

Spill Containment Plan

Sand Quarry KM 486 Mackenzie Hwy #1

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1.0 INTRODUCTION

The following is a Spill Containment Plan that details actions to be initiated, when required by employees of Nogha Enterprises Ltd in relation to the sand quarrying operations project located at KM 486 on Hwy #1. The project/scope of work will be to continue with the development of the quarry pit located at KM 486, Hwy #1, approximately 14.0 KM NW of Fort Simpson, NWT.

The sand quarry is an existing quarry and is also a multi user pit. The quarry area from the *Department of Infrastructure* (DOI) highway easement is approximately ,00 m along an exiting access road Southeast of the center line. The proposed area will be 100 m in length and 100 m in width with a combined area of 1.0 Ha.

The site has been previously cleared. The grubbing stripping excavated materials will be stock piled adjacent to the Western perimeter of the outside edge for future pit restoration, upon completion of the quarrying operation. No camp or fuel storage tanks will be utilized for the duration of the permit.

Refueling of heavy equipment on site will be carried out utilizing pick up trucks that will be equipped with tidy tanks. This Spill Containment Plan has been generated for this project and will be implemented when work commences. It provides detailed background information on the handling of hazardous wastes. It also details the operational requirements to ensure that the site is maintained in an environmentally responsible manner and outlines the environmental monitoring/reporting required by the regulatory agencies.

This document is submitted to the *Mackenzie Valley Land and Water Board (MVLWB)* as a requirement of the Land Use Permit.

1.1 COMPANY INFORMATION

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Site Name and Coordinates:

N61 53 1.56 W121 34 44.6(Northwest Point)

N61 53 1.54 W121 34 37.3 (Northeast Point)

N61 52 58.07 W122 01 44.52 (Southwest Point)

N61 52 58.01 W122 01 37.38 (Southeast Point)

1.2 EFFECTIVE DATE OF PLAN

This Spill Containment Plan will become effective pending *MVLWB* approval of the Quarry Permit.

1.3 LAST REVISIONS TO THE SPILL CONTAINMENT PLAN

This plan was previously revised on January 01, 2018.

1.4 PURPOSE AND SCOPE

The purpose and scope of the Spill Containment Plan is to outline the procedures for the appropriate response, notification and responsibilities of employees and key personnel in the unlikely event of a spill of hazardous materials at the quarry development site or on the highway haul route.

A suitable response is necessary to minimize the potential adverse health effects on humans, the environmental damage and clean up costs that may result if proper procedures are not established and adhered to.

The potentially hazardous materials that will be used for the project are:

- Diesel: 250 L
- Gasoline: 250 L
- Hydraulic oil: n/a
- Lube oil: n/a

The above listed materials will be transported on a "as required" basis from the Village of Fort Simpson, NWT. General Safety Data Sheets are attached with this document.

2.0 SPILL CONTAINMENT PLAN

The primary goal is to avoid spills or the unnecessary release of hazardous materials. All personnel will be provided with an environmental orientation prior to starting project work at the quarry site. This will include a review of the Spill Containment Plan.

In the unlikely event of a spill or release of hazardous material, a quick and effective response is the objective. The Spill Containment Plan defines the responsibilities of site personnel and the required procedures for a quick response emphasizing the need to reduce the safety hazards and minimize the impact on the environment.

2.1 PRELIMINARY REQUIREMENTS

- A copy of this Spill Containment Plan will be available on site during all quarry operations;
- Materials Safety Data Sheets (MSDS) for each hazardous material will also be available on site during all quarry operations; and,
- All vehicles/equipment will be equipped with spill kits and shovels. Spill kits will include absorbent pads or equivalent, shovels, impermeable bags and barrels. Communication equipment such as a satellite phone will be available prior to the commencement of all quarrying operations.

2.2 INITIAL RESPONSE

In the unlikely event of a spill or a release of hazardous materials, the first person on the scene will:

- Cut off the source of the spill, if possible;
- Immediately obtain the assistance of others and begin to assess and contain the spill;
- If possible, without further assistance control the danger to human life (ie. removal of ignition sources);
- Identify the material spilled, assess the MSDS information and implement appropriate safety procedures based on the nature of the hazard;
- Assess the hazards to personnel near the spill. Evacuate personnel depending on the degree and nature of the hazard;
- Notify the **NWT 24-hour Spill Reporting Line (867) 920-8130**, then the DOI primary contact (Appendix B); and,
- Gather as much information as possible on the status and the nature of the situation.

When notified of a spill, the person in charge of the emergency response measures shall immediately ensure that:

- Action is taken to control danger to human life;
- An on-site safety supervisor is designated; and,
- If a spill exceeds any of the threshold quantities, the person in charge of the emergency response measures will update the NWT Spill Reporting Form and then immediately report the update to the **NWT Spill Reporting Line (867) 920-8130**;
- The local RCMP shall be notified if a risk to the public exists; and,
- The necessary equipment and personnel are mobilized and measures are implemented to stop the source of the spill and commence clean up.

2.3 GENERAL SPILL CONTAINMENT PROCEDURES

The following is a list of general containment procedures. Refer to Appendix A for more detailed information on containment and clean up procedures and materials for spills on land, muskeg, water and snow/ice.

2.4 SPILLS ADJACENT TO OR INTO A WATER BODY

Refer to Appendix A for more detailed information on containment and clean up procedures and materials for spills on water.

2.5 SPILL REPORTING

The size, type and/or location of the spill will determine how the spill is reported. The spill threshold for flammable liquids is 100 L. The NWT Spill Reporting Form is found in Appendix D.

The spill regardless of quantity is:

- Near or into a water body;
- Near or into a designated sensitive environment or sensitive wildlife habitat;
- Poses imminent threat to human health or safety; and,
- Poses imminent threat to a listed Species at Risk or its critical habitat or is uncontrollable.

3.0 RESOURCE INVENTORY

All heavy equipment and pick up trucks will carry a spill kit which includes the following:

- Absorbent material (i.e. 10 pads, 2 socks or equivalent);
- Disposal container;
- Safety gloves; and,
- Shovel.

All fuel and service vehicles will carry a spill kit which includes the following:

- A minimum of 10 kg of absorbent materials (i.e. 200 pads, 12 socks, 10 pillows or equivalent);
- Absorbent booms;
- Safety gloves and goggles; and,
- Shovel.

Extra spill kits and materials will be stored at the company maintenance facility.

4.0 TRAINING

All employees participate in a site-specific orientation program that includes WHMIS and TDG. Spill prevention information and safe working procedures for the handling of spills and spill clean up.

All employees and contractors operating at the site will receive specific information on how to use spill kits, correct disposal requirements for contaminated material prior to commencement of quarry operations.

In addition, morning tailgate meetings will address spill containment requirements.

APPENDIX A – CLEAN UP PROCEDURES AND MATERIALS

SPILLS ON LAND

Spills on land should be contained as close to the source as possible, if safety allows. Every effort should be made to ensure that a spill does not reach water. This is where containment and recovery are much more challenging and the potential environmental impacts are much greater.

EARTHEN BERM/TRENCH

If possible, locate the berm/trench sufficiently down slope of the release point to complete its construction before the spill arrives. Dig the trench along a natural drainage contour, approximately 0.6 meters deep with a relatively flat bottom. The excavated material can then be combined with other available material to build them. This method may prevent the spilled material from migrating further from the spill location, thereby creating a type of slump from which the spilled material can be recovered.

SANDBAG BERM/TRENCH

Sand bags can be used where available or if the ground surface is too hard or frozen and cannot be excavated or compacted. A plastic sheet or liner can also be used to seal the trench by weaving it between the layers and bags. Bags should then be anchored with gravel and/or rocks.

SPILLS ON MUSKEG

Muskeg is generally poorly drained, wet and spongy. Internal drainage is usually slow and the depth of peat over mineral soil varies greatly. Muskeg is also highly acidic and low in nutrients making biodegradation very slow, even during summer months.

It is recommended that small spills in muskeg be mixed with peat moss and allowed to degrade during the summer months since more damage can be done by attempting clean up using mechanical methods.

SPILLS IN OR NEAR WATER

Containing spills on water is often difficult because spilled materials spread quickly. In turbulent water, spilled materials are likely to mix in the water column, making recovery extremely challenging. It is important that if a spill reaches water, containment be attempted immediately and as close to the source as possible. The spill must be prevented from reaching moving water. For example, spills in lakes must be contained before spilled materials reach outlet streams and rivers.

In flowing streams, spilled materials travel at the same speed as the surface current on larger rivers or in open lake areas. Slicks are also transported at 3.5% of the wind speed. Although a comparatively small effect, it can be an important factor if wind is at a right angle to the water flow and if the water surface is extensive. The wind can force the spill to the sides of the river where flows are slower or to the shore of a lake. Long reaches of the river may become contaminated although containment and recovery might be possible.

In smaller streams, the wind will have less impact and the slick speed can easily be estimated. Placing a small stick in the middle of the stream will assist with determining the length of time to travel a given distance, typically 10 meters.

CONTAINMENT STRATEGIES

The best possible strategy for containment on or near water will depend on a number of factors:

- Speed the slick is travelling;
- Location of possible containment sites;
- Availability of personnel and equipment;
- Location of sensitive areas; and
- Safety of operations.

Spills on water can be contained by using floating booms/socks or by constructing a temporary berm or inverted weir. The objective is to build a barrier against which the spilled material will pool while allowing the underflow of water.

BOOM/SOCKS

On slow moving waters and in lakes the use of booms and socks can be an effective means of containing spills. Note that absorbent booms or pads should only be used in water if they are of the 11" variety. Universal absorbents (boom end pads), if used, will become soaked with water and sink to the bottom of the waterway causing an additional source of contamination. If universal materials are used, care needs to be taken that they are removed from water as soon as they begin to sink or clean up efforts may result in additional contamination of the waterway.

SPILLS ON ICE OR SNOW

Spilled material can remain relatively fresh under snow and ice for several months or more after a spill.

Evaporation rates will be high when spilled material is ultimately exposed to the atmosphere except in very low temperatures. Spilled materials can also move up and down small hills (several meters high) due to capillary action of the snow.

CONTAINMENT

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

DISPOSAL

Spilled materials in snow and ice, such as some petroleum products, can be burned off if the spill can be isolated from the source. Although there is generally a reduced hazard, proper attention to the safety of operations is still required. If burning is not effective, recovered contaminated material will need to be collected and transported to a designated disposal/treatment facility.

RECOVERY

When large volumes of spilled materials have been contained either through natural or mechanical containment, it will be necessary to remove or recover the accumulated material. This will generally occur in excavated trenches or adjacent to berms or natural barriers and occasionally in slow running streams or quiet ponds.

Vacuum trucks are ideal at clean up sites accessible by road and where a large volume of Material has pooled that is generally free of water. The truck must be positioned at a safe distance so that there is no possibility of fire or explosion.

APPENDIX B – EMERGENCY CONTACTS

Nogha Main Office	867-695-3533
NWT 24 Hour Spill Reporting Line*	867-920-8130
GNWT ENR Regional Office	867-695-7450
GNWT Lands	867-695-2626
Fort Simpson Fire Emergency	867-695-2222
Fort Simpson Health Centre	867-695-7000
After hours emergency	867-695-3232
RCMP Fort Simpson	867-695-1111

*ENR will inform *Environment and Climate Change Canada* of the emergency event.