
June 28, 2011

Project No. 1113720019

Thomas Kabloona, Chair
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

RE: VALE EXPLORATION CANADA INC. WATER LICENCE APPLICATION

Dear Mr. Kabloona,

Vale Exploration Canada Inc. (Vale) is pleased to submit this water licence application for the Southampton Island Project.

The Southampton Island Project is located on the northeast side of Southampton Island approximately 65 km northeast of Coral Harbour. Vale holds prospecting permits, issued by Indian and Northern Affairs Canada (INAC) for the property. Vale is also applying for a land use permit from INAC and a land and water use permit with the Kivalliq Inuit Association.

Please find enclosed:

- completed application form and questionnaire;
- Appendix A – Non-technical Project Summaries;
- Appendix B – Site Maps;
- Appendix C – Plans Associated with the Application;
- Appendix D – Golder Authorization Letter;
- Appendix E – Evidence of Registration of the Company Name; and
- application fees.

The application fees were calculated as follows:

- Type B Water Licence application = \$30;
- Water use fees = \$30; and
- **Total application fee = \$30 + \$30 = \$60**



If you have any questions regarding the enclosed application, please contact me at 705-682-8412 or by email at everett.makela@vale.com. Also, Vale has authorized Golder Associates to communicate on our behalf with the Nunavut Water Board regarding the water licence application. Please contact Sarah Gagné with Golder Associates in Edmonton at 780-930-8654 or by email at sarah_gagne@golder.com.

Regards,

VALE EXPLORATION CANADA LTD.



Danielle Leger
Administrative Supervisor for,

Everett Makela, P.Geo.
Principal Geologist – North America
Vale Exploration Canada Inc.

CC: Sarah Gagné, Golder Associates
Nunavut Planning Commission

Appendix A – Non-technical Project Summaries



Vale Exploration Canada Inc. (Vale) is a mining exploration company based in Sudbury, Ontario. Vale is owned by Vale Canada Holdings Inc., which operates nickel mines throughout Canada. Vale is planning on completing exploration activities for nickel on the northeast side of Southampton Island, approximately 65 km northeast of the Hamlet of Coral Harbour.

The first step of exploration is to do aerial surveys in the spring of 2011. Depending on the results of these surveys, Vale may do further exploration work on the ground. A small team of geologists will look at the surface rocks and consider possible drilling locations. Vale plans to start drilling work on the ground in the fall of 2011, once the results of the aerial surveys have been received and all the necessary licences and permits are in place.

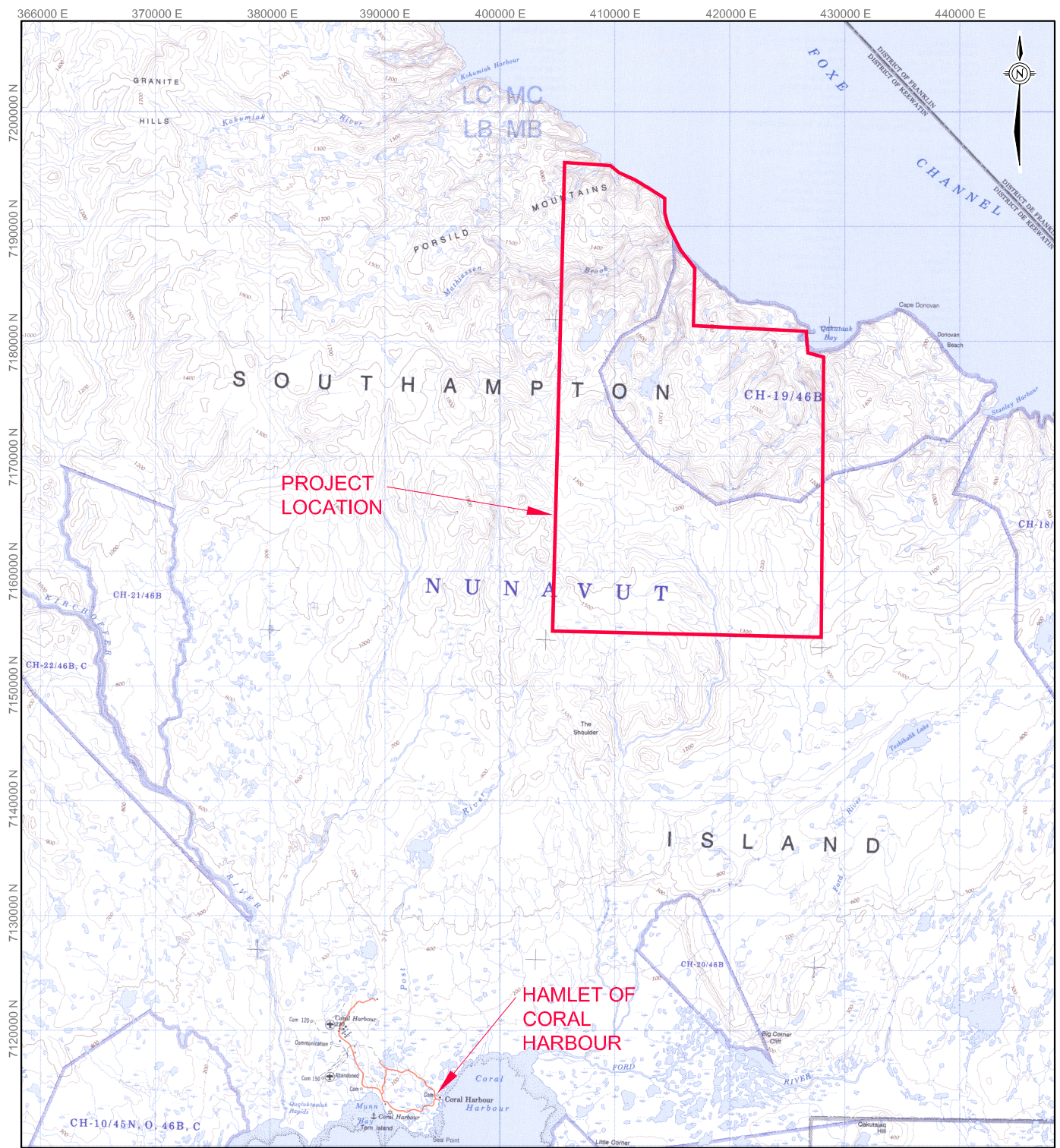
The drilling locations are not known at this time because Vale does not have the results of the aerial surveys at this time. In any case, Vale will be using water for drilling and will make sure that drill wastes do not enter streams or lakes.

Vale does not plan on having a camp at the site; all field crews will stay in Coral Harbour and travel back and forth to the site each day by helicopter. Depending on the results of the fall 2011 exploration program, Vale may setup a camp in 2012.

In the summer of 2011, Vale plans to visit Coral Harbour and Rankin Inlet to speak with the community and the Kivalliq Inuit Association about the project.

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Appendix B – Site Maps



PROJECT

CORAL HARBOUR AREA
SOUTHAMPTON ISLAND, NUNAVUT

TITLE

PROJECT LOCATION MAP

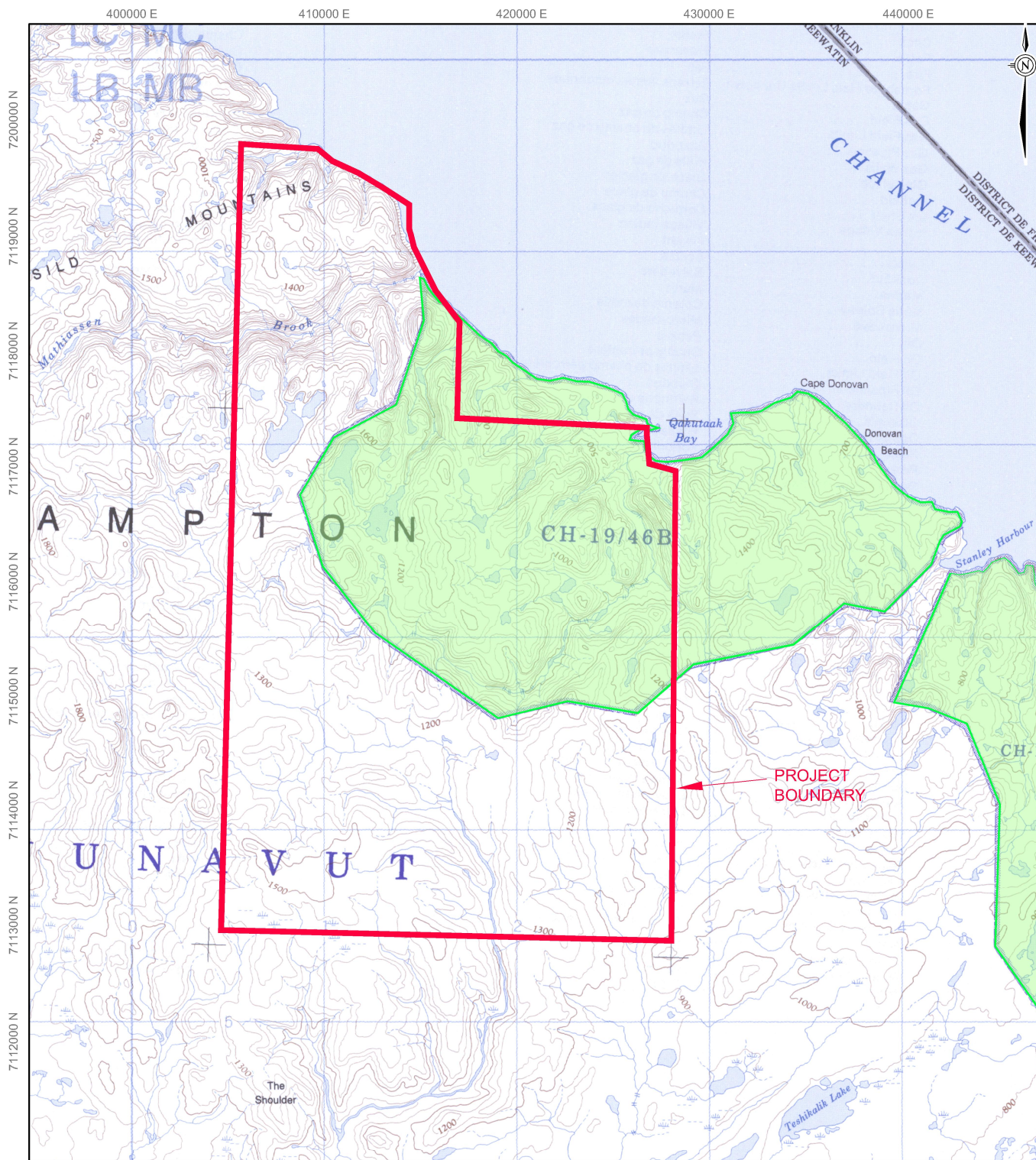
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NAD83 PROJECTION: UTM ZONE 17.



PROJECT	11.1372.0019.1000		FILE No.	11137200191000A001	
DESIGN	SG	31/05/11	SCALE	AS SHOWN	REV. 0
CADD	BSW	01/06/11	FIGURE: 1		
CHECK	CD	15/06/11			
REVIEW	EM	23/06/11			

FIGURE: 1



LEGEND

- PROJECT BOUNDARY
- CROWN LAND
- INUIT OWNED LAND



REFERENCE

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PROJECT

CORAL HARBOUR AREA
SOUTHAMPTON ISLAND, NUNAVUT

TITLE

SITE MAP



PROJECT	11.1372.0019.1000	FILE No.11137200191000A002
DESIGN	SG	31/05/11
CADD	BSW	01/06/11
CHECK	CD	15/06/11
REVIEW	EM	23/06/11
SCALE	AS SHOWN	REV. 0

FIGURE: 2

Appendix C – Plans Associated with the Application



June 28, 2011

SOUTHAMPTON ISLAND PROJECT

Spill Contingency Plan

Submitted to:

Vale Exploration Canada Inc.
Hwy 17 West
Copper Cliff, ON P0M 1N0

REPORT



Report Number: 1113720019

Distribution:

Nunavut Water Board
Kivalliq Inuit Association
Indian and Northern Affairs Canada





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SPILL CONTINGENCY PLAN - SOUTHAMPTON ISLAND PROJECT

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Vale Values

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NWT/NU Spill Report Form



SPILL CONTINGENCY PLAN - SOUTHAMPTON ISLAND PROJECT

1.0 INTRODUCTION AND PROJECT DETAILS

Vale Exploration Canada Inc. (Vale) has developed this Spill Contingency Plan for exploration activities at the Southampton Island Project (the Project), including geophysical surveys and drilling.

Spills can cause adverse environmental effects, harm to people, and can be costly to clean up especially in remote areas such as Southampton Island, Nunavut. Therefore, to the extent practical, spills must first of all be prevented. In the event of a spill, impacts to the environment and human health can be reduced if the spill is contained and cleaned up as promptly as possible. Vale is committed to reducing all environmental impacts, including those caused from spills. Vale's corporate values can be found in Appendix A.

1.1 Project Description

Vale is planning on conducting mineral exploration for nickel on the northeast side of Southampton Island, approximately 65 km northeast of the Hamlet of Coral Harbour, Nunavut.

The project activities are located between 64°52'26" - 64°30'28" N and 82°59'30" - 82°29'28" W (see Figures 1 and 2 in Appendix B). The Project occurs on both Crown and Inuit Owned land, therefore Vale is applying for land use permits with Indian and Northern Affairs Canada (INAC) and the Kivalliq Inuit Association (KIA), as well as a water licence with the Nunavut Water Board.

Vale has all the necessary prospecting permits issued by the INAC Mine Recorder's Office.

The first step for the Project is to do airborne surveys in the spring of 2011. Depending on the results of the surveys, Vale may undertake a geophysical survey and possibly drilling in the fall of 2011.

Vale does not plan on having a camp at the site in 2011; all field crews will stay in Coral Harbour and travel back and forth to the site by helicopter. Depending on the results of the 2011 program, Vale may decide to continue flying field crews to and from Coral Harbour or may setup a camp in 2012.

If a camp is going to be setup in 2012, the Spill Contingency Plan will be updated and the revised copy will be sent to the regulatory agencies.

1.2 Vale Contact Information

Table 1: Southampton Project Contacts

Team Member	Position	Contact Information	Address
Everett Makela	Project Geologist/Field Supervisor	T: 705-682-8412 T: (field) TBA E: everett.makela@vale.com	Highway 17 West Copper Cliff, ON P0M 1N0
Carol Nelson	Safety Health Environment Consultant (project member until August 3, 2011)	T: 705-682-8407 E: carol.nelson@vale.com	Highway 17 West Copper Cliff, ON P0M 1N0
Clare Goddard	Safety Health Environment Consultant (project member after August 3, 2011)	T: 705-682-8462 E: clare.goddard@vale.com	Highway 17 West Copper Cliff, ON P0M 1N0



SPILL CONTINGENCY PLAN - SOUTHAMPTON ISLAND PROJECT

1.3 Spill Contingency Plan Revision List

Table 2 Spill Contingency Plan Revision List

Company	Company Contact	Version	Date Issued	Version Format
Vale Exploration Canada	Everett Makela	1.0	June 27, 2011	Electronic PDF

1.4 Distribution List

Table 3 Spill Contingency Plan Distribution List

Company/Institute of Public Government	Version	Date Issued	Version Format
Nunavut Water Board (water licence application)	1.0	June 27, 2011	Electronic PDF
Indian and Northern Affairs Canada (INAC) (land use permit application)	1.0	June 27, 2011	Electronic PDF
Kivalliq Inuit Association (land use permit application)	1.0	June 27, 2011	Electronic PDF
Drilling company (TBA)	1.0	TBA	Electronic PDF

1.5 List of Hazardous Materials On-Site

The following table provides a list of the hazardous materials, type of storage container, the anticipated operational and maximum volumes on-site and the storage locations and uses.

Table 4: On-site Hazardous Materials Description

Material	Storage Container	Normally On-site		Maximum On-site		Storage Location and Uses
		Fuel Cache	At Drill	Fuel Cache	At Drill	
Diesel Fuel	205 L drums	10 drums (2,050 L)	3 drums (615 L)	15 drums (3,075 L)	5 drums (1,025 L)	Fuel cache and adjacent to drill. Diesel will be stored in the fuel cache and daily amounts will be transported as needed with the drill.

The Material Safety Data Sheet (MSDS) for diesel is included in Appendix C.

Vale is not planning on setting up a camp to support the Project in 2011: crews will be staying in Coral Harbour and flying to and from the drill sites by helicopter. Fuel for the helicopter will be purchased from the supplier at the Coral Harbour airport.

Other hazardous materials found on-site will be in very small quantities and associated with the drill. These would include lubricants, oil, and grease for maintenance of the drill. All servicing of the drill will be conducted over tarps or other impervious materials to catch any leaks, drips, or spills.

Depending on the results of the 2011 program, a camp may be setup in 2012. The Spill Contingency Plan would be updated and the revised copy will be sent to the applicable regulatory agencies to address this change in operation.

1.6 Fuel Spill Prevention Measures

All fuel used for the project will be stored in 205 L drums. Drums will be slung by helicopter to the drill sites from a fuel cache on the property. Vale intends to store no more than approximately 15 drums (3,075 L) of diesel in



SPILL CONTINGENCY PLAN - SOUTHAMPTON ISLAND PROJECT

an on-site fuel cache to support the drill. Additional fuel may also be stored at a temporary fuel cache at the Coral Harbour Airport. If diesel is to be stored at the Coral Harbour Airport, all necessary access and storage requirements will be discussed with the Government of Nunavut and the airport manager in Coral Harbour prior to setting up the temporary fuel cache.

Regardless of the location, the fuel cache will be located on level ground, at least 100 m from the high water mark of any water body, lined with impermeable liners, and bermed with 110% containment. Planking will be used to protect the liner from fuel drums.

Portable drip trays and appropriately sized fuel transfer hoses with pumps will be used when refuelling the drill to avoid any leaks/drips onto the land.

The project supervisor or designated fuel monitor will conduct daily visual inspections to check for leaks or damage to the fuel drums, as well as stained or discoloured soils around fuel storage areas and adjacent motorized equipment. Regular maintenance and oil checks will be conducted on the drill, as determined by the drilling contractor.

1.7 Potential Spill Scenarios and Environmental Impacts

The following table identifies the potential spills that may occur during the project and corresponding potential impact to the environment.

Table 5: Potential Materials Spills and Impacts to the Environment

Material (source)	Potential Spill	Potential Spill Volume (worst case)	Potential Environmental Impact
Diesel Fuel	1) Over pumping of fuel from drum to drill rig 2) Leaking from drill rig 3) Minor leaking from drum inside/outside secondary containment 4) Large puncture, fast leaking drum inside/outside secondary containment 5) All drums punctured and leaking at once (very unlikely)	Under 205 L (max 15 drums, 3,075 L)	Diesel may be harmful to wildlife and aquatic life. It is not readily biodegradable and has the potential for bioaccumulation in the environment. Runoff into water bodies must be avoided. In the very unlikely worst case scenario if all the drums were opened simultaneously and contents seeped into surrounding soil and water bodies at the Project site fuel cache, this could cause illness or death to aquatic life and indirectly affect wildlife feeding from the land and water. If the worst case scenario were to occur at the Coral Harbour Airport fuel cache location, the potential impact to the soil, water bodies, and wildlife would be minimal as the airport is an industrial site. Vale would conduct the clean-up to meet Government of Nunavut standards.
Drill Cuttings	1) Drill cuttings emanating from the drill hole may spill/flow away from the designated sump/natural depression into a water body	Variable, depending on the drill hole depth and distance to the water body	Drill cuttings have a high sediment content. If the drill cuttings enter a water body they will increase the turbidity, potentially causing illness or death to aquatic life.



2.0 FUEL SPILL RESPONSE

2.1 Response Organization

The field supervisor will be responsible for prevention, containment, reporting, and clean-up of any spill on-site. The field supervisor will also be responsible for all follow-up correspondence with regulatory agencies, if required. The field supervisor will be supported by the Vale Safety, Health and Environment Consultant.

2.2 Identifying, Containing, and Reporting a Fuel Spill

As previously discussed, the only material covered in this Spill Contingency Plan is diesel, therefore the following discussion on identifying, containing, and reporting a spill will be limited to scenarios that will likely occur during the project.

The appropriate MSDS sheets are included in Appendix C and will be included in the spill response kits and should be consulted to identify health and safety hazards associated with diesel.

2.2.1 Initial Action

In the event of any spill, the following tasks will be followed to properly contain the spilled material:

- assess the severity of the spill;
- assess whether the spill, leak, or system failure can be readily stopped or brought under control;
- stop product flow or leak, if possible and if it is safe to do so;
- wear appropriate personal protective equipment from the spill kit, such as impervious clothing, goggles, and gloves when containing the spill; and
- approach from upwind if it is safe to do so.

2.2.2 Spill Reporting

Under the *Spill Contingency Planning and Reporting Regulations* for Nunavut (Government of Nunavut 1998), an immediately reportable spill is defined as either one of the following for diesel:

- volume greater than 100 litres (L); and/or
- the spill is likely to be an imminent environmental or human health hazard.

If during the initial action, a spill is assessed to meet either of the two above criteria the spill will be reported as soon as it is safe to do so. **To report the spill, the field supervisor will call the Northwest Territories/Nunavut (NWT/NU) 24-hour spill line at 867-920-8130.**

When able, the field supervisor will complete the NWT/NU Spill Report form (Appendix D) and fax or e-mail the form to the NWT/NU 24-hour spill line at 867-873-6924 (fax) or spills@gov.nt.ca (e-mail).

For non-reportable spills, the field supervisor will fill out the spill report form and it will be kept with the Project file.



2.2.3 Spill on Land

If it is safe to do so, consider the following general spill response procedures for small spills on land, less than 100 L:

- use appropriate absorbent materials, earthen dikes, or trenches to prevent it from flowing out of the spill area or toward water bodies; and
- recover the spill as soon as possible.

For larger spills greater than 100 L, quick containment of spills is necessary to prevent spreading over a large area. This is of greatest concern when spills occur in granular soils (e.g., sand or gravel) and with light products, such as diesel. Diesel will flow down-slope, to low points, and away from the spill source.

In some cases, a trench can be dug ahead of the spill on the down slope side to collect the liquid for removal by absorbent booms, pads, buckets, or pumps. To facilitate this, the following steps can be taken.

- construct a soil berm downslope of the spill;
- block entry into waterways, if required, and contain the spill with earth or other barrier(s);
- if appropriate, use synthetic, impervious sheeting to act as a barrier;
- where possible, recover spills using shovels and/or pumps;
- absorb petroleum residue with synthetic absorbent pad materials;
- recover spilled and contaminated material, including soil and vegetation; and
- if the spill is due to a punctured drum, place the drum and any recovered soil in drum overpacks.

Once removed, recovered product and contaminated soil will be contained for handling and disposal. For a large spill, on-site field crews will contain the spill and may need to contact a third party contractor in Coral Harbour to assist with the clean-up.

2.2.4 Spill on Snow

Snow and ice, similar to soil, can be used to create berms to contain spills. Many of the techniques and objectives are similar to those on land. These include the following:

- blocking entry into waterbodies and containment with snow or other barrier(s);
- trenching or ditching to intercept or contain flow of liquids on snow, where feasible;
- compacting the snow around the outside perimeter of the spill area;
- constructing a snow berm with shovels; and
- if feasible, using synthetic liners to provide an impervious barrier at the spill site.

The low point of the spill area should be located and clear channels can be created in the snow to allow free product to flow into that low point. All channels should be directed away from water bodies. The liquid can then be collected by shovelling spilled material into containers.



2.2.5 Spill on Water

Spills on, or near water, should be contained as close as possible to the release point. Spill containment booms can be used to concentrate floating product for recovery. On small spills, absorbent pads can be used to pick up contained diesel. On larger spills a skimmer may be required.

When a spill occurs near a stream, it should be prevented from entering the water, by berming or trenching. If diesel enters a stream, it should be intercepted in calm areas, using absorbent booms. Absorbent booms or pads should not be used in fast currents and turbulent water. The following strategies can be used to contain spills on slow moving or calm water:

- Contain spills on open water immediately to restrict the size and extent of the spill. Diesel that floats on water may be contained through the use of booms, absorbent materials, or skimming.
- Deploy containment booms to minimize spill area; the effectiveness of booms may be limited by wind, waves and other factors.
- Use absorbent booms to slowly encircle and absorb spilled material. These absorbents are hydrophobic (they absorb hydrocarbons and repel water).
- Once booms are secured, use pumps, absorbents, or skimmers to draw in diesel and minimal amounts of water. Skimmed liquids can be pumped through hoses to empty drums.
- Use absorbent pads and similar materials to capture small spills and/or oily residue on water.

2.3 Spill Disposal

Once the spill has been contained and the spilled product has been recovered, either through absorbent materials or removing contaminated soil, snow, or water, all contaminated materials will be packaged in containers for off-site disposal. Contaminated soil, snow, and water will not be treated or disposed at the site.

3.0 SEDIMENT/DRILL CUTTINGS RESPONSE

For drill cuttings that do not flow to the designated sump/natural depression, all efforts will be made to prevent sedimentation of nearby water bodies. Attempts will be made to recover the drill cuttings and direct them to the sump/natural depression. Silt curtains may also be installed downstream of the release to prevent sediment from drill cuttings from entering the water body.

4.0 RESOURCE INVENTORY

There will be two spill kits located at the project site each with a sorbent capacity of 205 L. One will be located with the drill and the other at the fuel cache. A third spill kit may be required if diesel is temporarily stored at the Coral Harbour Airport.

The spill kit contents are described below:

- 100 absorbent pads (oil, gas & diesel);
- five 18" x 18" oil absorbent pillows;
- 10 3" x 4' absorbent socks (oil, gas & diesel);



SPILL CONTINGENCY PLAN - SOUTHAMPTON ISLAND PROJECT

- one 1 Lb. Jar of Plug n Dike (leak stop);
- eight high density hazmat disposal bags;
- six pairs of nitrile gloves;
- two large tarps;
- three aluminum scoop shovels;
- one Spill Contingency Plan;
- one laminated list of contents; and
- two drum overpacks.

Depending on the severity of the spill, additional resources may be required. The following is a list of contractors and government agencies that could be contacted, depending on the severity of the spill:

- Manager, Water Resources, Indian and Northern Affairs Canada – Nunavut Regional Office, Iqaluit, NU
 - Tel: 867-975-4550
- Manager, Land Administration, Indian and Northern Affairs Canada – Nunavut Regional Office, Iqaluit, NU
 - Tel: 867-975-4280
- Manager, Environment, Indian and Northern Affairs Canada – Nunavut Regional Office, Iqaluit, NU
 - Tel: 867-975-4549
- Environment Officer, Environmental Protection Branch, Environment Canada, Iqaluit, NU
 - Tel: 867-975-4644
- Lands Administration, Kivalliq Inuit Association, Rankin Inlet, NU
 - Tel: 867-645-2800
- Environmental consultant, Golder Associates, Edmonton, AB
 - Tel: 780-483-3499
- General contractor, Sudliq Developments Ltd, Coral Harbour, NU
 - Tel: 867-925-8119

5.0 TRAINING

As part of the project orientation, all members of the field crew will be required to read and follow the Spill Contingency Plan. During the Health and Safety orientation on-site all of the field crew will be briefed on the locations of the spill kits and proper use in the event of a spill. All field crew members will be provided revisions of the plan as they are implemented.



6.0 REFERENCES

Government of Nunavut, 1998. Spill Contingency Planning and Reporting Regulations. Department of Resource, Wildlife and Economic Development, Government of the Northwest Territories , Yellowknife, NWT 1998. Available online:
<http://env.gov.nu.ca/sites/default/files/Spill%20Planning%20and%20Reporting%20Regs.pdf>

Report Signature Page

GOLDER ASSOCIATES LTD.

Sarah Gagné, P.Eng.
Project Manager

Corey De La Mare, B.Sc., P.Biol.
Associate, Project Director

SG/CD/bh

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APPENDIX A

Vale Values



VALE VALUES

Ethics and Transparency

Our behaviour as an organization, by acting with integrity, abiding by the law, moral principles and behavioural covenants established and accepted by society, and by clearly communicating our policies and results.

Excellence in Performance

The quest for continuous improvement and process control, using performance indicators acknowledged as best practice, promoting a high-performance culture and ensuring that long-lasting competitive advantages are obtained and sustained.

Entrepreneurship

Our determined mindset as an organization that rapidly and unrelentingly seeks new opportunities and innovative solutions in the face of shifting challenges and needs, ensuring the execution of strategies that contribute to Vale's growth.

Economic, Social and Environmental Responsibility

We acknowledge the need for these dimensions to be constantly in balance, promoting development and ensuring sustainability.

Prioritizing Life and Safety

We will never forgo safety. People are more important than results and material goods. There is never a choice to be made regarding someone's life — our only choice is the life, health, and safety of our customers, employees, and communities.

Respect for Diversity

Acknowledging one another as equals, respecting differences and promoting competitive inclusion — and recognizing differences as opportunities for integration and growth.

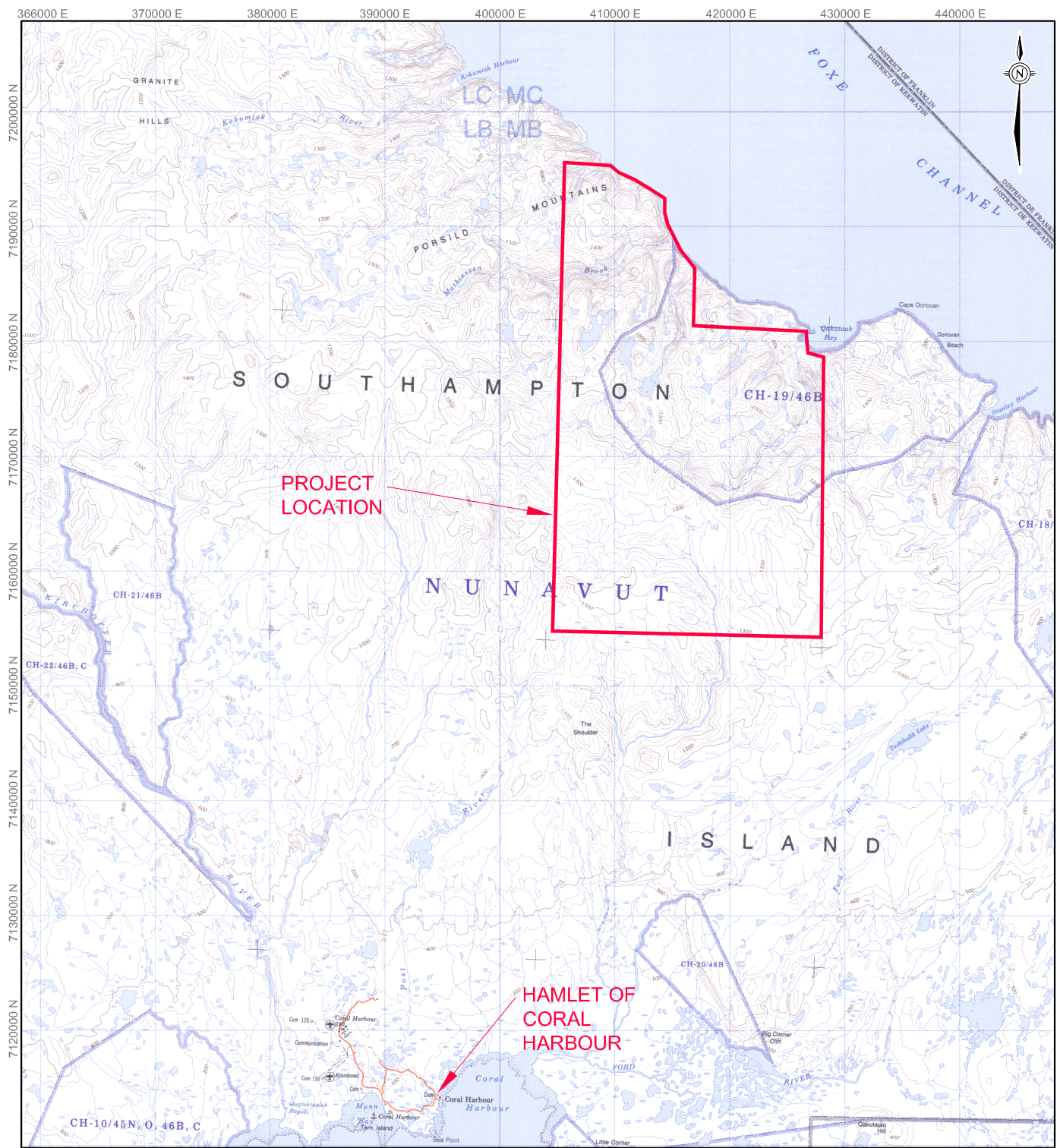
Proud to “Be Vale”

The result of all these values. We behave as owners of the business, in the relentless quest to achieve our defined goals, sharing and celebrating results and strengthening relationships. We are proud to build something that will make a difference. This is why we are proud to be Vale — all of us, management and other employees of the Company.



APPENDIX B

Site Diagrams



PROJECT

CORAL HARBOUR AREA
SOUTHAMPTON ISLAND, NUNAVUT

TITLE

PROJECT LOCATION MAP

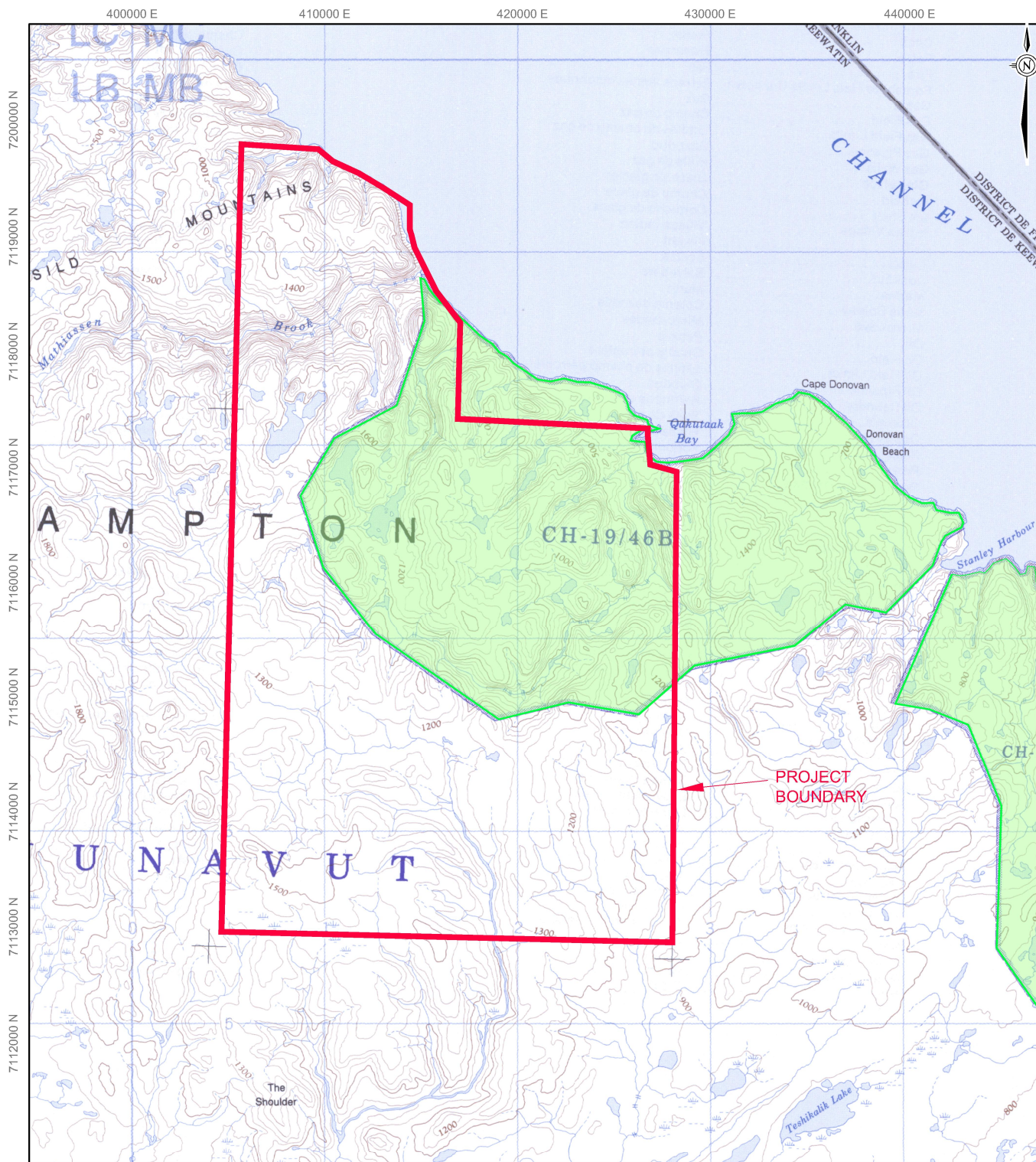
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PROJECT 11.1372.0019.1000			FILE No. 11137200191000A001		
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CADD	BSW	01/06/11	FIGURE: 1		
CHECK	CD	15/06/11			
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FIGURE: 1



LEGEND

- PROJECT BOUNDARY
- CROWN LAND
- INUIT OWNED LAND



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PROJECT

CORAL HARBOUR AREA
SOUTHAMPTON ISLAND, NUNAVUT

TITLE

SITE MAP



PROJECT	11.1372.0019.1000	FILE No.11137200191000A002
DESIGN	SG	31/05/11
CADD	BSW	01/06/11
CHECK	CD	15/06/11
REVIEW	EM	23/06/11
SCALE	AS SHOWN	REV. 0

FIGURE: 2



APPENDIX C

Material Safety Data Sheets

Material Safety Data Sheet



DIESEL FUEL



1 . Product and company identification

Product name	: DIESEL FUEL
Synonym	: Seasonal Diesel, #1 Diesel, #2 Heating Oil, #1 Heating Oil, D50, D60, P40, P50, Arctic Diesel, Farm Diesel, Marine Diesel, Low Sulphur Diesel, LSD, Ultra Low Sulphur Diesel, ULSD, Mining Diesel, Naval Distillate, Dyed Diesel, Marked Diesel, Coloured Diesel, Furnace special, Biodiesel blend, B1, B2, B5, Diesel Low Cloud (LC).
Code	: W104, W293; SAP: 120, 121, 122, 125, 126, 129, 130, 135, 287, 288
Material uses	: Diesel fuels are distillate fuels suitable for use in high and medium speed internal combustion engines of the compression ignition type. Mining Diesel has a higher flash point requirement, for safe use in underground mines.
Manufacturer	: PETRO-CANADA P.O. Box 2844 150 – 6th Avenue South-West Calgary, Alberta T2P 3E3
<u>In case of emergency</u>	: Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).

2 . Hazards identification

Physical state	: Bright oily liquid.
Odour	: Mild petroleum oil like.
WHMIS (Canada)	:   Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). Class D-2A: Material causing other toxic effects (Very toxic). Class D-2B: Material causing other toxic effects (Toxic).
OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview	: WARNING! COMBUSTIBLE LIQUID AND VAPOUR. CAUSES EYE AND SKIN IRRITATION. Combustible liquid. Severely irritating to the skin. Irritating to eyes. Keep away from heat, sparks and flame. Do not get in eyes. Avoid breathing vapour or mist. Avoid contact with skin and clothing. Use only with adequate ventilation. Wash thoroughly after handling.
Routes of entry	: Dermal contact. Eye contact. Inhalation. Ingestion.
<u>Potential acute health effects</u>	
Inhalation	: Inhalation of this product may cause respiratory tract irritation and Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death.
Ingestion	: Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract.
Skin	: Severely irritating to the skin.
Eyes	: Irritating to eyes.
<u>Potential chronic health effects</u>	
Chronic effects	: No known significant effects or critical hazards.
Carcinogenicity	: Diesel engine exhaust particulate is probably carcinogenic to humans (IARC Group 2A).
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.

2 . Hazards identification

- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.
- Medical conditions aggravated by over-exposure** : Avoid prolonged or repeated skin contact to diesel fuels which can lead to dermal irritation and may be associated with an increased risk of skin cancer.

See toxicological information (section 11)

3 . Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Kerosine (petroleum), hydrodesulfurized / Fuels, diesel / Fuel Oil No. 2	64742-81-0 / 68334-30-5 / 68476-30-2	95 - 100
Fatty acids methyl esters	61788-61-2 / 67784-80-9 / 73891-99-3	0 - 5

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4 . First-aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

- Flammability of the product** : Combustible liquid
- Extinguishing media**
- Suitable** : Use dry chemical, CO₂, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Products of combustion** : Carbon oxides (CO, CO₂), nitrogen oxides (NO_x), sulphur oxides (SO_x), sulphur compounds (H₂S), smoke and irritating vapours as products of incomplete combustion.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

5 . Fire-fighting measures

- Special remarks on fire hazards** : Flammable in presence of open flames, sparks and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. This product can accumulate static charge and ignite.
- Special remarks on explosion hazards** : Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Runoff to sewer may create fire or explosion hazard.

6 . Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up**
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. Ensure the storage containers are grounded/bonded.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Kerosine (petroleum), hydrodesulfurized	ACGIH TLV (United States). Absorbed through skin. TWA: 200 mg/m ³ 8 hour(s).
Fuels, diesel	ACGIH TLV (United States). Absorbed through skin. TWA: 100 mg/m ³ , (Inhalable fraction and vapour) 8 hour(s).
Fuel oil No. 2	ACGIH TLV (United States). Absorbed through skin. TWA: 100 mg/m ³ , (Inhalable fraction and vapour) 8 hour(s).

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory

: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: organic vapour cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstances where air-purifying respirators may not provide adequate protection.

Hands

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Recommended: nitrile, neoprene, polyvinyl alcohol (PVA), Viton. Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any material regardless of their imperviousness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.

Eyes

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state	: Bright oily liquid.
Flash point	: Diesel fuel: Closed cup: $\geq 40^{\circ}\text{C}$ ($\geq 104^{\circ}\text{F}$) Marine Diesel Fuel: Closed Cup: $\geq 60^{\circ}\text{C}$ ($\geq 140^{\circ}\text{F}$) Mining Diesel: Closed Cup: $\geq 52^{\circ}\text{C}$ ($\geq 126^{\circ}\text{F}$)
Auto-ignition temperature	: 225°C (437°F)
Flammable limits	: Lower: 0.7% Upper: 6%
Colour	: Clear to yellow (This product may be dyed red for taxation purposes).
Odour	: Mild petroleum oil like.
Odour threshold	: Not available.
pH	: Not available.
Boiling/condensation point	: 150 to 371°C (302 to 699.8°F)
Melting/freezing point	: Not available.
Relative density	: 0.80 to 0.88 kg/L @ 15°C (59°F)
Vapour pressure	: 1 kPa (7.5 mm Hg) @ 20°C (68°F).
Vapour density	: 4.5 [Air = 1]
Volatility	: Semivolatile to volatile.
Evaporation rate	: Not available.
Viscosity	: Diesel fuel: 1.3 - 4.1 cSt @ 40°C (104°F) Marine Diesel Fuel: 1.3 - 4.4 cSt @ 40°C (104°F)
Pour point	: Not available.
Solubility	: Insoluble in cold water, soluble in non-polar hydrocarbon solvents.

10 . Stability and reactivity

Chemical stability	: The product is stable.
Hazardous polymerisation	: Under normal conditions of storage and use, hazardous polymerisation will not occur.
Materials to avoid	: Reactive with oxidising agents and acids.
Hazardous decomposition products	: May release COx, NOx, SOx, H2S, smoke and irritating vapours when heated to decomposition.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Kerosine (petroleum), hydrodesulfurized	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Vapour	Rat	>5000 mg/m ³	4 hours
Fuels, diesel	LD50 Dermal	Mouse	24500 mg/kg	-
	LD50 Oral	Rat	7500 mg/kg	-
Fuel oil No. 2	LD50 Oral	Rat	12000 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Diesel engine exhaust particulate is probably carcinogenic to humans (IARC Group 2A).

11 . Toxicological information

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Kerosine (petroleum), hydrodesulfurized	A3	-	-	-	-	-
Fuels, diesel	A3	3	-	-	-	-
Fuel oil No. 2	A3	3	-	-	-	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.


13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimised wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	UN1202	DIESEL FUEL	3	III		-
DOT Classification	Not available.	Not available.	Not available.	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Combustible liquid
Irritating material

Canada

WHMIS (Canada) : Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

15 . Regulatory information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

- Canada inventory** : All components are listed or exempted.
- United States inventory (TSCA 8b)** : All components are listed or exempted.
- Europe inventory** : All components are listed or exempted.

16 . Other information

Label requirements : COMBUSTIBLE LIQUID AND VAPOUR. CAUSES EYE AND SKIN IRRITATION.

Hazardous Material Information System (U.S.A.) :

Health	2
Flammability	2
Physical hazards	0
Personal protection	H

National Fire Protection Association (U.S.A.) :



References : Available upon request.
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Date of printing : 7/6/2010.

Date of issue : 6 July 2010

Date of previous issue : 7/3/2009.

Responsible name : Product Safety - JDW

Indicates information that has changed from previously issued version.

For Copy of (M)SDS : Internet: www.petro-canada.ca/msds

Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228

For Product Safety Information: (905) 804-4752

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.



APPENDIX D

NWT/NU Spill Report Form



Canada

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE

TEL: (867) 920-8130

FAX: (867) 873-6924

EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR		REPORT TIME		<input type="checkbox"/> ORIGINAL SPILL REPORT, OR <input type="checkbox"/> UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER _____
	OCCURRENCE DATE: MONTH – DAY – YEAR		OCCURRENCE TIME			
C	LAND USE PERMIT NUMBER (IF APPLICABLE)			WATER LICENCE NUMBER (IF APPLICABLE)		
	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION				REGION <input type="checkbox"/> NWT <input type="checkbox"/> NUNAVUT <input type="checkbox"/> ADJACENT JURISDICTION OR OCEAN	
E	LATITUDE			LONGITUDE		
	DEGREES	MINUTES	SECONDS	DEGREES	MINUTES	SECONDS
F	RESPONSIBLE PARTY OR VESSEL NAME		RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION			
	ANY CONTRACTOR INVOLVED		CONTRACTOR ADDRESS OR OFFICE LOCATION			
H	PRODUCT SPILLED		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER	
	SECOND PRODUCT SPILLED (IF APPLICABLE)		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER	
I	SPILL SOURCE		SPILL CAUSE		AREA OF CONTAMINATION IN SQUARE METRES	
	FACTORS AFFECTING SPILL OR RECOVERY		DESCRIBE ANY ASSISTANCE REQUIRED		HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT	
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS					
L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE	
	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE	

REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLED	REPORT LINE NUMBER
		STATION OPERATOR		YELLOWKNIFE, NT	(867) 920-8130
LEAD AGENCY <input type="checkbox"/> EC <input type="checkbox"/> CCG <input type="checkbox"/> GNWT <input type="checkbox"/> GN <input type="checkbox"/> ILA <input type="checkbox"/> INAC <input type="checkbox"/> NEB <input type="checkbox"/> TC			SIGNIFICANCE <input type="checkbox"/> MINOR <input type="checkbox"/> MAJOR <input type="checkbox"/> UNKNOWN		FILE STATUS <input type="checkbox"/> OPEN <input type="checkbox"/> CLOSED
AGENCY		CONTACT NAME	CONTACT TIME	REMARKS	
LEAD AGENCY					
FIRST SUPPORT AGENCY					
SECOND SUPPORT AGENCY					
THIRD SUPPORT AGENCY					

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June 28, 2011

SOUTHAMPTON ISLAND PROJECT

Closure and Restoration Plan

Submitted to:

Vale Exploration Canada Inc.
Hwy 17 West
Copper Cliff, ON P1M 1N0

REPORT



Report Number: 1113720019

Distribution:

Nunavut Water Board
Kivalliq Inuit Association
Indian and Northern Affairs Canada





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APPENDICES

APPENDIX A

Site Map



CLOSURE AND RESTORATION PLAN

1.0 INTRODUCTION

Vale Exploration Canada Inc. (Vale) has developed this Closure and Restoration Plan (the Plan) for the Southampton Island Project (the Project), located on Southampton Island, Nunavut approximately 65 km northeast of the Hamlet of Coral Harbour, Nunavut. The Project activities are located between 64°52'26" - 64°30'28" N and 82°59'30" - 82°29'28" W.

The Project area occurs on both Crown and Inuit Owned land, therefore Vale is applying for land use permits with Indian Northern Affairs Canada (INAC) and the Kivalliq Inuit Association (KIA), as well as a water licence with the Nunavut Water Board.

Vale has all the necessary prospecting permits issued by the INAC Mine Recorder's Office.

The first step for the Project is to do airborne surveys in the spring of 2011. Depending on the results of the surveys, Vale may undertake a geophysical survey and possibly drilling in the fall of 2011.

Vale does not plan on having a camp at the site in 2011; all field crews will stay in Coral Harbour and travel to and from the site by helicopter. Depending on the results of the 2011 program, Vale may decide to continue flying field crews to and from Coral Harbour or may setup a camp in 2012. Vale intends to conduct drilling activities during the summer and fall of 2012. Camp supplies and fuel, if constructed in 2012, may be flown in by Twin Otter or other equivalent aircraft.

The scope of this Closure and Restoration Plan (the Plan) covers both drilling activities and a camp. The Plan is effective from June 27, 2011 to December 31, 2014.

2.0 PROJECT SCHEDULE

In 2011, Vale intends to conduct the aerial surveys and apply for the required permits and licences. Depending on the results of the aerial surveys and the receipt all the necessary permits and licence, Vale intends to conduct a field program on the property in the fall of 2011. As previously stated, there will be no camp in 2011; field crews will fly in and out of Coral Harbour. The field program will include a geophysical survey and possibly drilling and will last approximately 2 to 3 weeks.

In 2012 and 2013, depending on the results of the 2011 program, further exploration work may be undertaken. The work may require a camp or Vale may decide to continue to be based out of Coral Harbour.

3.0 CLOSURE AND RESTORATION

3.1 Schedule

No Camp

For the field programs that do not use a camp, the seasonal closure and restoration will be limited to inspecting the fuel cache and ensuring the remaining drums are stored properly for use in the next year. The drill locations will be properly abandoned and restored once the drill hole is completed as discussed in Section 3.2.2. Seasonal or final closure and restoration would take approximately 1 to 2 days.

Camp

If a camp is used for the field program, closure and restoration will take approximately 3 days.



3.2 Seasonal Closure and Restoration

3.2.1 Buildings and Contents

If a camp was used during the field program, all tent structures will be secured for the winter and all camp equipment such as stoves, beds, shower etc. will remain securely stored on site. No food or food waste will be left on site.

3.2.2 Drill Locations

All drill equipment will be dismantled, packaged, and stored along with its ancillary equipment and rods, as directed by the drilling contractor. The drill will be left on a level surface, away from water bodies.

All drill locations will be inspected immediately after completion of the drill hole. All waste will be collected and taken to camp for incineration or removed to an approved disposal facility. All sumps will be backfilled and each drill collar will be cut off to ground level. All efforts will be made to contour the sump backfill to pre-existing conditions. At each drill site the surrounding soil will be inspected for potential contamination.

3.2.3 Fuel Storage

Any fuel drums or empty drums from the last drill location will be returned to the fuel cache. Empty drums will be returned to the staging area in Coral Harbour and backhauled to an approved facility throughout the project.

Remaining fuel drums at the fuel cache will be inventoried and stored until the next season. All remaining fuel drums and empty drums, as well as secondary containment, will be inspected. Surrounding soil will also be inspected for potential contamination. Any contaminated soil will be treated according to the *Spill Contingency Plan* (Golder 2011).

3.2.4 Waste

No Camp

For any field program with no camp associated with it, all solid wastes will be contained, packaged, and flown out to Coral Harbour. All non-hazardous wastes will be disposed at the Hamlet of Coral Harbour landfill, if all necessary tipping fees and access are in place with the hamlet. If Vale is not permitted by the hamlet to dispose of waste in Coral Harbour, alternate arrangements will be made to dispose of the wastes at an approved facility.

Camp

For any field program with a camp, Vale will use a modified burn barrel to incinerate paper products, paperboard packaging, untreated wood, food wastes, and food packaging as described in the Government of Nunavut's *Guideline for the Burning and Incineration of Solid Waste* (GN 2010). All other non-hazardous wastes will be packaged and flown to Coral Harbour for disposal in the hamlet landfill, if all necessary tipping fees and access are in place with the hamlet.

For seasonal camp closure, all ash will be removed from the modified burn barrel and disposed in a natural depression or pit at a minimum 31 m away from water bodies. The soil under and surrounding the modified burn barrel will be inspected for contamination.

Sewage will be incinerated using incineration toilets or contained using Pacto toilets. Greywater from the camp will be directed to a sump or natural depression at a minimum 31 m from a water body.



CLOSURE AND RESTORATION PLAN

3.2.5 Water System

Pumps, tanks, and hoses will be drained, dismantled, packaged, and stored. Hoses will be rolled up and stored.

3.2.6 Contamination Clean Up

Contaminated soil or water at the drill sites or the camp will be treated as described in the *Spill Contingency Plan* (Golder 2011). Photographs before, during, and after the clean-up will be taken and all clean-up activities will be documented.

3.2.7 Documentation and Inspection

Prior to seasonal closure of the site, all remaining equipment and buildings will be inventoried, locations recorded, and photographed. All areas disturbed by the field program, (e.g., drill sites, fuel cache, camp) will be inspected prior to closure for the season. Records of the inspections will be kept in the project file.

3.3 Final Closure and Restoration

3.3.1 Building and Contents

All reusable equipment such as tents, tent frames, stoves, beds, shower etc. will be dismantled and removed from the site. All consumables associated with camp construction, such as nails, screws, anchors etc. will be recovered where possible, packaged, and flown out with other non-hazardous solid waste for disposal.

3.3.2 Drill Locations

All drill and ancillary equipment will be dismantled, packaged and removed from the site. All drill locations will be inspected immediately after completion of the drill hole. All waste will be collected and taken to camp for incineration or removed to an approved disposal facility. All sumps will be backfilled and each drill collar will be cut off to ground level. All efforts will be made to contour the sump backfill to pre-existing conditions. At each drill site the surrounding soil will be inspected for potential contamination.

3.3.3 Fuel Storage

All remaining fuel drums and empty drums will be removed from the site. The soil under and surrounding the fuel cache will be thoroughly inspected for any contamination, and photographs will be taken. Locations where fuel was stored at the drill sites will be inspected during the drill location inspection. Any contaminated soil will be treated according to the *Spill Contingency Plan* (Golder 2011).

3.3.4 Waste

No Camp

For any field program with no camp associated with it, all solid wastes will be contained, packaged, and flown out to Coral Harbour. All non-hazardous wastes will be disposed at the Hamlet of Coral Harbour landfill, if all necessary tipping fees and access are in place with the hamlet. If Vale is not permitted by the hamlet to dispose of waste in Coral Harbour, alternate arrangements will be made to dispose of the wastes at an approved facility.

Camp

For any field program with a camp, Vale will use a modified burn barrel to incinerate paper products, paperboard packaging, untreated wood, food wastes, and food packaging as described in the Government of Nunavut's *Environmental Guideline for the Burning and Incineration of Solid Waste* (GN 2010). All other non-hazardous



CLOSURE AND RESTORATION PLAN

wastes will be packaged and flown to Coral Harbour for disposal in the hamlet landfill, if all necessary tipping fees and access are in place with the hamlet.

For final camp closure, all ash will be removed from the modified burn barrel and disposed in a natural depression or pit at a minimum 31 m away from water bodies. The modified burn barrel will be dismantled and removed from the site. The soil under and surrounding the modified burn barrel will be inspected for contamination.

Sewage will be incinerated using incineration toilets or contained using Pacto toilets. Greywater from the camp will be directed to a sump or natural depression at a minimum 31 m from a water body.

3.3.5 Water System

Pumps, tanks, and hoses will be drained, dismantled, packaged, and removed from the site. Hoses will be rolled up and removed from site.

3.3.6 Contamination Clean Up

Any contaminated soil or water identified during the closure inspections will be treated according to the *Spill Contingency Plan* (Golder 2011). Photographs will be taken, before, during, and after the clean up.

3.3.7 Documentation and Inspection

Prior to final closure of the site, a complete inspection of all disturbed areas will be conducted. The inspection will include recording locations of all disturbed areas (including coordinates), photographing all disturbed areas, and documenting a description of the area. Information gathered during the final inspection will be used to write a final closure and restoration report. The report will be distributed to the regulatory agencies as required by the project permits and licence. The final closure and restoration report will also include site maps showing the locations of all drill waste sumps, greywater sump, ash disposal area, camp location, and fuel cache location.

3.4 Site Map

At this time, the drill locations, fuel cache location, and potential camp location are unknown for the project. Vale will include site diagrams of the drill locations, fuel cache location, and potential camp location and layout with annual reporting requirements associated with permits and licence for the project.

A site map of the Project on Southampton Island can be found in Appendix A.

4.0 REFERENCES

Golder. 2011. Spill Contingency Plan, Southampton Island Project. Submitted to Vale Explorations Canada June 2011.

GN (Government of Nunavut). 2010. Environmental Guideline for the Burning and Incineration of Solid Waste. Department of the Environment. Iqaluit, Nunavut. Available on-line:
http://env.gov.nu.ca/sites/default/files/guideline_-_burning_and_incineration_of_solid_waste_1010.pdf



Report Signature Page

GOLDER ASSOCIATES LTD.

Sarah Gagné, P.Eng.
Project Manager

Corey De La Mare, B.Sc., P.Biol.
Associate, Project Director

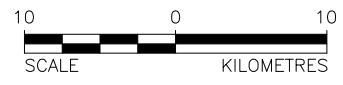
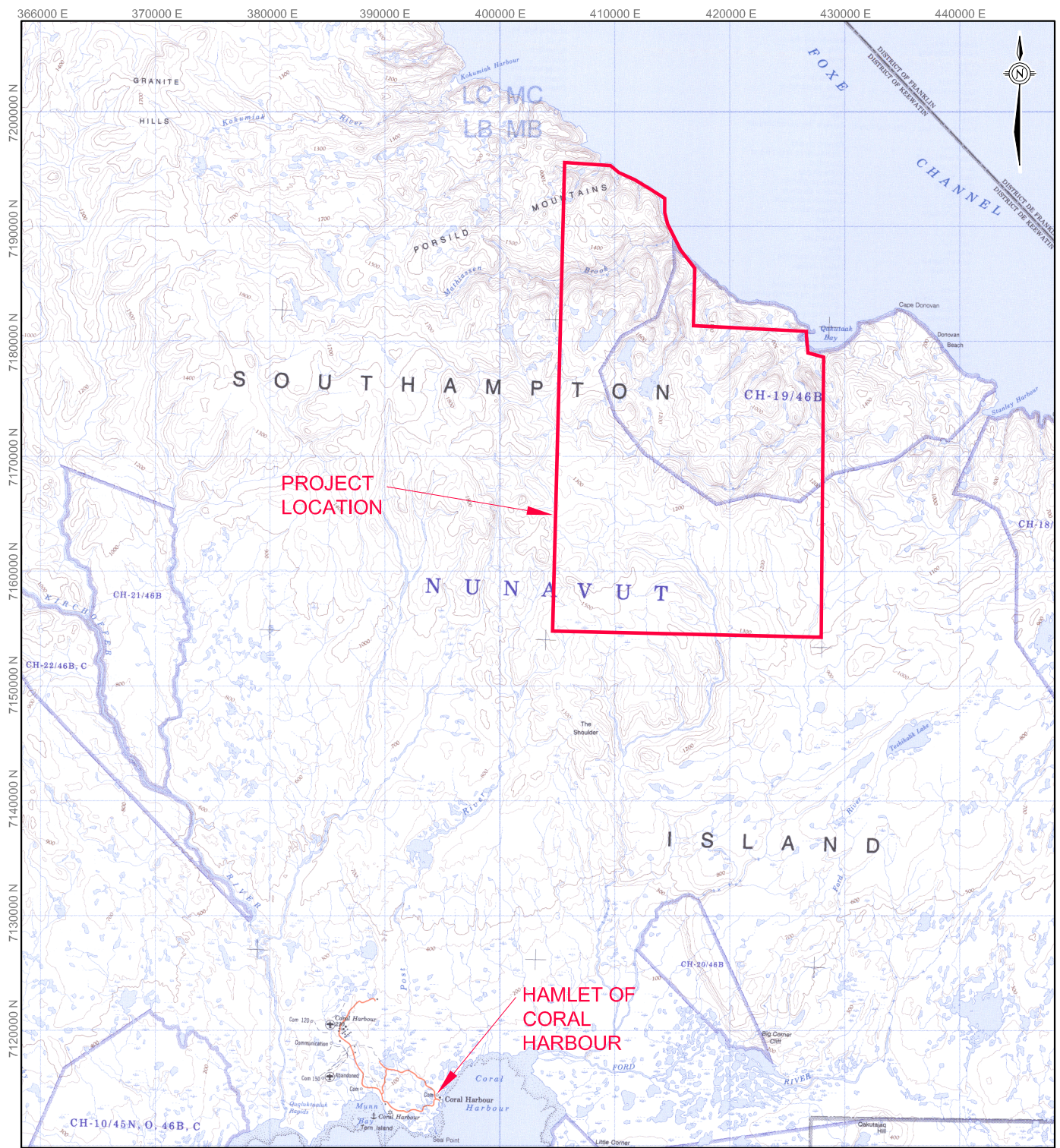
SG/CD/bh


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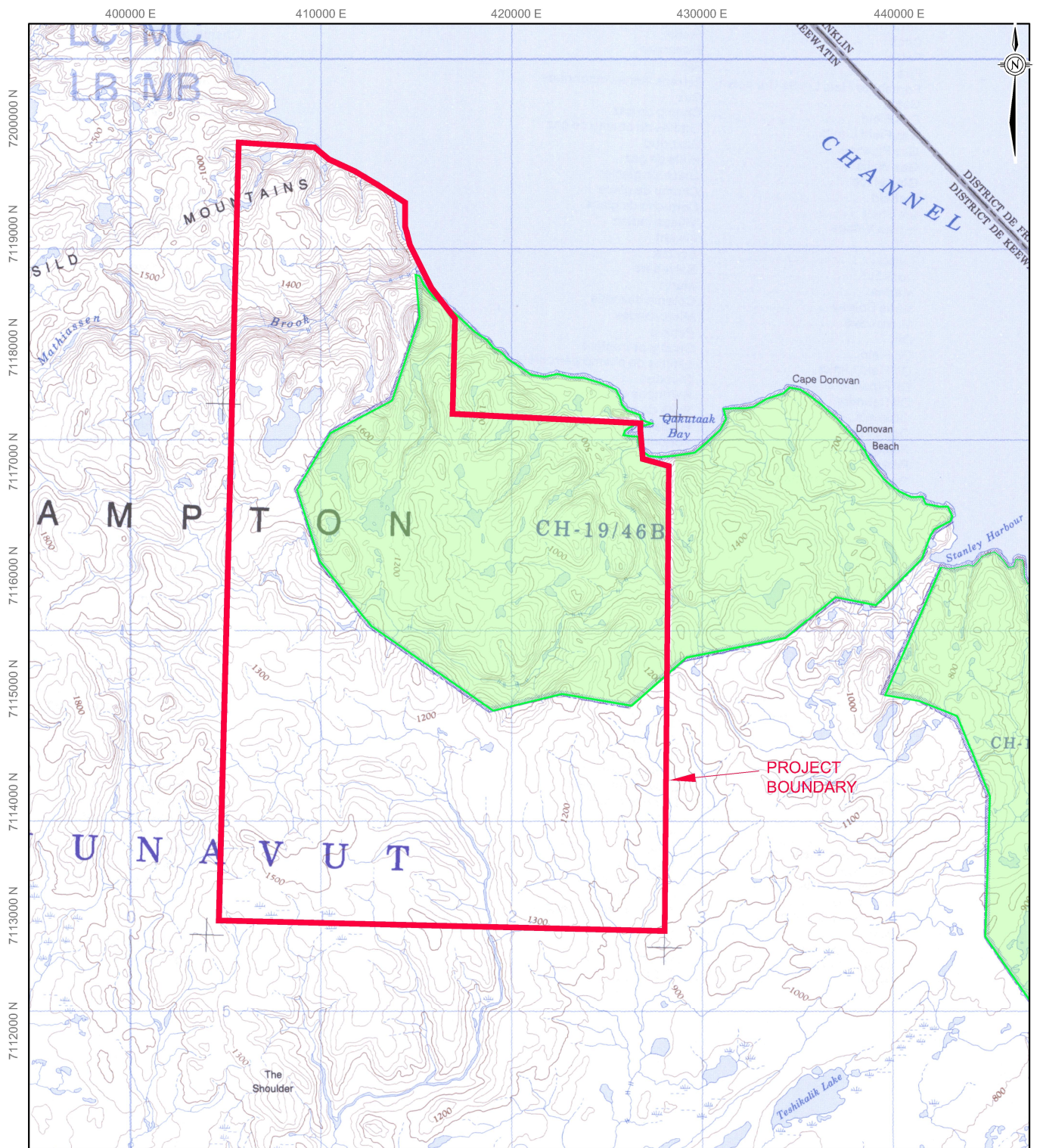
APPENDIX A

Site Map



PROJECT	CORAL HARBOUR AREA SOUTHAMPTON ISLAND, NUNAVUT			
TITLE	PROJECT LOCATION MAP			
 Golder Associates Calgary, Alberta	PROJECT	11.1372.0019.1000	FILE No. 11137200191000A001	
	DESIGN	SG	31/05/11	SCALE AS SHOWN
	CADD	BSW	01/06/11	REV. 0
	CHECK	CD	15/06/11	FIGURE: 1
REVIEW		EM	23/06/11	

REFERENCE
TOPOGRAPHIC MAPS 46B AND 46G OBTAINED FROM CANMATRIX. © 1986 AND 1995 (RESPECTIVELY) HER MAJESTY THE QUEEN IN RIGHT OF CANADA. DEPARTMENT OF NATURAL RESOURCES. ALL RIGHTS RESERVED. DATUM: NAD83 PROJECTION: UTM ZONE 17.



LEGEND

- PROJECT BOUNDARY
- CROWN LAND
- INUIT OWNED LAND



REFERENCE

TOPOGRAPHIC MAPs 46B AND 46G OBTAINED FROM CANMATRIX. © 1986 AND 1995 (RESPECTIVELY) HER MAJESTY THE QUEEN IN RIGHT OF CANADA. DEPARTMENT OF NATURAL RESOURCES. ALL RIGHTS RESERVED. DATUM: NAD83 PROJECTION: UTM ZONE 17.

PROJECT

CORAL HARBOUR AREA
SOUTHAMPTON ISLAND, NUNAVUT

TITLE

SITE MAP



PROJECT	11.1372.0019.1000	FILE No.11137200191000A002
DESIGN	SG	31/05/11
CADD	BSW	01/06/11
CHECK	CD	15/06/11
REVIEW	EM	23/06/11
SCALE	AS SHOWN	REV. 0

FIGURE: 2

At Golder Associates we strive to be the most respected global company providing consulting, design, and construction services in earth, environment, and related areas of energy. Employee owned since our formation in 1960, our focus, unique culture and operating environment offer opportunities and the freedom to excel, which attracts the leading specialists in our fields. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees who operate from offices located throughout Africa, Asia, Australasia, Europe, North America, and South America.

Africa	+ 27 11 254 4800
Asia	+ 86 21 6258 5522
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

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www.golder.com

Golder Associates Ltd.
#300, 10525-170 St.,
Edmonton, Alberta, T5P 4W2
Canada
T: +1 (780) 483 3499





MATERIAL SAFETY DATA SHEET

Bentonite

Section 01 - Chemical And Product And Company Information

Product Identifier Wyoming Gel

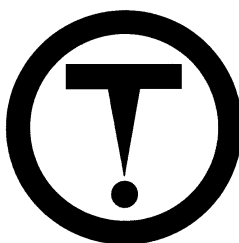
Product Use Oil well drilling fluid additive

Supplier Name..... ClearTech Industries Inc.
2302 Hanselman Avenue
Saskatoon, SK. Canada
S7L 5Z3

Prepared By..... ClearTech Industries Inc. Technical Department
Phone: (306)664-2522

Preparation Date..... February 16, 2010

24-Hour Emergency Phone..... 306-664-2522



Section 02 - Composition / Information on Ingredients

Hazardous Ingredients	Bentonite	94-98%
	Quartz, crystalline silica	2-6%
CAS Number	Bentonite	1302-78-9
	Quartz, crystalline silica	14808-60-7
Synonym (s)	Bentonite, bentonite clay, montmorillonite	



Section 03 - Hazard Identification

- Inhalation**..... Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage is occurring. Inhalation may cause irritation of the nose, throat, and respiratory passages. Long term inhalation may cause silicosis, a progressive, disabling, and sometimes fatal lung disease. Symptoms include cough, shortness of breath, wheezing, non-specific chest illnesses and reduced pulmonary function.
- Skin Contact / Absorption**..... Possible drying resulting in dermatitis.
- Eye Contact**..... Dust may cause eye irritation.
- Ingestion**..... No adverse effects expected.
- Exposure Limits**..... ACGIH/TLV: 0.05mg/m³ (quartz)

Section 04 - First Aid Measures

- Inhalation**..... Remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist.
- Skin Contact / Absorption**..... Remove contaminated clothing. Wash affected area with soap and water. Seek medical attention if irritation occurs or persists.
- Eye Contact**..... Flush immediately with water for at least 20 minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye tissue. Seek immediate medical attention.
- Ingestion**..... Material is non-toxic. However, seek medical attention if any symptoms or discomfort appear.
- Additional Information**..... None

Section 05 - Fire Fighting

- Conditions of Flammability**..... Non-flammable
- Means of Extinction**..... Does not burn. Use appropriate means of extinction for cause of fire with the exception of water as product becomes very slippery in contact with water.



Flash Point.....Not applicable

Auto-ignition Temperature..... Not applicable

Upper Flammable Limit Not applicable

Lower Flammable Limit.....Not applicable

Hazardous Combustible Products.... Not available

Special Fire Fighting Procedures..... Wear NIOSH-approved self-contained breathing apparatus and protective clothing.

Explosion Hazards.....None

Section 06 - Accidental Release Measures

Leak / Spill.....Wear an approved respirator. Vacuum if possible to avoid generating airborne dust. Collect uncontaminated material for repackaging. Collect contaminated material in an approved container for disposal. Avoid adding water as product will become slippery when wet.

Deactivating Materials..... None

Section 07 - Handling and Storage

Handling Procedures..... Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure.

Storage Requirements..... Store in a cool, dry, well-ventilated place. Keep container tightly closed.

Section 08 - Personal Protection and Exposure Controls

Protective Equipment

Eyes.....Chemical goggles, full-face shield, or a full-face respirator is to be worn at all times when product is handled. Contact lenses should not be worn; they may contribute to severe eye injury.



- Respiratory**..... Always wear an approved dust mask for levels below the TLV. Use NIOSH/MSHA approved respirators for silica bearing dust if airborne concentrations exceed the TLV.
- Gloves**..... Impervious gloves of chemically resistant material generally are not required other than what is mandated at place of work. Wash contaminated clothing and dry thoroughly before reuse.
- Clothing**..... Body suits, aprons, and/or coveralls of chemical resistant material should be worn. Wash contaminated clothing with soap and water, dry thoroughly before reuse.
- Footwear**..... No special footwear is required other than what is mandated at place of work.

Engineering Controls

- Ventilation Requirements**..... Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions should be provided. Supply sufficient replacement air to make up for air removed by exhaust systems.
- Other**..... Keep an eye wash fountain and safety shower available and in close proximity to work area.

Section 09 - Physical and Chemical Properties

- Physical State**..... Solid
- Odor and Appearance**..... Light tan to grey odourless powder or granules
- Odor Threshold**..... Not applicable
- Specific Gravity (Water=1)**..... 2.45-2.55
- Vapor Pressure (mm Hg, 20C)**..... Not applicable
- Vapor Density (Air=1)**..... Not applicable
- Evaporation Rate**..... Not available
- Boiling Point**..... Not applicable
- Freeze/Melting Point**..... 1450°C
- pH**..... 8-10 (5% suspension)
- Water/Oil Distribution Coefficient**..... Not available



Bulk Density..... 881 kg/m³
% Volatiles by Volume..... Not applicable
Solubility in Water..... Insoluble
Molecular Formula..... Not available
Molecular Weight..... Not available

Section 10 - Stability and Reactivity

Stability..... Stable
Incompatibility..... No incompatible substances known
Hazardous Products of Decomposition.. None
Polymerization..... Will not occur

Section 11 - Toxicological Information

Irritancy..... Respiratory irritant
Sensitization..... Not available
Chronic/Acute Effects..... See notes under Inhalation in Section 3.
Synergistic Materials..... Not available
Animal Toxicity Data..... Not available
Carcinogenicity..... Inhaled crystalline silica is classified as carcinogenic to humans by IARC and NTP (Class 1) as well as ACGIH (A2) as a suspected human carcinogen. Bentonite is not listed as a carcinogen by IARC, ACGIH, OSHA and NTP.
Reproductive Toxicity..... Not available
Teratogenicity..... Not available
Mutagenicity..... Crystalline silica has been shown to cause mutagenic effects in human cells (in-vitro).



Section 12 - Ecological Information

Fish Toxicity..... Not available

Biodegradability..... Not available

Environmental Effects..... Not available

Section 13 - Disposal Consideration

Waste Disposal..... Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

Section 14 - Transportation Information

TDG Classification

Class..... Not regulated

Group..... Not regulated

PIN Number..... Not regulated

Other..... Secure containers (full and/or empty) with suitable hold down devices during shipment.

Section 15 - Regulatory Information

WHMIS Classification.....D2

NOTE: THE PRODUCT LISTED ON THIS MSDS HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN CONTROLLED PRODUCTS REGULATIONS. THIS MSDS CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

Section 16 - Other Information

Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

Attention: Receiver of the chemical goods / MSDS coordinator

As part of our commitment to the Canadian Association of Chemical Distributors (CACD) Responsible Distribution® initiative, ClearTech Industries Inc. and its associated companies require, as a condition of sale, that



you forward the attached Material Safety Data Sheet(s) to all affected employees, customers, and end-users. ClearTech will send any available supplementary handling, health, and safety information to you at your request.

If you have any questions or concerns please call our customer service or technical service department.

ClearTech Industries Inc. - Locations

Corporate Head Office: 2302 Hanselman Avenue, Saskatoon, SK, S7L 5Z3

Phone: 306-664-2522

Fax: 306-665-6216

www.ClearTech.ca

Location	Address	Postal Code	Phone Number	Fax Number
Richmond, B.C.	12431 Horseshoe Way	V7A 4X6	604-272-4000	604-272-4596
Calgary, AB.	5516E - 40 th St. S.E.	T2C 2A1	403-279-1096	403-236-0989
Edmonton, AB.	11750 - 180 th Street	T5S 1N7	780-452-6000	780-452-4600
Saskatoon, SK.	2302 Hanselman Avenue	S7L 5Z3	306-933-0177	306-933-3282
Regina, SK.	555 Henderson Drive	S42 5X2	306-721-7737	306-721-8611
Winnipeg, MB.	340 Saulteaux Crescent	R3J 3T2	204-987-9777	204-987-9770
Mississauga, ON.	7480 Bath Road	L4T 1L2	905-612-0566	905-612-0575

24 Hour Emergency Number - All Locations - 306-664-2522

Appendix D – Golder Authorization Letter

June 28, 2011

Project No. 1113720019

Thomas Kabloona, Chair
Nunavut Water Board
P.O. Box 119
Gjoa Have, Nunavut X0B 1J0

WATER LICENCE APPLICATION - AGENT AUTHORIZATION

Dear Mr. Kabloona,

On behalf of Vale Exploration Canada Inc. (Vale), I hereby authorize Golder Associates Ltd. (Golder) to act as Vale's agent in the submission of a Water Licence Application to the Nunavut Water Board (NWB), as well as engage in any necessary communications with NWB to facilitate the aforementioned application.

Please contact me at 705-682-8412 or by email at Everett.makela@vale.com or Sarah Gagné (Golder) at 780-930-8654 or by email at sarah_gagne@golder.com if further information is required.

VALE EXPLORATION CANADA LTD.



Danielle Leger
Administrative Supervisor for,

Everett Makela, P.Geo
Principal Geologist – North America

CC: Sarah Gagné, P.Eng.
Project Manager
Golder Associates Ltd.
10525 170 Street NW
Edmonton, AB T5P 4W2
E-mail: sarah_gagne@golder.com
Telephone: 780-930-8654

SG/EB/CD/bh



Appendix E - Evidence of Registration of the Company Name



Industry Canada

Industrie Canada

Certificate
of Incorporation

Canada Business
Corporations Act

Certificat
de constitution

Loi canadienne sur
les sociétés par actions

CVRD Exploration Canada Inc.

673460-0

Name of corporation-Dénomination de la société

Corporation number-Numéro de la société

I hereby certify that the above-named corporation, the articles of incorporation of which are attached, was incorporated under the *Canada Business Corporations Act*.

Je certifie que la société susmentionnée, dont les statuts constitutifs sont joints, a été constituée en société en vertu de la *Loi canadienne sur les sociétés par actions*.

Richard G. Shaw
Director - Directeur

March 12, 2007 / le 12 mars 2007

Date of Incorporation - Date de constitution



Industry Canada

Industrie Canada

Certificate
of Amendment

Certificat
de modification

Canada Business
Corporations Act

Loi canadienne sur
les sociétés par actions

Vale Exploration Canada Inc.

673460-0

Name of corporation-Dénomination de la société

Corporation number-Numéro de la société

I hereby certify that the articles of the
above-named corporation were amended:

Je certifie que les statuts de la société
susmentionnée ont été modifiés:

- a) under section 13 of the Canada
Business Corporations Act in
accordance with the attached notice;
- b) under section 27 of the Canada
Business Corporations Act as set out in
the attached articles of amendment
designating a series of shares;
- c) under section 179 of the Canada
Business Corporations Act as set out in
the attached articles of amendment;
- d) under section 191 of the Canada
Business Corporations Act as set out in
the attached articles of reorganization;

- ☐ a) en vertu de l'article 13 de la Loi
canadienne sur les sociétés par
actions, conformément à l'avis ci-joint;
- ☐ b) en vertu de l'article 27 de la Loi
canadienne sur les sociétés par
actions, tel qu'il est indiqué dans les
clauses modificatrices ci-jointes
désignant une série d'actions;
- ☒ c) en vertu de l'article 179 de la Loi
canadienne sur les sociétés par
actions, tel qu'il est indiqué dans les
clauses modificatrices ci-jointes;
- ☐ d) en vertu de l'article 191 de la Loi
canadienne sur les sociétés par
actions, tel qu'il est indiqué dans les
clauses de réorganisation ci-jointes;

Richard G. Shaw
Director - Directeur

April 24, 2008 / le 24 avril 2008

Date of Amendment - Date de modification