Kiggavik Project

Environmental Impact Statement

Tier 3 Technical Appendix 10B

Spill Contingency and Landfarm Management Plan

December 2011

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1 INTRODUCTION

The AREVA Resources Canada Inc. (AREVA) Spill Contingency and Landfarm Management Plan (Plan) has been developed to facilitate efficient clean up of potential land-based spills, releases, or discharges related to the Project. This Plan is conceptual in nature and will be finalized during the licensing phase of the Project. This Plan is intended to be reviewed and implemented in concert with the Emergency Response Plan (Technical Appendix 10C).

This Plan applies to the Kiggavik Project located approximately 80 km west of Baker Lake and all access points between the mine site and Baker Lake.

1.1 PURPOSE AND SCOPE

The primary objective of the Plan is to help prevent or reduce the potential of spills of pollutants and prevent, reduce, or eliminate any adverse effects that result or may result. As such, this Plan provides information and guidance on actions important for the prevention of spills and procedures to detect and respond to spills. As well, this Plan outlines procedures and best practices for managing the contaminated soils landfarm.

This Plan is supported by the following Technical Appendix documents:

- Environmental Management Plan – Appendix 2T
- Hazardous Materials Management Plan – Appendix 2U
- Marine Transportation Plan – Appendix 2J
- Waste Management Plan – Appendix 2S
- Emergency Response Plan – Appendix 10C

For details on marine spills, Oil Handling Facility (OHF) management at the Baker Lake port facility, and Shipboard Oil Pollution Emergencies Plan (SOPEP) requirements for the Kiggavik Project, refer to Technical Appendix 2J – Marine Transportation Plan.

1.2 REGULATORY FRAMEWORK

This Spill Contingency and Landfarm Management Plan has been developed to ensure AREVA respects all applicable laws, regulations, and requirements of federal and territorial authorities.

- Environmental Code of Practice for Aboveground and Underground Storage Tanks Systems Containing Petroleum and Allied Petroleum Products, 2003, CCME
- Storage Tanks Systems for Petroleum Products and Allied Petroleum Products Regulation 2008
- National Fire Code 1995
- *Territorial Lands Act* 1985
- Territorial Land Use Regulations
- *Canada Oil and Gas Operations Act* 1985
- *Canadian Environmental Protection Act*
- *Fisheries Act*
- *Transportation of Dangerous Goods Act* and Regulations
- TP12402 – Oil Handling Facilities Standards, 1995, Transport Canada
- *Canada Shipping Act* Response Organizations and Oil Handling Facilities Regulations
- *Arctic Waters Pollution Prevention Act*
- *Environmental Protection Act*
- Spill Contingency Planning and Reporting Regulations
- *Nunavut Waters and Nunavut Surface Rights Tribunal Act* 2002
- *Nunavut Environmental Protection Act*
- Nunavut Spill Contingency Planning and Reporting Regulations

1.3 REVISIONS TO PLAN

Since this Plan was prepared during the Project planning stage, it will be updated prior to the mine construction phase and subsequently updated periodically to reflect Project specific protocols, teams, and management contact information, once established.

This response plan is reviewed by the Facility Supervisor, the Environment Health and Safety (EHS) Group and the General Manager, Kiggavik Project on an annual basis and is updated as required to keep it current and consistent with regulatory and procedural changes. A history of revisions can be found at the front of this manual. Any changes and/or amendments to the Plan will be submitted to the Nunavut Water Board (NWB), Aboriginal Affairs and Northern Development Canada (AANDC), and the Kivalliq Inuit Association (KIA).

1.4 EMERGENCY RESPONSE TEAM

Environmental Emergency Response will be a joint responsibility of the Safety and Environment Group. They will ensure the necessary steps are taken for adequate response and reporting of spills for the Kiggavik Project. Procedures that will be created will encompass responsibilities of the person discovering the spill, as well as the responsibilities of the Environment Group and the responsibilities of the Emergency Response Team (ERT) if required.

AREVA will have an adequate number of emergency response personnel trained and available onsite. The Incident Commander will be responsible for coordinating and/or delivering emergency response training onsite. The ERT will participate in regular scheduled training and emergency response exercises to ensure that all members are trained in equipment use and spill response methods.

The ERT members will be trained in emergency identification and currently accepted response action techniques. Training will be related to specific emergency response roles, and will include:

- Emergency chain-of-command,
- emergency response plan training,
- communication methods and signals,
- worker health and safety during emergency interventions,
- emergency equipment and use,
- emergency evacuation,
- offsite support and use,
- personal protective equipment and clothing,
- response to hazardous materials incidents,

- response to fire,
- wilderness survival training,
- ice and water rescue,
- search and rescue,
- fire response & fire fighting techniques,
- spill response procedures and techniques on land, water, snow, and ice, and during all four seasons including marine spill response,
- spill response equipment and materials,
- marine shoreline recovery operations, and
- debriefing.

If required, additional assistance from government agencies such as Environment Canada, the Canadian Coast Guard, Fisheries and Oceans Canada, Transport Canada, or companies specialized in spill response operations will be obtained. For detailed information regarding the Kiggavik emergency response plan, refer to Technical Appendix 10C – Emergency Response Plan.

1.5 TRAINING

All personnel (AREVA employees, contractors, and visitors) will receive formal orientation upon arrival at the Kiggavik site. The spill contingency awareness plan is reviewed during their orientation by the EHS Group or designate including the location of Material Safety Data Sheets, location of spill kits, and additional supplies and tools. Training for spill contingencies consists of alerting personnel to be watchful for leaks or spills and where these are most likely, instruction in the use of the equipment and materials, introduction to the protocol of chain of command, and the legal requirement to report certain spills. Additionally, all personnel are given training in initial spill response methods (first responder), which emphasizes personal safety, containment of the spill, and how to get help.

Annual refreshers are conducted to review the procedures within this plan. As well, safety and response personnel will conduct practice drills at regular intervals to allow field-personnel opportunity to practice emergency response skills. All Emergency Response Team (ERT) members will have the appropriate training to respond to spills of hazardous materials.

2 SPILLS

A spill is defined as the discharge of a hazardous material out of its containment and into the environment. Potential hazards to humans, vegetation, water resources, fish and wildlife vary in severity, depending on several factors including nature of the material, quantity spilled, location and season. Fuel is the main product that may be spilled and therefore spill response procedures focus on this hazardous material. Other substances that may be spilled include ammonium nitrate, mill process reagents, untreated effluent, and radiologically contaminated materials.

2.1 FIRST RESPONDER

The person who has caused a spill or is the first to observe the spill is the first responder. Initial actions for spills include ensuring personal safety, identifying and containing spill materials, reporting the spills to the Facility Supervisor and/or EHS group, alerting the ERT, notifying government agencies, and recording and investigating the cause of the incident.

2.1.1 Safety of Responders

In the event of a spill or other environmental emergency, the health and safety of personnel involved is paramount. As such, all actions performed as part of the spill response must only be undertaken if they can be conducted in a safe manner. If an action can not be undertaken safely or if personnel are not adequately trained or equipped to respond to the spill, it is necessary to evacuate all personnel to a safe zone. At this point, the emergency response team (ERT) with the appropriate resources to manage the spill safely and effectively will assume command of the spill response.

2.1.2 Identifying, Containing and Reporting a Spill

Identification of the material spilled is essential to ensure safety precautions are adequate and containment methods will be effective. The material properties must be known in order to assess potential dangers and first aid measures for injured personnel and to assess the appropriate containment measure.

In the event of a spill the following procedure is discussed with all site employees during the mandatory site orientation regarding the actions required of a first responder:

- Identify the spill substance, determine its source, and estimate volume released

- Move upwind of the material

- Call for help – contact the Facility Supervisor and the Environment and Safety Department

- Identify source of leak and prevent further release if safe to do so

- Attempt to contain spilled material if safe to do so

If the spilled substance is not known, the quantity spilled too large to contain, or conditions appear dangerous it is advised to contact the Facility Supervisor immediately and maintain an evacuation zone around the spill.

2.2 SPILL RESPONSE

ERT response to a spill invokes the implementation of the Emergency Response Plan as detailed in Technical Appendix 10C. The response organization details the roles and responsibilities of each party involved in the spill. In the event that it is not safe to attempt a cleanup effort internally, the on-scene coordinator will contact the environmental advisor and the Nunavut spill report line to coordinate cleanup efforts using external resources as noted in Section 1.

Upon notification of a spill, the Facility Supervisor (or designate) shall:

- Designate responders and proceed to the scene of the spill. The ERT assumes complete responsibility over the spill scene

- The responders (including the Facility Supervisor if necessary) shall attempt to stop further spillage and contain the spilled material if safe to do so

- Interview the individual who discovered spill noting name, time discovered, and details on how the spill occurred, and any actions taken by the individual to stop the spill

- Document the spill by completing the Spill Report Form and contacting the 24-hour Spill Line immediately (see Section 2.3 for Spill Reporting requirements)

- Within 30 days ensure a written detailed report is prepared for submittal to required regulatory agencies (see Attachment B)

The emergency response team shall:

- Position themselves upwind of the spill
- Determine what has been spilled
- Consult the Material Safety Data Sheet (MSDS) for the product in order to determine the appropriate personal protective equipment and to understand the physical properties of what was spilled
- If the spilled substance is flammable (Gasoline or Jet Fuel), eliminate all ignition sources and shut off machinery in the area (NO smoking)
- If save to do so, take actions to ensure that the leak or spill has been stopped at the source (i.e.: shut off valves, reconnect hoses, etc.)
- Contain spill with appropriate material and equipment (i.e.: spill response kit, etc.). Transfer material to appropriate containment vessels.
- Control access to the spill area and barricade the spill area, if necessary.
- Minimize the pathways of spilled material to waterways. Use aluminum/non-sparking shovels to dig trenches or make soil and sand barriers or utilize the placement of socks as barriers to contain spill
- Upon completion of clean-up, place contaminated absorbent and associated materials into steel pails or drums for removal from the site. Transport contaminated soils to the designated landfarm area and record volumes and type of contaminant
- If a spill has entered flowing water, take a sample immediately upstream of the spill and downstream (e.g.: 50 m, 150 m and 500 m from spill)

2.3 REPORTABLE SPILLS

According to the Consolidation of Spill Contingency Planning and Reporting Regulations of the *Environmental Protection Act (*1990), where there is a reasonable likelihood of a spill in an amount equal to or greater than the amounts set out in Table 2.3-1, the spill must be reported within 24 hours to the Nunavut spill report line at 1-867-920-8130.

Table 2.3-1 Reportable Quantities for Spills in Nunavut Territory

Item No.	*TDGA Class*	*Description of Contaminant*	*Amount Spoiled*
1.	1	Explosives	Any amount
2.	2.1	Compressed gas (flammable)	Any amount of gas from containers with a capacity greater than 100 l.
3.	2.2	Compressed gas (non-corrosive, non flammable)	Any amount of gas from containers with a capacity greater than 100 l.
4.	2.3	Compressed gas (toxic)	Any amount
5.	2.4	Compressed gas (corrosive)	Any amount
6.	3.1, 3.2, 3.3	Flammable liquid	100 l
7.	4.1	Flammable solid	25 kg
8.	4.2	Spontaneously combustible solids	25 kg
9.	4.3	Water reactant solids	25 kg
10.	5.1	Oxidizing substances	50 l or 50 kg
11.	5.2	Organic Peroxides	1 l or 1 kg
12.	6.1	Poisonous substances	5 l or 5 kg
13.	6.2	Infectious substances	Any amount
14.	7	Radioactive	Any amount
15.	8	Corrosive substances	5 l or 5 kg
16.	9.1 (in part)	Miscellaneous products or substances, excluding PCB mixtures	50 l or 50 kg
17.	9.2	Environmentally hazardous	1 l or 1 kg
18.	9.3	Dangerous wastes	5 l or 5 kg
19.	9.1 (in part)	PCB mixtures of 5 or more parts per million	0.5 l or 0.5 kg
20.	None	Other contaminants	100 l or 100 kg

Based on Environment Canada's recommendation, all releases of harmful substances, regardless of quantity are immediately reportable where the release is:

- Near or into a water body;
- Near of into a designated sensitive environment or sensitive wildlife habitat;
- Poses an imminent threat to human health or safety; or,
- Poses an imminent threat to listed species at risk or its critical habitat.

Based on Nunavut Spill Contingency Planning and Reporting Regulations, proponents have a legal requirement to report any spill of flammable liquids greater than 100 L in quantity. In addition, ANY quantity of spilled radioactive material is reportable.

For all reportable spills at the Kiggavik Project, the Spill Report Form presented in Attachment B will be completed and forwarded to the appropriate authorities listed in Attachment A within 24 hours. A full investigation of the spill will be conducted by AREVA EHS personnel in order to determine cause and prevent reoccurrence.

2.3.1 Spill Response Contact List

The current exploration site "Emergency Contacts" list is posted in drill rigs and field offices and can be found in Attachment A. Upon initiation of the construction phase, this Plan will contain a full spill response contact list including pertinent AREVA contact numbers and will be updated regularly. The contact list contains regulatory agency contact information, AREVA contacts, RCMP contacts, and emergency services contact information.

2.3.2 Reporting Requirements

The following information will be generated and reported to appropriate personnel and agencies following response to a reportable spill. The Spill Report Form found in Attachment B is required to be completed and will include the following information:

- Date and time of spill
- Location of spill
- Direction the spill is moving

- Name and number of contact person at location of spill
- Type and quantity of contaminant
- Cause of spill
- Whether spill is contained or stopped
- Description of the existing contaminant
- Action taken to contain, recover, clean-up and dispose of spilled material

The following agencies/people will be notified of the spill and be provided a copy of the completed spill report:

- Government of Nunavut (GN) and Environment Canada (EC) 24-hour spill report lines (within 24hours) by phone; utilize the information collected for the spill report form
- General Manager, Kiggavik Project
- Manager, Nunavut Affairs and Baker Lake office
- Facility Supervisor
- EHS Group (if not on site during incident)
- The Nunavut Water Board (NWB) and Indian and Northern Affairs Canada (INAC) request verbal notification as soon as possible, however they will be notified by the spill report line:
    - NWB: 867-360-6338
    - INAC: 867-975-4295
- A copy of the written Spill Report Form will be submitted to INAC (Water Resources Office and Manager of Field Operations), NWB and EC within seven calendar days of the incident
- A detailed report will be submitted to INAC, NWB and EC within 30 days

- A copy of the Spill Report Form and a detailed report to Kivalliq Inuit Association (KIA)

2.3.3 Spill Site Restoration

Once the source of the spill has been neutralized and the required reporting and spill investigation has been completed, clean up and remediation of the spill site will be conducted. Steel drums or other appropriate containers as approved by the EHS Superintendent will be used to contain and transport contaminated soil for removal from site.

Depending on the nature of the spilled contaminant, the soil may be treated for remediation at AREVA's contaminated soils landfarm (hydrocarbon based spills, sewage spills). Contaminated soil resulting from the spill of hazardous chemicals will be treated as a hazardous waste and shipped to a licensed facility for treatment and disposal (refer to Technical Appendix 2U – Hazardous Materials Management Plan). Temporary storage of contaminated materials is within lined berms. Used sorbent material is burned in the site incinerators.

AREVA will develop site specific remediation for spill areas in coordination with regulatory agencies.

3 MINE SITE INFORMATION

3.1 KIGGAVIK PROJECT LOCATION

The Kiggavik Project includes two sites; the Kiggavik site located approximately 80 km west of Baker Lake, Nunavut and the Sissons site located approximately 17 km south-west of Kiggavik. All materials and supplies required for construction and operation will be shipped by seagoing cargo vessels to Baker Lake, offloaded and temporarily stored at the Baker Lake port facility, and transported by truck to the mine site via an ice road or all-weather road.

3.2 PRE-DEVELOPMENT FACILITIES

An exploration camp currently exists at the Kiggavik site. This camp can accommodate approximately 60 people. Current areas at the Project site where hazardous materials are stored or have the potential to be spilled include:

- storage shed/back-up generator/shop
- generator building
- helicopter storage/shop
- grey water collection area
- industrial incinerator
- core storage and core logging tents
- radioactive materials storage compound
- fuel esker containing 8 bulk fuel tanks, three for Jet-B fuel and five for diesel fuel, and fuel drums stored on secondary containment

Detailed site maps showing current Project exploration facilities are presented on Figures 3.2-1 and 3.2-2.

Figure 3.2-1 Kiggavik Exploration Site Main Area Components

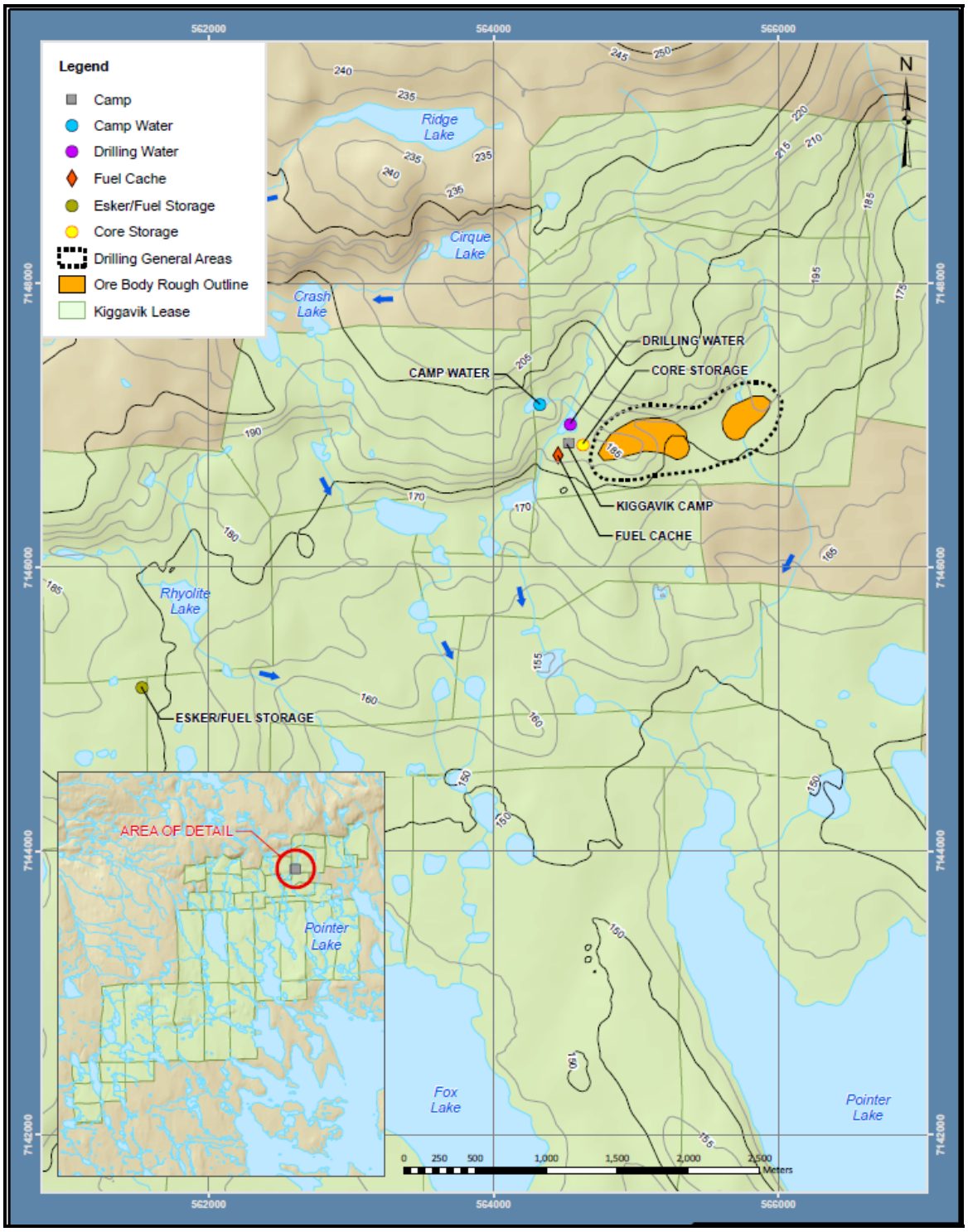
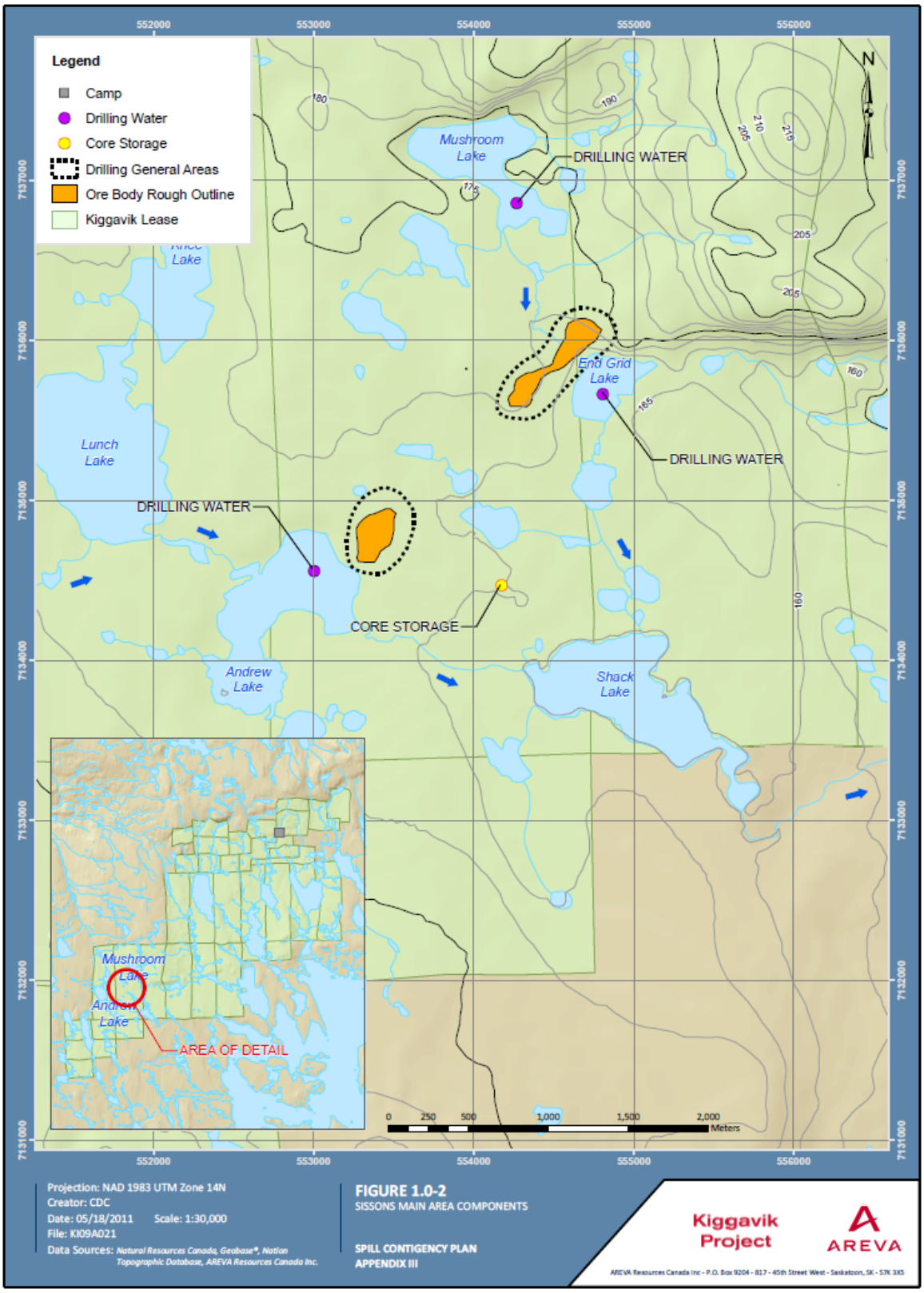


Figure 3.2-2 Sissons Exploration Site Main Area Components



3.3 MINE OPERATION FACILITIES

Upon commencement of mine development, further infrastructure will be necessary at the Kiggavik and Sissons sites and the Baker Lake port facility. All areas where the storage, handling, and use of hazardous materials will occur will be designed to comply with Federal and Territorial requirements.

3.3.1 Kiggavik Site

The Kiggavik Project and proposed Baker Lake port and access roads are shown on Figure 3.3-1. The Kiggavik site will include the infrastructure listed in Table 3.3-1. The location for the infrastructure components are shown on the Kiggavik site layout (Figure 3.3-2).

Figure 3.3-1 Kiggavik Project and Baker Lake Port Locations

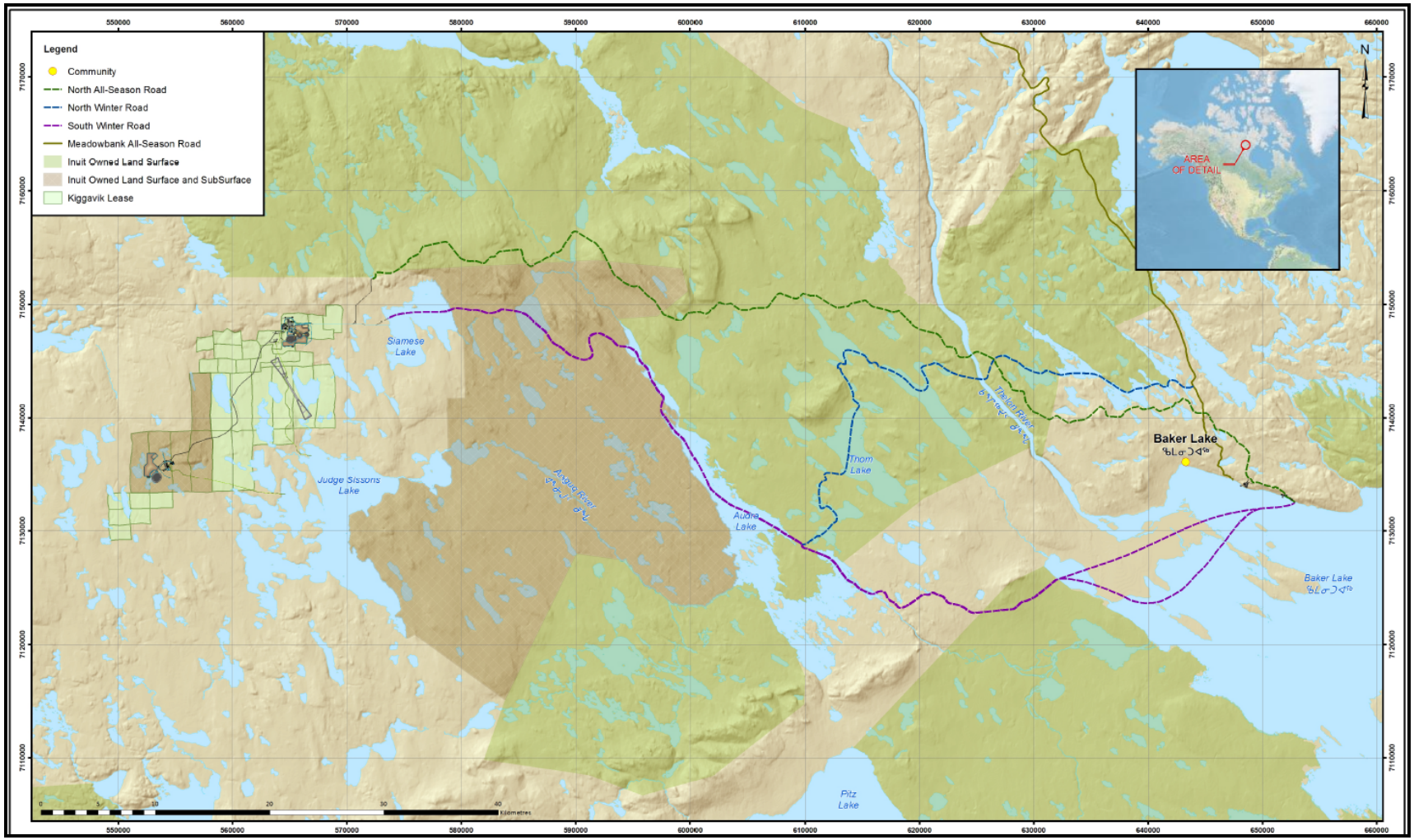


Figure 3.3-2 Kiggavik General Site Layout

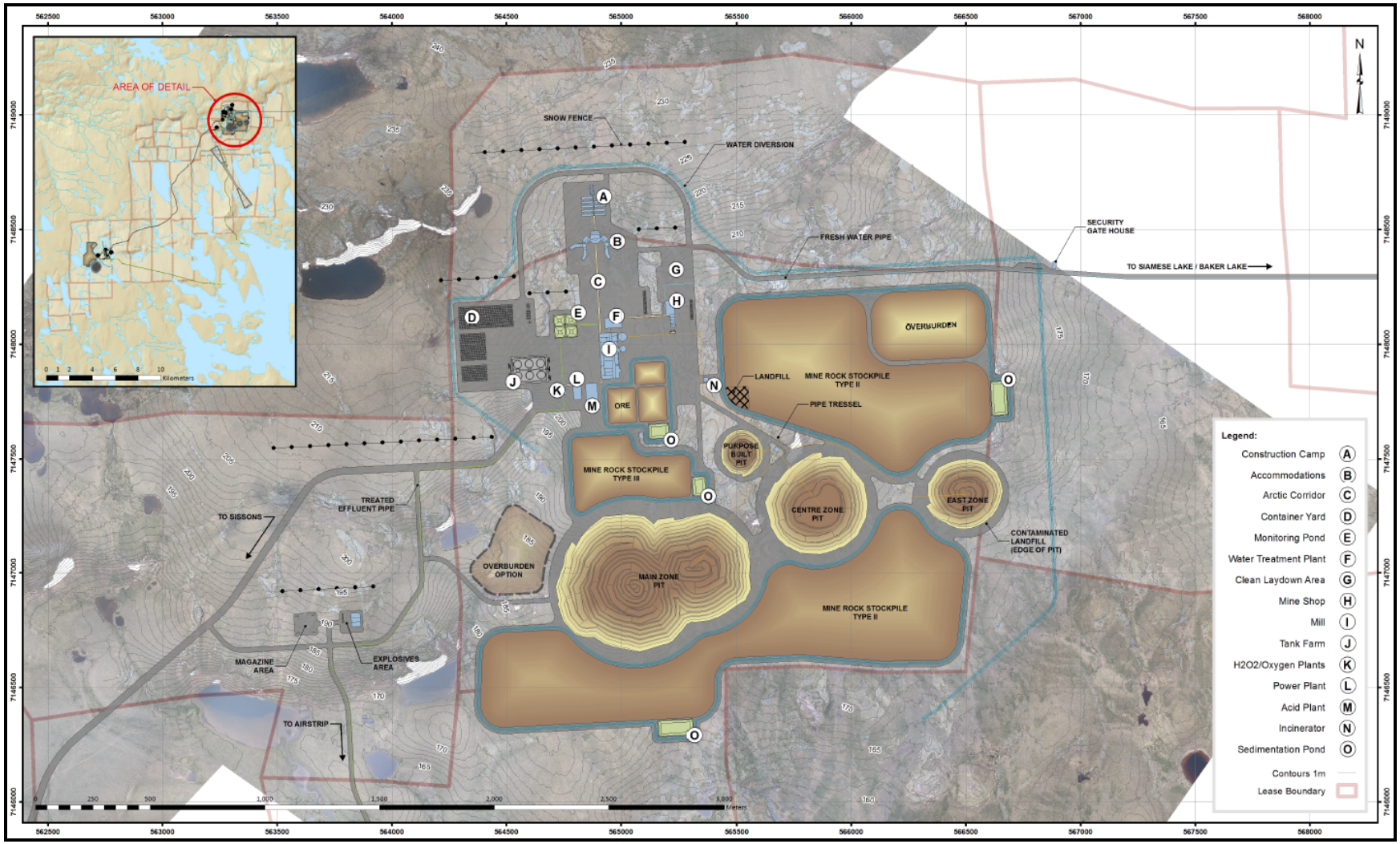


Table 3.3-1 Summary of Kiggavik Site Infrastructure

Facility	Dimensions	Containment		Key Features
		Yes	No	
Access				
Baker Lake – Kiggavik Winter Access Road	40 m (on ice) x 105.2 km		✓	• 3 month seasonal road • Includes emergency shelters
Baker Lake - Kiggavik All-Season Access Road	10 m x 107.5 km		✓	• All-season road with cable ferry – ice bridge crossing Thelon • 8 month service • Includes emergency shelters
Kiggavik - Sissons Access Road	20 m x 17.8 km		✓	• Haul road
Access Road to Siamese Lake	10 m x 6.9 km		✓	• Service road for fresh water line, includes power line • Overlays portion of the winter road route
Access Road Kiggavik to Judge Sissons Lake	10 m x 13.2 km		✓	• Service road for treated effluent discharge line, includes power line
Pointer Lake Airstrip	150 m x 2300 m		✓	• Gravel airstrip • Includes fuel tanks
Mining				
Mine Shop	38 m x 114 m	✓		
Explosive Storage	80 m x 80 m		✓	• 300,000 kg combined capacity
Milling				
Mill	78 m x 200 m	✓		• 3,800 tonnes U per year
Acid Plant	50 m x 80 m	✓		• 310 t/day 100% H_2SO_4
Oxygen Plant	10 m x 20 m	✓		• 30 t/day
Peroxide Storage	10 m x 10 m	✓		• 50% solution
Tailings Management	3 in-pit TMFs	✓		• East Zone, Centre Zone, Main Zone

Facility	Dimensions	Containment		Key Features
		Yes	No	
Water Management				
Water Treatment Plant	74 m x 44 m	✓		• 5,560 m3/day capacity • UF pre-treatment, RO, chemical treatment
Monitoring Ponds	100 m x 100 m	✓		• 4 -12 h holding ponds
Fresh Water Pipe	12 " x 8.7 km		✓	• To Siamese Lake
Treated Effluents Discharge Pipe	10" x 13979 m	✓		• Discharge to Judge Sissons Lake
Purpose Built Pit	28635 sq.m	✓		• Storage of site drainage
Water Diversion Structures	6292 m		✓	• Fresh water diversion
Power				
Power Plant	35 m x 67 m	✓		• 20.95 MW installed
Tank Farm	159 m x 117 m	✓		• 5 -10 ML tanks
Warehousing				
Container Yard	312 m x 326 m	✓		• Sized for approximately 4,200 containers stacked 4 high
Clean Storage	100 m x 195 m		✓	
Accommodation				
Permanent Camp	230 m x 135 m		✓	• 350 single rooms
Construction Camp	105 m x 140 m		✓	• 650 peak workforce

3.3.2 Sissons Site

Locations of key infrastructure components are shown on the Sissons site layout (Figure 3.3-3). A list of infrastructure to be designed for the Sissons site is provided in Table 3.3-2.

Figure 3.3-3 Sissons General Site Layout

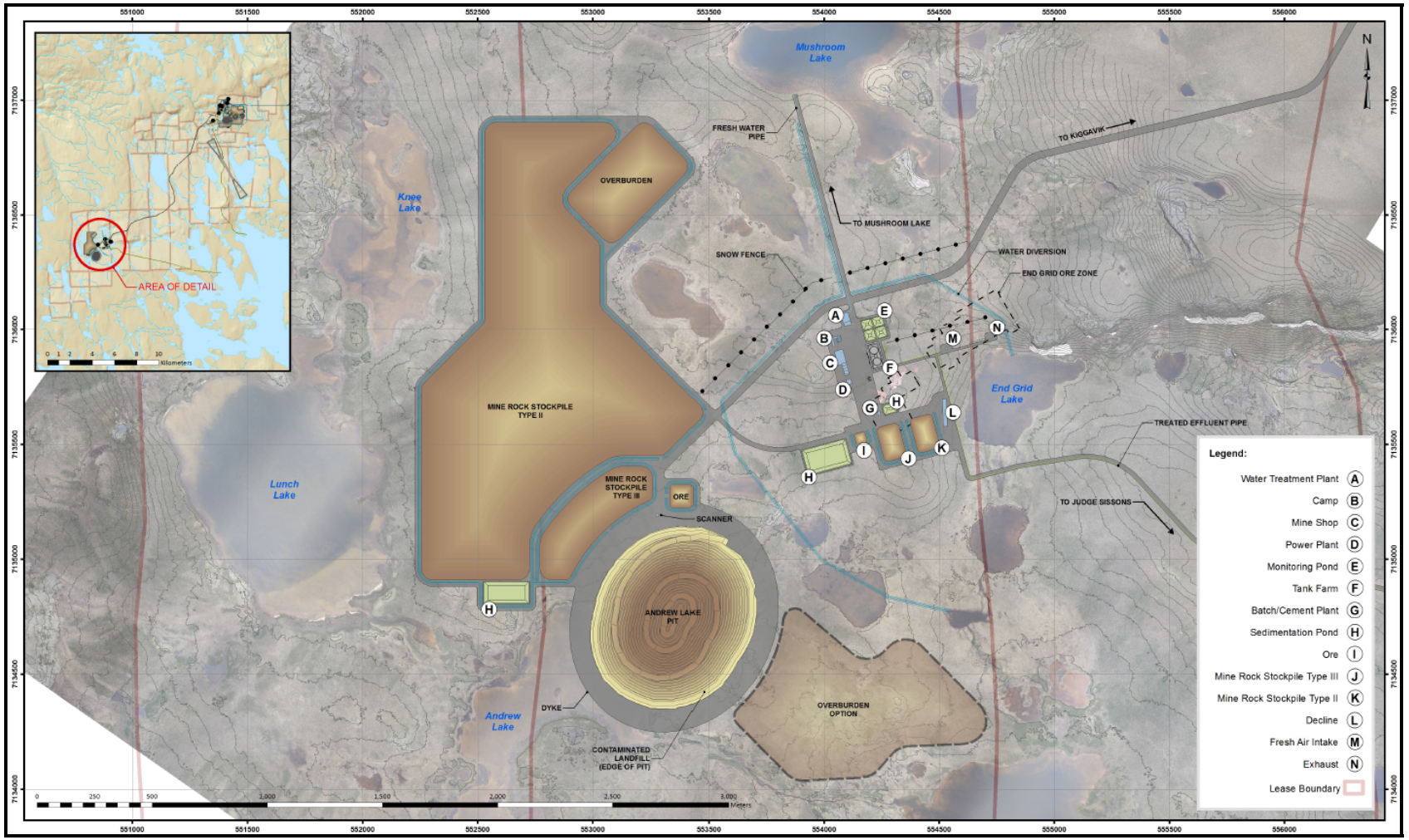


Table 3.3-2 Summary of Sissons Site Infrastructure

Facility	Dimensions	Containment		Key Features
		Yes	No	
Access				
Access Road to Mushroom Lake	10 m x 909 m		✓	• Service road for fresh water line, includes power line
Access Road Sissons to Judge Sissons Lake	10 m x 10.4 km		✓	• Service road for treated effluent discharge line, includes power line
Services				
Mine Shop and Offices/dry	38 m x 114 m	✓		• Services underground and surface fleets - light duty function
Explosive Magazines	80 m x 80 m		✓	• Long term storage at Kiggavik
Cemented Rock Fill Plant	10 m x 20 m		✓	• 60 tonnes CRF per hour
Water Management				
Water Treatment Plant	32 m x 60 m	✓		• Chemical treatment • 1,475 m3/d nominal capacity
Monitoring Ponds	100 m x 100 m	✓		
Water Diversion Structures	3797 m		✓	• Fresh water diversion
Power				
Power Plant		✓		• 7.65 MW
Tank Farm	58 m x 117 m	✓		• 2 – 10 ML tanks
Warehousing				
Container Yard	40 m x 40 m		✓	
Emergency Camp	45 m x 55 m		✓	

3.3.3 Baker Lake Port

The location of the key infrastructure components are shown on the Baker Lake port facility layout (Figure 3.3-4). A list of infrastructure to be designed for the Baker Lake site is provided in Table 3.3-3.

Figure 3.3-4 Baker Lake Dock and Storage Facility Layout

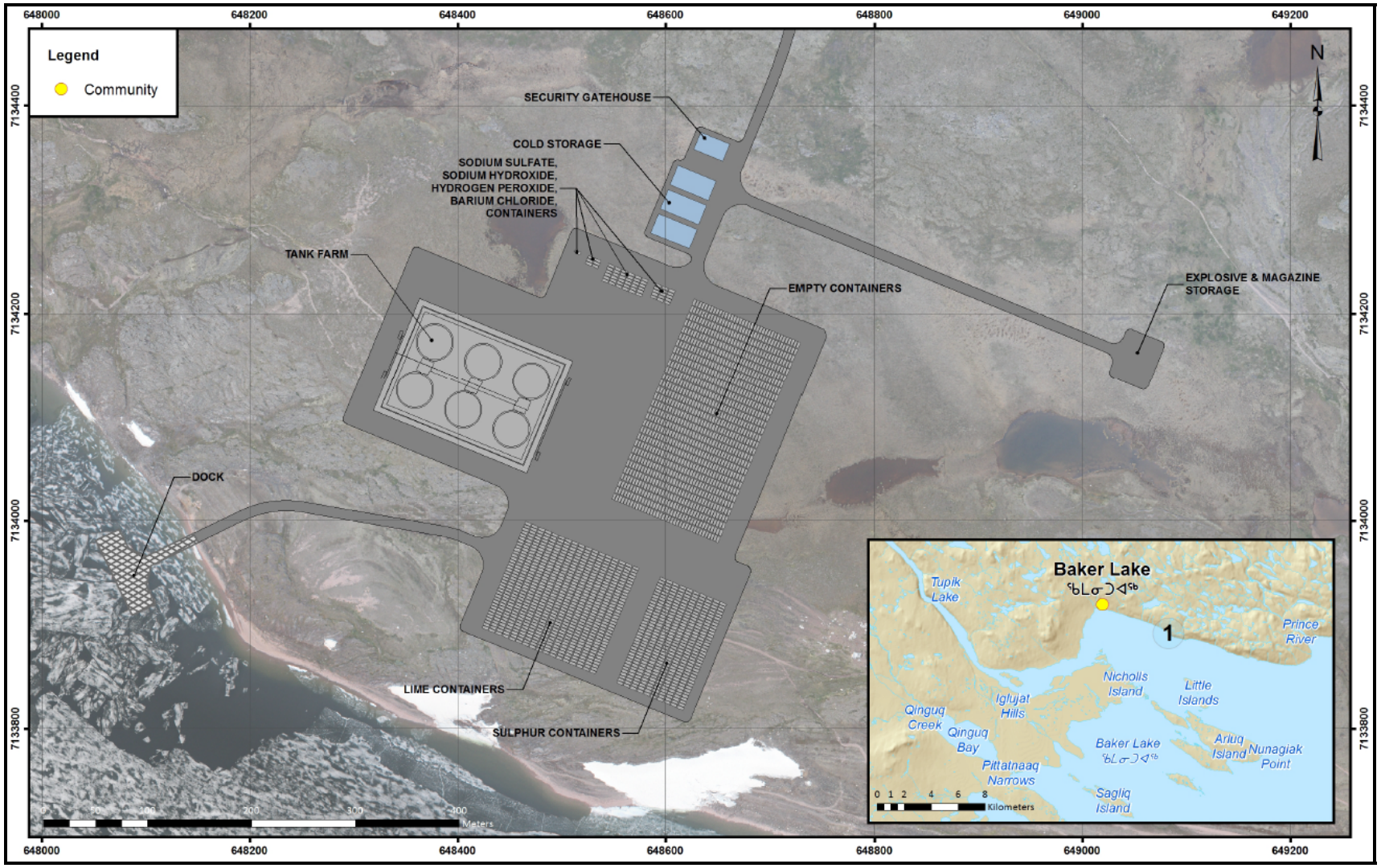


Table 3.3-3 Summary of Baker Lake Site Infrastructure

Facility	Dimensions	Containment		Key Features
		Yes	No	
Temporary Dock	25 x 80 m		✓	• 7,500 t barge docking
Marshalling Area				
Tank Farm	159 m x 117 m	✓		• 6 -10 ML tanks
Reagents Container Storage	210 m x 111 m	✓		• Sized for approximately 4200 containers stacked 4 high
Other Container Storage	210 m x 111 m		✓	• Sized for approximately 4200 containers stacked 4 high
Explosive Storage	40 m x 40 m		✓	• 300 tonne capacity
Offices	40 m x 20 m		✓	
Access				
Road to Baker Lake	20 m x 1.5 km		✓	• connects into AEM Meadowbank dock road

4 PETROLEUM PRODUCTS

Based on the large volume of fuel required to be transported and stored at the Kiggavik Project, this represents the largest potential for spills to occur. The following section identifies the pre-development and operational inventory, storage volumes and locations, and transfer protocols for the handling of petroleum products.

4.1 PETROLEUM AND CHEMICAL PRODUCT STORAGE AND INVENTORY

The design basis for all petroleum storage on site is the CCME Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products, 2003.

The operational and maintenance requirements for all petroleum storage and handling on site are based on the CCME Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products, 2003 and in compliance with the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*, under the *Canadian Environmental Protection Act, 1999* (CEPA 1999).

4.1.1 Pre-development Inventory

Table 4.4-1 lists products (not inclusive) currently used, along with the maximum amount stored at the Kiggavik exploration camp.

Table 4.4-1 Pre-Development Inventory of Hazardous Materials

Chemical/Material	Amount	Storage Type
Diesel Fuel	250,000 L	EnviroTanks
Jet B Fuel	150,000 L	EnviroTanks
Gasoline	1,025 L	Secondary Containment
Generator Oil	20 x 20L (400 L)	Secondary Containment
Hydraulic Oil	20 x 20L (400 L)	Secondary Containment
Engine Oil	20 x 20L (400 L)	Secondary Containment
Propane	75 x 100 lb (7500 lb)	Secondary Containment
Grease	5 cases x 12 tubes (60 tubes)	Secondary Containment
Salt	50,000 lbs	Secondary Containment
Cement	15,000 lbs	Secondary Containment

A specific inventory of all petroleum and chemical products used during the field operations is maintained at site.

4.1.1.1 Fuel Tanks

To accommodate increased fuel demand and reduce the potential of fuel spills, bulk fuel storage tanks were installed. Eight double-walled steel EnviroTanks, each with a capacity of 50,000 L were installed at the esker located on the Kiggavik lease, west of the Kiggavik camp at the coordinates 14W 561512, 7145240. Three tanks on the north side of the esker are for the storage of Jet-B fuel, and five tanks on the south side of the esker are for the storage of diesel fuel.

10,000 L fuel bladders containing Jet-B or P-50 diesel fuel are transported to the fuel cache during the winter via ground transport (snow cats, foremosts or other tundra trucks). The fuel is then transferred from the fuel bladders to the EnviroTanks.

Double walled steel EnviroTanks and associated pump meet the requirements of secondary containment within their own structure. Further protection against spills is provided by high level alarms, overfill preventers, and catch basins around each fill pipe.

4.1.1.2 Fuel Drums

The cache of fuel drums at the Kiggavik Camp is presently located at the coordinates 14W 564464 7146782. Unleaded gasoline and propane cylinders may be brought to site during the winter haul or by aircraft from Baker Lake. Diesel fuel may be transferred from the EnviroTanks to drums or double-walled fuel tanks for use in camp and/or drill sites.

Drums of diesel fuel and unleaded gasoline at the Kiggavik Project are stored in approved 205 L steel drums within secondary containment systems at the camp site. The secondary containment system presently being used is adequate to contain 110% of the total aggregate storage capacity of the drums. Secondary containment is used for all liquid fuels, and lubricants. Drill additives are stored in sea containers to keep away from moisture.

4.1.2 Operational Inventory

All equipment on site will be operated using common arctic grade diesel fuelled generators. A power generation unit will likely be required at both Kiggavik and Sissons sites. The majority of large site equipment will operate on diesel fuel. As well, gasoline may also be required on site.

The Kiggavik project total peak annual fuel consumption has been estimated to be 65 million liters (ML) with an average of 49 ML over the production period. This total includes all fuel required for heat and power and mobile mine equipment and general site vehicles.

The Baker Lake facility will receive fuel from barges during the two summer months and be able to hold enough fuel for the Project. Fuel will be transported to the Kiggavik site on an ice road during the three winter months (refer to Appendix 2U "Hazardous Materials Plan"). It is estimated that during the peak consumption year fuel storage of 70 ML may be required at Baker Lake; 50 ML of fuel storage at Kiggavik site and 20 ML of fuel storage at Sissons site. There will need to be a maximum of seven 10 ML tanks at Baker Lake, five 10 ML tanks at Kiggavik site and two 10 ML tanks at Sissons site. The current design conservatively considers six tanks at Kiggavik and two tanks at Sissons. Figures 3.3-2, 3.3-3, and 3.3-4 show the proposed tank farm configurations at these locations.

4.1.2.1 Secondary Containment Areas

Secondary containment areas required to contain fuel volume are designed according to the National Fire Code: their volume is the sum of the size of the largest tank (10 ML) and of ten percent of the volume of the remaining tanks. For a tank farm of 6 tanks of 10 ML capacity, the containment volume is therefore 15 ML.

A base of coarse gravel of approximately 1000 mm thickness with a 40 mm thick fine gravel layer will provide a foundation for the dike area. In order to prevent absorption of fuel by the soil if a tank leaks, a membrane will be applied in the dike area. To prevent puncture of the membrane, 80 mm of sand will be packed on both sides. A geotextile layer and fine gravel will be located above and below the membrane and sand. Along the top of berm walls, an anchoring trench will be needed to secure the member and geotextile layers. Under tanks, a thicker layer of fine gravel will be used, with a slope of about 10 to 1 to the floor of the berm. A thin layer of sand will also be used to prevent high stresses to the metal on the underside of the tank.

All tanks will have a capacity of 10 ML, with diameter of 34 m and height of 12 m. Stairs and handrails will be provided on all tanks. All piping will be constructed over the berm walls rather than penetrate through them.

4.2 RESPONSE EQUIPMENT

4.2.1 General Equipment

Automatic fire suppression equipment will be in place in all buildings occupied by personnel. Fire extinguishers will be located in clearly marked locations in accommodations, shops, fuelling stations, the cold storage warehouse, the helicopter pad and other areas where flammable substances are stored and/or handled. Spill kits will be located at the fuel farm, fuelling stations, airstrip, helicopter pad, and other locations where spills of hazardous substances could occur.

A checklist of the required items for each spill response kit or equipment storage area will be provided. Spill response supplies will be checked against the lists on a quarterly basis and any deficiencies remedied immediately. The checklists will be reviewed whenever new chemicals are added to on-site activities to ensure that relevant spill cleanup supplies are present. Material safety data sheets (MSDS) for all chemicals present in the vicinity of the spill kit will be kept near the kits, and will be updated as necessary to ensure that all MSDS data are up to date. The expiry dates of the MSDS will be tracked for every chemical present on site to help identify and replace those that are about to expire. MSDS are provided by the chemical suppliers.

4.2.2 Spill Kits

4.2.2.1 Pre-Development

Spill kits vary in size and content depending on supplier and manufacturer however to remain consistent and provide adequate spill supplies, AREVA has chosen two types of spill kits which are considered to be standard and are available on site during pre-development activities. These include a 135 L universal emergency response kits and 95 US gallon drum overpack kits. These kits include absorbent compound, booms, socks, pads, and protective equipment such as gloves, safety glasses and coveralls.

Due to the volume of fuel being stored in the fuel tank storage system and the remote nature of the sites, a minimum of one 95 US Gallon spill kit will be present for each 100,000 L of fuel stored.

In addition, the following spill response materials are readily available for spill response:

- Skimmers
- Plugging compound
- Bulk supplies of oil absorbent pads and socks
- Aluminum or brass shovels and tools
- Bonding cables
- MSDS sheets

In addition, appropriate fire suppression equipment is stationed in each building, at the fuel tank storage system, and near each site where equipment is normally serviced and

anywhere deemed advisable. A supply of sealable 20 L steel pails or 205 L drums will be reserved for the collection and storage of used absorbent materials.

4.2.2.2 Operations

Spill kits will be made available at fuel storage areas, airstrip, site vehicles, mill areas, maintenance shops, mining areas, and anywhere deemed advisable. Larger 425 L spill kits will be stationed at fuel storage locations, generator buildings, and within the mill.

Other spill kits will be available for acid spills and ammonium nitrate spills. These will be located within the mill areas and at the explosives storage area.

4.3 PETROLEUM PRODUCT TRANSFER

Smoking, sparks or open flames are prohibited in fuel storage and fuelling areas at all times. Petroleum transfer operations will be carried out by trained personnel.

4.3.1 Fuel Transport to Baker Lake

Fuel will be loaded at terminals in Montreal, Rotterdam or New York then transported to Ellis Island anchorage at the east end of Chesterfield Inlet using oceangoing Ice Class double hull tankers. The ocean going tankers will anchor at Ellis Island and lighter their cargoes into double hull barges. The double hull barges will also deliver the fuel direct to Baker Lake from southern ports. Double hull tankers may also deliver fuel to the tank farm in Churchill. Procedures for fuel transfer conforming to Transport Canada Guidelines are described in the Technical Appendix 2J – Marine Transportation Plan and summarized here.

A containment boom will be placed between the tanker and the bow and stern of the barge as a precautionary measure to contain any fuel should a spill occur. A work boat and a barge containing oil spill equipment barge will be stationed at Ellis Island during all fuel transfers. A containment boom which will encircle the entire length of the tanker and barge will be available onsite, ready to be deployed if necessary.

4.3.1.1 Oil Handling Facility

The oil handling facility (OHF) will be constructed and operated in accordance with Transport Canada Arctic waters Oil Transfer Guidelines and Oil Handling facility Guidelines. The OHF supervisors will be trained in accordance with Transport Canada Supervisor of Oil Transfer Operation course or equivalent.

Steel piping will lead down to the loading dock from the diesel fuel tank farm at Baker Lake. The discharge hose(s) will be connected to the fuel receiving manifold on the dock using dry break couplings. A powered hose reel and hose crane will be fitted on the barge. All connection points will be protected with save-alls. A ready use pollution kit will be stored on the dock. A containment boom will be deployed between the dock and the barge hull during fuel transfers as a precaution to contain any fuel that may accidentally spill.

A team of trained personnel will be in charge of the barge discharge equipment. Fire-fighting equipment will be fitted on the dock as well as on each barge as required by Transport Canada. For detail on the proposed OHF protocols for the Kiggavik Project, refer to Technical Appendix 2J – Marine Transportation Plan.

4.3.1.2 Shipboard Oil Pollution Emergency Plan

Shipboard Oil Pollution Emergency Plans (SOPEPs) are specific to each shipping vessel. Canadian regulations require every vessel navigating Canadian waters to have a Transport Canada approved SOPEP. For detail on SOPEP requirements for the Kiggavik Project, refer to Technical Appendix 2J – Marine Transportation Plan.

4.3.2 Fuel Transport to Kiggavik Site

Fuel will be transported to the Kiggavik site on an ice road during the three winter months and may be transported on the all weather road periodically. Refer to Technical Appendices 2K - Winter Road Report, Technical Appendix 2L - All Season Road Report, and Technical Appendix 2U - Hazardous Materials Management Plan for further details on road alignment and fuel transport procedures.

Truck loading and fuelling stations will be built at the Baker Lake port and the Kiggavik and Sissons sites. All fuel being loaded onto trucks will be at a reduced pressure, by increasing the piping from 100 mm to 150 mm diameter pipes. The rate for diesel fuel transfer to or from the trucks is expected to be 27,000 L/h.

4.3.3 Fuel Transfer Incident

If any of the following conditions occur during petroleum product transfer, the transfer will be stopped immediately:

- Lost communications;
- Loss of ability to monitor hose to shore;

- Sign of spillage, or damage to hoses and couplings;
- Any detection of accumulated gases;
- Major increase in wind and/or swells;
- When an electrical storm is present or predicted;
- Sever deterioration in ice or visibility conditions;
- Helicopter landings or take offs; and,
- Any other situation deemed dangerous by the transfer supervisor.

A spill of fuel will be reported to the appropriate authorities (Attachments A) and the cause of the spill will be fully investigated. Spill reports are used as a continuous improvement tool and are reviewed periodically in order to prevent reoccurrence.

4.3.4 Post Transfer Procedures

When the transfer has been completed, the following procedures will be followed:

- Purge the hose and shut all manifold and tank valves; when purging ensure that no air will be introduced to the tanks at the shore facility;
- Sound all tanks, (after waiting for settling, if necessary), and confirm with both parties that quantities of fuel/cargo have been properly transferred;
- Stow hoses securely for sea passage;
- Complete transfer checklists;
- Ensure the ship's and facility's Oil Books and Checklists are signed, kept up to date, and retained for examination by a Pollution Prevention Officer or other authorized official, (by prior arrangement with Prairie and Northern Region, Marine, organizations may use their existing checklists for recording transfer preparation conditions, provided all major aspects are covered in those checklists);
- Forward the transfer particulars checklist or a post-season summary of operations and quantities, for statistical records and prevention guidelines

improvement purposes, to Prairie and Northern Region, Marine by the calendar year-end.

4.3.5 Remediation

The site manager is responsible for ensuring that the services of a qualified mobile environmental response unit are available. This includes ensuring that contracts are in place for the provision of these services. Sites which require remediation will be addressed according to appropriate regulations and guidelines.

5 SPILL SCENARIOS AND RESPONSE STRATEGIES

5.1 POTENTIAL HAZARDS

5.1.1 Pre-Development

Potential sources for spills have been identified at the Kiggavik exploration site as follows:

- Storage of drummed products: leaks or ruptures may occur. This includes drums of Jet-B, P-50 diesel, gasoline, waste fuel, and waste oil
- Overfilling of tank(s) at the fuel tank storage system of Jet-B or P-50 diesel
- Transfer of fuel from tank to drum and from drum to tank
- Fire at the fuel tank storage system
- Collision at the fuel tank storage system
- Vandalism of fuel tank storage system
- Propane cylinders: propane leaks may occur at the valves. All cylinders are secured at all times
- Refuelling equipment such as: diamond drill equipment; helicopters; camp generator, stoves and incinerators; wheeled vehicles; snowmobiles, pumps. Incidents involving leaking or dripping fuels and oils may occur due to malfunctions, impact damage, lack of regular maintenance, improper storage, or faulty operation
- Spills of acid from damage lead/acid batteries
- Spill of radiologically contaminated drill cuttings during drilling operations or transport of totes
- Spill of potentially contaminated drill return water

5.1.2 Operations

In addition, potential sources for spills during the construction and operational phases include:

- Leakage, puncture, collision, fire, vandalism, or overfilling of tank(s) at the fuel tank farms to be located at Baker Lake dock area and the Kiggavik and Sissons tanks farm areas
- Refuelling of mine site equipment, site vehicles and planes
- Fuel transfer piping and valves
- Temporary storage containers (jerry cans, slip tanks)
- Spill of chemicals used in the milling process from tanks and piping
- Spillage of ore from haul trucks

Kiggavik's Environmental Code of Practice discusses how to conduct activities so as to minimize the risk of a spill. Design measures to limit the infiltration and loss of released products will include geomembrane liners, containment berms, fuel aprons, and collection sumps.

In addition, the following measures will further minimize the potential for spills during fuel handling, transfer and storage:

1) Fuel transfer hoses with cam lock mechanisms to be used when transferring bulk fuel deliveries into the bulk storage tanks.

2) Carefully monitor fuel content in the receiving vessel during transfer. Always have additional absorbent pads on hand while transferring fuel.

3) Clean up drips and minor spills immediately.

4) Regularly inspect drums, tanks and hoses for leaks or potential to leak and for proper storage.

5) Create fuel caches in natural depressions that are located at least 30m from the normal high-water mark of any water body.

6) Inventory and reconciliation procedures developed to ensure tanks are not overtopped and to ensure that tank leakage is not occurring.

7) Overfill protection on tanks include visual and audible alarms; catch basins around fill pipe; additional secondary containment at transfer locations; corrosion protection

8) Train personnel, especially those who will be operators, in proper fuel handling and spill response procedures. This training is to include a “mock” spill, review of spill kit contents and their use and reporting.

5.2 SPILL SCENARIOS AND RESPONSE STRATEGIES

5.2.1 Spill of Fuel from Metal Drums, 10,000 L Fuel Bladders, or Fuel Tanks on Tundra

A puncture or rupture of containers containing liquid fuels should initially be assessed for risk of ignition. Sources of ignition will be extinguished or isolated from the spill area if safe to do so. Using appropriate personal protective equipment as described in the MSDS efforts should be undertaken to plug punctures with appropriate material from the spill kit (plugging compound or other improvised materials). Ruptures or holes should be high-centered to stop further spillage of fuel. Absorbent materials should be used to absorb spilled fuel. A containment berm should be built from soil or snow or absorbent socks and/or tarps to contain a large spill.

Remove the spilled products using absorbent material or soil, gravel or snow, placing all recovered spilled fuel and spent absorbents into appropriate containers (metal cans, pails or drums in good condition). Again, all fuel skimmed or wicked off of the ground is to be disposed of, in appropriate steel containers. High-centered ruptures will be used as a point of entry for manually-operated fuel transfer pump suction tubes, and remaining fuel is removed to a sound drum. Small amounts of contaminated soil, vegetation or gravel is removed and placed into sealable steel drums and or pail and then disposed of appropriately. Large areas of spilled product on the ground are only to be remediated after consultation with AREVA environmental personnel, regulators, etc.

Before commencing any removal of soil, gravel or vegetation regulatory agencies will be contacted.

If a spill of significant volume occurs at one of the fuel storage tanks or from a 10,000 L fuel bladder attempt to prevent the spread of the fuel if safe to do so and immediately contact AREVA personnel to hire assistance with the spill response and clean-up.

5.2.2 Spill of Fuel on Land

Response to spills on land will include the general procedures previously detailed. Main spill control techniques involve the use of two types of barriers: dykes and trenches. Barriers should be placed downgradient from the source of the spill, and as close as possible to the source of the spill. Barriers slow the progression of fuel and also serve as containment to allow recovery of the fuel.

Depending on the volume spilled, the site of the spill as well as available material, a dyke may be built with soil, booms, lumber, snow, etc. A plastic liner should be placed at the foot of and over the dykes to protect the underlying soil or other material and to facilitate recovery of the fuel. Construct dykes in such a way as to accumulate a thick layer of free product in a single area (V-shaped or U-shaped).

Trenches are useful in the presence of permeable soil and when the spilled fuel is migrating below the ground surface. A plastic liner should be placed on the down-gradient edge of the trench to protect the underlying soil. Liners should not be placed at the bottom of the trench to allow water to continue flowing underneath the layer of floating oil.

The use of large quantities of absorbent materials to recover large volumes of fuel should be avoided. Large volumes of free-product should be recovered, as much as possible, by using vacuums and pumps, and containerized. Mixtures of water and fuel may be processed through an oil-water separator. Absorbent sheets should be used to soak up residual fuel on water, on the ground (soil and rock), and on vegetation. Peat moss may also be sprinkled on vegetation to absorb films of petroleum products.

5.2.3 Spill of Fuel on Water or Ice

The following elements must be considered when conducting response operations:

- type of waterbody or water course (lake, ocean, stream, river)
- water depth and surface area
- wind speed and direction
- presence and range of tides
- type of shoreline
- seasonal considerations (open-water, freeze-up, break-up, frozen)

Containment of a diesel fuel slick on the ocean requires deployment of mobile floating booms to intercept, control, contain, and concentrate (i.e., increase thickness) the floating oil. One end of the booms is anchored to shore while the other is towed by a boat and use to circle the diesel fuel slick and return it close to shore for recovery using a skimmer. Reducing the surface area of the slick increases its thickness and thereby improves recovery. Mechanical recovery equipment (*i.e.,* skimmers and oil/water separators) will be mobilized to site if required.

If diesel fuel is spilled in a lake it may not be possible to deploy booms using a boat. In this case, measures are taken to protect sensitive and accessible shoreline. The diesel fuel slick is monitored to determine the direction of migration. In the absence of strong winds the oil will likely flow towards the discharge of the lake. Measures will be taken to block and concentrate the oil slick at the lake discharge using booms where it will subsequently be recovered using a portable skimmer, a vacuum, or sorbent materials.

In small slowly-flowing rivers, streams, channels, inlets or ditches, inverted weirs (i.e., siphon dams) may be used to stop and concentrate moving diesel fuel for collection while allowing water to continue to flow unimpeded. In the case of floating diesel fuel in a stream heading for a culvert (i.e., at a road crossing) a culvert block is used to stop and concentrate moving fuel for collection while allowing water to continue to flow unimpeded. In both cases diesel fuel will then be recovered using a portable skimmer or sorbent materials.

In the case of spills in larger rivers, with fast moving currents, diversion booming may be used to direct the oil slick ashore for recovery. Single or multiple booms may be used for diversion. Choosing a section of a river that is both wider and shallower makes boom deployment easier.

5.2.4 Spill of Fuel on Snow

In general, snow and ice will slow the movement of hydrocarbons. The presence of snow may also hide the diesel fuel slick and make it more difficult to follow its progression. Snow is generally a good natural sorbent, as hydrocarbons have a tendency to be soaked up by snow through capillary action.

However, the use of snow as a sorbent material is to be limited as much as possible. Snow and frozen ground also prevent hydrocarbons from migrating down into soil or at least slow the migration process. Ice prevents seepage of fuel into water.

Response to spills on snow and ice includes the general procedures previously detailed. Most response procedures for spills on land may be used for spills on snow and ice. The use of dykes (i.e., compacted snow berms lined with plastic sheeting) or trenches (dug in

ice) slow the progression of the fuel and also serve as containment to allow recovery of the fuel.

Free-product is recovered by using a vacuum, a pump, or sorbent materials. Contaminated snow and ice is scraped up manually or using heavy equipment depending on volumes. The contaminated snow and ice is placed in containers or within lined berms on land. Contaminated snow and soil will be transported to the designated landfarm area or shipped offsite for processing at a licensed facility.

5.2.5 Leak of Fuel from Distribution Lines

A detected leak from a fuel storage tank and/or distribution line assembly will be initially assessed for risk of ignition. Sources of ignition are to be extinguished or isolated from the leak if safe to do so. If safe to do so, the shut-off valve on the tank and/o distribution line is to be turned off. Absorbent material is placed on the spilled fuel; if spilled onto snow or ice it is scooped up with an aluminum (non-sparking) shovel and stored in an appropriate sealable steel container. Ultimate disposal of these materials is only to be done after consultation with site environmental personnel and the appropriate regulatory agency.

5.2.6 Fire at Fuel Storage Tanks

In the event that a fire occurs at the fuel storage tanks, it is AREVA's primary intentions to ensure the safety of site personnel by allowing the fire to burn. Appropriate third party personnel will be contacted to ensure proper response and clean-up occurs.

5.2.7 Crash at Fuel Storage Tanks

Current risk of a crash occurring at either fuel tank storage system location is minimal due to the absence of vehicles at the field program sites. During the operational period, crash protection will be installed at appropriate intervals around tank farms and critical facilities.

To assist aircrafts and helicopters, wind socks are placed at each location.

5.2.8 Release of Propane

No attempt should be made to contain a propane release.

Water spray can be used to knock down vapours and to reduce the risk of ignition.

Small fires can be extinguished with dry chemical or CO_2.

Personnel shall withdraw from the area immediately upon identifying a leak and shall not return until the leak is stopped and all the vapours have diffused. Contact will be made with the proper agency for disposal instructions of a defective container.

5.2.9 Spill of Radiologically Contaminated Materials

In the event of a spill of any amount of radioactive materials, such as ore, they will be collected into appropriate storage containers (eg: drums, etc). The site will be remediated as much as practical, meeting/exceeding the minimum necessary abandonment criteria of less than 1 μSv/h at a height of 1m above background. A spill of any amount of radiologically contaminated materials must be reported.

5.2.10 Spill of Potentially Contaminated/Drill Return Water into a Water Body

In the event of a spill of any amount of potentially contaminated/drill return water into a water body, any activities which are the possible cause will cease until a review of the incident has taken place. Water and sediment samples will be taken and a gamma survey conducted on the effected area. Activities will continue once the General Manager or designate is satisfied with the corrective measures taken.

5.2.11 Spill of Ammonium Nitrate

Ammonium nitrate dissociates readily in water to form ammonia, which in its un-ionized form, is toxic to aquatic organisms and fish. Storage on land, away from water sources largely eliminates the risk of ammonia losses to water bodies.

All partially full contaminated or ripped bags of prill, spilled prill and used empty bags are collected and stored in a dedicated contained location for shipment offsite for disposal. Spills within the storage facility are completely contained. All spills are recorded on a spill report and all tote bags are inspected regularly by the explosives contractor.

A spill of ammonium nitrate on mine roads is highly unlikely, however, accidental spills of ammonium nitrate from an explosives truck will be cleaned up immediately and reported to the mine Operating Supervisor and logged as required by regulations. Clean up will be done by employees licensed to handle explosives and the contaminated material will be handled as per spills occurring within the storage area.

5.2.12 Spill of Sewage

Sewage generated from the camp facilities will be treated at the wastewater treatment plant. At remote areas, wastewater will be collected in local holding tanks and transported by tanker truck for treatment at the closest waste water treatment plant. In

the event of a spill of untreated sewage, soils will be excavated and transported to the landfarm for treatment.

5.2.13 Chemical Spills

Chemicals necessary for the processing of ore in the mill will be stored and used onsite. The potential exists for a spill of sulphuric acid, hydrogen peroxide and reagents during transportation and storage onsite. Hazardous chemicals will be transported in appropriate containers and labelled according to TDG guidelines and Transport Canada regulations (Refer to Appendix 2U "Hazardous Materials Plan"). All hazardous chemicals onsite will be stored in appropriate storage tanks within covered buildings with a means of secondary containment in the event of spills. Any spilled chemicals will be processed through the mill or contained and transferred to a licensed disposal facility.

6 LANDFARM MANAGEMENT PLAN

In the event of a spill, the contaminated soil or ice/snow will be excavated and transported in appropriate containers to the designated landfarm area for treatment. Before commencing any removal of soil, gravel or vegetation regulatory agencies will be contacted.

The landfarm will be located within the Kiggavik surface lease boundary in a designated area.

6.1 LANDFARM

Landfarming is a passive form of remediation and is intended to reduce or eliminate organic compounds from the soil matrix using microbes, usually in an aerobic process. The contaminated material will likely be placed in windrows and aerated by regular turning using dozing equipment. Due to the long winters and extreme temperature at Kiggavik, the remediation process will be slow and likely require an extended period of time. Nutrient addition may be required to sustain microbial growth.

6.2 LEACHATE AND STORMWATER MANAGEMENT

Lined ponds will be constructed to receive snow contaminated by accidental fuel and oil spills. Water will be collected from these ponds during summer months and treated at the Kiggavik mill water treatment plant, as required, to remove contaminants.

The landfarm area will incorporate a geomembrane liner in the base to prevent contaminant migration into native soils. The landfarm area will be surrounded by a berm to direct clean external runoff water away from contaminated materials. The landfarm pad will be graded towards a collection basin to ensure containment of leachate and stormwater. This water will be contained in a lined sump and treated at the mill water treatment plant.

6.3 AIR EMISSIONS

The landfarm will be located away from sensitive areas (e.g. camp facilities) to avoid potential air quality issues. Dust suppression techniques may be initiated if conditions warrant it. Air quality monitoring should be unnecessary.

6.4 SOIL SAMPLING

Soil sampling will be conducted on a regular basis to assess hydrocarbon content and to optimize nutrient addition and aeration techniques. Samples will be analyzed at the onsite chemical laboratory and results will be reported to regulatory authorities as part of annual environmental reporting.

6.5 HAZARDOUS MATERIALS

Contaminated soil resulting from the spill of hazardous chemicals will be treated as hazardous waste and shipped to a licensed facility for treatment and disposal. All waste hazardous materials will be stored on a designated storage pad until there is sufficient quantity for shipment. Refer to Technical Appendix 2U – Hazardous Materials Management Plan for details.

6.6 RECLAMATION OF LANDFARM

Upon decommissioning of the Kiggavik mine, all remaining contaminated landfarm materials will be sampled to determine contaminant concentrations. These materials may be disposed of in a mined out open pit and capped with a clean soil cover. These details will be finalized during development of the detailed decommissioning plan.

7 REFERENCES

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IAEA (2009). Safety Standards Regulations for the Safe Transport of Radioactive Material 2009 Edition for protecting people and the environment No. TS-R-1 Safety Requirements

Transportation of Dangerous Goods Act, 1992 (1992, c. 34) as amended

Attachment A Agency Contact List

NT-NU 24-HOUR SPILL REPORT LINE			
Government of Nunavut 24 hour spill report line		Phone	867-920-8130
		Fax	867-873-6924
		email	spills@gov.nt.ca
Canadian Coast Guard 24 hour spill report line	Central and Arctic	Phone	1-800-265-0237
	Quebec	Phone	1-800-363-4735
WORKERS' SAFETY & COMPENSATION COMMISSION			
Iqaluit	Martin van Roy	Phone	867-979--8527
		Fax	867-979-8501
		24-hour Toll Free	800-661-0792
		Fax	866-979-8501
SAFETY			
RCMP - Baker Lake		Phone	867-793-0123
		Fax	867-793-2149
RCMP - Central Emergency Number		Phone	867-793-1111
Air Ambulance (Rankin Inlet)		Phone	867-645-4455
Baker Lake Health Centre		Phone	867-793-2816
Poison Control Centre 24 hour emergency		Phone	1-800-268-9017
REGULATORS			
EC Enforcement Officer	Curtis Didham	Phone	867-975-4644
		Cell	867-222-1925
		Fax	867-873-8185
INAC - Water Resources Officer	Andrew Keim	Phone	867-975-4289
		Fax	867-975-6445
INAC - Manager, Field Operations	Peter Kusugak	Phone	867-975-4295
		Fax	867-975-6445
Kivalliq Inuit Association		Phone	867-645-2800
		Fax	867-645-2348
Nunavut Water Board		Phone	867-360-6338
DFO - Habitat Impact Assessment	Joanne Rose	Phone	867-979-8005
		Fax	867-979-8039

Attachment B 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: MONTH – DAY – YEAR	REPORT TIME	☐ ORIGINAL SPILL REPORT, OR	REPORT NUMBER
B	OCCURRENCE DATE: MONTH – DAY – YEAR	OCCURRENCE TIME	☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	____-____
C	LAND USE PERMIT NUMBER (IF APPLICABLE)	WATER LICENCE NUMBER (IF APPLICABLE)		
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION	REGION ☐ NWT ☐ NUNAVUT ☐ 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	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER	
	SECOND PRODUCT SPILLED (IF APPLICABLE)	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER	
I	SPILL SOURCE	SPILL CAUSE	AREA OF CONTAMINATION IN SQUARE METRES	
J	FACTORS AFFECTING SPILL OR RECOVERY	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT	
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 STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

AGENCY	CONTACT NAME	CONTACT TIME	REMARKS
LEAD AGENCY			
FIRST SUPPORT AGENCY			
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			

PAGE 1 OF _____

Attachment C Existing Kiggavik Site Spill Contingency Plan

AREVA Resources Canada Inc.

Kiggavik Project, Nunavut

SPILL CONTINGENCY PLAN

May 2011 – Version 6

REQUIRED USERS

Required and other users are responsible for using the current version of the Spill Contingency Plan as posted on Q:\KS_Feasibility . Users may print copies of this plan, but are ultimately responsible for ensuring they are using a current copy as posted. Users are requested to destroy all previously printed copies of the plan when they are informed of revisions.

HISTORY OF REVISIONS

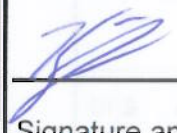
Version	Revision	Date	Details of Revision
1	0	March 2007	Original submission
2	0	October 2007	Update to reflect changes in field activities/capabilities and goals of continual improvement
2	1	May 2008	Updated to reflect comments and conditions received by the Nunavut Water Board associated with the issuance of water licence no. 2BE-KIG0812
3	0	January 2009	Update to reflect changes in field activities/capabilities and goals of continual improvement
4	0	March 2009	Updated to reflect changes in field activities/capabilities and goals of continual improvement
5	0	January 2010	Updated to reflect changes in field activities/capabilities and goals of continual improvement
6	0	May 2011	Updated to reflect personnel titles, grammatical changes, reorganized information and clarified responsibilities. Made consistent with other Plans and Manual and updated to reflect changes in fuel storage and equipment.

Original Copy of this Manual:

Approved and Signed by title: **Kim Sarauer**

Environment and Radiation Protection Supervisor

Approved by:



May 19, 2011

Signature and Date

Approved and Signed by title: **Frederic Guerin**

General Manager, Kiggavik Project

Approved by:

May 20, 2011

Signature and Date

The original hard copy of this approval page has been signed and is located at the AREVA Resources Canada Inc. corporate office.

TABLE OF CONTENTS

LIST OF APPENDICES

1 INTRODUCTION

This Plan applies to the Kiggavik Project located approximately 80km west of Baker Lake and all points located between the site and Baker Lake. In addition, the Plan is made available at operational remote camps and drill shacks, the Kiggavik Site, _AREVA Resources Canada Inc (ARC) Baker Lake Office as well as ARC's corporate office.

1.1 Purpose and Scope

The primary objective of the Spill Contingency Plan is to help prevent or reduce the potential of spills of pollutants and prevent, reduce or eliminate any adverse effects that may result. As such, the Plan provides information and guidance on actions important for the prevention of spills and procedures to detect and respond to spills if they occur.

The Plan will evoke a risk management approach when considering potential spill events. Effective implementation of spill prevention planning is also an important proactive component for minimizing the risks posed by spills. By implementing effective spill prevention, the risk of spills can be reduced in magnitude and perhaps avoided.

Furthermore, the purpose of this plan is to identify safe, effective and efficient response methods to spills in the vicinity of ARC's operations in Nunavut. This Plan is intended to satisfy Nunavut R-068-93 Spill Contingency Planning and Reporting Regulations. In said regulations, "spill" is defined as "…a discharge of a contaminant in contravention of the Act or regulations made under the Act or a permit or license issued under the Act or regulations made under the Act." ARC's working definition of a spill is defined as any accidental discharge to the environment of a hazardous material.

1.2 Revision to Plan

This Plan is reviewed by the Facility Supervisor, the Environment and Radiation Protection (ERP) Supervisor, and the General Manager, Kiggavik Project on an annual basis and is updated as required to keep it current and consistent with regulatory and procedural changes. A history of revisions can be found at the front of this manual. Any changes and/or amendments to the Plan will be submitted to the Nunavut Water Board (NWB), Indian Northern Affairs Canada (INAC), and the Kivalliq Inuit Association (KIA).

1.3 Responsibilities

The ERP Supervisor is responsible to ensure that all personnel and contractors assigned to the Project are familiar with the requirements of this Plan.

The ERP Group and Safety Personnel report to the Facility Supervisor and include:

- Environment and Radiation Protection (ERP) Supervisor
- ERP Technicians

- First aid responders (ARC staff and/or contractors)
- Safety Coordinator

The General Manager, Kiggavik Project is ultimately responsible for any activity being carried out by Kiggavik Project personnel.

2 SITE INFORMATION

2.1 Location

The Kiggavik Project includes two properties:

- The Kiggavik site is located at approximately 64°2 6'N and 97° 37'W. The property consists of 17 mineral leases totalling 3,972ha (officially 9,808acres). All leases are currently on Crown Land (ie: surface and subsurface rights are administered by Indian & Northern Affairs Canada (INAC).

- The Sissons site is situated roughly 17km south-west of Kiggavik at approximately 64°20'N and 97°52'W. The Sissons property consists of 22 mi neral leases totally 14,730ha (officially 36,371.50acres). Five of the mineral leases, including those containing the Andrew Lake and End Grid deposits, are located on Inuit Owned Land subsurface parcels, as such surface rights are administered by the Kivalliq Inuit Association and subsurface rights are "grandfathered" – administered by INAC.

. The Kiggavik camp can accommodate approximately 60 people. The Project area currently includes the following infrastructure:

- One storage shed/back-up generator/shop
- One generator building (housing the current generator)
- One helicopter storage/shop
- One kitchen with storage
- One washroom/dry building constructed with separate male/female facilities
- Two offices
- 17 sleeping units (one is a first aid shack)
- One fuel storage areas (equipped with Arctic Berms)
- Grey water collection area
- Industrial incinerator
- Core storage
- Five core logging tents
- Radioactive materials storage compound
- Fuel esker containing 8 bulk fuel tanks, three for Jet-B fuel and five for diesel fuel, and fuel drums stored on secondary containment

Detailed site maps showing topography can be found in Appendix III.

2.2 Petroleum and Chemical Product Storage and Inventory

Below is a list of products used, along with the maximum amount stored at camp and how they are stored at the Project site.

Chemical/Material	Amount	Storage Type
Diesel Fuel	250000 L	EnviroTanks
Jet B Fuel	150000 L	EnviroTanks
Gasoline	1025 L	Secondary Containment
Generator Oil	20 x 20L (400 L)	Secondary Containment
Hydraulic Oil	20 x 20L (400 L)	Secondary Containment
Engine Oil	20 x 20L (400 L)	Secondary Containment
Propane	75 x 100 lb (7500 lb)	Secondary Containment
Grease (for grease gun)	5 cases x 12 tubes (60 tubes)	Secondary Containment
Salt	50000 lbs	Secondary Containment
Cement	15000 lbs	Secondary Containment

A specific inventory of all petroleum and chemical products used during the field operations is recorded at site.

2.2.1 Fuel Tanks

To accommodate increased fuel demand and reduce the potential of fuel spills, bulk fuel storage tanks were installed. The eight double-walled steel EnviroTanks, each with a capacity of 50,000 L were installed at the esker located on the Kiggavik lease, east of the Kiggavik camp. Three tanks on the north side of the esker are for the storage of Jet-B fuel, and five tanks on the south side of the esker are for the storage of diesel fuel as shown in Figure 2.1. The coordinates are as follows:

- 14W 561512, 7145240

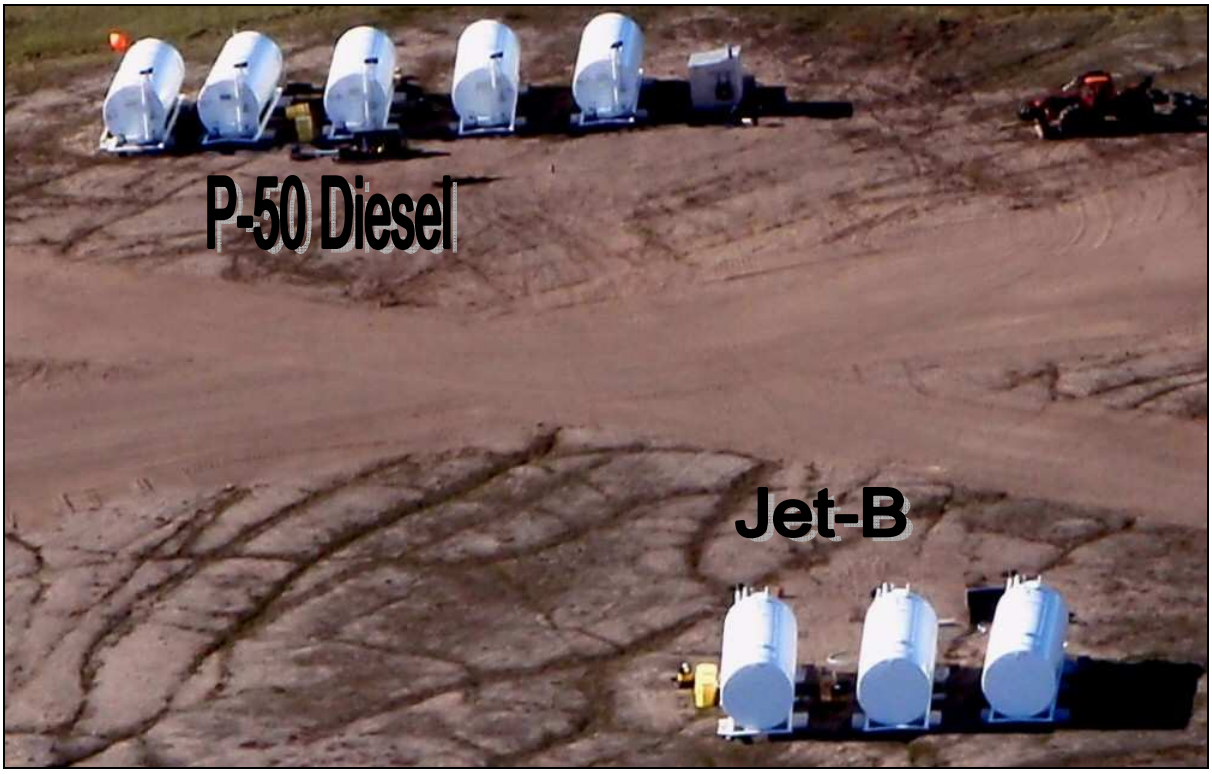


Figure 2.1 Kiggavik Fuel Cache

The site layout and tanks have been designed by a consulting professional engineer and have been installed by a registered company/petroleum contractor to ensure compliance with the Canadian Council of Ministers of the Environment (CCME) Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products, 2003. In 2007 Golder Associates (Golder) conducted an engineering assessment to identify potential issues with the installation of storage tanks. Recommendations were provided for the foundation support for the storage tanks. To mitigate the potential issues described in the report, Golder recommended that the tanks be placed on timbers located under each saddle to provide an increased bearing area.

The use of timbers is a deviation from the CCME COP, however it should be noted that this is common practice in the area and AREVA received permission from the area Fire Marshal, Tim Hinds with the Government of Nunavut-Community and Government Services via email (Trevor Carlson, AREVA) on November 20th, 2007.

Double walled steel EnviroTanks and associated pump meet the requirements of secondary containment within their own structure. For further secondary containment, rubberized berms (Arctic berms) or other suitable lined structures will be utilized during fuel transfers to minimize the potential for fuel spills where possible. It is required to use absorbent padding near fuel nozzle to control dripping fuel. Further protection against spills is provided by high level alarms, overfill preventers, and catch basins around each fill pipe.

The design basis, operation and maintenance requirements for all petroleum storage and handling on site are based on the CCME Environmental Code of Practice for Aboveground and Underground

Storage Tank Systems Containing Petroleum and Allied Petroleum Products, 2003 and in compliance with the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*, under the *Canadian Environmental Protection Act, 1999* (CEPA 1999).

The fuel storage system at the Kiggavik site has been registered with Environment Canada (EC) through an online database, the Federal Identification Registry for Storage Tank Systems (FIRSTS).

10,000 L fuel bladders containing Jet-B or P-50 diesel fuel are transported to the fuel cache during the winter via ground transport (snow cats, foremosts or other tundra trucks). The fuel is then transferred from the fuel bladders to the EnviroTanks.

2.2.2 Drums

Presently a fuel cache used for drums is located at the Kiggavik Camp. :

- Fuel cache at Kiggavik Camp: 14W 564464, 7146782

Unleaded gasoline and propane cylinders may be brought to site during the winter haul or by aircraft from Baker Lake. All fuel containers are labelled, identifying the contents and the name “AREVA”. Diesel fuel may be transferred from the Enviro Tanks to drums or double-walled fuel tanks for use in camp and/or drill sites.

Fuel drums of diesel fuel and unleaded gasoline at the Kiggavik Project are stored in approved 205L steel drums within secondary containment systems at the camp site. The secondary containment system presently being used is adequate to contain 110% of the total aggregate storage capacity of the drums. Secondary containment is used for all liquid fuels, and lubricants. Drill additives are stored in sea containers to keep away from moisture.

The following photo indicates the type of secondary containment utilized for the storage of petroleum products and other hazardous materials and hazardous waste products. The Insta-Berm made of industrial-strength fabrics, is a durable and easy-to-use environmental safeguard. The Insta-Berm is used for secondary containment of toxic materials in many applications, to help industries meet today's guidelines on environmental protection.

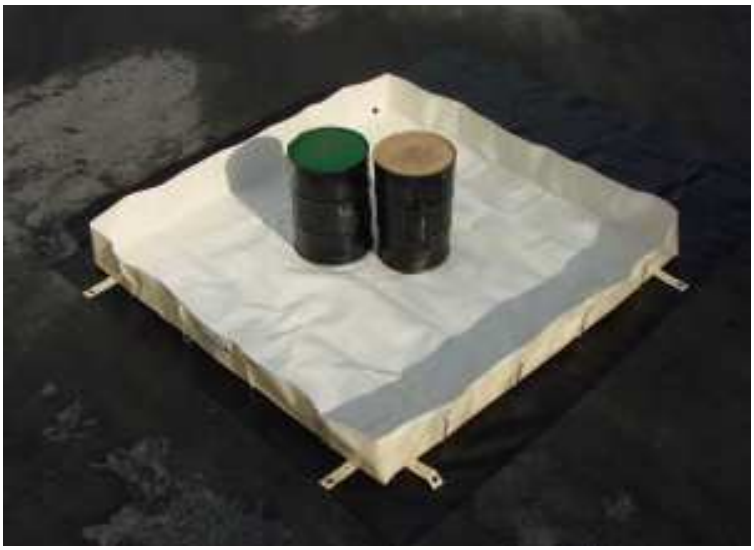


Figure 2.2 Insta-berm

Absorbent matting and/or drip pans must be placed under all areas where fuel leaks are likely to occur (e.g.: fuel line hose connections, fuelling stations, generators, water pump), and these areas must be inspected on a daily basis where possible.

Waste oil, waste filters, and cleaned-up spill materials are contained for removal from the site, and disposed of in accordance with applicable regulations.. Degreasing agents used for maintenance of equipment parts and grease are contained for removal from the site.

For longer storage, during the winter season, or until an approved handling facility can be located, waste products are temporarily stored in sea-cans on site.

2.3 Petroleum Product Transfer

To minimize fuel spillage associated with dispensing of product, all dispensing and tank filling operations is attended and involves the use of manually held open nozzles equipped with automatic shut off mechanisms.

Smoking, sparks or open flames are prohibited in fuel storage and fuelling areas at all times. Petroleum transfer operations will be carried out by trained personnel.

2.4 Location and Content of Spill Kits

Spill kits can vary in size and content depending on supplier and manufacturer however to remain consistent and provide adequate spill supplies, ARC has chosen two types of spill kits which are considered to be standard. The kits generally include the following contents, or similar:

1. Universal Emergency Response Kit 30Gallon/135L

    - Sorbant capacity of 96L
    - 4 socks (3” X 10’)

- 75 pads
- 1 drain cover
- 1 caution tape
- 2 pairs nitrile gloves
- 2 pairs safety goggles
- 2 protective coveralls
- 5 disposable bags
- 1 instruction book

2. Universal Overpack Kits 95 US Gallon Drums

- Sorbant capacity of 275L
- 4 socks (3" x 10')
- 5 socks (3" x 4')
- 50 pads
- 5 pillows
- 1 roll
- 1 drain cover
- 1 caution tape
- 2 pairs nitrile gloves
- 2 pairs safety goggles
- 2 protective coveralls
- 10 disposable bags
- 1 instruction book

A variety of spill kits are available, other kits than those listed above may be purchased for a variety of reasons (availability, intended use, etc). All spill kits contain an itemized list of its contents and inventory of the kits on site is conducted at the beginning of each field season and immediately following use to identify and replenish missing items.

Figure 2.3 Example of the spill kits utilized at the Project site.

In addition, the following spill response material is also readily available in the generator building for spill response:

- Plugging compound
- Bulk supplies of oil absorbent pads and socks
- Aluminium or brass shovels or tools
- Bonding cables

Due to the volume of fuel being stored in the fuel tank storage system and the remote nature of the sites, at least one of the Bulk Storage Site Spill Kits 95 US Gallon Spill Kits will be present for each 100,000L of fuel being stored.

In addition,

- At least one empty fuel drum and a pump will be located at each fuel cache and tank storage system in the event of damaged or leaking drums.
- Fire extinguishers of the proper type, size and number will be stationed in each building, at the fuel tank storage system and near each site where equipment is normally serviced and anywhere else it is deemed advisable.
- A supply of sealable 20-litre steel pails or 205-litre drums will be reserved for the collection and storage of used absorbent materials. Steel drums, clearly labelled for the storage of spent absorbent materials will be located at camp and at each fuel storage tank location as well as at each cache of drummed fuel or lubricants.

2.5 Orientation

All personnel at camp (ARC employees, contractors, and long term visitors) are given formal orientation upon arrival at camp. The Spill Contingency Plan is reviewed during orientation by the ERP Supervisor or designate which includes the location of the Material Safety Data Sheets, location of spill kits and additional supplies or tools. Training for spill contingency consists of alerting all personnel to be watchful for any leaks or spills and where these are most likely, instruction in the use of the equipment and materials, introduction to the protocol of the chain of command and the legal requirement to report certain spills, and how to collect, store and dispose of spilled product.

3 POTENTIAL HAZARDS, MITIGATION AND PREVENTATIVE MEASURES

3.1 Potential Hazards

Potential sources for spills have been identified as follows:

- Stored drums of P-50 diesel, gasoline, waste fuel, and waste oil may leak or rupture
- Overfilling of tank(s) at the fuel tank storage system of Jet-B or P-50 diesel
- Transfer of fuel between EnviroTanks, drums and fuel bladders
- Transportation of fuel during winter haul
- Fire at the fuel tank storage system
- Collision at the fuel tank storage system
- Vandalism of fuel tank storage system
- Propane cylinders: propane leaks may occur at the valves.
- Refuelling equipment such as diamond drill equipment, helicopters, camp generator, stoves, incinerator, wheeled vehicles, snowmobiles and pumps. Incidents involving leaking or dripping fuels and oils may occur due to malfunctions, impact damage, lack of regular maintenance, improper storage, or faulty operation.
- Damaged lead/acid batteries causing spills of acid
- Improper drilling or transport of cuttings bags causing a spill of radiologically contaminated drill cuttings and drill return water

3.2 Mitigation and Preventative Measures

Kiggavik's Environmental Code of Practice discusses how to conduct activities so as to minimize the risk of spill. In addition, the following measures will further minimize the potential for spills during fuel handling, transfer and storage:

1) Fuel transfer hoses with cam lock mechanisms to be used when transferring bulk fuel deliveries into the bulk storage tanks.
2) Carefully monitor fuel content in the receiving vessel during transfer. Always have additional absorbent pads on hand while transferring fuel.
3) Clean up drips and minor spills immediately.
4) Regularly inspect drums, tanks and hoses for leaks or potential to leak and for proper storage.
5) Create fuel caches that are located at least 30 m from the normal high-water mark of any water body.
6) Inventory and reconciliation procedures developed to ensure tanks are not overtopped and to ensure that tank leakage is not occurring.
7) Overfill protection on tanks include visual and audible alarms; catch basins around fill pipe; additional secondary containment at transfer locations; corrosion protection
8) Train personnel, especially those who will be operators, in proper fuel handling and spill response procedures. This training is to include a "mock" spill, review of spill kit contents and their use and reporting.

3.2.1 Spill of Fuel from Metal Drums on Tundra

Metal drums are stored in such a manner that they are not susceptible to tipping over, rolling or otherwise being unstable. Care is exercised so that nothing can cause damage to metal fuel drums by falling or rolling onto or into them. The use of a ramp or a cushion (automotive tire) while unloading metal fuel drums from aircrafts ensures that they are not damaged.

All drums of fuel are stored at fuel caches in secondary containment.

3.2.2 Spill of Fuel from Fuel Tank Storage System

To prevent spillage during the filling of the fuel tank storage system the following items will be in place:

- Visible and audible high level alarm
- Automatic high liquid shut off device
- Manual dips conducted in conjunction with the inventory and reconciliation procedures to be carried out by the delivery truck operators and site personnel
- All tanks are double-walled
- Spill/Overfill protection – catch basins around the fill pipe will collect any liquid spilled during connecting or disconnecting of the fill hose
- Corrosion Protection – provided by painting of the tanks
- Drums will be placed in appropriated lined structures for fuel transfer from tank to drum

Most releases at a fuel tank storage system are due to piping and line failure. This system of tanks are independent of each other and do not require any piping.

All personnel conducting fuel transfers are to be adequately trained in the procedure and spill contingency.

Spills or leaks are known to occur due to improper management of tanks prior to installation. All tanks located at the Kiggavik Sisson site have been inspected by a qualified person prior to filling and again prior to initial use.

3.2.3 Winter Fuel Hauling

Refer to Winter Road Plan for further details regarding transport, safety and training requirements used to minimize hazards generated during the winter haul.

3.2.4 Leak of Liquid Fuel from Distribution Lines

Stability of all storage tanks and distribution assemblies is of utmost importance to ensure that the risk of damage is minimized. All stands for reservoir tanks and fuel tanks are constructed to strength standards beyond those required. Distribution lines from reservoir tanks and fuel tanks are fitted with appropriate shut-off valves immediately downstream from the tank. All valves are closed when tank is not in use. All associated distribution lines are installed in such a way to prevent being chafed in the wind, chewed on by animals or tripped on by humans. This is done by securing it to rigid structures,

encasing it in armour or any other effective manner. These measures apply broadly to oil, jet fuel, gasoline, and propane set-ups.

3.2.5 Spill of Liquid Fuel into Lake Water

Liquid fuel in metal drums must be at a minimum of 30 m from ordinary high water mark on stable and level ground unless approved by regulatory agencies. Refuelling must not take place below the high water mark of any water body under any circumstance.

3.2.6 Release of Propane

Propane is stored in certified containers and is inspected and monitored on a regular basis for any signs of deterioration or corrosion. Containers are secured and fastened in an upright position to ensure there is no risk of damage to the regulator in the event of a fall.

Only qualified gas fitters will connect or disconnect piping to any bulk propane storage system. In the event that larger bullets are introduced on site, only qualified gas fitters will connect or disconnect the piping and crash protection will be provided once there are vehicles on site.

3.2.7 Spill of Battery Acid

Acquisition of non-spillable batteries reduces the risk of a spill of this type. These batteries can be shipped by air as they are exempt from UN2800 classification. All batteries are protected from damage by fastening them into the space designed for them when used with various power equipment and stored safely when not in use.

3.2.8 Fire at the Fuel Tank Storage System

Grounding cables are used for all transfers of bulk gasoline or jet fuel to minimize to potential of a static discharge and potential fire.

3.2.9 Crash at Fuel Storage Tanks

The following measures will be followed to minimize the risk of a crash at the fuel storage areas:

- Clear communication between aircraft (fixed wing and helicopters)
- Use of wind socks
- In the event that the use of vehicles is introduced in the operation, crash protection will be put in place

3.2.10 Spill of Radiologically Contaminated Drill Cuttings

During drilling activities, drill mud solids or cuttings in non-mineralized zones are deposited on the ground in low-lying areas. When mineralized core is intercepted, all drill mud and cuttings are collected in appropriate containers and categorized as radioactive through appropriate radiation measurements in accordance with work instructions. A gamma survey is also conducted before and after drilling activities at each hole to ensure there is no radiologically contaminated material at the site.

3.2.11 Spill of Potentially Contaminated Drill Return Water

Return water from drilling activities, including general drainage from the drill footprint, are diverted into low-lying areas in such a way so as to stop these waters from directly entering lakes and streams. Low lying depressions where non-mineralized drill cuttings and drill return water are deposited are monitored while in use by the ERP Group.

In order to reduce risk of water pooling in the drill area, clean water not used in the drilling process is pumped back to its source.

4 SPILL REPORTING REQUIREMENTS

This Plan is initiated by the Facility Supervisor or the ERP Group or designates, this includes initiating response, documenting associated activities and reporting the spill, within 24hours to the NT-NU 24-HOUR SPILL REPORT LINE. All emergency contact phone numbers are located in Appendix I Contact List.

Based on Environment Canada's recommendation, all releases of harmful substances, regardless of quantity are immediately reportable where the release is:

- Near or into a water body;
- Near or into a designated sensitive environment or sensitive wildlife habitat;
- Poses an imminent threat to human health or safety;
- Poses an imminent threat to listed species at risk or its critical habitat.

Based on Nunavut's regulation R-068-93, Spill Contingency Planning and Reporting Regulations, impose a legal requirement to report any spill of flammable liquids greater than 100 L in quantity. In addition, ANY quantity of spilled radioactive material is reportable. The following table (Schedule B) is a reference from regulation R-068-93 and indicates quantities of spilled product that requires reporting to the Department of Environment-Government of Nunavut.

SCHEDULE B

(Section 9)

Item No.	*TDGA Class*	*Description of Contaminant*	*Amount Spoiled*
1.	1	Explosives	Any amount
2.	2.1	Compressed gas (flammable)	Any amount of gas from containers with a capacity greater than 100 l.
3.	2.2	Compressed gas (non-corrosive, non flammable)	Any amount of gas from containers with a capacity greater than 100 l.
4.	2.3	Compressed gas (toxic)	Any amount
5.	2.4	Compressed gas (corrosive)	Any amount
6.	3.1, 3.2, 3.3	Flammable liquid	100 l
7.	4.1	Flammable solid	25 kg
8.	4.2	Spontaneously combustible solids	25 kg
9.	4.3	Water reactant solids	25 kg
10.	5.1	Oxidizing substances	50 l or 50 kg
11.	5.2	Organic Peroxides	1 l or 1 kg
12.	6.1	Poisonous substances	5 l or 5 kg
13.	6.2	Infectious substances	Any amount
14.	7	Radioactive	Any amount
15.	8	Corrosive substances	5 l or 5 kg
16.	9.1 (in part)	Miscellaneous products or substances, excluding PCB mixtures	50 l or 50 kg
17.	9.2	Environmentally hazardous	1 l or 1 kg
18.	9.3	Dangerous wastes	5 l or 5 kg
19.	9.1 (in part)	PCB mixtures of 5 or more parts per million	0.5 l or 0.5 kg
20.	None	Other contaminants	100 l or 100 kg

If you are in doubt as to whether or not a spill is reportable, it is better to err on the side of caution and to report the spill.

4.1 Spill Response Contact List

The most recent Contact List list is available in drill rigs and field offices. It can be found in the Appendix I of this Plan.

4.2 Reporting Requirements

1. Collect Required Information

During spill response and once safe to do so the following information should be generated and reported to appropriate personnel and agencies (refer and complete the Spill Report Form found in Appendix II):

- Date and time of spill
- Location of spill
- Direction the spill is moving
- Name and number of contact person at location of spill
- Type and quantity of contaminant
- Cause of spill
- Whether spill is contained or stopped
- Description of the existing contaminant
- Action taken to contain, recover, clean-up and dispose of spilled material

3. Report

NOTE: It is the responsibility of the senior AREVA staff on site to report spills to regulatory agencies. Contractors are asked to report all spills to the Facility and ERP Supervisors or designates immediately.

Once safe to do so, immediately notify the following agencies/people of the spill (phone numbers can be found in Appendix I of this Plan):

- Facility Supervisor (if not on site during incident)
- ERP Supervisor (if not on site during incident)
- NT-NU 24-Hour Spill Report Line (within 24hours) by phone; utilize the information collected for the spill report form
- General Manager, Kiggavik Project
- Manager, Nunavut Affairs and Baker Lake office
- The Nunavut Water Board (NWB) and Indian and Northern Affairs Canada (INAC) request verbal notification as soon as possible, however they should be notified by the spill report line
- A copy of the written Spill Report Form must be submitted to INAC (Water Resources Office and Manager of Field Operations), NWB and EC within seven calendar days of the incident
- A detailed report must be submitted to INAC, NWB and EC within 30 days
- Submit a copy of the Spill Report Form and detailed report to Kivalliq Inuit Association (KIA).

5 SPILL RESPONSE

5.1 Response to a Spill – Containment and Clean-Up

In the case of any spill or other 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.

The basic steps of the response plan are as follows:

Ensure the safety of all persons at all times.

The safety of yourself and others is the most important consideration when responding to a spill. As such, all actions that you perform as part of your spill response must only be undertaken if they can be undertaken in a safe manner. If an action can not be undertaken in a safe manner or if you do not feel that you are adequately trained or equipped to respond to a spill, the only appropriate thing to do is to safely evacuate all personnel in the area to a safe area away from the spill. Once everyone is safe you will then need to request assistance from trained emergency responders with the appropriate resources to manage the spill safely and effectively.

KEY POINTS TO CONSIDER WHEN REPONDING TO A SPILL

- *It is your responsibility to act safely, using appropriate personal protective equipment and work practice.*
- *It is your responsibility to respect the safety of others in the area.*
- *It is your responsibility to refuse to perform activities that you feel are unsafe.*
- *It is your responsibility to inform those involved or in the area if you believe that their actions, or proposed actions, are unsafe. This includes colleagues, first responders, contractors, members of the public, etc.*

Identify and find the spill substance and its source.

Individual discovering the spill shall:

- Move upwind of the material
- Call for help – contact the Facility Supervisor or designate
- Attempt to stop leak – only if safe to do so
- Attempt to contain spilled material – only if safe to do so

Facility Supervisor (or designate) shall:

- Designate responders and proceed to the scene of the spill.
- The responders (including the Facility Supervisor if necessary) shall attempt to stop further spillage and contain the spilled material if safe to do so.
- Ensure documentation of the spill is completed using the Spill Report Form, the NT-NU 24-Hour Spill Report Line was contacted immediately (see Section 4.2 for Spill Reporting requirements) and the appropriate regulatory agencies have been contacted.

ERP Supervisor

- Provide assistance and expertise in the response of a spill
- Once under control, shall interview the individual who discovered spill. Noting name, time discovered, and details on how the spill occurred, any actions taken by the individual to stop the spill.
- Submit Spill Report required regulatory agencies within seven calendar days of the incident (see Section 4.2)
- Within 30 days ensure a written detailed report is prepared for submittal to required regulatory agencies (see Section 4.2).

Responders shall:

- Position themselves upwind of the spill.
- Determine what has been spilled.
- Consult the Material Safety Data Sheet (MSDS) for the product in order to determine the appropriate personal protective equipment and to understand the physical properties of what was spilled.
- If the spilled substance is flammable (Gasoline or Jet Fuel), eliminate all ignition sources and shut off machinery in the area.
- If save to do so, take actions to ensure that the leak or spill has been stopped at the source (i.e.: shut off valves, reconnect hoses, etc.).
- Contain spill with appropriate material and equipment (i.e.: spill response kit, etc.). Refer to the MSDS if this is a controlled substance. Pump large spills into barrels or other suitable container as available. **Ensure that grounding or bonding cables are used for all flammable product transfers.**
- Control access to the spill area and keep all bystanders away. If necessary, barricade the spill area. Do not use flares unless you are certain the spilled material and its vapours are not flammable or explosive.
- If safe to do, keep spilled material out of waterways. Use aluminium/non-sparking shovels to dig trenches or make soil and sand barriers or utilize the placement of socks as barriers
- If a fuel or oil spill, place contaminated absorbent and associated materials into steel pails or drums for removal from the site.
- If radioactive material, place material into appropriate container (i.e. cuttings bag or IP3 pail) to be stored in radioactive storage compound.
- If a spill has entered flowing water, take a sample immediately upstream of the spill and downstream (e.g.: 50 m, 150 m and 500 m from spill)

The following table demonstrates the spill supplies that may be utilized during the response to a spill on site (items not stored in spill kits and kit replacement items are stored in the generator building):

Incident	Spill Supplies	Use
Wet Spill	Drums, with removable lids, that contain bailers	For manual removal of large liquid spills Empty drums
	Folded sweeps and white rolls	Skimming of gas or diesel from water body
	Socks, peat moss	Containment of wet spill on land
	Pads, rolls, bags of dry absorbent	Cleanup of wet spills
Punctured Drum	Overpack (plastic drum) Plug 'n Dyke	Either: 1) place overpack overtop of leaking drum, lay overpack and drum on its side, then flip upright 2)use Plug 'n Dyke or other plugging compounds to seal and stop leak
Dry Spill	Plastic sheet (roll), mallet, spikes, knife	Covering dry spills to protect from wind and rain

If necessary ask for help and wait for others with the appropriate training and/or equipment to arrive. Acting inappropriately can often be dangerous to yourself, others or to the environment.

Implement any necessary cleanup and/or remedial action in a safe manner; this may be coordinated and or conducted by a third party consultant, if necessary.

Report the spill as per Section 5 of this Plan once it is safe to do so. Do not delay reporting as there are legal requirements in this regard.

5.2 Examples of Spill Scenarios

5.2.1 Spill of Fuel from Metal Drums, 10,000 L Fuel Bladders, or Fuel Tanks on Tundra

A puncture or rupture of containers containing liquid fuels should initially be assessed for risk of ignition. Sources of ignition will be extinguished or isolated from the spill area if safe to do so. Using appropriate personal protective equipment as described in the MSDS efforts should be undertaken to plug punctures with appropriate material from the spill kit (plugging compound or other improvised materials). Ruptures or holes should be high-centered to stop further spillage of fuel. Absorbent

materials should be used to absorb spilled fuel. A containment berm should be built using available materials such as soil, snow, absorbent socks, portable berms and/or tarps to contain a large spill.

Report the spill to the Facility and ERP Supervisors or designates immediately.

Remove the spilled products using absorbent material or soil, gravel or snow, placing all recovered spilled fuel and spent absorbents into appropriate containers (metal cans, pails or drums in good condition). Again, all fuel skimmed or wicked off of the ground is to be disposed of, in appropriate steel containers. High-centered ruptures will be used as a point of entry for manually-operated fuel transfer pump suction tubes, and remaining fuel is removed to a sound drum. Small amounts of contaminated soil, vegetation or gravel is removed and placed into sealable steel drums or pail and then disposed of appropriately. Large areas of spilled product on the ground are only to be remediated after consultation with ARC environmental personnel, regulators, etc. to avoid unnecessary damage to the environment.

Before commencing removal of soil or vegetation regulatory agencies will be contacted.

If spill of significant volume occurs at one of the fuel storage tanks or from a 10,000 L fuel bladder attempt to prevent the spread of the fuel if safe to do so and immediately contact ARC personnel to hire assistance with the spill response and clean-up.

5.2.2 Leak of Liquid Fuel from Distribution Lines

A detected leak from a distribution line assembly is to be initially assessed for risk of ignition. Sources of ignition are to be extinguished or isolated from the leak if safe to do so. If safe to do so, the shut-off valve on the tank and/or distribution line is to be turned off. Report Spill to the Facility and ERP Supervisors or designates immediately. Absorbent material is placed on the spilled fuel; if spilled onto snow or ice it is scooped up with an aluminium (non-sparking) shovel and stored in an appropriate sealable steel container. Ultimate disposal of these materials is only to be done after consultation with the ERP group and the appropriate regulatory agencies.

5.2.3 Spill of Liquid Fuel into Lake Water

If safe to do so, identify the source of the spill and prevent further release of fuel. Report the spill to the Facility and ERP Supervisors or designates immediately. Never attempt to contain or clean up a spill of gasoline on water, the risk of fire is simply too high. Confinement needs to occur as close to the release point as possible. The collection of liquid diesel or lubricating oil in lake water is attempted with floating booms of petroleum absorbent material, after vapours have dissipated. For larger spills of diesel or lubricating oil, raw liquid can often be removed by skimming while absorbent pads can be used to collect small spills.

Prior to attempting any clean up on water, a site specific safety plan needs to be developed that factors in water safety aspects.

All fuel skimmed or wicked off of the water surface as well as spent absorbent materials must be disposed of, in appropriate sealable steel containers. Ultimate disposal of these materials shall only be done after consultation with the ERP Group and the appropriate regulatory agencies.

5.2.4 Fire at Fuel Storage Tanks

In the event that a fire occurs at the fuel storage tanks, it is ARC's primary intentions to ensure the safety of the site personnel by allowing the fire to burn. Report the spill to the Facility and ERP Supervisors or designates immediately. Appropriate third party personnel will be contacted to ensure proper response and clean-up occurs.

5.2.5 Release of Propane

Report the spill to the Facility and ERP Supervisors or designates immediately.

No attempt should be made to contain a propane release.

Water spray can be used to knock down vapours and to reduce the risk of ignition.

Small fires can be extinguished with dry chemical or CO_2.

Personnel shall withdraw from the area immediately upon identifying a leak and shall not return until the leak is stopped and all the vapours have diffused. Contact will be made with the proper agency for disposal instructions of a defective container.

5.2.6 Spill of Radiologically Contaminated Drill Cuttings

Report the spill to the Facility and ERP Supervisors or designates immediately. In the event of a spill of any amount of radioactive materials, they will be collected into appropriate storage containers (i.e. cuttings bag or IP3 pail). The site will be remediated as much as practical, meeting/exceeding the minimum necessary abandonment criteria of less than 1 μSv/h above background at a height of 1m.

5.2.7 Spill of Potentially Contaminated/Drill Return Water into a Water Body

Report the spill to the Facility and ERP Supervisors or designates immediately. In the event of a spill of any amount of potentially contaminated/drill return water into a water body, any activities which are the possible cause will cease until a review of the incident has taken place. Water and sediment samples will be taken and a gamma survey conducted on the effected area. Activities will continue once the General Manager, Kiggavik Project or designate is satisfied with the corrective measures taken.

6 TRAINING AND PRACTICE DRILLS

All employees and contractors are to be familiar with the spill response resources at hand, this Contingency Plan, MSDS sheets, and to be trained for initial spill response methods. Involvement of other employees or third parties may be required, from time to time. Annual refreshers are conducted to review the procedures within this plan. As well, at least one practice drill is held per season to allow field-personnel opportunity to practice emergency response skills.

7 REFERENCES

Kiggavik Project Environmental Code of Practice (ECOP)

Kiggavik Project Winter Road Plan

Nunavut R-068-93. Spill Contingency Planning and Reporting Regulations. (September, 2007)

Northwest Territories-Nunavut Spill Report Form. Available at:
http://env.gov.nu.ca/programareas/environmentprotection/forms-applications

Canadian Council of Ministers of the Environment (CCME) Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products, 2003

Fire Marshal, Tim Hinds with the Government of Nunavut-Community and Government Services via email (Trevor Carlson, AREVA) on November 20th, 2007.

CCME Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products, 2003

Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations, *Canadian Environmental Protection Act, 1999* (CEPA 1999)

APPENDICES

Appendix I Contact List

Available at:

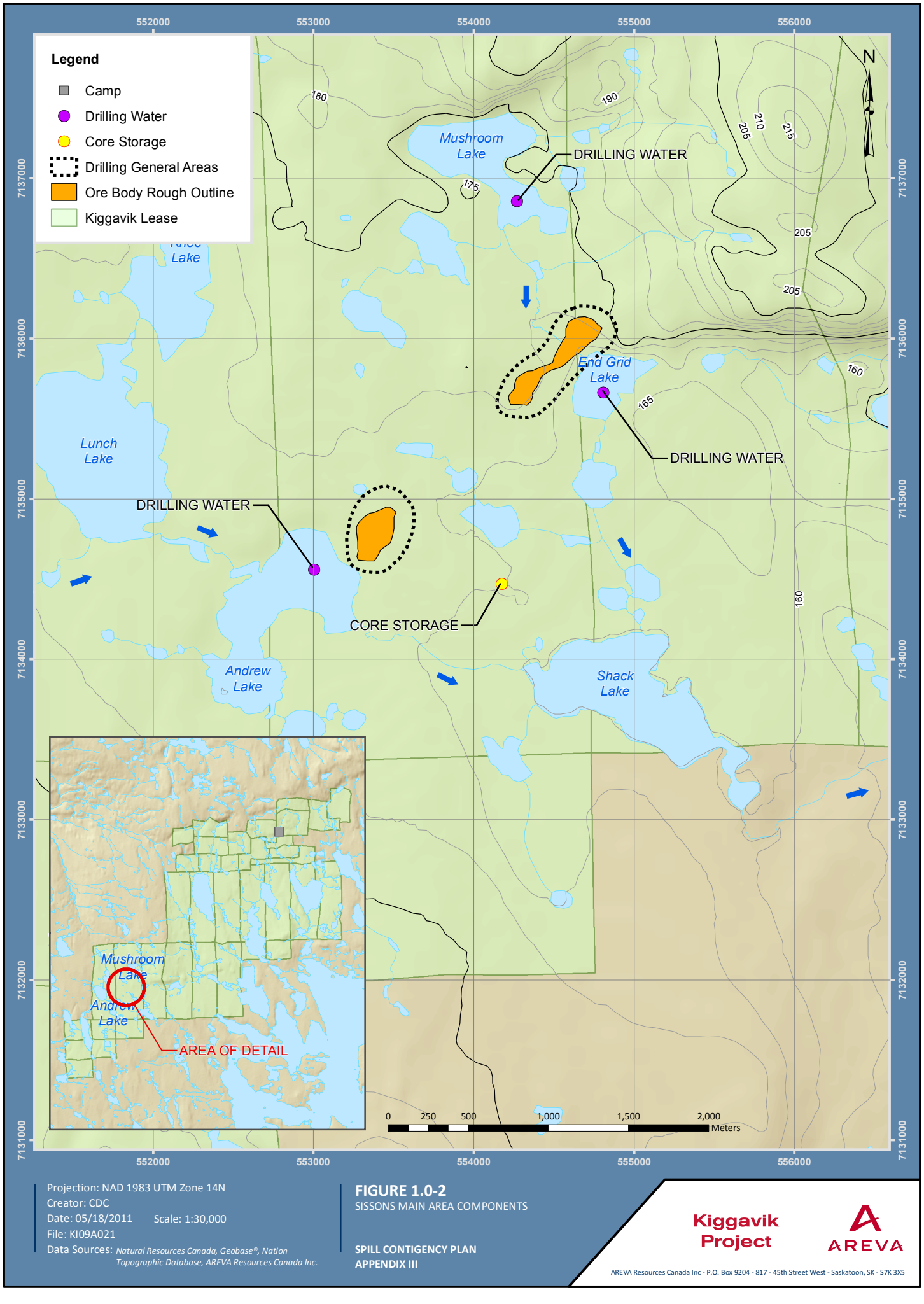
Q:\KS_Feasibility\370Quality\371QMS\Project Book (CURRENT)\Environment\Spill Contingency Plan

Appendix II Spill Report Form

Available at:

http://env.gov.nu.ca/programareas/environmentprotection/forms-applications

Appendix III Maps



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Data Sources: *Natural Resources Canada, Geobase®, Nation Topographic Database, AREVA Resources Canada Inc.*

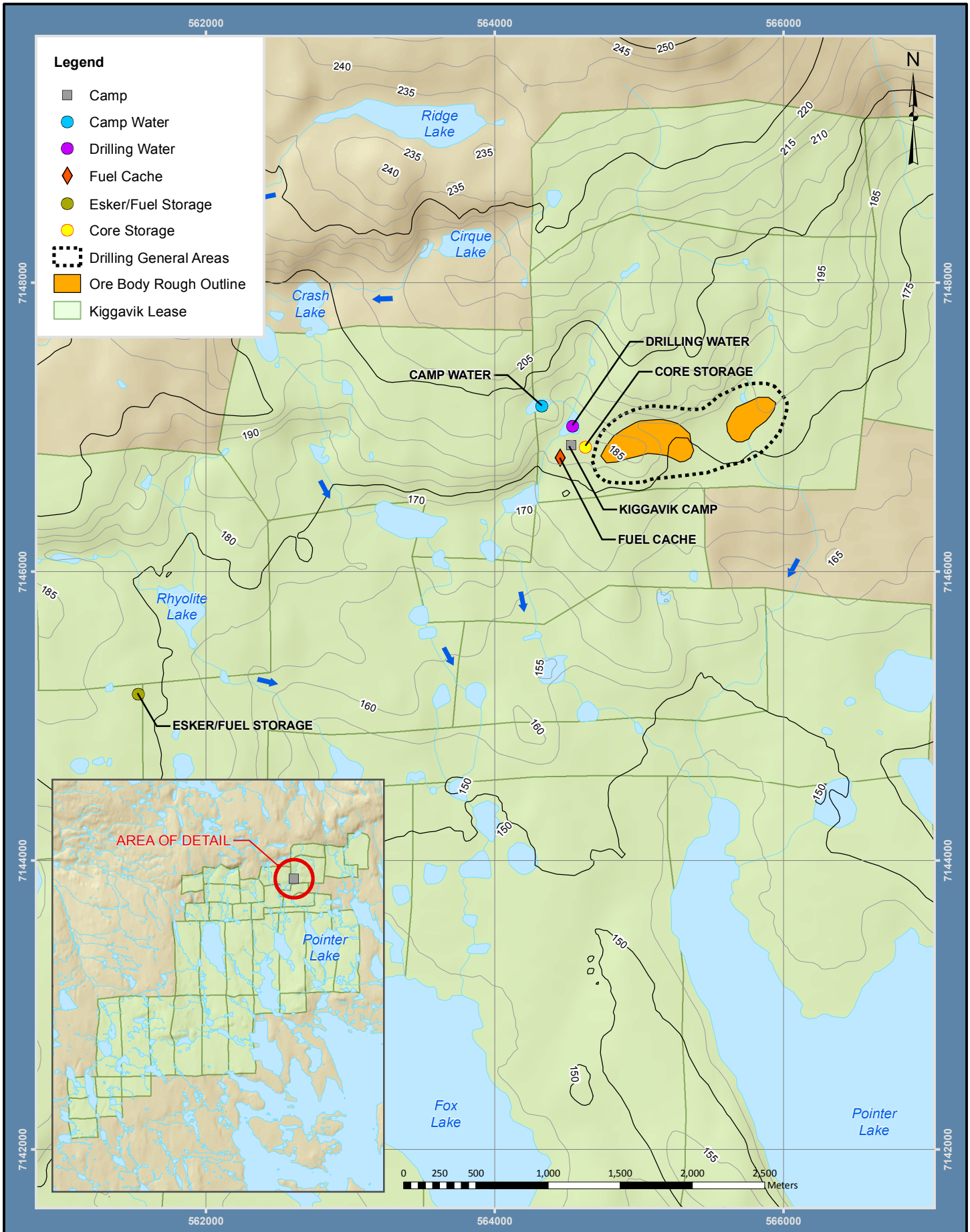
FIGURE 1.0-2
SISSONS MAIN AREA COMPONENTS

SPILL CONTIGENCY PLAN
APPENDIX III

Kiggavik Project

AREVA

AREVA Resources Canada Inc - P.O. Box 9204 - 817 - 45th Street West - Saskatoon, SK - S7K 3X5



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Data Sources: *Natural Resources Canada, Geobase®, Nation Topographic Database, AREVA Resources Canada Inc.*

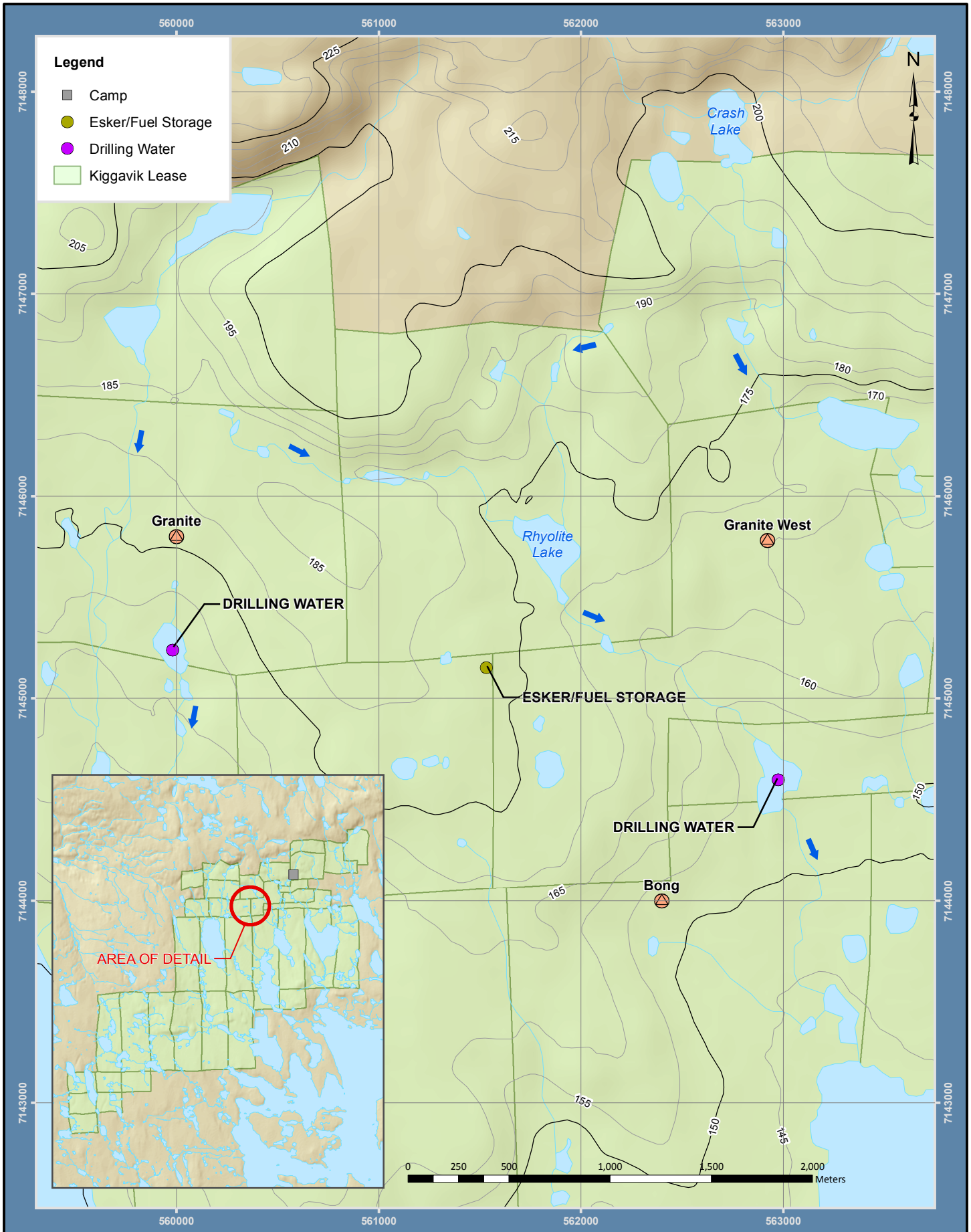
FIGURE 1.0-1
KIGGAVIK MAIN AREA COMPONENTS

SPILL CONTIGENCY PLAN
APPENDIX III

Kiggavik Project

AREVA

AREVA Resources Canada Inc - P.O. Box 9204 - 817 - 45th Street West - Saskatoon, SK - S7K 3X5



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Data Sources: *Natural Resources Canada, Geobase®, Nation Topographic Database, AREVA Resources Canada Inc.*

FIGURE 1.0-3
BONG AND GRANITE MAIN AREA COMPONENTS

SPILL CONTIGENCY PLAN
APPENDIX III

Kiggavik Project

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