



**NWB LICENCE No. 2BE-PBP1520 – Amendment No. 1**

**2018 REPORT OF ACTIVITIES**

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## **Water Licence 2BE-PBP1520 – Amendment No. 1 Northquest Ltd.**

### **Executive Summary of Report on 2018 Activities**

The Pistol Bay Project camp was opened on June 27<sup>th</sup> by Nordgold (Northquest Ltd.) personnel.

The camp is comprised of turn-key style Weatherhaven tents for accommodation, office and storage as well as plywood buildings for the kitchen, core logging facility, generator shacks and drillers' change room ("dry"). As a result, only a few hours of work were required to make the camp fully operational. The camp was in operation from June 27<sup>th</sup> to July 27<sup>th</sup>, 2018.

The number of personnel in camp reached a maximum of 11 during the busiest portion of the program. Personnel consisted, from time to time, of 4 geologists, 1 surveyor, 1 camp manager, 1 pilot, 1 communications technician, 3 camp/field assistants, and 1 kitchen staff that also served as the qualified medic. Due to duration requirements for some activities not all of the personnel listed herein were present all of the time.

Matrix Aviation Solutions Inc., ("Matrix") was contracted to provide the camp cook that also served as the qualified medic. A CasCom technician re-established the on-site communications system.

The camp/field assistants were hired from Whale Cove. A total of five Whale Cove residents were used to fill these positions at various times during the field season.

The F250 pick-up truck, that has been on-site since 2013, was utilized to make trips to Whale Cove to deliver garbage and pick up groceries and fuel. As well, it was utilized to transport locally hired employees during crew rotations.

The pick-up truck and ATVs were also used by field crews to access areas being worked by travel on well-established roads and trails.

A Bell Long Ranger, and a Bell Jet Ranger helicopter operated by Custom Helicopters ("Custom") was occasionally on site to transport field crews and samples during the busiest part of the program. The helicopter pilot was accommodated in the camp for several days at a time.

The camp drew drinking and wash water from a nearby pond. A total of 38.138 cubic metres of water were utilized during the 31 days of operation. Camp water consumption averaged 1.230 cubic metres per day.

All non-hazardous waste including most paper and cardboard was transported to the Whale Cove municipal dump by truck every few days during the program.

One hundred twenty six 50 kg bags of CaCl are stored inside a Weatherhaven tent on the Vickers Prospect. This tent is also used for storage of other equipment, and serves as an emergency shelter for personnel working on the Vickers Prospect.

A total of 32 drums of Jet A-1 fuel, seven drums of fuel suitable for use in drill water heaters, two drums of waste oil and 24 empty drums are currently stored near the base camp generator in a tarpaulin covered fuel berm.

In addition there are a total of 220 full 100 lb propane cylinders, 75 partial 100 lb propane cylinders, 87 empty 100 lb propane cylinders and 199 empty fuel drums stored at the base camp.

A total of 54 drums of Jet A-1 fuel and eight empty drums are currently stored near the base camp helipad in a tarpaulin covered fuel berm. There are 161 drums of Jet A-1 fuel stored at a road accessible staging area within 2 km of the Pistol Bay project camp in a tarpaulin covered fuel berm.

Written authorization allowing Northquest Ltd., to store empty fuel drums and drums containing waste oil at the Whale Cove airport was obtained from the Hamlet of Whale Cove on March 16, 2016; written authorization is presented herein on page 20.

During late September to early October of 2017 all of the empty fuel drums at the designated location at the Whale Cove airport were crushed and loaded into sea containers. In mid-October 2017 all drums and were removed from the designated area at the Whale Cove airport; no drums or propane cylinders were stored there at any time in 2018.

All grey-water generated in camp was dumped into a sump containing perforated drums and rocks within a pit dug in sand.

Sewage was contained in pits dug beneath the three outhouses.

No unauthorized discharges occurred in 2018.

A log of wildlife observations was made during the 2018 field season and is included herein.

Drill casings and anchors at the Bannock, Defender, Bazooka, Howitzer, Pistol, Sako, Cooey as well as the Vickers and Car targets were cut off below ground level during July 2018 and the sites were cleared of all debris.

ΔΛΓΥ ΓΛΥΦ 2BE-PB1520 - ΔΙΕΥΘΥΝΣΗ 1 Northquest Ltd.-d.

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መፅደቃ ላሊኛ ዘጳርጥ፡ ልጎችን ለማስተምር ልማትና ልማት ለማስተምር ልማትና ልማት.

ኛድርገታችሁ ላይ Custom Helicopter-ዎን (“Custom”) ካልጠየቁ በየክፍለው ላይ የተጻፉትን አስተያየት ለማሰብ ይችላሉ።

ለጥራት ልዩነት ምርመራ ለማድረግ የሚያስፈልገው የውሃ ምግብ 38.138 cubic ፎርም ልዩነት ለማድረግ 31 ዓመት ልዩነት የሚያስፈልግ ነው። ወደፊት ልዩነት 1.230 cubic ፎርም ዓመት ልዩነት ለማድረግ ነው።

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**NWB Annual Report****Year being reported:**

2018

Select ▼

**License No:**

2BE-PBP1520/Amendment No.1

**Issued Date:**

July 27, 2017

**Expiry Date:**

July 22, 2020

**Project Name:**

Pistol Bay

**Licensee:**

Northquest Ltd.

**Mailing Address:**

Suite 301 - 82 Richmond Street East  
 Toronto  
 Ontario, Canada  
 M5C 1P1

**Name of Company filing Annual Report (if different from Name of Licensee please****General Background Information on the Project (\*optional):****Licence Requirements: the licensee must provide the following information in accordance with**

Select ▼

Select ▼

**A summary report of water use and waste disposal activities, including, but not limited to: methods of obtaining water; sewage and greywater management; drill waste management; solid and hazardous waste management.**

Water Source(s):

Water Quantity:

5.00 / day

1.23 / day

295.00 / day

0.00 / day

Quantity Allowable Domestic (cu.m)

Actual Quantity Used Domestic (cu.m)

Quantity Allowable Drilling (cu.m)

Total Quantity Used Drilling (cu.m)

**Waste Management and/or Disposal**☐ Solid Waste Disposal☐ Sewage☐ Drill Waste☐ Greywater☐ Hazardous☐ Other:

Additional Details:

**A list of unauthorized discharges and a summary of follow-up actions taken.**

Spill No.:  (as reported to the Spill Hot-line)

Date of Spill:

Date of Notification to an Inspector:

Additional Details: (impacts to water, mitigation measures, short/long term monitoring, etc)

**Revisions to the Spill Contingency Plan**

Select

**Revisions to the Abandonment and Restoration Plan**

Select



Additional Details:

**Progressive Reclamation Work Undertaken**

Additional Details (i.e., work completed and future works proposed)

**Results of the Monitoring Program including:**

The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where sources of water are utilized;

Select





Additional Details:

**The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where wastes associated with the licence are deposited;**

Additional Details:

**Results of any additional sampling and/or analysis that was requested by an Inspector**

Additional Details: (date of request, analysis of results, data attached, etc)

**Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.**

Additional Details: (Attached or provided below)

**Any responses or follow-up actions on inspection/compliance reports**

Additional Details: (Dates of Report, Follow-up by the Licensee)

**Any additional comments or information for the Board to consider**

--

**Date Submitted:**December 05,  
2018**Submitted/Prepared by:**

Stanley Robinson

**Contact Information:****Tel:** 1-416-306-0954**Fax:****email:** [stan.robinson@ca.inter.net](mailto:stan.robinson@ca.inter.net)**GPS Coordinates for water sources utilized**

Source Description	Latitude			Longitude		
	Deg °	Min '	Sec "	Deg °	Min '	Sec "
Camp Water	62	20	58.0	92	44	47.0

**GPS Locations of areas of waste disposal**

Location Description (type)	Latitude			Longitude		
	Deg °	Min '	Sec "	Deg °	Min '	Sec "
Kitchen and Shower Sump	62	21	0.0	92	44	58.0
Outhouse Pit	62	21	0.8	92	45	0.6
Outhouse Pit	62	21	0.6	92	44	59.9
Outhouse Pit	62	21	0.5	92	44	59.8

**Detailed Summary of Activities as per item 2 of PART B**

Northquest Ltd's., Pistol Bay camp was in operation from June 27<sup>th</sup> to July 27<sup>th</sup>, 2018. The Water usage was limited to the camp; diamond drilling was not carried out.

- 2.a. The camp obtained drinking and washing water from a nearby pond and utilized 38.138 cubic metres during the 31 days of operation, averaging an estimated 1.230 cubic metres per day; the flow metre broke on the second day, hence tank volume markings were used to estimate volume of water pumped each day. A table of the log recording daily use is provided in Appendix 1.

All non-hazardous waste, including some paper and cardboard was transported to the Whale Cove municipal dump by truck every few days during the program. A table of the log recording quantities of trash and dates of transport is provided in Appendix 1.

One hundred twenty six 50 kg bags of Calcium Chloride (CaCl) are stored inside a Weatherhaven tent on the Vickers Prospect. This tent is used for storage of other equipment, and it also serves as an emergency shelter for personnel working on the Vickers Prospect.

A total of 32 drums of Jet A-1 fuel and seven drums of fuel suitable for use in drill water heaters and two drums of waste oil as well as 24 empty drums are currently stored at the base camp in a tarpaulin covered fuel berm near the generator.

Two hundred twenty full 100 lb cylinders of propane are currently stored at the northwest corner of the base camp. In addition, seventy five partial, in service, 100 lb cylinders are in various locations in the base camp.

54 drums of Jet A-1 fuel and eight empty drums are stored in a tarpaulin covered berm near the helipad at the base camp.

161 drums of Jet A-1 are stored in a tarpaulin covered berm at the staging laydown area on the road south of camp.

87 empty propane cylinders are stored at the north side of the camp.

199 fully drained fuel drums are stacked at the north side of the base camp.

Written authorization to store empty fuel drums, and drums with waste oil at a designated area at the Whale Cove airport was obtained from the Hamlet of Whale Cove on March 16, 2016 and it is presented herein on page 20.

The designated area at the Whale Cove airport was cleared of all empty drums, drums of waste oil and empty propane cylinders in October 2017; no drums or propane cylinders have been stored there since October 2017.

All grey-water was dumped into a sump containing five perforated drums and rocks within a pit dug in sand.

Sewage was contained in pits dug beneath the outhouses.

- 2.b. No unauthorized discharges occurred in 2018.
- 2.c. Revisions were made to the Spill Contingency Plan and Abandonment and Restoration Plan in 2015, 2017 and 2018. For the purpose of completeness the plans are provided herein in Appendices 4 and 5 respectively.
- 2.d. Drill hole anchors and casings were cut off below ground level on each target drilled. Maps of the drill sites are presented in Appendix 8. Photographs of the drill sites before and after the anchors and casings were cut off are provided as .pdf's only in Appendix 9.
- 2.e. No artesian flow occurrences were noted during the drilling.
- 2.f. Photographs of the camp water supply pump site are presented in Appendix 7.
- 2.g. Monitoring was not requested. Therefore, no monitoring results are provided.

## Map of Property

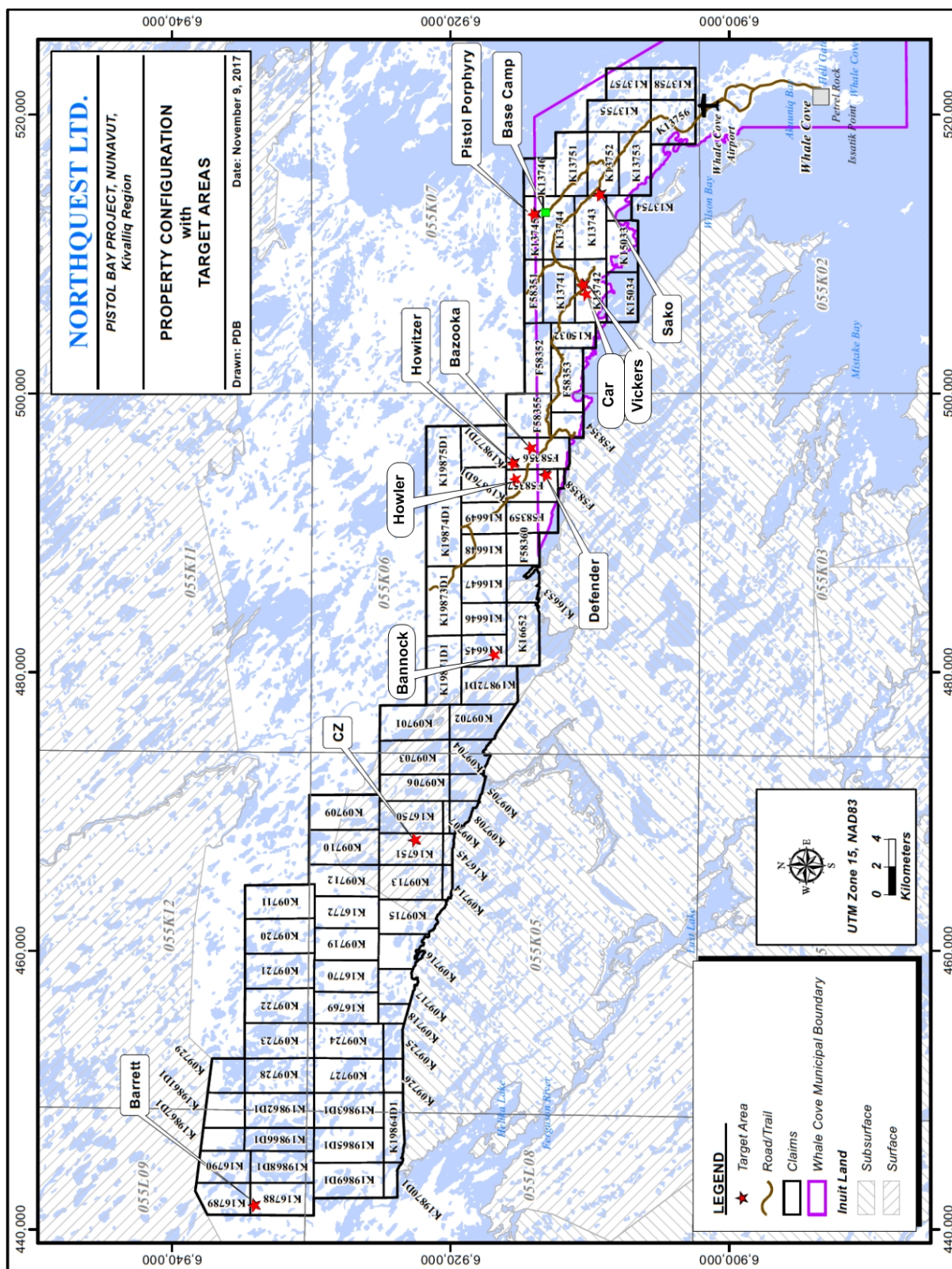


Figure 1. Claim Map, Exploration Targets and Camp Location.



### Sketch Map of Camp Layout

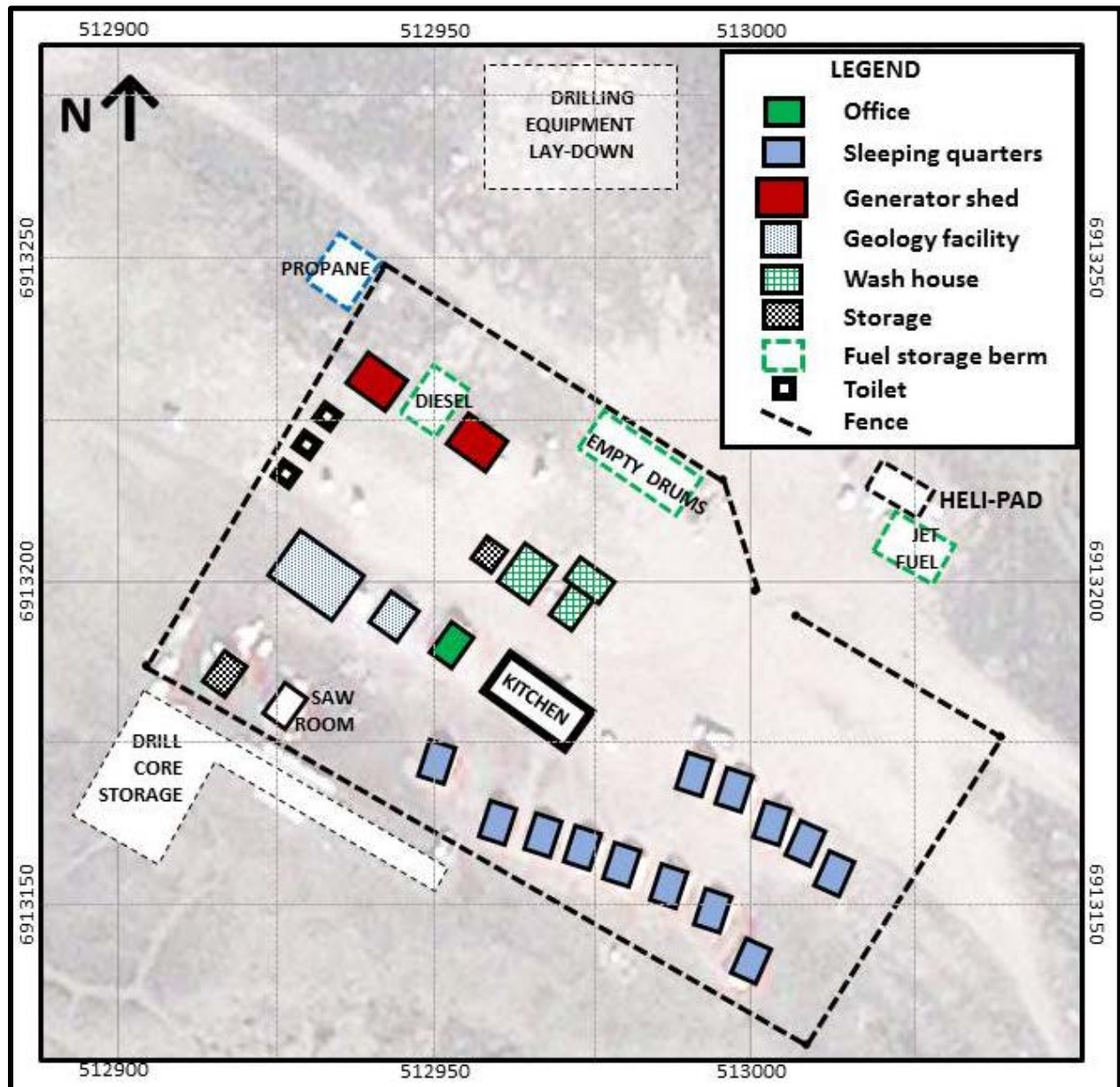


Figure 2. Sketch Map of Camp Layout.

## **APPENDIX 1**

### **TABLES RECORDING WATER USE AND GARBAGE DISPOSAL**

- DAILY WATER USE RECORDS
  - Camp Water
- Hamlet of Whale Cove Letter: Waste Management for Nordgold's Camp
- GARBAGE DISPOSAL RECORDS

**Daily Camp Water Use Record – 2018  
Pistol Bay Project Camp**

<b>JUNE</b>		<b>Monthly total 6.15 m3</b>		
		<b>Maximum 2.46 m3</b>		
		<b>Average daily use 1.54 m3</b>		
<b>Date</b>	<b>Reading</b>	<b>Net US Gal</b>	<b>Net m<sup>3</sup></b>	<b>Notes</b>
27-Jun	650	650	2.461	camp opened
28-Jun	975	325	1.230	
29-Jun	1300	325	1.230	
30-Jun	1625	325	1.230	
<b>JULY</b>		<b>Monthly total 31.99 m3</b>		
		<b>Maximum 1.23 m3</b>		
		<b>Average daily use 1.18 m3</b>		
<b>Date</b>	<b>Reading</b>	<b>Net US Gal</b>	<b>Net m<sup>3</sup></b>	<b>Notes</b>
01-Jul	1950	325	1.230	
02-Jul	2275	325	1.230	
03-Jul	2600	325	1.230	
04-Jul	2925	325	1.230	
05-Jul	3250	325	1.230	
06-Jul	3575	325	1.230	
07-Jul	3900	325	1.230	
08-Jul	4225	325	1.230	
09-Jul	4550	325	1.230	
10-Jul	4875	325	1.230	
11-Jul	5200	325	1.230	
12-Jul	5525	325	1.230	
13-Jul	5850	325	1.230	
14-Jul	6175	325	1.230	
15-Jul	6500	325	1.230	
16-Jul	6825	325	1.230	
17-Jul	7150	325	1.230	
18-Jul	7475	325	1.230	
19-Jul	7800	325	1.230	
20-Jul	8125	325	1.230	
21-Jul	8450	325	1.230	
22-Jul	8775	325	1.230	change water filter
23-Jul	9100	325	1.230	
24-Jul	9425	325	1.230	
25-Jul	9750	325	1.230	
26-Jul	10075	325	1.230	
27-Jul	10075	0	0.000	camp closed



**Daily Camp Water Use Record – 2018**  
**Pistol Bay Project Camp** *(continued)*

Dates Water Used for Camp in 2017	Number of Days	Total US gallons	Total cubic metres	Average Cubic Metres Per Day
June 27 – July 27	31	10,075	38.138	1.23

**Note:** The water meter broke on the second day, hence metres used was estimated by the volume graduation markings on the storage tanks and may differ slightly from actual metres used.

## HAMLET OF WHALE COVE

PO BOX 120  
WHALE COVE, NUNAVUT, X0C 0J0  
Telephone: (867) 896-9961 ~ Fax: (867) 896-9109



June 7, 2017

David Smith  
Exploration Manager, Canada  
Nordgold

### **Re: Waste Management for Nordgold's Camp**

Thank you for your letter of February 1, 2017. The only change that the Hamlet has made is to introduce under By-law a tipping fee of \$50.00 per truck load of camp wastes. We would also like to see Nordgold contribute to the maintenance and upgrading of the access road to the Wilson River(Akkuq). No other changes to the 2016 procedures are necessary at this time.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Ian Copland', is written over a faint, larger version of the same signature.

Ian Copland, SAO  
Hamlet of Whale Cove.

### Garbage Taken to Whale Cove Dump – 2018

During the 2018 exploration program, garbage was transported to the Whale Cove waste disposal site pursuant to the conditions of the Hamlet as set forth in a letter from the Hamlet of Whale Cove presented herein on the previous page (page 12).

The following table lists the dates that the Ford F250 Super Duty  $\frac{3}{4}$  ton pick-up truck with standard 8 foot box made a trip to the Whale Cove waste disposal site. Frequent trips were made, in part at least, to mitigate against kitchen waste attracting wildlife into camp. The truck box was generally not full of kitchen and camp waste.

<b>Pistol Bay Camp</b>					
<b>2018 Whale Cove Dump runs</b>					
<b>JUNE</b>			<b>JULY</b>		
<b>Date</b>	<b>Trips</b>	<b>Notes</b>	<b>Date</b>	<b>Trips</b>	<b>Notes</b>
29-Jun	1		04-Jul	1	
			10-Jul	1	
			16-Jul	1	
			23-Jul	1	
			24-Jul	1	
			25-Jul	2	
			27-Jul	1	estimate

## **APPENDIX 2**

### **Wildlife log**

Wildlife observations were recorded during the 2018 field season. The log is presented in the following page.

## Nordgold (Northquest Ltd) Pistol Bay Project) 2018

## Wildlife Log/Record of Observations

DATE	LOCATION	SPECIES	# OF ANIMALS	DESCRIPTION OF ACTIVITY/ACTION TAKEN	GENDER/AGE
2 July 2018	40 km west of camp	Caribou	30	grazing, wandering, laying down	
2 July 2018	5-30 km west of camp	Caribou	25	small groups of 2-5 animals	
July 2	C. Camp	Fox	1	NONE	Ad-Bd
July 4	SOUTH OF CAMP	Caribou	4	NONE	Ad-Bd
July 4	1 km east of camp	Arctic Hare	1	Running around	?
July 10	At Camp fence	Caribou	2	Checking out the camp	
July 10	18 km west of camp	"	1	Resting on snow bank	
July 12	@ Vickers	Caribou	162	resting, grazing, chewing cud	M/F w/
July 15	Camp	Caribou	5008	posting through, heading east	all
July 17	camp	wolverine	1	walking across water	?
July 17	Vickers	Caribou	2	heading west	
July 18	1 km east of camp	caribou	400	grazing, laying down, going west	mostly adult
July 19	Between Camp & Vickers	Caribou	20	Grazing, walking west. One possibly sick	Adults & Calves
"	Vickers	Fox	1	Checking us out	?
July 20	Camp / road / Vickers	Caribou	10	individual caribou wandering around	Adults
July 21	Road 2 km south of camp	Caribou	40	small group milling about	Adults
July 21	Pistol Bay north of camp	polar bear	2	reported by community members	?
July 24	along road	caribou	3	along road walking	2 adults + 1 kid
July 25	around camp	caribou	4	grazing	adults

### **APPENDIX 3**

#### **STORAGE OF CONTAINERS AND CONTAINER REMOVAL**

- Hamlet of Whale Cove Letter: Storage of Containers

# HAMLET OF WHALE COVE

PO BOX 120  
WHALE COVE, NUNAVUT, X0C 0J0  
Telephone: (867) 896-9961 ~ Fax: (867) 896-9109



16 March 2016

Northquest Ltd.  
50 Richmond Street East, Suite 101  
Toronto ON  
M5C 1N7

Attention: Dwayne Car

## Re: Storage of Containers

In response to your request it is agreed and understood that the Hamlet approves Northquest Ltd. to store empty fuel drums, (45 gallon) at the staging area of the Municipal Airport. The staging area is under the full control of Northquest.

It is understood that the drums have no residual fuel and are restricted to the staging area for storage pending ultimate removal.

It is further agreed that the staging area is approved to accept used oil stored in appropriate containers, prior to ultimate removal to Arviat. Any spillage or remedial work respecting spillage will be completed by Northquest after reporting said spills to the Government of Nunavut.

Yours truly

A handwritten signature in black ink, appearing to read 'Mike Richards', is written over a horizontal line.

Mike Richards  
SAO

The designated area at the airport was cleared of Northquest Ltd., material during the period of late September to early October 2017. No drums or propane cylinders were stored at the Whale Cove airport in 2018.



## **APPENDIX 4**

### **PHOTOGRAPHS OF JET A-1 FUEL IN BERMS FOR WINTER STORAGE**



Figure 3. Fuel berm, at the camp heli-pad, with Jet A-1 fuel stored for the winter



Figure 4. Fuel berm, at the camp generator shack, with diesel, gasoline, waste oil and water heater fuel stored for the winter



Figure 5. Aerial view of the fuel berm, at a road accessible staging area, with Jet A-1 fuel stored for the winter

## **APPENDIX 5**

### **SPILL CONTINGENCY PLAN**

**NORDGOLD (Northquest Ltd)**  
**SPILL CONTINGENCY PLAN**  
**FOR EXPLORATION CAMP AND DRILL SITES**  
**PISTOL BAY AREA, KIVALLIQ REGION**  
**NUNAVUT**

Prepared by: Dwayne Car

May 2015

Revision 1: Stanley Robinson

March 2017

Revision 2: Stanley Robinson

January 2018

Revision 3: Stanley Robinson

December 2018

NORDGOLD (Northquest Ltd.)  
Suite 101 - 50 Richmond Street East,  
Toronto, Ontario  
Canada M5C 1N7  
[www.nordgold.com](http://www.nordgold.com)

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## PREAMBLE

This Spill Contingency Plan is effective from the date of issuance of all water licences and land use permits currently being applied for by Nordgold (Northquest Ltd) on its Pistol Bay property located 15 km north of Whale Cove, Nunavut, until the expiry of said licences and permits.

The Spill Contingency Plan was prepared in May 2015 for internal company use and distributed to regulators for approval as part of Nordgold (Northquest Ltd)'s Land Use and Water Licence permits.

This version dated December 2018 reflects project updates since March 2016.

## 1.0 INTRODUCTION

The purpose of Nordgold (Northquest Ltd.)'s Spill Contingency Plan is to provide a plan of action for any spill event during the Company's exploration program in the Pistol Bay area of Nunavut. This Plan provides the protocol for responding to spills (or potential spills) that will minimize health and safety hazards, environmental damage and clean-up costs as well as defining responsibilities of response personnel. This Spill Contingency Plan details the sites that operations will be conducted upon, describes the response organizations, action plans, reporting procedures and training exercises in place.

*The Spill Contingency Plan will;*

- *Promote the safe and careful use of potentially hazardous materials;*
- *Promote the safe and effective recovery of spilled potentially hazardous materials;*
- *Minimize the environmental impacts of spills to water or land;*
- *Identify roles, responsibilities and reporting procedures for spill events;*
- *Provide readily accessible emergency information to clean-up crews, management and government agencies, and;*
- *Comply with federal and territorial regulations and guidelines pertaining to the preparation of contingency plans and notification requirements in the event of an emergency or spill.*

## 2.0 SITE INFORMATION

**2.1. Campsite** The Pistol Bay camp has been in place since 2011 and partially owned by Henik Lake Adventures Ltd. of Arviat. The campsite is located at 62 21 05.2N, 92 45 19.7W

Capacity: **13 – 35** people

### **Structures (prior to commencement of 2018 field season):**

- Thirteen x 14' x 16' Weatherhaven sleep tents heated with propane
- One 14 x 48' plywood kitchen heated with propane
- One 14' x 16' plywood shack heated with propane, and used for sample shipment preparation and sample drying. Previously, this building was the core shed.
- One 16' x 24' plywood core shack, heated with fuel oil.
- One 14' x 16' Weatherhaven shower/laundry facility, heated with propane, with an 8' x 16' extension which houses the laundry facilities, water storage tanks, water heater and water treatment system
- One 14' x 16' Weatherhaven core cutting tent
- One 14' x 16' Weatherhaven storage tent
- One 14' x 20' Weatherhaven office tent heated with propane
- One 8' x 8' plywood equipment shack



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- Three plywood outhouses
- One heli-pad made of plywood framed with wooden pallets
- Two fuel caches stored in four “Insta berms” equipped with water drains
- Spill response equipment located beside fuel berms and heli-pad
- Two plywood generator shacks 8' x 16'
- One 16' x 8' extension to plywood core logging shack
- One 8' x 8' shed to contain electrical panels
- One 16' x 16' plywood dry (heated by fuel oil)
- One plywood emergency shelter (used at drill rig)

**Northquest Machinery (on-site prior to commencement of 2018 field season):**

- One 2013 Ford F250 ¾ ton pick-up Truck
- Two Sq –3330-Can-sw generators
- One 2014 TRX500FM Honda ATV
- One 2014 TRX420FE Honda ATV
- One 2011 TRX500 Honda ATV
- One 2016 TRX 500FM Honda ATV
- Two Honda 6500 generators
- One gas portable rock saw
- Two 33.1Kva generators (main power plant and spare for camp).
- One 7.5 kW diesel generator
- Two 15 kW gasoline generators
- Two 50 cc Honda water pumps
- One Smart Ash portable, multipurpose batch load incinerator
- One gas-powered hydraulic barrel crusher
- One Kubota M6060 tractor
- One Sure-track trailer model ST8214TLDD

**Top Rank Diamond Drilling Limited machinery on site at commencement of 2018 field season:**

- Two Discovery 2 diamond drills, with 4 Perkins engines
- Three Honda generators
- One Yamaha generators
- One generic generator
- One Lincoln welder
- One Miller welder
- Seven Water pumps
- Four Honda 2" water pumps
- Seven Water pumps
- Four Honda 2" water pumps

## 2.2. Campsite and Drill Sites

Drilling is planned at the Vickers, Pistol Bay Porphyry, Howitzer, Defender, Cooley, Sako, Bazooka and CZ targets, shown on the attached map titled “Property Configuration”

**Campsite:** Jet A, diesel fuel, and gasoline to be stored in 45 gal (205 litre) drums stored in portable “Insta Berms” that are outfitted with filtered water drains. Currently, 15 drums of Jet A, 15 drums of diesel fuel, 2 drums of gasoline and 14 drums of fuel suitable for use in oil heaters are stored. It is estimated that an additional 700 drums of Jet A, 450 drums of diesel fuel and 40 drums of gasoline will be purchased for use during 2017.

These will be located a minimum of 31 metres from the normal high water mark and in such a manner that no fuel can enter any such water body.

**Drill Sites:** Up to 3 drums of diesel fuel and 10 gallons of drill additives to be stored on each drill pad. These will be continuously renewed during the drilling program.

## 2.3. Effective Date of Plan

June 25, 2015 was the date of the original plan for the project. The Plan is effective concurrent with all licences and permits for the Project.

## 2.4. Background Information on the Camp Site

The site is located on a wave-modified, flat-topped esker that was once used as part of an ATV trail network. The Hamlet of Whale Cove recently completed a new gravel-topped road system that allows two-wheel drive vehicles to travel from Whale Cove to the mouth of the Wilson River. The Hamlet also refurbished the existing road which extends to the Pistol Bay campsite. This allows Nordgold (Northquest Ltd.) personnel to travel by pick-up to Whale Cove, the Whale Cove airport and to the Vickers drill target. However, a helicopter is still the primary mode of transport for the project.

## 3.0 PETROLEUM AND CHEMICAL STORAGE

*Fuels required for use in the exploration program and at the campsite are stored in the project base camp. They are all clearly labelled as the property of Northquest, are stored in a safe and secure manner with instaberms and are secured for the Winter.*

<i>Fuel type</i>	<i>Purpose</i>	<i>Size</i>
<i>Jet A1</i>	<i>Helicopter use</i>	<i>205 litre</i>
<i>propane</i>		<i>100 lb tank</i>

*All fuels for exploration purposes i.e., Jet A1, gasoline and diesel are stored in 205 litre (45 gal) metal drums. Propane is stored in standard 100lb propane tanks. Material Safety Data Sheets*

*(MSDS) for these and other petroleum based products used during the drilling programs are located in Appendix B.*

*Temporary remote fuel caches are located in proximity of the area of drilling and will be located at each drill site, and will be in accordance with CSA approved methods of storage of drummed product. Spill kits will be located at each temporary remote fuel cache and fuel will be stored in Instaberms.*

*After drilling at each site, empty drums will be backhauled to the Whale Cove airport and crushed. Upon receipt of appropriate authorization crushed fuel drums will be disposed of in the Whale Cove landfill site. Fuel cache inspections will occur on a regular basis for leaks, damaged or punctured drums.*

### **3.1 Petroleum Transfer Method**

*Manual, electric engine powered pumps, along with the appropriate filtration devices, may be used for the transfer of petroleum products from their storage drums to their end use fuel tanks. Spill kits will be at all petroleum transfer stations.*

## **4.0 RISK ASSESSMENT AND MITIGATION OF RISKS**

*The following is a list of sources:*

- Drummed Products: Leaks or ruptures may occur, bung caps may be loose. This includes Jet fuel, diesel, waste fuel and waste oil.*
- Fuel cylinders: Propane leaks may occur at the valves.*
- Vehicles and Equipment: Helicopter and fixed wing aircraft, snowmobiles, generators, pumps, diamond drill, ATV's.*

*Incidents involving leaking or dripping fuels and oils may occur due to malfunctions, impact damage, and lack of regular maintenance, improper storage or faulty operation. Regular inspection and maintenance in accordance with recognized and accepted standard practices at all fuel caches, reduces the risks associated with the categories listed above. Spill kits will be located at all drill sites.*

### **4.1 Responsibilities**

**Camp Manager** – responsible for checking fuel drum conditions and evidence of leakage daily, assuring drip trays are in place and not overflowing; keeping spill kits and absorbent mats in good repair and accessible. If spill or likelihood of a spill occurs the Technician will immediately report to the **Project Supervisor**.

**Pilots and Drill Shift Boss** to report spills or potential spills to the **Project Supervisor**.

**Project Supervisor** will report any spill to the NWT 24-Hour Spill Report Line and initiate clean-up. Project Supervisor will request additional aid from external sources if deemed necessary. If one or more of these key personnel are absent from the site an alternative person will be named as either Camp Manager or Project Supervisor for the interim.

David Smith, Exploration Manager.

## **5.0 RESPONDING TO FAILURES AND SPILLS**

*In the case of any spill or environmental emergency, it is necessary to react in the most immediate, safe and environmentally responsible manner. No spill or incident is so minor that it can be ignored and every spill must be reported.*

### **5.1 Basic Steps**

*The basic steps of the response plan are as follows:*

1. Ensure the safety of all persons at all times.
2. Identify and find the spill substance and its source, and, if possible, stop the process or shut off the source.
3. Inform the immediate supervisor or his or her designate at once, so that he/she may take appropriate action. Appropriate action includes the notification of a government official, if required; Spill Report forms are included at the back of this plan.
4. Contain the spill or environmental hazard, as per its nature, and as per the advice of INAC Water Resources Inspector as required.
5. Implement any necessary cleanup or remedial action.

### **5.2 Reporting Procedure**

Communication in the way of two-way radios will be set-up in the event that if a spill occurs outside of camp at either the drill rig or external fuel cache it can be immediately reported to the Project Supervisor.

All spill kits located at all sources of fuel will have contact information for the NWT Spill Report Line prominently displayed.

A listing of the NWT 24 Hour Spill Report Line as well as other government contacts and company officials will be displayed adjacent to the satellite phone in camp. (See Reporting Procedure and Contacts below).

1. *Immediately notify the Nordgold (Northquest Ltd.) head office T: (416) 306-0954 and report to the 24 Hour Spill Line at (867) 920-8130 (Fax: 867-873-6924), INAC Land Use Resource Management Officer (867) 645-2840 and KIA Land Use Inspector (867) 645-5735.*
2. *A Spill Report Form (Appendix 1) is filled out as completely as possible before or after contacting the 24 Hour Spill Line.*
3. *Notify Dave Smith, Exploration Manager, Cell: (647) 549-0954*

### 5.3 Emergency Contact List

**Table 2: Emergency Contact List – Spill Reporting and Response**

CONTACT	CONTACT NUMBER (Tel / Cell)
David Smith, Exploration Manager, Nordgold	C: (647) 549-0954
Nordgold Headquarters, Toronto	T: (416) 306-0954
24 Hour Emergency Spill Line phone / fax	(867) 920-8130, (867) 873-6924
Government of the NWT Pollution Control Division, Yellowknife	(867) 873-7654
INAC, Yellowknife	(867) 920-8240
Environment Canada, Yellowknife	(867) 975 4644
24 hour Pager, Yellowknife	(867) 920 5131 (867) 873-8185
Environment Canada – Iqaluit Emergency Pager	
Environment Canada Enforcement Officer	(867) 975-4644
Nunavut Water Board	(867) 360-6338 Fax (867) 360-6369
GN – DoE Environmental Protection (Rob Eno)	(867) 987-7729 FAX (867) 975-5981
INAC Land Use Resource Management Officer (Rankin Inlet)	(867) 645-2840
KIA Land Use Inspector (Rankin Inlet)	(867) 645-5735
INAC NU Water Resources Manager INAC NU Lands Administration Manager	(867) 975 4550 FAX (867) 975-4585 (867) 975-4280 FAX (867) 975-4286
DFO NU Region Manager, Pollution Control and Air Quality	(867) 979-8000 FAX (867) 979-8039 (867) 975-5907
Rankin Inlet Hospital; Office Hours / After 5pm	(867) 645-8300 / (867) 645-6700
Rankin Inlet RCMP; Office Hours / Emergency	(867) 645-0123 / (867) 645-1111

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Whale Cove RCMP Detachment	(867) 896-0123 (867) 896-1111	or
Keewatin Air Ambulance	(867) 645-4455	
Local Contractor- Panika and Sons (Whale Cove)	(867) 896-9038	
M&T Ent. (Rankin Inlet)	(867) 645-2778	

**A detailed report on each occurrence must also be filled out with the INAC Water Resources Inspector no later than 30 days after initially reporting the event. The Spill Report Form is attached as Appendix I.**

## 6.0 ACTION PLANS

The following responses are recommended for fuel spills in differing environments. Depending on the location and size of the exploration program some of the equipment mentioned in the responses listed below will obviously not be located on site but could be transported to the spill if deemed necessary. The most likely scenario for fuel spills in this type of exploration program would include: leaking drums, hydraulic line malfunction and re-fueling operations. It is not anticipated that a spill of more than 45 gallons will occur as no fuel container on-site will exceed this capacity.

### 6.1 Spills on Land (gravel, rock, soil and vegetation)

Trench or ditch to intercept or contain flow of fuel or petroleum products on land where feasible (loose sand, gravel and surface layers of organic materials are amenable to trenching/ditching-trenching in rocky substrates is typically impractical and impossible).

Construct a soil berm downslope of the spill. Use of synthetic, impervious sheeting can also be used to act as a barrier.

Where available, recover spills through manual or mechanical means including shovels, heavy equipment and pumps.

Absorb petroleum residue with synthetic sorbent pad materials. Recover spilled and contaminated material, including soil and vegetation.

Transport contaminated material to approved disposal or recovery site. Equipment used will depend on the magnitude and location of the spill.

Land based disposal is only authorized with the approval of government authorities.

## 6.2 Spills on Snow

Trench or ditch to intercept or contain flow of fuel or petroleum products on snow, where feasible (ice, snow, loose sand, gravel and surface layers of organic materials as amenable to trench/ditching; trenching in solid, frozen ground or rocky substrates is typically impractical and impossible).

Compact snow around the outside perimeter of the spill area.

Construct a dike or dam out of snow, either manually with shovels or with heavy equipment such as graders or dozers where available.

If feasible, use synthetic lines to provide an impervious barrier at the spill site.

Locate the low point of the spill area and clear channels in the snow, directed away from waterways, to allow non-absorbed material to flow into the low point.

Once collected in the low area, option include shoveling spilled material into containers, picking up with mobile heavy equipment, pumping liquid into tanker trucks or using vacuum truck to pick up material.

Where safe, disposal can be done through in-situ combustion with approval from government and safety consultants.

Transport contaminated material to approved disposal site. Equipment used will depend on the magnitude and location of the spill.

## 6.3 Spills on Ice

Contain material spill using methods described above for snow, if feasible and/or mechanical recovery with heavy equipment.

Prevent fuel/petroleum products from penetrating ice and entering watercourses.

Remove contaminated material, including snow/ice as soon as possible.

Containment of fuel/petroleum products under ice surface is difficult given the ice thickness and winter conditions. However, if the materials get under ice, determine area where the fuel/petroleum product is located.

Drill holes through ice using ice auger to locate fuel/petroleum product.

Once detected, cut slits in the ice using chain saws and remove ice blocks.

Fuel /petroleum products collected in ice slots or holes can be picked up via suction hoses connected to portable pump, vacuum truck or standby tanker. Care should be taken to prevent the end of the suction hose clogging up by snow, ice or debris.

Fuel/petroleum products that have collected in ice slots may be disposed of by in-situ burning if sufficient holes are drilled in ice. Once all the holes are drilled, the oil which collects in the holes may be ignited. Consult with fire/safety consultants and government authorities to obtain approval.

#### **6.4 Spills on Water**

Contain spills on open water immediately to restrict the size and extent of the spill

Fuel/petroleum products which float on water may be contained through the use of booms, absorbent materials, skimming and the erection of culverts.

Deploy containment booms to minimize spill area, although effectiveness of booms may be limited by wind, waves and other factors.

Use sorbent booms to slowly encircle and absorb spilled material. These absorbent are hydrophobic (absorb and repel water).

Once booms are secured, use skimmers to draw in hydrocarbons and minimal amounts of water. Skimmed material can be pumped through hoses to empty fuel tanks/drums.

Culverts permit water flow while capturing and collecting fuel along the surface with absorbent materials.

Chemical methods including dispersants, emulsion – treating agents and shoreline cleaning will be considered.

#### **6.5 Spills Due to Accidental Load Release**

The loss of external loads of fuel, oil or chemicals from the helicopter requires an immediate response.

- 1) Obtain GPS co-ordinates of the location and contact base camp. Include quantity and type of load loss.
- 2) Base camp will contact the 24-Hour Spill Line and receive instructions on follow up procedures.
- 3) Administer the appropriate procedure for spills on Land, Water, Snow or Ice



**NOTE:**

1. **Material Safety Data Sheets** for all hazardous materials involved in this project are listed in Appendix 2. These MSDS sheets are for all drilling mud, polymers and greases as well as for calcium chloride, diesel, Jet A-1 with AIA, propane and gasoline.
2. In-situ combustion is a disposal method available for fuels and petroleum products. In-situ burning can be initiated by using a large size portable propane torch (tiger torch) to ignite the fuel/petroleum products. Highly flammable products such as gasoline or alcohol, or combustible material such as wood, may be used to promote ignition of the spilled product. The objective is to raise the temperature for sustained combustion of the spilled product.  
Precautions need to be taken to ensure safety of personnel. Also, spilled product should be confined to control burning. These include areas where the spilled material has pooled naturally or been contained via dikes, trenches, depressions or ice slots. Prior to any attempts at in-situ burning, consultation with experts and approval by government authorities are required.
3. Chemical response methods are also available and may include the use of dispersants, emulsions-treating agents, visco-elastic agents, herding agents, solidifiers, and shoreline cleaning agents.
4. Biological response methods include nutrient enrichment and natural microbe seeding.
5. Site remediation will be completed as per the advice of government authorities.

**7.0 RESOURCE INVENTORY****Resources available on site:**

Trenching/digging equipment in the form of picks and shovels.

Pumps

Impervious sheeting (tarps)

Plastic bags, buckets, empty drums for collection of contaminated material.

2 Spill Kits containing:

4 – oil sorbent booms (5" x 10')

100 – oil sorbent sheets (16.5" x 20" x 3/8")

1 – drain cover (36" x 36" x 1/16")

1 – 1lb plugging compound

2 – pair Nitrile gloves

2 – pair Safety goggles

10 – disposable bags

**8.0 TRAINING/EXERCISE**

*Northquest (Nordgold) is aware that without practice no Contingency Plan has value.*

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*At least one practice drill will be held per season to give all employees and contractors a chance to practice emergency response skills. Each practice will be evaluated and a report prepared with the objective of learning where gaps and deficiencies exist, and in what areas more practice is required. Response criteria, communication and reporting requirements will be discussed to ensure everyone fully understands them.*

**APPENDIX I**  
**SPILL REPORT FORM**

# 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:	MM	DD	YY	Report Time:	<input type="checkbox"/> Original Spill Report <b>OR</b> <input type="checkbox"/> Update # _____ to the Original Spill Report	Report Number:
	B	Occurrence Date:	MM	DD	YY		
C	Land Use Permit Number (if applicable):				Water Licence Number (if applicable):		
D	Geographic Place Name or Distance and Direction from the Named Location:					Region: <input type="checkbox"/> NT <input type="checkbox"/> Nunavut <input type="checkbox"/> Adjacent Jurisdiction or Ocean	
E	Latitude: _____ Degrees _____ Minutes _____ Seconds				Longitude: _____ Degrees _____ Minutes _____ Seconds		
F	Responsible Party or Vessel Name:				Responsible Party Address or Office Location:		
G	Any Contractor Involved:				Contractor Address or Office Location:		
H	Product Spilled: <input type="checkbox"/> Potential Spill				Quantity in Litres, Kilograms or Cubic Metres:	U.N. Number:	
I	Spill Source:				Spill Cause:	Area of Contamination in Square Metres:	
J	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:
M	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:
Lead Agency: <input type="checkbox"/> EC <input type="checkbox"/> CCG/TCMSS <input type="checkbox"/> GNWT <input type="checkbox"/> GN <input type="checkbox"/> ILA <input type="checkbox"/> AANDC <input type="checkbox"/> NEB <input type="checkbox"/> Other: _____			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:					

## **APPENDIX II**

### **MATERIAL SAFETY DATA SHEETS (MSDS)**

#### **LIST OF MSDS**

Given the 2018 program was restricted to surveying, mapping, sampling and cutting of drill hole casings and anchors, only those MSDS sheets pertaining to fuels are herein included. The drilling additives were retained on-site in an area restricted from daily activities.

- HESS – Gasoline, All Grades
- HESS – Diesel Fuel (All types)
- AVJET – Jet A-1 with AIA



## MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

## EMERGENCY OVERVIEW

## DANGER!

**EXTREMELY FLAMMABLE - EYE AND MUCOUS MEMBRANE IRRITANT**  
**- EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF**  
**SWALLOWED - ASPIRATION HAZARD**



NFPA 704 (Section 16)

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

## 1. CHEMICAL PRODUCT and COMPANY INFORMATION

Hess Corporation  
 1 Hess Plaza  
 Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs):

CHEMTREC (800)424-9300

COMPANY CONTACT (business hours):

Corporate Safety (732)750-6000

MSDS (Environment, Health, Safety) Internet Website

www.hess.com

**SYNONYMS:** Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

See Section 16 for abbreviations and acronyms.

## 2. COMPOSITION and INFORMATION ON INGREDIENTS \*

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Gasoline (86290-81-5)	100
Benzene (71-43-2)	0.1 - 4.9 (0.1 - 1.3 reformulated gasoline)
n-Butane (106-97-8)	< 10
Ethyl Alcohol (Ethanol) (64-17-5)	0 - 10
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Tertiary-amyl methyl ether (TAME) (994-05-8)	0 to 17.2
Toluene (108-88-3)	1 - 25
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 - 15

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol or MTBE and/or TAME).

Revision Date: 09/25/2007

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**MATERIAL SAFETY DATA SHEET****Gasoline, All Grades****MSDS No. 9950**

Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

**3. HAZARDS IDENTIFICATION****EYES**

Moderate irritant. Contact with liquid or vapor may cause irritation.

**SKIN**

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

**INGESTION**

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

**INHALATION**

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

**WARNING:** the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

**CHRONIC EFFECTS and CARCINOGENICITY**

Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 - Toxicological Information.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

**4. FIRST AID MEASURES****EYES**

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

**SKIN**

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

**INGESTION**

**MATERIAL SAFETY DATA SHEET****Gasoline, All Grades****MSDS No. 9950**

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

**INHALATION**

Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

**5. FIRE FIGHTING MEASURES****FLAMMABLE PROPERTIES:**

FLASH POINT:	-45 °F (-43°C)
AUTOIGNITION TEMPERATURE:	highly variable; > 530 °F (>280 °C)
OSHA/NFPA FLAMMABILITY CLASS:	1A (flammable liquid)
LOWER EXPLOSIVE LIMIT (%):	1.4%
UPPER EXPLOSIVE LIMIT (%):	7.6%

**FIRE AND EXPLOSION HAZARDS**

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

**EXTINGUISHING MEDIA**

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO<sub>2</sub>, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain MTBE and/or TAME. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 "Low Expansion Foam - 1994 Edition."

**FIRE FIGHTING INSTRUCTIONS**

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.



**MATERIAL SAFETY DATA SHEET****Gasoline, All Grades****MSDS No. 9950****6. ACCIDENTAL RELEASE MEASURES**

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

**7. HANDLING and STORAGE****HANDLING PRECAUTIONS**

\*\*\*\*\*USE ONLY AS A MOTOR FUEL\*\*\*\*\*

\*\*\*\*\*DO NOT SIPHON BY MOUTH\*\*\*\*\*

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

**STORAGE PRECAUTIONS**

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

**WORK/HYGIENIC PRACTICES**

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.



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<b>Gasoline, All Grades</b> <span style="float: right;"><b>MSDS No. 9950</b></span>

**8. EXPOSURE CONTROLS and PERSONAL PROTECTION**
**EXPOSURE LIMITS**

Component (CAS No.)	Source	TWA (ppm)	STEL (ppm)	Exposure Limits	Note
Gasoline (86290-81-5)	ACGIH	300	500	A3	
Benzene (71-43-2)	OSHA	1	5	Carcinogen	
	ACGIH	0.5	2.5	A1, skin	
	USCG	1	5		
n-Butane (106-97-8)	ACGIH	1000	--	Aliphatic Hydrocarbon Gases Alkane (C1-C4)	
Ethyl Alcohol (ethanol) (64-17-5)	OSHA	1000	--		
	ACGIH	1000	--	A4	
Ethyl benzene (100-41-4)	OSHA	100	--		
	ACGIH	100	125	A3	
n-Hexane (110-54-3)	OSHA	500	--		
	ACGIH	50	--	Skin	
Methyl-tertiary butyl ether [MTBE] (1634-04-4)	ACGIH	50	--	A3	
Tertiary-amyl methyl ether [TAME] (994-05-8)				None established	
Toluene (108-88-3)	OSHA	200	--	Ceiling: 300 ppm; Peak: 500 ppm (10 min.)	
	ACGIH	20	--	A4	
1,2,4-Trimethylbenzene (95-63-6)	ACGIH	25	--		
Xylene, mixed isomers (1330-20-7)	OSHA	100	--		
	ACGIH	100	150	A4	

**ENGINEERING CONTROLS**

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

**EYE/FACE PROTECTION**

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

**SKIN PROTECTION**

Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as that made of of E.I. DuPont Tychem®, products or equivalent is recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

**RESPIRATORY PROTECTION**

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

**9. PHYSICAL and CHEMICAL PROPERTIES**
**APPEARANCE**

A translucent, straw-colored or light yellow liquid



## MATERIAL SAFETY DATA SHEET

**Gasoline, All Grades**
**MSDS No. 9950**

### **ODOR**

A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with MTBE and/or TAME may have a sweet, ether-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

### **ODOR THRESHOLD**

	<u>Odor Detection</u>	<u>Odor Recognition</u>
Non-oxygenated gasoline:	0.5 - 0.6 ppm	0.8 - 1.1 ppm
Gasoline with 15% MTBE:	0.2 - 0.3 ppm	0.4 - 0.7 ppm
Gasoline with 15% TAME:	0.1 ppm	0.2 ppm

### **BASIC PHYSICAL PROPERTIES**

BOILING RANGE:	85 to 437 °F (39 to 200 °C)
VAPOR PRESSURE:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	AP 3 to 4
SPECIFIC GRAVITY (H <sub>2</sub> O = 1):	0.70 - 0.78
EVAPORATION RATE:	10-11 (n-butyl acetate = 1)
PERCENT VOLATILES:	100 %
SOLUBILITY (H <sub>2</sub> O):	Non-oxygenated gasoline - negligible (< 0.1% @ 77 °F). Gasoline with 15% MTBE - slight (0.1 - 3% @ 77 °F); ethanol is readily soluble in water

## **10. STABILITY and REACTIVITY )**

**STABILITY:** Stable. Hazardous polymerization will not occur.

### **CONDITIONS TO AVOID**

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

### **INCOMPATIBLE MATERIALS**

Keep away from strong oxidizers.

### **HAZARDOUS DECOMPOSITION PRODUCTS**

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

## **11. TOXICOLOGICAL PROPERTIES**

### **ACUTE TOXICITY**

Acute Dermal LD50 (rabbits): > 5 ml/kg	Acute Oral LD50 (rat): 18.75 ml/kg
Primary dermal irritation (rabbits): slightly irritating	Draize eye irritation (rabbits): non-irritating
Guinea pig sensitization: negative	

### **CHRONIC EFFECTS AND CARCINOGENICITY**

Carcinogenicity: OSHA: NO IARC: YES - 2B NTP: NO ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.





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**Gasoline, All Grades**
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This product may contain methyl tertiary butyl ether (MTBE): animal and human health effects studies indicate that MTBE may cause eye, skin, and respiratory tract irritation, central nervous system depression and neurotoxicity. MTBE is classified as an animal carcinogen (A3) by the ACGIH.

## 12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. If released, oxygenates such as ethers and alcohols will be expected to exhibit fairly high mobility in soil, and therefore may leach into groundwater. The API ([www.api.org](http://www.api.org)) provides a number of useful references addressing petroleum and oxygenate contamination of groundwater.

## 13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

## 14. TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME: Gasoline  
 DOT HAZARD CLASS and PACKING GROUP: 3, PG II  
 DOT IDENTIFICATION NUMBER: UN 1203  
 DOT SHIPPING LABEL: FLAMMABLE LIQUID

PLACARD:



## 15. REGULATORY INFORMATION

### U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

### CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

### CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

### SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

### SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION WT. PERCENT
Benzene (71-43-2)	0.1 to 4.9 (0.1 to 1.3 for reformulated gasoline)
Ethyl benzene (100-41-4)	< 3

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**Gasoline, All Grades**
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n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Toluene (108-88-3)	1 to 15
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 to 15

US EPA guidance documents ([www.epa.gov/tri](http://www.epa.gov/tri)) for reporting Persistent Bioaccumulating Toxics (PBTs) indicate this product may contain the following de minimis levels of toxic chemicals subject to Section 313 reporting:

<u>INGREDIENT NAME (CAS NUMBER)</u>	<u>CONCENTRATION - Parts per million (ppm) by weight</u>
Polycyclic aromatic compounds (PACs)	17
Benzo (g,h,i) perylene (191-24-2)	2.55
Lead (7439-92-1)	0.079

## CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

<u>INGREDIENT NAME (CAS NUMBER)</u>	<u>Date Listed</u>
Benzene	2/27/1987
Ethyl benzene	6/11/2004
Toluene	1/1/1991

## CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)

Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

## 16. OTHER INFORMATION

<b><u>NFPA® HAZARD RATING</u></b>	HEALTH:	1	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
<b><u>HMIS® HAZARD RATING</u></b>	HEALTH:	1 *	Slight
	FIRE:	3	Serious
	PHYSICAL:	0	Minimal
			* CHRONIC

**SUPERSEDES MSDS DATED:** 07/01/06

### ABBREVIATIONS:

AP = Approximately      < = Less than      > = Greater than  
N/A = Not Applicable      N/D = Not Determined      ppm = parts per million

### ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
AIHA	American Industrial Hygiene Association	DOT	U.S. Department of Transportation
ANSI	American National Standards Institute (212)642-4900		[General Info: (800)467-4922]
API	American Petroleum Institute (202)682-8000	EPA	U.S. Environmental Protection Agency
		HMIS	Hazardous Materials Information System

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IARC	International Agency For Research On Cancer	REL	Recommended Exposure Limit (NIOSH)
MSHA	Mine Safety and Health Administration	SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
NFPA	National Fire Protection Association (617)770-3000	SCBA	Self-Contained Breathing Apparatus
NIOSH	National Institute of Occupational Safety and Health	SPCC	Spill Prevention, Control, and Countermeasures
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)	STEL	Short-Term Exposure Limit (generally 15 minutes)
NTP	National Toxicology Program	TLV	Threshold Limit Value (ACGIH)
OPA	Oil Pollution Act of 1990	TSCA	Toxic Substances Control Act
OSHA	U.S. Occupational Safety & Health Administration	TWA	Time Weighted Average (8 hr.)
PEL	Permissible Exposure Limit (OSHA)	WEEL	Workplace Environmental Exposure Level (AIHA)
RCRA	Resource Conservation and Recovery Act	WHMIS	Workplace Hazardous Materials Information System (Canada)


#### DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.



<b>MATERIAL SAFETY DATA SHEET</b>	
<b>Diesel Fuel (All Types)</b>	<b>MSDS No. 9909</b>

<b>EMERGENCY OVERVIEW</b> <b>CAUTION!</b> <b>OSHA/NFPA COMBUSTIBLE LIQUID - SLIGHT TO MODERATE IRRITANT</b> <b>EFFECTS CENTRAL NERVOUS SYSTEM</b> <b>HARMFUL OR FATAL IF SWALLOWED</b> Moderate fire hazard. Avoid breathing vapors or mists. May cause dizziness and drowsiness. May cause moderate eye irritation and skin irritation (rash). Long-term, repeated exposure may cause skin cancer. If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).	 NFPA 704 (Section 16)
---	--

**1. CHEMICAL PRODUCT AND COMPANY INFORMATION**

Hess Corporation  
1 Hess Plaza  
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC (800) 424-9300**  
COMPANY CONTACT (business hours): Corporate Safety (732) 750-6000  
MSDS INTERNET WEBSITE: [www.hess.com](http://www.hess.com) (See Environment, Health, Safety & Social Responsibility)

**SYNONYMS:** Ultra Low Sulfur Diesel (ULSD); Low Sulfur Diesel; Motor Vehicle Diesel Fuel; Diesel Fuel #2; Dyed Diesel Fuel; Non-Road, Locomotive and Marine Diesel Fuel; Tax-exempt Diesel Fuel

See Section 16 for abbreviations and acronyms.

**2. COMPOSITION and CHEMICAL INFORMATION ON INGREDIENTS**

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Diesel Fuel (68476-34-6)	100
Naphthalene (91-20-3)	Typically < 0.01

A complex mixture of hydrocarbons with carbon numbers in the range C9 and higher. Diesel fuel may be dyed (red) for tax purposes. May contain a multifunctional additive.

**3. HAZARDS IDENTIFICATION****EYES**

Contact with liquid or vapor may cause mild irritation.

**SKIN**

May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

**INGESTION**

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.



**MATERIAL SAFETY DATA SHEET****Diesel Fuel (All Types)****MSDS No. 9909****INHALATION**

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

**WARNING:** the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

**CHRONIC EFFECTS and CARCINOGENICITY**

Similar products produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined - see Section 11 Toxicological Information.

IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A). NIOSH regards whole diesel fuel exhaust particulates as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

**4. FIRST AID MEASURES****EYES**

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

**SKIN**

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

**INGESTION**

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

**INHALATION**

Remove person to fresh air. If person is not breathing provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

**5. FIRE FIGHTING MEASURES****FLAMMABLE PROPERTIES:**

FLASH POINT:	> 125 °F (> 52 °C) minimum PMCC
AUTOIGNITION POINT:	494 °F (257 °C)
OSHA/NFPA FLAMMABILITY CLASS:	2 (COMBUSTIBLE)
LOWER EXPLOSIVE LIMIT (%):	0.6
UPPER EXPLOSIVE LIMIT (%):	7.5

**FIRE AND EXPLOSION HAZARDS**

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

**EXTINGUISHING MEDIA**

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.



**MATERIAL SAFETY DATA SHEET****Diesel Fuel (All Types)****MSDS No. 9909**

**LARGE FIRES:** Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

**FIRE FIGHTING INSTRUCTIONS**

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

**6. ACCIDENTAL RELEASE MEASURES**

ACTIVATE FACILITY'S SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

**7. HANDLING and STORAGE****HANDLING PRECAUTIONS**

Handle as a combustible liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Diesel fuel, and in particular low and ultra low sulfur diesel fuel, has the capability of accumulating a static electrical charge of sufficient energy to cause a fire/explosion in the presence of lower flashpoint products such as gasoline. The accumulation of such a static charge occurs as the diesel flows through pipelines, filters, nozzles and various work tasks such as tank/container filling, splash loading, tank cleaning; product sampling; tank gauging; cleaning, mixing, vacuum truck operations, switch loading, and product agitation. There is a greater potential for static charge accumulation in cold temperature, low humidity conditions.

Documents such as 29 CFR OSHA 1910.106 "Flammable and Combustible Liquids, NFPA 77 Recommended Practice on Static Electricity, API 2003 "Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents and ASTM D4865 "Standard Guide for Generation and Dissipation of Static



## MATERIAL SAFETY DATA SHEET

**Diesel Fuel (All Types)****MSDS No. 9909**

Electricity in Petroleum Fuel Systems" address special precautions and design requirements involving loading rates, grounding, bonding, filter installation, conductivity additives and especially the hazards associated with "switch loading." ["Switch Loading" is when a higher flash point product (such as diesel) is loaded into tanks previously containing a low flash point product (such as gasoline) and the electrical charge generated during loading of the diesel results in a static ignition of the vapor from the previous cargo (gasoline).]

Note: When conductivity additives are used or are necessary the product should achieve 25 picosiemens/meter or greater at the handling temperature.

### **STORAGE PRECAUTIONS**

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

### **WORK/HYGIENIC PRACTICES**

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

## **8. EXPOSURE CONTROLS and PERSONAL PROTECTION**

### **EXPOSURE LIMITS**

Components (CAS No.)	Source	Exposure Limits		Note
		TWA/STEL		
Diesel Fuel: (68476-34-6)	OSHA	5 mg/m, as mineral oil mist		A3, skin
	ACGIH	100 mg/m <sup>3</sup> (as totally hydrocarbon vapor) TWA		
Naphthalene (91-20-3)	OSHA	10 ppm TWA		A4, Skin
	ACGIH	10 ppm TWA / 15 ppm STEL		

### **ENGINEERING CONTROLS**

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

### **EYE/FACE PROTECTION**

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

### **SKIN PROTECTION**

Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.



<b>MATERIAL SAFETY DATA SHEET</b>
<b>Diesel Fuel (All Types)</b> <span style="float: right;"><b>MSDS No. 9909</b></span>

**RESPIRATORY PROTECTION**

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

**9. PHYSICAL and CHEMICAL PROPERTIES****APPEARANCE**

Clear, straw-yellow liquid. Dyed fuel oil will be red or reddish-colored.

**ODOR**

Mild, petroleum distillate odor

**BASIC PHYSICAL PROPERTIES**

BOILING RANGE:	320 to 690 oF (160 to 366 °C)
VAPOR PRESSURE:	0.009 psia @ 70 °F (21 °C)
VAPOR DENSITY (air = 1):	> 1.0
SPECIFIC GRAVITY (H <sub>2</sub> O = 1):	0.83 to 0.88 @ 60 °F (16 °C)
PERCENT VOLATILES:	100 %
EVAPORATION RATE:	Slow; varies with conditions
SOLUBILITY (H <sub>2</sub> O):	Negligible

**10. STABILITY and REACTIVITY**

**STABILITY:** Stable. Hazardous polymerization will not occur.

**CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS**

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers; Viton ®; Fluorel ®

**HAZARDOUS DECOMPOSITION PRODUCTS**

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

**11. TOXICOLOGICAL PROPERTIES****ACUTE TOXICITY**

Acute dermal LD50 (rabbits): > 5 ml/kg	Acute oral LD50 (rats): 9 ml/kg
Primary dermal irritation: extremely irritating (rabbits)	Draize eye irritation: non-irritating (rabbits)
Guinea pig sensitization: negative	

**CHRONIC EFFECTS AND CARCINOGENICITY**

Carcinogenic: OSHA: NO IARC: NO NTP: NO ACGIH: A3

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

**MUTAGENICITY (genetic effects)**

This material has been positive in a mutagenicity study.





<b>MATERIAL SAFETY DATA SHEET</b>
<b>Diesel Fuel (All Types)</b> <span style="float: right;"><b>MSDS No. 9909</b></span>

**12. ECOLOGICAL INFORMATION**

Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.

**13. DISPOSAL CONSIDERATIONS**

Consult federal, state and local waste regulations to determine appropriate disposal options.

**14. TRANSPORTATION INFORMATION**

PROPER SHIPPING NAME:	Diesel Fuel	Placard (International Only):
HAZARD CLASS and PACKING GROUP:	3, PG III	
DOT IDENTIFICATION NUMBER:	NA 1993 (Domestic)	
	UN 1202 (International)	
DOT SHIPPING LABEL:	None	



Use Combustible Placard if shipping in bulk domestically

**15. REGULATORY INFORMATION****U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION**

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other regulations at the state and/or local level. Consult those regulations applicable to your facility/operation.

**CLEAN WATER ACT (OIL SPILLS)**

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

**CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)**

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

**SARA SECTION 311/312 - HAZARD CLASSES**

<b><u>ACUTE HEALTH</u></b>	<b><u>CHRONIC HEALTH</u></b>	<b><u>FIRE</u></b>	<b><u>SUDDEN RELEASE OF PRESSURE</u></b>	<b><u>REACTIVE</u></b>
X	X	X	--	--

**SARA SECTION 313 - SUPPLIER NOTIFICATION**

This product may contain listed chemicals below the *de minimis* levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Hess Corporate Safety if you require additional information regarding this product.

**CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS**

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

<b><u>INGREDIENT NAME (CAS NUMBER)</u></b>	<b><u>Date Listed</u></b>
Diesel Engine Exhaust (no CAS Number listed)	10/01/1990

**CANADIAN REGULATORY INFORMATION (WHMIS)**

Class B, Division 3 (Combustible Liquid) and Class D, Division 2, Subdivision B (Toxic by other means)



<b>MATERIAL SAFETY DATA SHEET</b>
<b>Diesel Fuel (All Types)</b> <span style="float: right;"><b>MSDS No. 9909</b></span>

**16. OTHER INFORMATION**

**NFPA® HAZARD RATING**

HEALTH:	0	
FIRE:	2	
REACTIVITY:	0	

Refer to NFPA 704 "Identification of the Fire Hazards of Materials" for further information

**HMIS® HAZARD RATING**

HEALTH:	1 *	* Chronic
FIRE:	2	
PHYSICAL:	0	

**SUPERSEDES MSDS DATED:** 02/28/2001

**ABBREVIATIONS:**

AP = Approximately      < = Less than      > = Greater than  
 N/A = Not Applicable      N/D = Not Determined      ppm = parts per million

**ACRONYMS:**

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
AIHA	American Industrial Hygiene Association	OPA	Oil Pollution Act of 1990
ANSI	American National Standards Institute (212) 642-4900	OSHA	U.S. Occupational Safety & Health Administration
API	American Petroleum Institute (202) 682-8000	PEL	Permissible Exposure Limit (OSHA)
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act	RCRA	Resource Conservation and Recovery Act
DOT	U.S. Department of Transportation [General info: (800) 467-4922]	REL	Recommended Exposure Limit (NIOSH)
EPA	U.S. Environmental Protection Agency	SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
HMIS	Hazardous Materials Information System	SCBA	Self-Contained Breathing Apparatus
IARC	International Agency For Research On Cancer	SPCC	Spill Prevention, Control, and Countermeasures
MSHA	Mine Safety and Health Administration	STEL	Short-Term Exposure Limit (generally 15 minutes)
NFPA	National Fire Protection Association (617)770-3000	TLV	Threshold Limit Value (ACGIH)
NIOSH	National Institute of Occupational Safety and Health	TSCA	Toxic Substances Control Act
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)	TWA	Time Weighted Average (8 hr.)
		WEEL	Workplace Environmental Exposure Level (AIHA)
		WHMIS	Canadian Workplace Hazardous Materials Information System

**DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES**

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

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**Avjet Holding Inc.**  
**Material Safety Data Sheet**

Effective Date: 2016-01-01

Supersedes: 2013-01-01

Class B3 Combustible Class D2B Other Toxic  
Liquid Effects - Skin Irritant**1. PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT:** JET A-1 WITH AIA  
**SYNONYMS:** Aviation Turbine Fuel (Kerosene Type)  
May contain anti-icing additive (Diethylene Glycol Monomethyl Ether)  
**PRODUCT USE:** Fuel Solvent  
**MSDS Number:** 142-017

**MANUFACTURER**  
Avjet Holding Inc.**TELEPHONE NUMBERS**  
Avjet Emergency Number

1-866-472-0007

900, Lemire Boulevard  
Drummondville, QC Canada  
J2C 7W8For general information:  
For MSDS information:(819) 479-1000  
(819) 479-1000

This MSDS was prepared by the Toxicology and Product Stewardship Section of Avjet Holding Inc.

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Component Name	CAS Number	% Range	WHMIS Controlled
Kerosene (Petroleum), Hydrodesulfurized	64742-81-0	60 - 100	Yes

See Section 8 for Occupational Exposure Guidelines.

**3. HAZARDS IDENTIFICATION****Physical Description:** Liquid Bright Clear Hydrocarbon Odour**Routes of Exposure:** Exposure will most likely occur through skin contact or inhalation.**Hazards:**

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**Handling:**

Combustible Liquid.  
Irritating to skin.  
Vapours are moderately irritating to the eyes.  
Ingestion may result in vomiting. Avoid aspiration of vomitus into lungs as small quantities may result in aspiration pneumonitis.  
Vapours are moderately irritating to the respiratory passages.  
Eliminate all ignition sources.  
Avoid prolonged exposure to vapours.  
Wear suitable gloves and eye protection.  
Bond and ground transfer containers and equipment to avoid static accumulation.  
Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

For further information on health effects, see Section 11.

**4. FIRST AID**

**Eyes:** Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

**Skin:** Wash contaminated skin with mild soap and water for 15 minutes. If irritation occurs and persists, obtain medical attention.

**Ingestion:** DO NOT INDUCE VOMITING! OBTAIN MEDICAL ATTENTION IMMEDIATELY. Guard against aspiration into lungs by having the individual turn on to their left side. If vomiting occurs spontaneously keep head below hips to prevent aspiration of liquid into the lungs.

**Inhalation:** Remove victim from further exposure and restore breathing, if required. Obtain medical attention.

**Notes to Physician:** The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. If more than 2.0 mL/kg has been ingested, vomiting should be induced with supervision. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered.

**5. FIRE FIGHTING MEASURES**

**Extinguishing Media:** Carbon Dioxide  
Foam  
Dry Chemical  
Water Fog

**Firefighting Instructions:** Caution - Combustible. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Vapours may travel along ground and flashback along vapour trail may occur. Product will float and can be reignited on surface of water. Do not use a direct stream of water as it may spread fire. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure buildup which could result in container rupture. Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.



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**Hazardous Combustion Products:** A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes pyrolysis or combustion. Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

## 6. ACCIDENTAL RELEASE MEASURES

Issue warning "Combustible". Eliminate all ignition sources. Isolate hazard area and restrict access. Handling equipment must be grounded. Try to work upwind of spill. Avoid direct contact with material. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Dike and contain land spills; contain water spills by booming. Use water fog to knock down vapours; contain runoff. Absorb residue or small spills with absorbent material and remove to non-leaking containers for disposal. Recommended materials: Clay or Sand Flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations. Notify appropriate environmental agency(ies).

## 7. HANDLING AND STORAGE

**Handling:** Avoid excessive heat, sparks, open flames and all other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Vapours are heavier than air and will settle and collect in low areas and pits, displacing breathing air. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapours are gone. Vapours may accumulate and travel to distant ignition sources and flashback. Do not cut, drill, grind, weld or perform similar operations on or near containers. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Do not pressurize drum containers to empty them. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse. Use good personal hygiene. Combustible.

**Storage:** Store in a cool, dry, well ventilated area, away from heat and ignition sources. Keep container tightly closed.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING INFORMATION, WHILE APPROPRIATE FOR THIS PRODUCT, IS GENERAL IN NATURE. THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT WILL VARY DEPENDING ON THE CONDITIONS OF USE.

### OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

Kerosene/Jet fuels, as total hydrocarbon vapour (skin) : 200 mg/m<sup>3</sup> ( Application restricted to conditions in which there are negligible aerosol exposures.)

Skin Notation: Absorption through skin, eyes and mucous membranes may contribute significantly to the total exposure.



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**Mechanical Ventilation:** Use explosion-proof ventilation as required to control vapour concentrations. Concentrations in air should be maintained below the recommended threshold limit value if unprotected personnel are involved. Local ventilation recommended where mechanical ventilation is ineffective in controlling airborne concentrations below the recommended occupational exposure limit. Make up air should always be supplied to balance air exhausted (either generally or locally). For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere.

**PERSONAL PROTECTIVE EQUIPMENT:**

**Eye Protection:** Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes. Provide an eyewash station in the area.

**Skin Protection:** Avoid contact with skin. Use protective clothing and gloves manufactured from nitrile. Safety showers should be available for emergency use.

**Respiratory Protection:** Avoid breathing vapour or mists. If exposure has the potential to exceed occupational exposure limits, use an appropriate NIOSH-approved respirator. Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator.

**9. PHYSICAL DATA**

**Physical State:** Liquid

**Appearance:** Bright Clear

**Odour:** Hydrocarbon Odour

**Odour Threshold:** Not available

**Freezing/Pour Point:** Freeze Point < -47 °C

**Boiling Point:** 145 - 300 °C

**Density:** 775 - 840 kg/m<sup>3</sup> @ 15 °C

**Vapour Density (Air = 1):** Not available

**Vapour Pressure (absolute):** 1 - 1.4 kPa @ 37.8 °C

**pH:** Not available

**Flash Point:** Tag Closed Cup > 43 °C

**Lower Explosion Limit:** 0.7 % (vol.)

**Upper Explosion Limit:** 5 % (vol.)

**Autoignition Temperature:** 210 °C

**Viscosity:** < 8 cSt @ -20 °C

**Evaporation Rate (n-BuAc = 1):** Not available

**Partition Coefficient (log K<sub>ow</sub>):** 3.3 - 6

**Water Solubility:** Insoluble

**Other Solvents:** Hydrocarbon Solvents

**10. STABILITY AND REACTIVITY**

**Chemically Stable:** Yes

**Hazardous Polymerization:** No

**Sensitive to Mechanical Impact:** No

**Sensitive to Static Discharge:** Yes

**Hazardous Decomposition Products:** Thermal decomposition products are highly dependent on combustion conditions.

**Incompatible Materials:** Avoid strong oxidizing agents.

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**Conditions of Reactivity:**

Avoid excessive heat, open flames and all ignition sources.

**11. TOXICOLOGICAL INFORMATION****Ingredient (or Product if not specified)**

Kerosene (Petroleum), Hydrodesulfurized

**Toxicological Data**

LD50 Dermal Rabbit &gt; 2000 mg/kg

LD50 Oral Rat &gt; 5000 mg/kg

**Routes of Exposure:**

Exposure will most likely occur through skin contact or inhalation.

**Irritancy:**

This product is expected to be irritating to skin but is not predicted to be a skin sensitizer.

**Chronic Effects:**

Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged exposure to high vapour concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression.

**Pre-existing****Conditions:**

Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.

**Carcinogenicity and****Mutagenicity:**

The International Agency for Research on Cancer (IARC) considers that this product is not classifiable as to its carcinogenicity to humans. Middle distillates have caused skin cancers in laboratory animals when applied repeatedly and left in place between applications. This effect is believed to be caused by the continuous irritation of the skin. Good personal hygiene should be maintained to avoid this risk.

**12. ECOLOGICAL INFORMATION**

Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities. May cause physical fouling of aquatic organisms.

**Biodegradability:**

Not readily biodegradable.

Rapid volatilization.

**Bioaccumulation:**

Potential for bioaccumulation.

**Partition Coefficient (log  $K_{ow}$ ):**

3.3 - 6

**Aquatic Toxicity**

Product is expected to be toxic to aquatic organisms.

**Ingredient:**

Kerosene

(Petroleum),

Hydrodesulfurized

**Toxicological Data**

EL50 - growth rate (WAF method) Algae (72hr) 1 - 10 mg/L.

EL50 (WAF method) Daphnia Magna (48hr) 1 - 10 mg/L.

LL50 (WAF method) Rainbow Trout (96hr) 1 - 10 mg/L.

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**Definition(s):** LL and EL are the lethal loading concentration and effective loading concentration respectively. The concentration represents the amount of substance added to the system to obtain a toxic concentration. They replace the traditional LC and EC for low solubility substances.

WAF is the water accommodated fraction. A slightly soluble hydrocarbon is stirred into water and the insoluble portions are removed. The remaining solution is the water accommodated fraction.

### 13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery (cement kilns, thermal power generation), 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site. Incinerate at a licenced waste disposal site with approval of environmental authority.

### 14. TRANSPORTATION INFORMATION

#### Canadian Road and Rail Shipping Classification:

UN Number	UN1863
Proper Shipping Name	FUEL, AVIATION, TURBINE ENGINE
Hazard Class	Class 3 Flammable Liquids
Packing Group	PG III
Additional Information	Not Regulated in Containers Less Than or Equal to 450 Litres.
Shipping Description	FUEL, AVIATION, TURBINE ENGINE Class 3 UN1863 PG III
	Not Regulated in Containers Less Than or Equal to 450 Litres.

### 15. REGULATORY INFORMATION

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

**WHMIS Class:** Class B3 Combustible Liquid  
Class D2B Other Toxic Effects - Skin Irritant

**DSL/NDL Status:** This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act.

**Other Regulatory Status:** No Canadian federal standards.

### 16. ADDITIONAL INFORMATION

#### LABEL STATEMENTS

**Hazard Statement :** Combustible Liquid.  
Irritating to skin.

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**Handling Statement:** Eliminate all ignition sources.  
Avoid prolonged exposure to vapours.  
Wear suitable gloves and eye protection.  
Bond and ground transfer containers and equipment to avoid static accumulation.  
Empty containers are hazardous, may contain flammable / explosive dusts,  
liquid residue or vapours. Keep away from sparks and open flames.

**First Aid Statement :** Wash contaminated skin with soap and water.  
Flush eyes with water.  
If overcome by vapours remove to fresh air.  
Do not induce vomiting.  
Obtain medical attention.

**Revisions:** This MSDS has been reviewed and updated.  
Changes have been made to:  
Section 3  
Section 4  
Section 5  
Section 7  
Section 8  
Section 9  
Section 12  
Section 14

## **APPENDIX 6**

### **ABANDONMENT AND RESTORATION PLAN**

**NORTHQUEST LTD**  
**ABANDONMENT AND RESTORATION PLAN**  
**PISTOL BAY PROJECT, NUNAVUT**

Prepared by: Dwayne Car  
Revision 1: Stanley Robinson  
Revision 2: Stanley Robinson  
Revision 3: Stanley Robinson

May 2015  
March 2017  
November 2017  
December 2018

NORDGOLD (Northquest Ltd.)  
Suite 101 - 50 Richmond Street East,  
Toronto, Ontario  
Canada M5C 1N7  
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**NORDGOLD (Northquest Ltd.)**  
**Pistol Bay Project, Nunavut**  
**Abandonment and Restoration Plan**

## **1. Preamble**

This Abandonment and Restoration Plan (A&R Plan) is in effect until the expiry of Nordgold (Northquest Ltd.)'s water licence and land use permits, and applies to the work areas planned for the Pistol Bay property. These work areas lie within the municipal boundary of Whale Cove, on Crown Land and on Kivalliq Inuit Association (KIA) Inuit Owned (IOL) surface land.

Nordgold (Northquest Ltd) has received licences and permits from Indigenous Affairs and Northern Development Canada (INAC) for exploration activities on Crown Land, the Kivalliq Inuit Association for activities on Inuit Owned surface land (IOL), a water licence from the Nunavut Water Board (NWB) for water use and waste disposal related to the project, as well as permission from the Hamlet of Whale Cove and authorization from the Government of Nunavut Department of Community and Government Services (GN CGS) for activities on Commissioners Land.

Questions or concerns regarding this Plan can be directed to

David Smith  
Exploration Manager, Canada  
NORDGOLD (Northquest Ltd.)  
Suite 101 - 50 Richmond Street East,  
Toronto, Ontario  
Canada M5C 1N7

T: (416) 306-0954  
C: (647) 549-0954  
EMAIL: [david.smith@nordgold.com](mailto:david.smith@nordgold.com)  
[www.nordgold.com](http://www.nordgold.com)

## **2. Introduction**

This Plan has been prepared for one temporary campsite and several proposed diamond drilling locations on Nordgold (Northquest Ltd.)'s Pistol Bay project. The campsite is located at 62 21 05.2N, 92 45 19.7W. The site is located on an existing road that is capable of permitting standard vehicular travel. This road is part of a road system that the Whale Cove Hamlet has constructed to allow for easy access to the mouth of the Wilson River for its residents to pursue traditional activities.



The Pistol Bay camp has been in place since 2011 and is owned by Henik Lake Adventures Ltd. of Arviat. The camp consists of several aluminum framed 14' by 16' tents on plywood floors, a plywood kitchen, a plywood core logging tent, and can accommodate up to 35 people. Some structures were added by Nordgold (Northquest Ltd.) in 2016.

Exploration based out of the camp generally consists of prospecting, till sampling, geophysical surveys, mapping and diamond drilling.

### **3. Background Information on the Campsite**

The site is located on a wave-modified, flat-topped esker and is situated on an existing road that is capable of permitting standard vehicular travel. This road is connected to a road system that the Hamlet of Whale Cove constructed to allow for easy access to the mouth of the Wilson River for its residents to pursue traditional activities

### **4. Schedule**

The effective date of the plan is June 25, 2015. The restoration of the camp will occur when the program has been completed and will be finished prior to expiration of the renewed water licence, unless another renewal is applied for. Each drill site will be restored as soon as the drill is moved to a new location (progressive reclamation).

### **5. Infrastructure**

#### **Structures (prior to commencement of 2018 field season):**

- Thirteen x 14' x 16' Weatherhaven sleep tents heated with propane
- One 14 x 48' plywood kitchen heated with propane
- One 14' x 16' plywood shack heated with propane, and used for sample shipment preparation and sample drying. Previously, this building was the core shed.
- One 16' x 24' plywood core shack, heated with fuel oil.
- One 14' x 16' Weatherhaven shower/laundry facility, heated with propane, with an 8' x 16' extension which houses the laundry facilities, water storage tanks, water heater and water treatment system
- One 14' x 16' Weatherhaven core cutting tent
- One 14' x 16' Weatherhaven storage tent
- One 14' x 20' Weatherhaven office tent heated with propane
- One 8' x 8' plywood equipment shack
- Three plywood outhouses
- One heli-pad made of plywood framed with wooden pallets
- Two fuel caches stored in four "Insta berms" equipped with water drains
- Spill response equipment located beside fuel berms and heli-pad
- Two plywood generator shacks 8' x 16'
- One 16' x 8' extension to plywood core logging shack

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- One 8' x 8' shed to contain electrical panels
- One 16' x 16' plywood dry (heated by fuel oil)
- One plywood emergency shelter (used at drill rig)

**Northquest Machinery (on-site prior to commencement of 2018 field season):**

- One 2013 Ford F250 ¾ ton pick-up Truck
- Two Sq –3330-Can-sw generators
- One 2014 TRX500FM Honda ATV
- One 2014 TRX420FE Honda ATV
- One 2011 TRX500 Honda ATV
- One 2016 TRX 500FM Honda ATV
- Two Honda 6500 generators
- One gas portable rock saw
- Two 33.1Kva generators (main power plant and spare for camp).
- One 7.5 kW diesel generator
- Two 15 kW gasoline generators
- Two 50 cc Honda water pumps
- One Smart Ash portable, multipurpose batch load incinerator
- One gas-powered hydraulic barrel crusher
- One Kubota M6060 tractor
- One Sure-track trailer model ST8214TLDD

**Top Rank Diamond Drilling Limited machinery on site at commencement of 2018 field season:**

- Two Discovery 2 diamond drills, with 4 Perkins engines
- Three Honda generators
- One Yamaha generators
- One generic generator
- One Lincoln welder
- One Miller welder
- Seven Water pumps
- Four Honda 2" water pumps

**6. Seasonal Shutdowns****Buildings and Contents**

All doors on the Weatherhaven tents will be screwed shut before the camp is closed for the winter. All windows and doors on the plywood kitchen and core logging tent will be covered with plywood.

## **Vehicles**

The ATV's snowmobiles will be stored inside one tent. The pick-up will be stored in Whale Cove.

## **Water System**

The pump and hoses will be drained. All will be stored in the winterized kitchen tent for the winter.

## **Fuel and Chemical Storage**

An inventory of fuel will be made at the end of each season and all drums will be inspected for possible leaks. The fuel will remain stored in the portable "Insta Berm" fuel berms. All empty drums will be temporarily stored at the Whale Cove airport before being crushed and buried in the Whale Cove landfill. All empty propane cylinders will be returned to Churchill, Manitoba.

Drill additives and unused salt will be stored in the storage tent.

## **Waste**

### Combustible Waste

All combustible waste will be burned on site in an incinerator. Ash will be sealed in 45 gallon drums for transport to the Hamlet of Whale Cove's landfill.

### Non-Combustible Waste

All non-combustible waste will be transferred to the Whale Cove dump for disposal. This waste will only consist of metallic materials such as cans and steel strapping and wire.

Used batteries will be transported to Ontario for disposal.

### Used Motor Oil

Used motor oil will be flown in 45 gallon drums to Arviat, for final disposal in the Hamlet's waste oil furnace.

### Grey Water Sump

On-site septic system.

### Sewage

The outhouse sumps will be buried at the end of the season.

### **Drills and Drill Sites**

Prior to shutting down for the season, the D1 drill and all ancillary equipment will be moved back to the main campsite. The two D2 drills will be mothballed and stored at the Vickers drill site.

All drill sites will be inspected upon completion of each hole. All combustible and metallic waste will be collected and sent to the Whale Cove dump site. All sumps will be filled in and casing will be cut off to ground level. Photographs of each drill sites before and after drilling will also be taken for inclusion the annual report that is sent to the NWB.

### **Contamination Clean Up**

Any soil at camp or the drill sites that has been contaminated will be treated according to procedures outlined in the Fuel Spill Contingency Plan. The soil will be transferred to the Whale Cove dump site for incineration.

### **Inspection and Documentation**

A complete inspection of all disturbed areas at the camp and drill sites will be conducted prior to seasonal closure of the project. A full inventory of equipment will be made. Photographs will be taken of the campsite after it has been winterized.

## **7. Final Abandonment and Restoration**

### **Tents and Contents**

All tents and structures will be dismantled and removed, using a local contractor. Removal will be carried out with a tandem truck. All material will be taken to the Whale Cove airport for final distribution to Manitoba and Arviat.

### **Equipment**

All equipment including the diamond drill, pumps and generators will be removed from the project site by truck and helicopter. All material will be taken to the Whale Cove airport for final distribution to Manitoba and Arviat.

### **Fuel Cache and Chemicals**

All fuel drums and chemical containers will be removed from the site. All sites that contained fuel will be inspected and any contamination will be dealt with according to the Spill Contingency Plan. Final photos of the fuel cache site will be taken.

### **Sumps**

All sumps will be inspected and backfilled. Final photos will be taken and forwarded to the NWB.

**Camp Site**

A final inspection will be made. Photos will be taken and forwarded to the NWB.

**Core Storage**

All drill core will be removed from the site unless specified otherwise by the Nunavut government.

**Drill Sites**

All drill sites will be inspected upon completion of each hole. All waste will be collected and transferred to the Whale Cove municipal dump site. All sumps will be backfilled. Each drill collar will be cut off to ground level. Photographs of each site will be taken and forwarded to the NWB.

**Contamination Clean Up**

Any contamination will be treated according to procedures laid down in the Fuel Spill Contingency Plan. Any contamination and subsequent clean-up will be documented with photographs. All waste will be transferred to the Whale Cove municipal dump for incineration.

**Inspection and Documentation**

A complete inspection of all areas will be conducted prior to closure. Photographs will be taken for use in the final report. All appropriate agencies will be contacted upon final clean up.

**8.0 Contact Numbers for Relevant Organizations**

Whale Cove Hamlet Office – (867) 896-9961

Nordgold (Northquest Ltd) – (416) 306-0954

NT – NU Spill Hot Line – (867) 920-8130

Henik Lake Adventures Ltd (owner of camp equipment) (867) 857-2978

## **APPENDIX 7**

### **PHOTOGRAPHS OF PISTOL BAY CAMP AND PUMP SITE**



Figure 6. Aerial View of the Pistol Bay Camp and water source



Figure 7. View of the Pistol Bay Camp water pump installation

## **APPENDIX 8**

### **MAPS OF DRILL HOLE COLLARS ON EACH TARGET DRILLED (Drilling was carried out prior to 2018)**

Maps illustrating the drill hole sites on the following targets that had the casing and anchors cut-off just below ground level, are presented on the following pages:

- Figure 8. Map illustrating the Cooley Prospect drill sites.
- Figure 9. Map illustrating the Sako Prospect drill sites.
- Figure 10. Map illustrating the Pistol Prospect drill sites.
- Figure 11. Map illustrating the Vickers Gold Deposit drill sites.
- Figure 12. Map illustrating the Bazooka and Defender Prospect drill sites.
- Figure 13. Map illustrating the Howitzer Prospect drill sites.
- Figure 14. Map illustrating the Bannock Prospect drill sites.



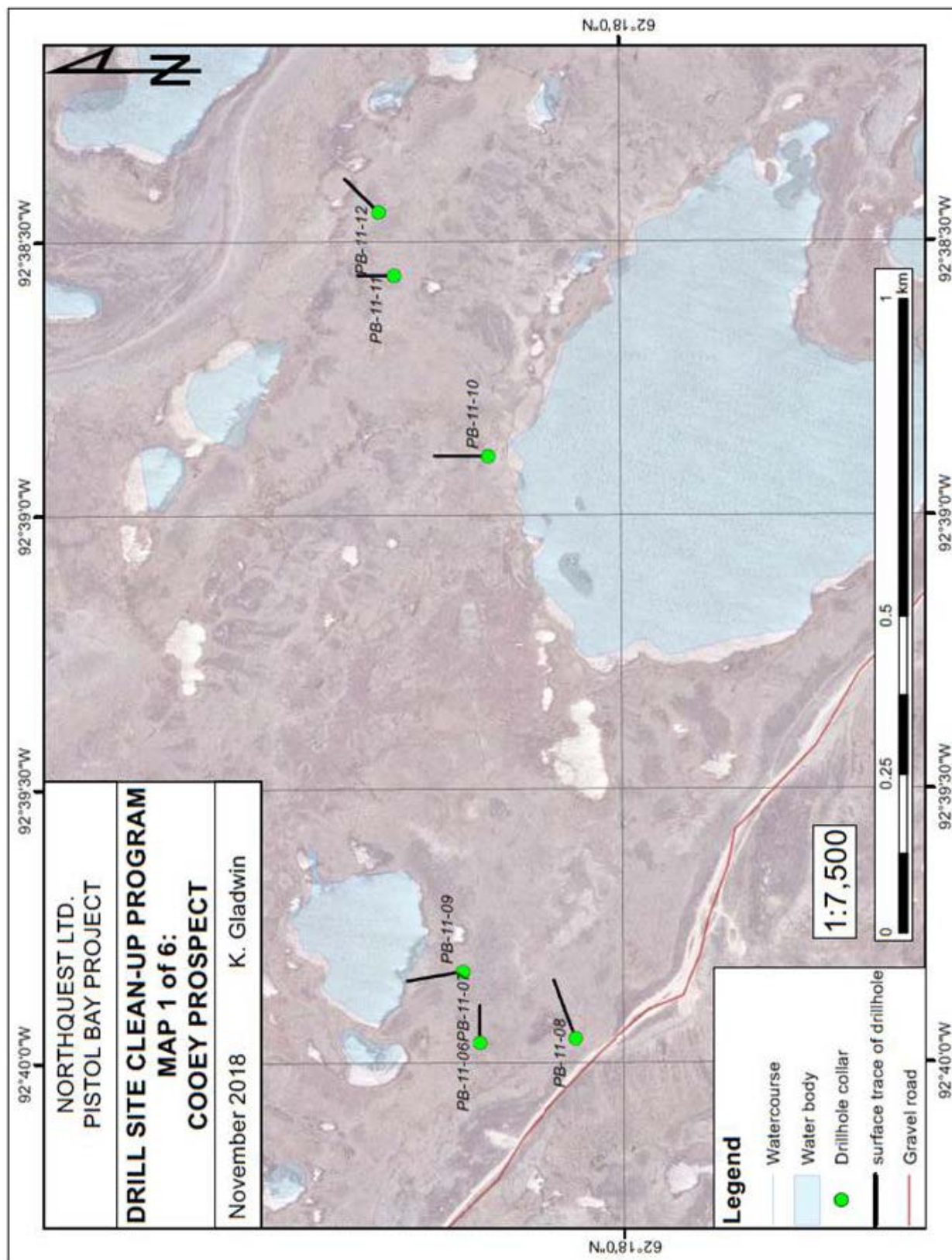


Figure 8. Map illustrating the Cooley Prospect drill sites.

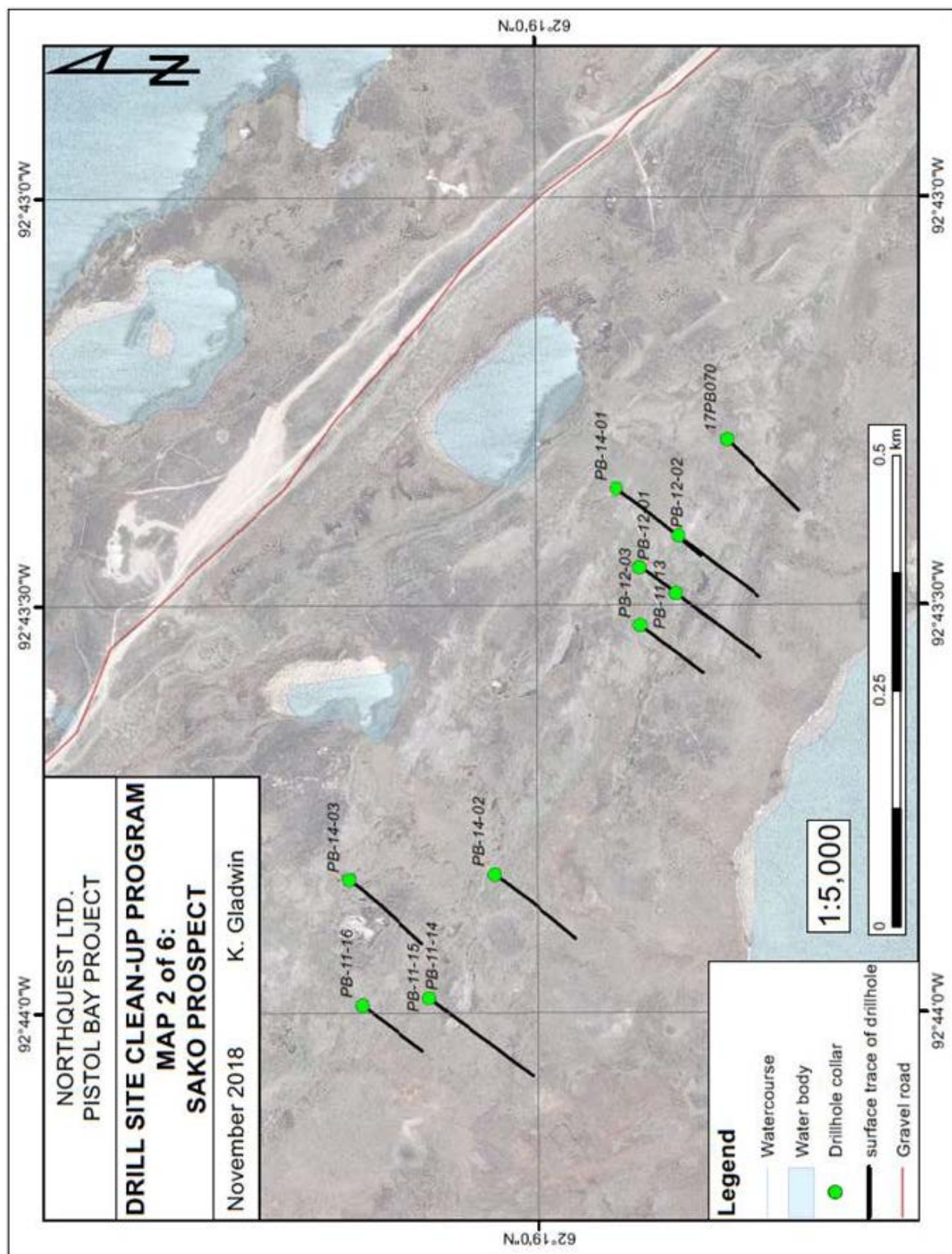


Figure 9. Map illustrating the Sako Prospect drill sites.



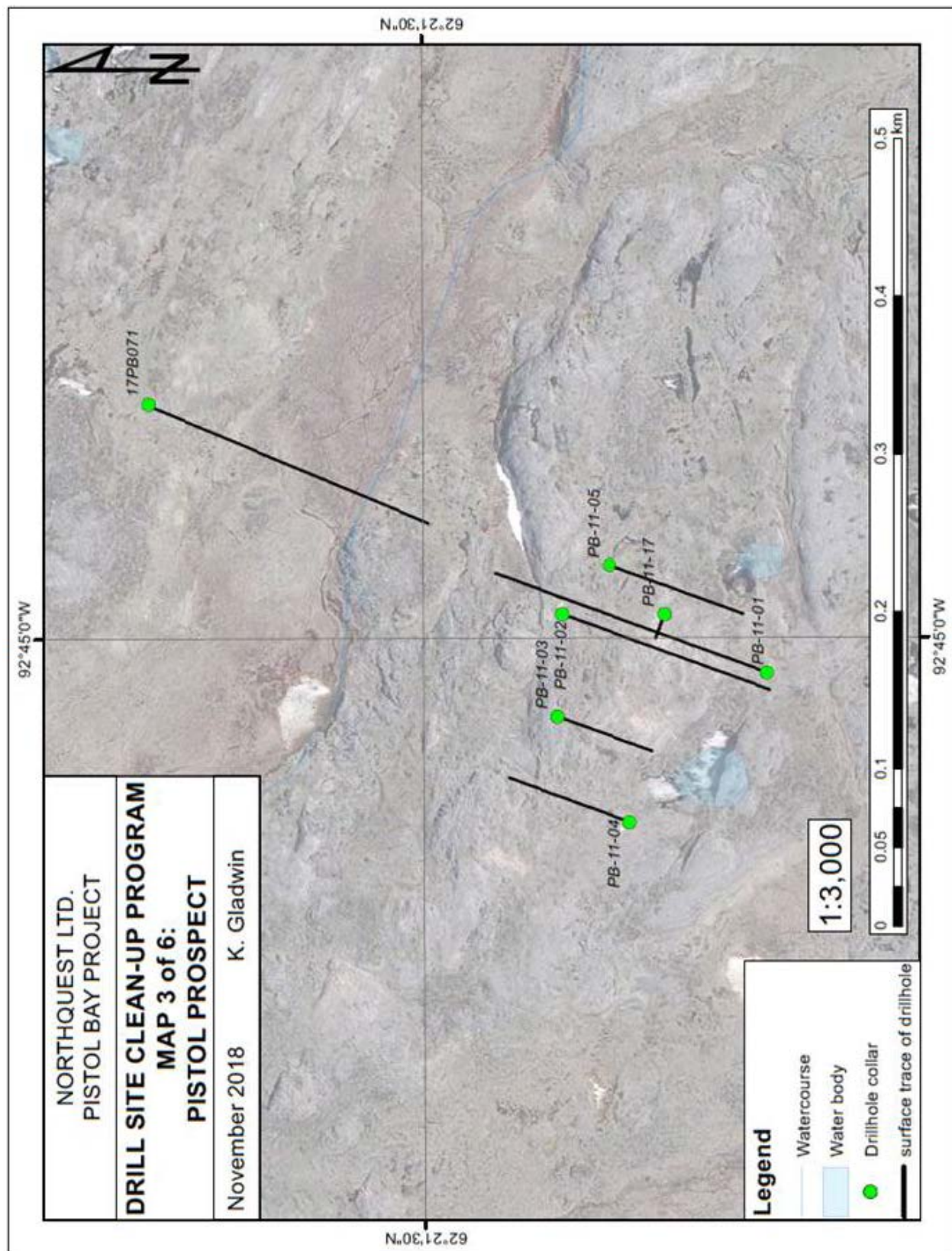


Figure 10. Map illustrating the Pistol Prospect drill sites.

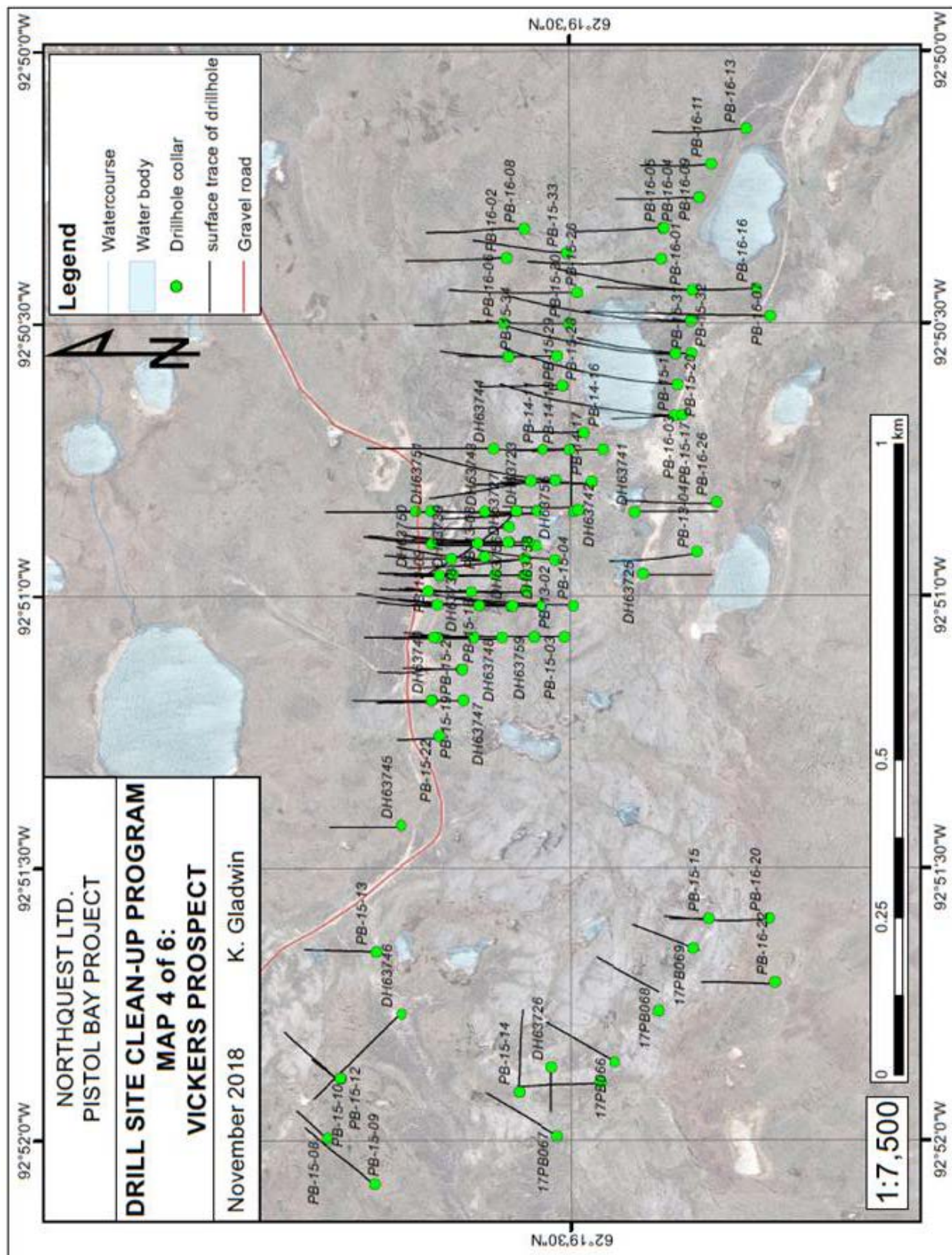
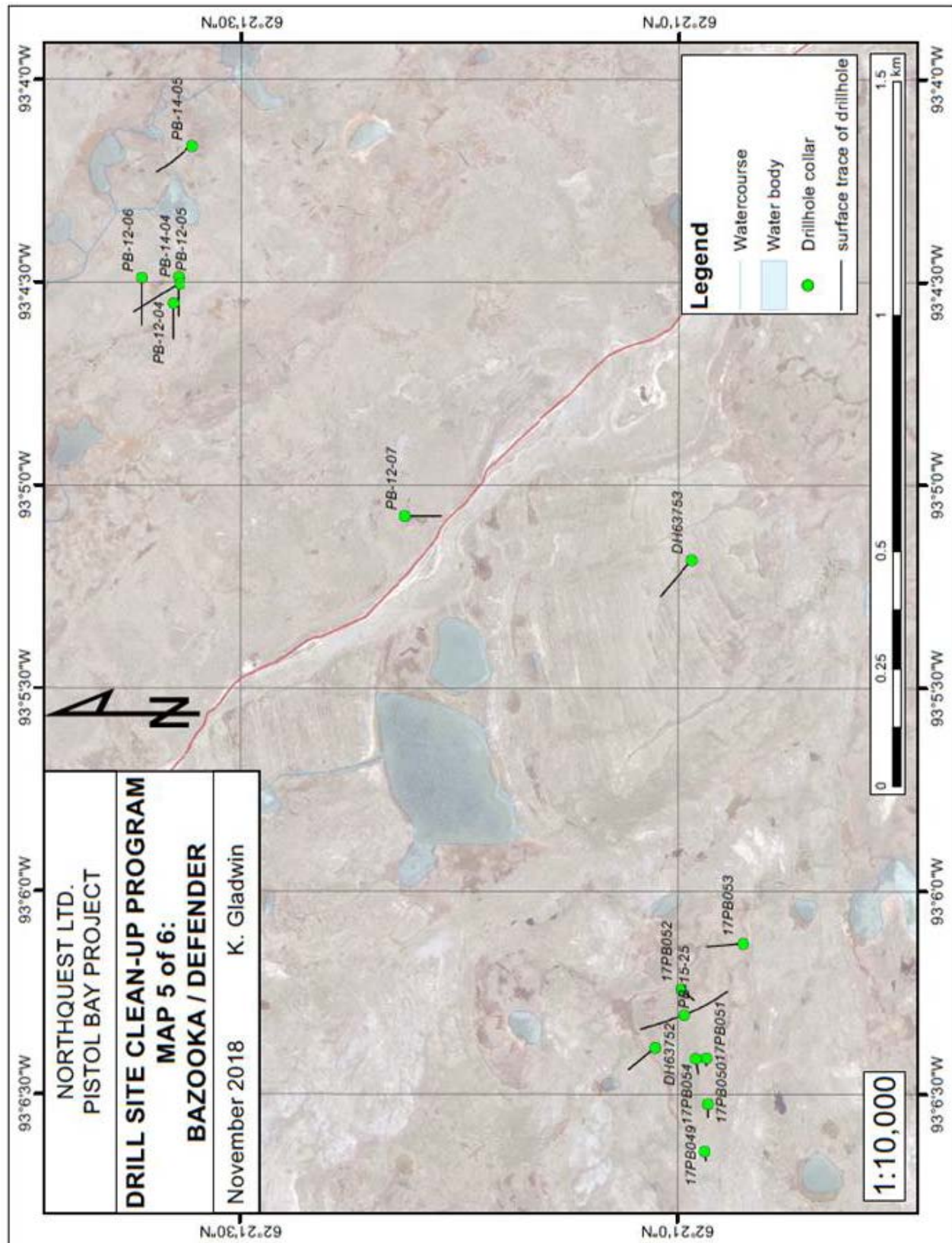


Figure 11. Map illustrating the Vickers Gold Deposit drill sites.





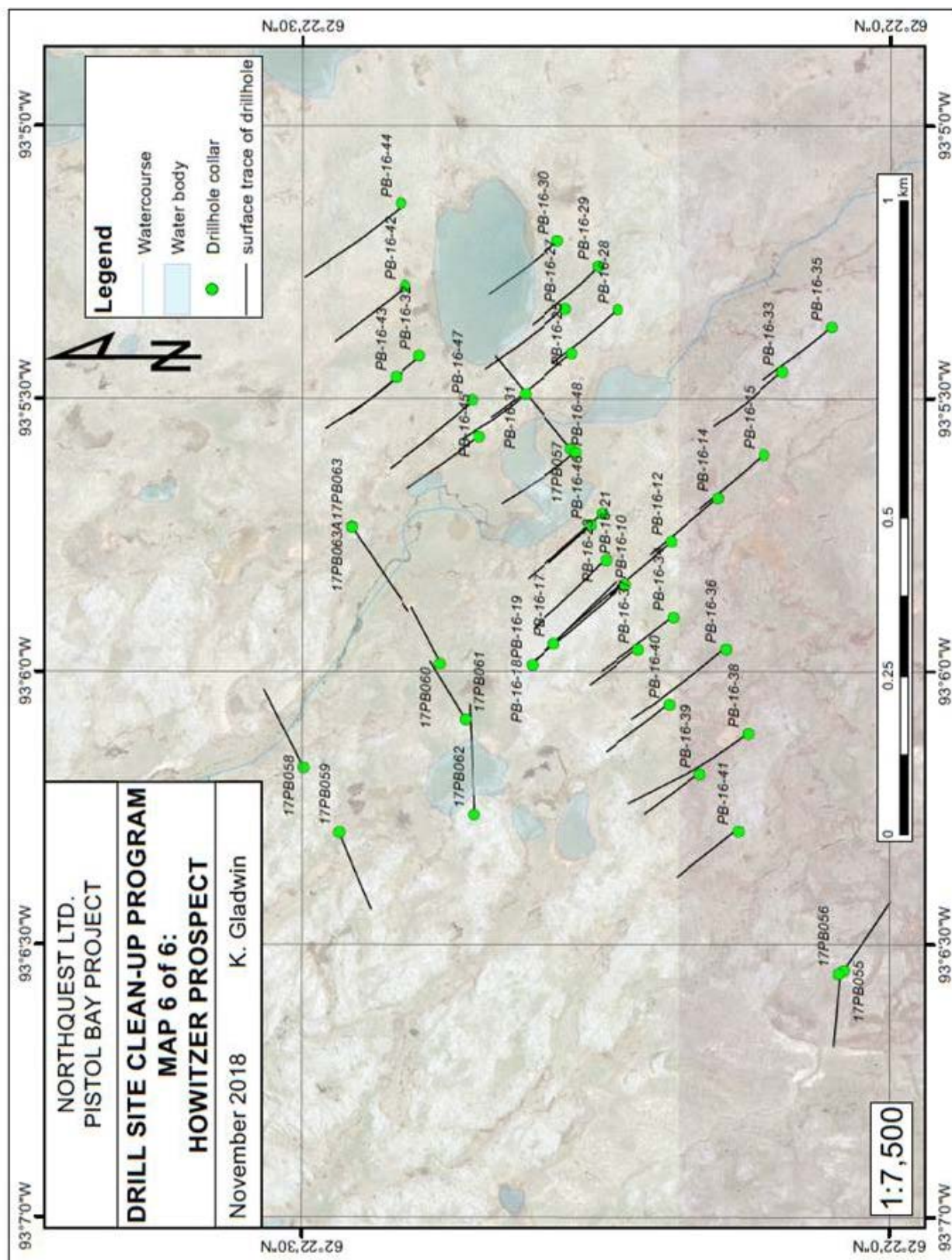


Figure 13. Map illustrating the Howitzer Prospect drill sites.



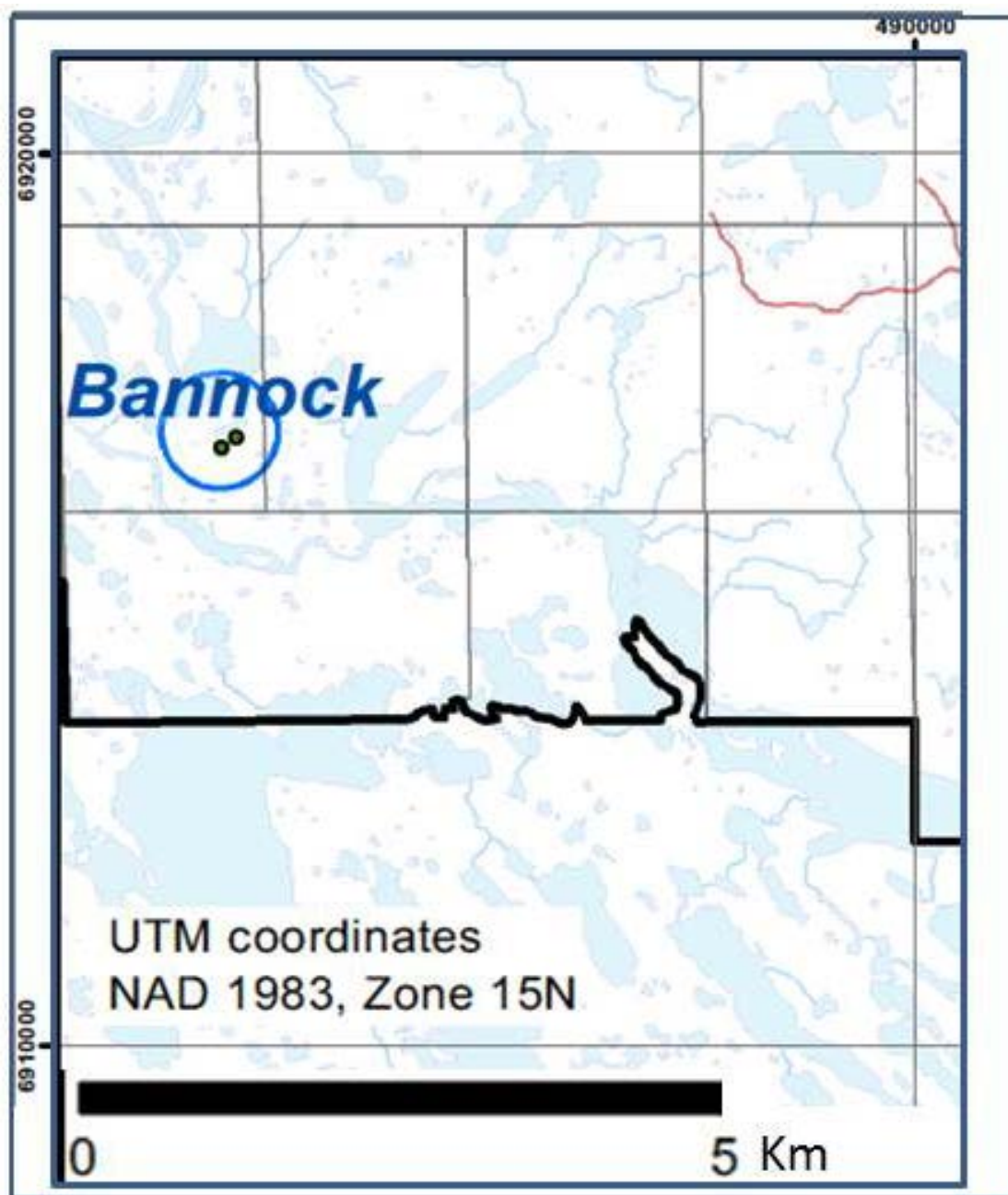


Figure 14. Map illustrating the Bannock Prospect drill sites.

## **APPENDIX 9**

### **PHOTOS OF DRILL SITES BEFORE AND AFTER ANCHORS AND CASINGS WERE CUT-OFF**

Photographs before and after the removal of anchors and casings from the drill holes on the following targets are included only as digital powerpoints.

- |                        |   |
|------------------------|---|
| • Sako and Cooley      | Drill holes illustrated on Figures 8 and 9 respectively |
| • Pistol               | Drill holes illustrated on Figure 10                    |
| • Vickers              | Drill holes illustrated on Figure 11                    |
| • Defender and Bazooka | Drill holes illustrated on Figure 12                    |
| • Howitzer             | Drill holes illustrated on Figure 13                    |
| • Bannock              | Drill holes illustrated on Figure 14                    |