage with pumps or vacuum equipment. Leave in place if more damage will result from clean-up. Minimize damage caused by equipment and personnel.
<b>On Water</b>	Sewage sinks and mixes with water. Isolate/confine spill by damming or diversion. If not possible to confine and pump, disperse using water flushing.
<b>Storage &amp; Transfer</b>	Store closed labelled containers in cool, ventilated areas. Avoid contact with collected material.
<b>Disposal</b>	Consider using as a fertilizer in designated areas. Place into marked containers. Transport to the designated sewage treatment plant.  Consult with Ekati Environment Department for any post spill requirements.

## Appendix 23 – Spill Response – Soda Ash

**Soda ash (sodium carbonate) is a non-flammable white powder.**  
It is an eye, skin and respiratory tract irritant. Avoid ingestion!

<b>On Land</b>	Do not flush into ditches or drainage systems. Block entry into waterways. Prevent contact with water. Contain spill by diking with earth or other barrier. If soda ash contacts water, confine to as small an area as possible. On dry surfaces, shovel soda ash into containers. On tundra, shovel into containers, if feasible to do so.
<b>On Snow &amp; Ice</b>	Block entry into water; dike using snow or other barrier. Remove soda ash with shovels or other mechanical means.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove soda ash with shovels or other mechanical means, if feasible. Burning is not a response option. Minimize damage caused by equipment and personnel.
<b>On Water</b>	Soda ash mixes with water (17%) and is difficult to recover. Isolate and confine spill by damming or diversion. Water flushing can be tried to disperse spill.
<b>Storage &amp; Transfer</b>	Place collected material in waterproof containers. Store soda ash in closed labelled containers in cool, ventilated areas away from incompatible materials (lime). Do not heat.
<b>Disposal</b>	Segregate waste types. Keep away from lime. Place contaminated materials into marked containers.  Consult with Ekati Environment Department for any post spill requirements.

## Appendix 24 – Spill Response – Sodium Bicarbonate

*Consider action only if safety permits!*

Sodium bicarbonate (baking soda) is a non-flammable white powder.

**It can be an eye, skin and respiratory tract irritant. Avoid ingestion!**

<b>On Land</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by diking with earth, sand or other barrier. Remove spills of solids with shovels or mechanically. Remove spills of dissolved materials with universal sorbent, pumps or vacuum equipment.
<b>On Snow &amp; Ice</b>	Block entry into waterways. Do not flush into ditches or drainage systems. Contain spill by diking with snow or other barrier. Remove spills with shovels or my mechanical means.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove pooled baking soda solution with pumps. Burning is not feasible. Minimize damage caused by equipment and excavation. Low pressure water flushing can be tried, if feasible.
<b>On Water</b>	Baking soda sinks and mixes with water. Isolate/confine spill by damming or diversion. Water flushing can be tried to disperse material.
<b>Storage &amp; Transfer</b>	Store closed, labelled containers in cool, ventilated areas away from incompatible materials, e.g., acids.
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with Ekati Environment Department for any post spill requirements.

## Appendix 25 – Spill Response – Sodium Formate

**Sodium formate is a highly soluble, white powder or granules.**  
Mechanically collect spills if safe to do so.

<b>On Land</b>	Do not flush into ditches or drainage systems. Block entry into waterways. Prevent contact with water. Contain spill by diking with earth or other barrier. If sodium formate contacts water, try to confine to small area. On dry surfaces, shovel sodium formate into containers. On tundra, shovel into containers if feasible to do so.
<b>On Snow &amp; Ice</b>	Block entry into water; dike using snow or other barrier. Remove sodium formate with shovels or other mechanical means.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove sodium formate with shovels, other mechanical means. Minimize damage caused by equipment and personnel. Burning is not a response option.
<b>On Water</b>	Sodium formate mixes with water and is difficult to recover. Isolate and confine spill by damming or diversion. Water flushing can be tried to disperse spill.
<b>Storage &amp; Transfer</b>	Place collected material in waterproof containers. Store closed, labelled containers in cool, ventilated areas away from incompatible materials, e.g., acids (toxic fumes can form).
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with Ekati Environment Department for any post spill requirements.

## Appendix 26 – Spill Response – Sodium Hypochlorite 12%

**When heated or when contacted by acids, may emit toxic fumes!**

<b>On Land</b>	Block entry into waterways. Contain spill by dyking with earth, sand or other barrier. Remove spills with vacuum truck if product is still usable. Dilute remaining product with plenty of water.
<b>On Snow &amp; Ice</b>	Block entry into waterways. Contain spill by dyking with earth, sand or other barrier. Remove spills with vacuum truck if product is still usable. Dilute remaining product with plenty of water.
<b>On Muskeg</b>	Flush area with plenty of water.
<b>On Water</b>	It is completely soluble so difficult to contain. Dilute with plenty of water if spill is in a small water body or slow moving stream.
<b>Storage &amp; Transfer</b>	Store in well ventilated, cool, dark areas away from fire hazards, acids and oxidizing materials. Use vented caps. Avoid contact with clothes or any body parts.
<b>Disposal</b>	Dilute with large volumes of water and release to the environment if permitted by regulators.  Consult with Ekati Environment Department for any post spill requirements.



## Appendix 27 – Spill Response – Sodium Nitrate

*Consider action only if safety permits!*

### Eliminate ignition sources.

Stop source if safe to do so.

<b>On Land</b>	Do not flush into ditches or drainage systems. Block entry into waterways. Prevent contact with water. Contain spill by diking with earth or other barrier. If sodium nitrite contacts water, confine to as small an area as possible. On dry surfaces, shovel sodium nitrite into containers. On tundra, use peat moss and leave to degrade, if feasible to do so.
<b>On Snow &amp; Ice</b>	Block entry into water; dike using snow or other barrier. Remove sodium nitrite with shovels or other mechanical means.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove sodium nitrite with shovels or other mechanical means if feasible to do so. Burning is not a feasible response option. Minimize damage caused by equipment and personnel.
<b>On Water</b>	Sodium nitrite mixes with water and is difficult to recover. Isolate and confine spill by damming or diversion. Water flushing can be tried to disperse spill.
<b>Storage &amp; Transfer</b>	Place collected material in waterproof containers. Store in closed, labelled containers in cool, ventilated areas away from incompatible materials.
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with Ekati Environment Department for any post spill requirements.

## Appendix 28 – Spill Response – Sodium Thiocyanate

*Consider action only if safety permits!*  
**If ignited, sodium thiocyanate forms highly toxic vapours!**

**Eliminate ignition sources.**  
Stop source if safe to do so.

<b>On Land</b>	Do not flush into ditches or drainage systems. Block entry into waterways. Prevent contact with water. Contain spill by diking with earth or other barrier. If sodium thiocyanate contacts water, confine to as small an area as possible. On dry surfaces, shovel sodium thiocyanate into containers. Do not leave any residue on land.
<b>On Snow &amp; Ice</b>	Block entry into water; dike using snow or other barrier. Remove sodium thiocyanate with shovels or other mechanical means.
<b>On Muskeg</b>	Do not deploy personnel and equipment on marsh or vegetation. Remove sodium thiocyanate with shovels or other mechanical means. <b>Burning is highly dangerous</b> and should not be attempted. Minimize damage caused by equipment and personnel.
<b>On Water</b>	Sodium thiocyanate mixes with water and is difficult to recover. Isolate and confine spill by damming or diversion. Water flushing can be tried to disperse spill.
<b>Storage &amp; Transfer</b>	Place collected material in waterproof containers. Store closed labelled containers in cool, ventilated areas away from incompatible materials.
<b>Disposal</b>	Segregate waste types. Place contaminated materials into marked containers.  Consult with Ekati Environment Department for any post spill requirements.