



HUSKY OIL OPERATIONS LIMITED
Project Description

**Little Bear H-64 and Little Bear N-09 Downhole Well Abandonment
and Groundwater Well Decommissioning
Slater River Project**

EL494

Tulita District, Sahtu Settlement Area, Northwest Territories

Submitted to:



Sahtu Land and Water Board

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1.0 Introduction

Husky Oil Operations Limited (Husky) is proposing a downhole well abandonment program within the Slater River Program Area, Exploration Licence (EL) 494 (consolidated from EL462 and EL463 in 2013). The Slater River program area is located approximately 40 kilometres (km) south southeast (SSE) of the Town of Norman Wells in the Northwest Territories.

Husky's proposed downhole well abandonment program of two vertical wells, Little Bear H-64 and Little Bear N-09 is scheduled for the winter of 2018/19. These two exploration wells were originally drilled to further validate and evaluate the Canol, Hare Indian and Bluefish Shales. During the same time period, Husky will also decommission the groundwater monitoring wells.

Husky has conducted exploration activities in the Slater River program area under existing Land Use Permits (LUP) and Water Licences (WL) as issued by the Sahtu Land and Water Board (SLWB):

- LUP S13X-003 (consolidated from S11T-002 and S12F-007) and WL S13L1-006 (consolidated from S11L3-002 and S12L8-007) – site wide services (staging, access road construction, logistics, security and camp operations)
- LUP S13A-002 (consolidated from S11A-003) and WL S13L1-005 (consolidated from S11L1-003) – vertical well exploration drilling and completions
- LUP S12X-006 – groundwater monitoring wells

Husky also conducted a 3-dimensional (3D) seismic program in 2012 under LUP S11B-005 and Water Licence S11L1-005 which was used to confirm the placement of the exploratory well locations. The LUP has since been discontinued and the WL cancelled.

Access and staging for the winter 2018/19 downhole well abandonment program will be conducted under existing LUP S13X-003 and WL S13L1-006. No new lands or access will be required. All work will occur within existing land disturbances authorized under existing Land Use Permits and Water Licences. Water use will be less than previous programs and will be less than the volumes authorized by existing Water Licences.

2.0 Program Description

2.1 Communications

The following contacts are associated with this Project Description and any communications with respect to the program may be referred to:

General Inquiries

Dean Clemenson
Director – Exploration Resource Play Portfolio
Husky Oil Operations Limited
707 – 8 Avenue S.W.
Calgary, AB T2P 3G7
Phone: +1 (403) 298-7346
Email: Dean.Clemenson@huskyenergy.com

***Environmental, regulatory and
community relations***

Jenica von Kuster
Environmental & Regulatory Specialist - NWT
Husky Oil Operations Limited
707 – 8 Avenue S.W.
Calgary, AB T2P 3G7
Phone: +1 (403) 523-2313
Email: Jenica.vonKuster@huskyenergy.com

Well Abandonment Operations

Warren Watson
Drilling Superintendent
Husky Oil Operations Limited
707 – 8 Avenue S.W.
Calgary, AB T2P 3G7
Phone: +1 (403) 298-7094
Email: Warren.Watson@huskyenergy.com

Site Wide Services

Chris Salewich
Site Wide Services Manager
Husky Oil Operations Limited
707 – 8 Avenue S.W.
Calgary, AB T2P 3G7
Mobile: +1 (403) 700-4780
Email: Chris.Salewich@huskyenergy.com

2.2 Program Overview

Husky proposes to abandon the two existing exploration wells (H-64 and N-09) and decommission all twelve existing ground water monitoring wells; including two bedrock wells, two shallow wells and eight thermistor wells. See Program Map in **Appendix 1**.

Access and staging for the winter 2018/19 downhole well abandonment program will be conducted under existing LUP S13X-003 and WL S13L1-006. The scope of work will include:

- Mobilizing equipment to the site using the Government of the Northwest Territories (GNWT) winter road;
- Mobilizing personnel via air to Norman Wells;
- Construction of existing winter access road from the intersection of the GNWT highway to the Mackenzie River;
- Construction of 1,400 metre (m) ice bridge across the Mackenzie River to Husky's existing staging area on the west side;
- Use of an all-weather road from the staging area to Quarry M;
- Construction of existing winter access road from Quarry M to N-09 and H-64 wellsites;
- Drawing water from approved and existing water sources licenced under WL S13L1-006;
- Construction of ice pads at existing well sites;
- Operation of a camp and facilities for up to 72 persons;
- Storage of equipment and fuel at the campsite;
- Use of winter airstrips for moving crews and equipment to and from the program area;
- Mobilization of a tank farm and abandonment fluids to the wellsites;
- Mobilization of a Class III service rig and auxiliary equipment to the wellsites;

- Move in and rig up three 400 barrel tanks, wellsite trailers, generators, boilers, pressurized test equipment, flare stack, fluid handling equipment, and light towers;
- Abandon Little Bear H-64 and Little Bear N-09;
- Management of waste including the trucking of produced fluids off site to an approved disposal facility;
- Cut and cap the wellbores;
- Abandon 12 groundwater wells (2 deep, 4 shallow, 6 thermistor);
- Demobilization of equipment; and,
- Reclaim the wellsites (continued through summer 2019).

2.3 Locations

Husky is proposing to conduct downhole abandonment operations on vertical wells Little Bear H-64 and Little Bear N-09, during the winter of 2018/19. **Table 2-1** outlines the locations of the two vertical wells.

Table 2–1: Exploration Well Locations

Location Name	Coordinates (NAD83)	
	Latitude	Longitude
Little Bear H-64	64.891321° N	126.190831° W
Little Bear N-09	64.982062 N	126.524149 W

2.4 Site Wide Services

Common activities that have been identified as “Site Wide Services” within the project management structure include:

- Construction and maintenance of winter access road and ice bridge and use of the security station;
- Maintenance and use of all-weather access road and three clear span bridges;
- Water withdrawal from existing and approved water sources, including the Mackenzie River and Vermillion Creek;
- Operation of a camp with a maximum camp occupancy of 400 persons that will accommodate personnel working on all EL494 related exploration projects at the all-weather base camp pad;
- Operation of a communications tower at the camp;
- Operation of storage and staging areas;
- Use of existing heli-pads;
- Storage of fuel in a tank farm co-located with the camp/storage site;
- Operation and maintenance of an all-weather airstrip;
- Construction and maintenance of the all-weather road (including quarrying); and,
- Supply of water for the camp, winter access construction, and road maintenance use.

2.4.1 Existing Access and Staging

Access and staging for the winter 2018/19 downhole well abandonment program will be conducted under existing LUP S13X-003 and WL S13L1-006. The scope of work will include:

- Mobilizing equipment to the site using the GNWT winter road;
- Mobilizing personnel via air to Norman Wells;
- Construction of existing winter access road from the intersection of the GNWT highway to the Mackenzie River;
- Construction of 1,400 metre (m) ice bridge across the Mackenzie River to Husky's existing staging area on the west side. The ice bridge will have a minimum of 45,000 kilograms (kg) weight bearing capacity before the service rig will be allowed to cross the ice;
- Use of an all-weather road from the staging area to Quarry M;
- Construction of existing winter access road from Quarry M to N-09 and H-64 well sites;
- Drawing water from approved and existing water sources;
- Construction of ice pads at existing well sites and select groundwater monitoring well sites; and,
- Use of winter airstrips for moving crews and equipment to and from the program area.

If conditions permit, the winter road construction is scheduled to start on December 1, 2018. The all-weather road, including bridge approaches, will need to be repaired before the camp is moved in (scheduled for mid-January 2019). No new lands or access will be required. All work will occur within existing land disturbances authorized under existing Land Use Permits and Water Licences. Water use will be less than previous programs and will be less than the volumes authorized by existing Water Licences.

If operations have not been completed by late-March 2019 and suitable conditions exist, a request may be submitted to GNWT Department of Lands to extend the program for permission to keep EL494 access open beyond the expected March 31, 2019 closure. Husky recognizes that such an extension is weather-dependent day by day, and that operations might have to be suspended on short notice. In the event that work cannot be completed by late March 2019 and conditions preclude an extension to the Program, further work may be required in a subsequent winter season.

2.4.2 Site Wide Services Equipment List

Equipment which will be utilized by Site Wide Services operations during the 2018/19 well abandonment program is listed in **Table 2-2** below.

Table 2–2: Base Campsite Location

Equipment	Weight (kg)	Quantity	Use
Truck with fill	45,000	1	Deliver material to fill excavations
Excavator Cat 330D	35,000	1	Dig around wellbores/Road construction and restoration
Tandem Water Trucks	12,000	6	Water transportation/ice road construction
Bombardier Snow Cats	6,000	2	Snow removal/ice road construction
Grader	15,000	1	Leveling road and lease
Loader	18,000	1	Loading gravel/rock/material
Truck and End Dump	24,000	1	Transportation of rocks/material
Cat 730 Rock Trucks	23,000	2	Rock transportation
D6 LGP Dozer	18,000	1	Pushing/leveling ground material
D8 Dozers	38,000	2	Pushing/leveling ground material
Skid Steer	1,200	1	Loading gravel/rock/material
Triaxle Gravel Trucks	16,000	2	Gravel transportation
Rental Pickups	5,000	TBD	Transportation of crew
Light Towers	1,200	8	Lighting/power
Generators	1,800	2	Power generation
MTC Units	6,000	2	Ambulances
Wellsite Trailers	12,000	2	Security/office space

2.4.3 Camp

The crews will be accommodated in a camp and facilities for up to 72-persons that will be located at the base campsite. The camp will house personnel for all aspects of the program (i.e. construction and well abandonment operations). **Table 2-3** presents the location of the base campsite.

Table 2–3: Base Campsite Location

Location Name	Coordinates (NAD83)	
	Latitude	Longitude
Base Campsite	65.006865°N	126.434409°W

Up to seven wellsite trailers will be temporarily stationed in the program area (2 at the security station; 1 with the groundwater well decommissioning crew and 3 to 4 at the wellsite) to accommodate personnel that are required to be on-lease during the well abandonment activities and will be mobilized and demobilized with the service rig. Water volumes required for the crew members accommodated in the wellsite trailers have been included in the Site Wide Services water budget associated with WL S13L1-006.

There will also be one emergency shelter that will be available on the program during road construction and will also be located at H-64 while the crews are working remotely from the base camp. This shelter is for emergency use only and is not intended for long-term accommodation.

2.5 Wellsite Construction

The existing wellsite leases at H-64 and N-09 are 130 m by 130 m. Original lease construction consisted of the clearing of scrub spruce and shrubs using low ground pressure (LGP) mulchers and the material was spread across the site. Returning to the sites in the winter of 2018/19 may require hand cutting in areas of vegetation overgrowth.

The lease will be padded with ice to accommodate the topography and to provide a level operations area for well abandonment operations. Rig mats will be placed under the service rig to provide a level and stable surface to support the rig. Associated equipment will be placed on the lease in accordance with the wellsite layout diagram (see **Appendix 1**).

2.5.1 Downhole Well Abandonment Program

The proposed hydrocarbon well abandonment program will consist of the following components:

- Winter ice pad construction of the two wellsites, Little Bear H-64 and Little Bear N-09, and associated winter access;
- Mobilization of a tank farm and abandonment fluids to the wellsites;
- Mobilization of a Class III service rig and auxiliary equipment to the wellsites;
- Move in and rig up three 400 barrel tanks, wellsite trailers, generators, boilers, pressurized test equipment, flare stack, fluid handling equipment, and light towers;
- Abandon Little Bear H-64 and Little Bear N-09;
- Management of waste including the trucking of produced fluids off site to an approved disposal facility;
- Cut and cap the wellbores;
- Demobilization of equipment; and,
- Reclaim the wellsites (continued through summer 2019).

The service rig, associated equipment and materials will be mobilized to the site by winter road in January 2019. The N-09 well will be abandoned first, followed by H-64. The well abandonment activities will require 35 operating days. A contingent of up to 5 additional days will be provisioned for this program. This operation will be conducted on a 24-hour basis. Work to abandon the wellbore is scheduled to commence on January 23, 2019 at the N-09 location and will then be transported to the H-64 location. The program is anticipated to be completed at the end of February 2019, at which time the rig and associated equipment will be demobilized from the program area south on the GNWT winter road.

Crews will be accommodated at the base camp; however, Husky will also operate 3-4 wellsite trailers to accommodate the Worksite Leaders during the well abandonment program. These trailers will be mobilized from N-09 to H-64 as required, with up to two people sleeping in each trailer. **Table 2-4** below outlines the anticipated timelines associated with the construction of the wellsites and the abandonment program.

Table 2–4: Anticipated Well Abandonment Timeline

Activity	Time Required	Estimated Dates
Well N-09		
Lease construction	36 days	December 15, 2018 – January 20, 2019
Move in, rig up and associated support equipment	3 days	January 23 - 25, 2019
Complete downhole abandonment using permanent bridge plugs and cement	10 days	January 26 – February 4, 2019
Rig out, prepare to move equipment to N-09	3 days	February 5 – 7, 2019
Backfill the wellbore area, allow extra material to be used to mitigate any slumping at the well site. Re-seed excavated area using regulatory approved seed mix	2 days	February 28 – March 1, 2019
Well H-64		
Lease construction	7 days	January 3 - 10, 2019
Move in, rig up and associated support equipment	3 days	February 8 – 10, 2019
Complete downhole abandonment using permanent bridge plugs and cement	9 days	February 11 - 19, 2019
Rig out	3 days	February 20 – 22, 2019
Backfill the wellbore area, allow extra material to be used to mitigate any slumping at the well site. Re-seed excavated area using regulatory approved seed mix	2 days	February 28 – March 1, 2019
Clean-up & Reclamation		
Reclamation	To be determined	Inspection in summer 2019

It is anticipated that well abandonment operations will commence on January 23, 2019. The operations at both wells will take approximately 90 days.

All downhole abandonment activities will be conducted under approval of the Office of the Regulator of Oil and Gas Operations in NWT (OROGO), see Section 5 for more details.

2.5.2 N-09 Downhole Abandonment Operations

Both wells will be permanently downhole abandoned, starting with N-09 and ending with H-64.

Mobilization & Rig-Up:

- Both wells are currently suspended. Equipment will be mobilized to the Slater River area from various locations in Alberta in January 2019.
- A Class III service rig and associated support equipment will be mobilized to N-09 to begin abandonment operations.
- Move in and rig up three 400 barrel tanks, wellsite trailers, generators, boilers, pressurized test equipment, flare stack, fluid handling equipment, and light towers.

Downhole abandonment operations at Little Bear N-09 will include:

- MIRU service rig and associated equipment
- Commence heating wellhead using boiler and install vent meter. Establish baseline vent flow rate
- Stump test BOPs. Install pressured tested BOPs
- Rotate off on/off and circulate wellbore over to biocided fresh water
- Rig in slickline unit and all associated equipment
- RIH and retrieve tubing plug at 1770.5 mKB

- Unset packer assembly
- Monitor wellbore for response
- POOH, lay down packer assembly
- MURIH 177.8 mm bit/scraper to top of existing perforations at 1788.0 mKB
- POOH, lay down bit/scraper
- MURIH 177.8 mm x 10K permanent bridge plug
- Set permanent bridge plug within OROGO regulation setting depth above Canol perforations
- POOH, lay down setting gear
- Fill and pressure test casing and permanent bridge plug to 7,000 kPa for 10 minutes (flatline).
- Circulate wellbore over to biocided fresh water
- MURIH MiCRO CHAT-Temp CBL logging tool
- Log from top of bridge plug to surface
- Lay down logging tool
- MURIH e-line dump bailer
- Dump bail 15.0 vertical meters class “G” cement on top of set bridge plug
- Based on results of logging and SCV gas analysis, perforate casing and perform cement squeeze to stop surface casing vent flow at source (up to three programmed attempts). Ensure all perforations/cement squeezes meet OROGO requirements
- POOH and lay down all equipment
- Clean up location
- Turn wellsite over to reclamation group to be cut and capped

During downhole abandonment operations, tanks will be available on site to store all fluids and cement returns. These waste streams will be temporarily stored during operations, and then transferred by truck to the appropriate approved disposal facilities.

In the event that there are issues encountered with the surface casing vent flow, Husky will employ the following contingency procedure:

Unable to stop surface casing vent flow with three cement squeezes:

- Equipment will be available on location to complete up to three additional perforations and cement squeezes per well
- Contact OROGO representative and discuss findings
- Based on log results, identify other possible sources of vent flow
- Obtain OROGO approval to perform cement squeeze on next targeted interval
- Monitor vent flow rate using vent meter
- If vent flow still exists, repeat process for next possible source

Vent flow not repaired after identified targets squeezed with cement:

- Equipment will be available on location to mill through cement, cement retainers and bridge plugs
- If targeted zones have been squeezed with cement and a vent flow still exists, contact OROGO to discuss findings
- Determine most likely source depth based on logs, gas analysis, and vent meter data
- Mill through cement and bridge plug to below identified source depth
- Re-perforate and conduct cement squeeze. Confirm vent flow has been stopped
- Conduct 7,000 kPa pressure test to verify integrity of plug and casing

Following the downhole abandonment of N-09, the equipment will be relocated to the H-64 wellsite to begin the same procedure.

2.5.3 H-64 Downhole Abandonment Operations

Downhole abandonment operations at Little Bear H-64 will include:

- MIRU (move in rig up) service rig and associated equipment
- Commence heating wellhead using boiler and install vent meter. Establish baseline vent flow rate
- Stump test BOPs (blow out preventer). Install pressured tested BOPs
- Rotate off on/off and circulate wellbore over to KCl (potassium chloride) blended water
- Rig in slickline unit and all associated equipment
- RIH (run in hole) and retrieve tubing plug at 1174.5 mKB
- Unset packer assembly
- Monitor wellbore for response
- POOH (pull out of hole), lay down packer and perforating assembly
- MURIH (make up run in hole) with milling assembly
- Mill out upper bridge plug at 1220.8 mKB, clean to top of lower bridge plug at 1241.8 mKB
- POOH, lay down milling assembly
- MURIH 177.8 mm bit/scrapper to top of lower set bridge plug
- POOH, lay down bit/scrapper
- MURIH 177.8 mm test packer assembly
- Set packer above lower set bridge plug
- Fill and pressure test to 7,000 kPa and hold for 10 minutes (flatline)
- Unset packer assembly, POOH, lay down
- MURIH e-line dump bailer
- Dump bail 3.0 m vertical meters of Hydromite cement on top of lower bridge plug at 1241.8 mKB
- MURIH 177.8 mm x 10K permanent bridge plug
- Set permanent bridge plug within OROGO regulation setting depth above upper set of Canol perforations

- POOH, lay down setting gear
- Fill and pressure test casing and permanent bridge plug to 7,000 kPa for 10 minutes (flatline).
- Circulate wellbore over to biocided fresh water from top of top set bridge plug to surface
- MURIH MiCRO CHAT-Temp CBL logging tool
- Log from top of bridge plug to surface
- Lay down logging tool
- MURIH e-line dump bailer
- Dump bail 15.0 vertical meters class “G” cement on top of set bridge plug
- Based on results of logging and SCV (surface casing vent) gas analysis, perforate casing and perform cement squeeze to stop surface casing vent flow at source (up to three programmed attempts). Ensure all perforations/cement squeezes meet OROGO requirements
- POOH and lay down all equipment
- Clean up location
- Turn wellsite over to reclamation group to be cut and capped

2.5.4 Downhole Well Abandonment Equipment List

Equipment which will be utilized to conduct the downhole well abandonment at Little Bear H-64 and Little Bear N-09 is listed in **Table 2-5**.

Table 2-5: Anticipated Hydrocarbon Well Abandonment Equipment (Service Rig)

Equipment	Weight (kg)	Quantity	Use
Mobile Class III service rig and support equipment	43,000	1	Rig used for well abandonment
Pressurized test vessel	27,300	1	Relieve pressure from well, send gas to flare
Diesel boilers	15,000	2	Heat for equipment
Wireline truck	24,000	1	Wireline operations during abandonment
Cement pumper	22,220	1	Cementing operations during abandonment
Cement bulker	46,500	1	Cementing operations during abandonment
Generators	1,800	3	Provide electricity to site
400 barrel tanks	4,990	3	Water storage
Wellsite trailers	12,000	3	Indoor area for personnel/equipment
Light towers	1,200	4	Provide lighting for work area
Fluid pump/engine	29,500	1	Pumping water/fluids
Flare stack	5,000	1	Burn any gas from well during abandonment
Rig tank	24,500	1	Fluid storage from rig
Storage skid	14,000	1	Storage for rig equipment
Steamer truck	18,000	1	Provide hot steam for defrosting
Fuel truck	14,000	1	Provide fuel for equipment
Water truck	12,000	1	Water delivery
Top Drive Tubing Swivel	5,000	1	Milling bridge plug
Cold Cut Unit	15,000	1	Cut off well casing
Vacuum Truck	21,000	1	Collect and contain cement/fluids/earth/etc.
Picker Truck	24,000	1	Lifting equipment on location
Bed Truck	21,000	1	Transport equipment
Herman Nelson Heaters	2,000	2	Heating equipment on location
Welding Unit	5,500	1	Cut off surface casing (where required)

2.6 Groundwater Monitoring Well Decommissioning

It is Husky's intention to decommission the groundwater monitoring wells in the Slater River program area. This activity will run concurrent with the hydrocarbon well abandonment operations. Husky has twelve groundwater monitoring wells including two bedrock water wells (MW-09 A and B); two shallow groundwater monitoring wells (MW-01A and MW-19B); and eight thermistor wells (MW-01T, MW-04T, MW-09T, MW-11T, MW-12T, MW-16T, MW-17T, MW-19T).

The decommissioning operations will take approximately 20 operating days. It is anticipated that equipment mobilization for the project will begin on January 23rd, 2019. Work to abandon the water wellbores will commence on the MW-09A location, and then the equipment will be moved to the MW-09B location. A contingent of up to 3 additional days will be provisioned for these operations.

Table 2-6 presents the locations of the groundwater monitoring wells.

Table 2–6: Groundwater Monitoring Well Locations

Location Name	Coordinates (NAD83)	
	Latitude	Longitude
MW-01A	65.098418° N	126.267945° W
MW-01T		
MW-04T	65.094917° N	126.333217° W
MW-09A/B	64.985557° N	126.513981° W
MW-09T		
MW-11T	64.968016° N	126.543924° W
MW-12T	64.963541° N	126.509605° W
MW-16T	64.901772° N	126.324887° W
MW-17T	64.879686° N	126.272158° W
MW-19B	64.889132° N	126.194355° W
MW-19T		

The anticipated timeline for these activities is outlined in **Table 2-7** below:

Table 2–7: Anticipated Groundwater Well Decommissioning Timeline

Activity	Time Required	Estimated Dates
Bedrock Water Wells		
MW-09A		
Move in, rig up coil tubing unit and associated support equipment	1 day	January 23, 2019
Purge well, abandon by balancing cement plug over open hole section, blow dry, fill to surface with bentonite	5 days	January 24 – 28, 2019
Rig out, prepare to move equipment to MW-09B	1 day	January 29, 2019
MW-09B		
Move in, rig up coil tubing unit and associated support equipment	1 day	January 30, 2019
Purge well, abandon by balancing cement plug over open hole section, blow dry, fill to surface with bentonite	5 days	January 31 – February 4, 2019
Rig out	1 day	February 5, 2019
Shallow Groundwater Wells and Thermistor Wells		
Move in, remove wellbore equipment, and fill to surface with bentonite chips. 10 wells at -0.5 days per well	5 days	February 15–19, 2019
Clean-up & Reclamation		
Re-seed excavated area using regulatory approved seed mix	To be determined	Summer 2019

The scope of work will include:

Abandonment operations for bedrock water wells (MW-09 A and B):

- Construct ice pad;
- Move in and rig up the coil tubing unit and all support equipment including:
 - 400 bbl. tank farm
 - Double ender well site shacks
 - Light towers, generators, garbage bins and other surface rental equipment
- Run in coil tubing; circulate fresh hot water to heat up wellbore to top of packer assembly;
- Pull production tubing and in-flat packer assembly out and lay down;
- Install electrical submersible pump and clean production hose. Run and flow the wells (wells must be thoroughly purged - min 5x well volume). Pump water off to surrounding environment after field screening;
- Collect water samples for routine water, dissolved metals, and BTEX;
- Disinfect the well using water with a chlorine concentration of 250 mg/L and siphon the solution into the well;
- Run in hole and balance cement plug over open hole of well bore;
- Shut down for the night and wait on cement;
- Fill and pressure test well bore to 7,000 kPa;
- Run back into the well bore with coil tubing and blow dry to surface;
- Fill with bentonite to where the well will be cut and capped; the bentonite must be placed from the bottom up in order to ensure no spaces in the bentonite plug; hydrate bentonite if required;
- Use of abrasive water jet cutting tool to cut and remove approximately 2.0m below ground level, of casing prior to capping. Excavation around the casing of 2.0m below ground level will only be completed if challenges using the water jet tool arise;
- A well cap will be permanently installed on the casing, and both the well casing and annulus will be sealed;
- Backfill the excavation using quarry material in the sub-soil, the excavated soil and topsoil. Allow extra material to be used to mitigate any slumping at the well site; and,
- Re-seed excavated area using regulatory approved seed mix.

2.6.1 Bedrock Groundwater Well Decommissioning Equipment List

Equipment which will be utilized to conduct the decommissioning of the bedrock groundwater wells MW-09A and MW-09B is listed in **Table 2-8**.

Table 2–8: Anticipated Groundwater Well Abandonment Equipment List for Bedrock Wells (MW-09A and MW-09B)

Equipment	Weight (kg)	Quantity	Use
Coil tubing unit	33,900	1	Abandonment operations for water wells
Light towers	1,200	4	Provide lighting for site
Generators	1,800	2	Provide electricity to site
Coil tubing tank	5,700	1	Fluid catch tank
Hot oiler	28,000	1	Heating fresh water
Well site trailer	12,000	1	Indoor area for personnel/equipment

Mobile diesel boiler	16,500	2	Provide heat for equipment
400-barrel tank	4,990	1	Water storage

Abandonment operations for Shallow Groundwater Wells (MW-01A and MW-19B) and Thermistor Wells (MW-01T, MW-04T, MW-09T, MW-11T, MW-12T, MW-16T, MW-17T, MW-19T):

- Construct ice pads at MW-1 and MW-19, otherwise will utilize oak matting to protect ground surface;
- Dig around outer metal casing, pull casing from ground;
- Using vacuum truck, remove top sand from well and pull wiring if possible;
- Fill remainder of wellbore with bentonite chips;
- Use fill from quarry and soil to fill any remaining excavation; and,
- Place erosion mats and approved seed mix to cover the reclaimed area, clean up location.

After the casing is cut and capped the surface site will be assessed and reclaimed.

Husky will operate a wellsite trailer to accompany the crew conducting the groundwater well decommissioning. Water required for the trailer will be transported directly from Norman Wells rather than from water sources within the program area.

2.7 Water Use

Water use for the project will primarily be required for construction (ice bridge, winter access roads, laydown, storage areas and well sites) and is permitted under existing Water Licence S13L1-006.

The estimated volumes of water required for the 2018-19 winter program is as follows:

- Winter access construction – approximately 13,000m³;
- Wellsite ice pad – 2,500 m³ per pad for a total of 5,000m³;
- Base camp and portable wellsite trailers will use potable water from Norman Wells.

Water bodies, with the exception of the Mackenzie River, were assessed in 2011 and 2012 following Department of Fisheries and Oceans (DFO) Protocol for winter water withdrawal from ice-covered water bodies in the NWT and Nunavut.

Minimal water use will be required for well abandonment. While water use is permitted under Water Licence S13L1-005, treated water will be brought in from Norman Wells. Estimations of well activity water requirements is listed below.

- Little Bear N-09 downhole abandonment – 200 m³
- Little Bear H-64 downhole abandonment – 200 m³
- Groundwater well decommissioning (MW-09 A & B) – 20 m³

2.8 Waste Management

Husky has prepared an updated Waste Management Plan (WMP) which details how waste generated will be safely managed (see **Appendix 2**). The management of abandonment program

wastes, camp wastes, and hazardous materials are regulated and require implementation of these plans to handle waste in a compliant manner. The goal of waste management is to safely manage waste streams in temporary storage onsite, until waste can be treated onsite or shipped off-site and received at an approved waste management facility for end disposal.

The WMP covers:

- Waste types including characterization of waste and waste management methods;
- Incineration management and ash disposal;
- Sewage and domestic waste water;
- Hazardous waste;
- Non-hazardous and other waste streams;
- Contractor services in regard to onsite waste management; and
- Project emissions information.

The WMP has been updated for the Sahtu Land and Water Board and addresses the requirements and conditions set out in the Land Use Permits and Water Licences. Husky will maintain a copy of the WMP on site in a readily available location to the satisfaction of the Inspector.

2.8.1 Industrial Waste Storage & Disposal

Industrial waste for both wells is anticipated to consist of fluids and cement returns associated with downhole abandonment operations and is outlined in the detailed Waste Management Plan in **Appendix 2**.

Cement returns arise from well bore cementing activity and consist of cement, aggregate and water. The cement returns are isolated from the fluids during the abandonment process and placed in cement bin. Once the cement hardens to a benign state, the cement bins will be hauled out of the project to an approved disposal facility in Alberta via the GNWT winter road to an approved receiving facility.

Dirty hole volume is the fluid (frac oil / water) that remains in the casing following the previous completions operations and needs to be removed prior to abandonment of the well. This fluid is predominantly water, but typically contains chemical additives to preserve the casing. The dirty hole volume of water is captured and disposed of at an approved third-party facility located in Alberta.

Kill fluid is a brine placed into a well bore in order to prevent the flow of reservoir fluids without the need for pressure control equipment at the surface. This may or may not be used for the operation but needs to be considered in project and waste management planning. In the event that kill fluid is used, it may be recoverable, stored in an on-site tank farm and/or hauled off-site for beneficial re-use. Kill fluid will be stored in an on-site tank and transported to an approved facility for off-site disposal. Unused kill fluid will be hauled off-site for beneficial re-use or transported to an approved disposal facility located in Alberta.

2.8.2 Incineration

Incineration is another means of reducing the mass and volume of waste, including paper products, domestic rubbish, and kitchen wastes. Burning these waste streams is important to reduce the impact to local wildlife and will eliminate scavenging around the camp.

As operations will be minimal going forward, a practical solution to handle domestic waste incineration will be used. The Slater River project will utilize forced-air fuel fired incinerators to incinerate all combustible garbage and debris generated by the project. Husky will utilize two CY-2050-FA-D incinerators located at the main camp complex to manage burnable waste streams generated by the camp and the abandonment projects. The unit is forced air and runs on diesel as per the conditions above. Consistent with Husky's intent to be a responsible operator, the main objective of this section is to ensure the incinerators are operated in a safe, efficient and environmentally compliant manner. Incineration at the Husky camp is managed under existing LUP S13X-003 and WL S13L1-006.

2.8.3 Flaring

Downhole abandonment of the Little Bear H-64 and N-09 wells will likely require flaring of gas. Flaring will be required to bleed off any trapped pressure in the wellbore. As the operations being conducted are wellbore abandonments, Husky does not foresee significant volumes of gas having to be sent to the flare. All gas flared from the wells will be sweet gas however; Husky intends to take all necessary precautions and will utilize an H₂S monitoring system.

Any produced fluids will then flow through high pressure piping to a testing choke manifold. Once through the choke the production will enter the separator where the majority of the gas will be separated from any liquids and sent to the flare for combustion. The respective liquids will be sent to the 400-barrel storage tank on location.

2.8.4 Sewage and Domestic Wastewater

The only discharge stream that will be released into the natural environment will be waste water treated effluent. Treated sewage effluent will be treated and released to the ground as described in the WMP under 'Sewage and Domestic Waste Water'. The criteria for the effluent before discharge to the natural environment have been determined by SLWB and Husky will adhere to the Terms & Conditions within the LUP S13X-003 and WL S13L1-006. Sewage effluent discharge quality must meet the following parameters (**Table 2-9**):

Table 2-9: Sewage Effluent Discharge Criteria

Parameter	Maximum Concentration
Suspended Solids	100mg/L
Oil and Grease	5mg/L and no visible sheen
CBOD ₅	100mg/L
Fecal Coliforms	1x10 ⁶ CFU/100ml
pH	6-9

2.8.4.1 Raw Sewage, Treated Wastewater Effluent, and Residual Sludge

Raw sewage generated at the well site trailers will be pumped through lift stations attached to the well site trailers and into the T-25 AGRB treatment unit. Treated liquid effluent is sampled prior to discharge to the environment to ensure that the effluent meets discharge criteria outlined in **Table 2-9** which is referenced from Water Licence S13X-003.

All analyses are conducted by a third-party CALA-accredited laboratory in accordance to methods described in the current edition of Standard Methods for the Examination of Water and Waste Water (APHA *et al* 2012) or by such other methods approved by the analyst. Samples will be collected and analysed for residual carbonaceous biological oxygen demand (CBOD), total suspended solids (TSS), oil and grease and fecal coliforms every two weeks. Discharge to the surrounding environment will commence once effluent meets the required parameters. A series of discharge hoses will have small holes drilled throughout to promote slow dispersion of the effluent across the appropriate surrounding environment (effluent field).

Solid waste (sludge) is separated from liquid waste, stored in secure, covered containers, which are then transported by vacuum truck via barge and / or road transportation via the GNWT winter road, to designated receiving facilities. Receiving facilities of sewage sludge are confirmed as approved receivers through a 3rd party waste audit protocol considering jurisdictional approvals and operating procedures and capacity.

2.9 Fuel Storage

Fuel storage and handling is permitted under LUP S13X-003 and WL S13L1-006. Husky plans to transport fuel for the program from Norman Wells on an as-needed basis, although a base level of on-site storage will be required to ensure an uninterrupted supply. During winter access and ice bridge construction, equipment will be refueled daily via fuel trucks from Norman Wells. Fuel types including diesel, gasoline and propane are required for access construction, camp operations and well abandonment operations. The bulk of the fuel associated with the program will be stored at the base campsite and mobilized, as required, to the wellsites. **Table 2-10** presents the quantities and types that will be stored at the base campsite and wellsite.

Fuel storage at the base camp will include 1 x 90,000 litre (L) and 1 x 65,000 L tanks, both double walled. Husky will employ secondary containment by setting the tanks on matting and a temporary liner within a bermed area and the tanks will have spill grates to catch any drips around the fuel hoses.

Fuel storage at the wellsite will consist of 1 x 47,500 L double-walled tank set up to supply the service rig and will be mobilized between sites during abandonment operations. The storage tank will be contained within a lined synthetic berm system constructed of interlocking plastic panels and an impermeable synthetic liner. The berm will be of sufficient volume to contain 110% of the total tank volumes. Upon completion of H-64 abandonment activities, the fuel and storage tank and portable berm will be relocated to the N-09 wellsite.

All large equipment will be fuelled with diesel to simplify fuel handling. Propane may be used for heating and thawing and site office/accommodation trailer usage on the leases. Fuel transport and handling will be conducted according to the spill prevention and spill contingency plan. Fuel will not be stored within 100m of the high water mark of any water bodies.

Table 2–10: Fuel Quantities and Types

Location	Unit Size (Litres)	Number of Units	Max Volume (Litres)
Base Camp			
Diesel	60,000	2	108,000
Diesel	30,000	1	27,000
Gasoline	4,500	1	4,050
Propane	3,000	2	5,000
Wellsite (located first at H-64 and then moved to N-09)			
Diesel	30,000	1	27,000

Spill response equipment will be located throughout the program area including dedicated spill kits located near the fuel tanks. Additional spill response materials will be stored at the staging site and the wellsites. In addition, spill response equipment will be maintained on all fuel transfer vehicles. Drip pans will be placed under parked equipment and/or machinery containing non-biodegradable fluids and will also be used to capture minor spills and drips while fuelling vehicles. The drip trays will be monitored for fluid levels and replaced as necessary.

All personnel will be made aware of the emergency response plan and the site-specific spill response plan. In the event that a spill occurs, it will be reported to the NT-NU 24-hour Spill Reporting Hotline at (867) 920-8130 or spills@gov.nt.ca. Husky's updated Emergency Response and Spill Contingency Plan have been submitted to the SLWB under separate cover.

2.9.1 Vehicles

Drip pans will be placed under all parked vehicles, equipment, and machinery, and will also be used to capture minor spills and drips while fuelling vehicles. The drip trays will be monitored for fluid levels and will be replaced as necessary.

2.10 Emergency Response and Spill Contingency Planning

Spill response equipment and material will be located throughout the program area, including dedicated spill kits located at active operations sites and water withdrawal points. Spill response equipment will also be maintained on all fuel transfer vehicles. Parked equipment will be inspected during a daily walk around before driving away to ensure that there are no signs of spills or leaks. Drip pans will be used to capture minor spills and drips while fuelling vehicles. The drip pans will be monitored for fluid levels and replaced or emptied as necessary. Preventative maintenance on vehicles will reduce the potential for spills or leaks. Fuel will be stored at a minimum of 100 m from all water bodies and water courses to prevent contamination of water resources.

All personnel will be made aware of the Emergency Response Plan and Spill Contingency Plan (previously submitted to the SLWB under separate cover). If a reportable spill occurs, it will be

reported to the NT-NU 24-Hour Spill Report Line at (867) 920-8130 or spills@gov.nt.ca. All spills, regardless of volume, will be documented by Husky.

2.10.1 Safety & Spill Kits

Husky commits to distribute safety and spill equipment at the camp, along the site access, and on wellsites. **Table 2-10** lists the content and location of these kits.

Table 2–11: Slater River Project Safety & Spill Kits

Safety Equipment Access Construction	
FIRE	150lb. wheeled dry chemical fire extinguishers
	Fire Emergency Inventory Package
	30 lb. Extinguishers
FIRST AID	First Aid kits on-site
	Fully functional 4x4 ambulances with advance life support (stationed at Base Camp or initially at the Construction Camp)
Little Bear H-64	
FIRE	150lb. wheeled dry chemical fire extinguishers
	Fire Emergency Inventory Package
	30 lb. Extinguishers
FIRST AID	First Aid kits on-site
SCBA	SCBA located on-site.
FRESH WATER	Fresh water source will be the Mackenzie River.
PERSONAL MONITORS	4 head personal monitors (H ₂ S, LEL, O ₂ , CO) with calibration and bump test kits
Little Bear N-09	
FIRE	150lb. wheeled dry chemical fire extinguishers
	Fire Emergency Inventory Package
	30 lb. Extinguishers
FIRST AID	First Aid kits on-site
SCBA	SCBA located on-site.
FRESH WATER	Fresh water source will be the Mackenzie River.
PERSONAL MONITORS	4 head personal monitors (H ₂ S, LEL, O ₂ , CO) with calibration and bump test kits
Equipment in Roadblock Kits	
1 Direct communication capability (e.g. radio, cell phone) 1 Vehicle-mounted rotary beacon 2 Orange traffic cones / reflectors 1 High visibility vest 1 Stop sign with reflective tape (Hand Held) 1 Personal air monitoring device (H ₂ S, CO, O ₂ & LEL) 1 Copy of Roadblock Roles and Responsibilities from Section 1.3 1 Copy of the Maps from Section 4 3 Copies of Form 17: Roadblock Record 2 Pens and/or pencils 1 Flashlight, with extra batteries	

1 Caution tape
Spill Kit Locations
Spill kits will be located throughout the site at the locations indicated on the Transportation Map.
Pre-Identified Spill Kit Locations
Pre-identified spill kit locations are outlined within the maps provided in the ERP and SCP under the Slater River Project Specific Section (see Binder 1)

2.11 Wildlife and Bear Safety

Husky will ensure that all employees and contractors working on-site will be made aware of the potential for wildlife encounters during operations, and the risk of bear encounters during the late fall and early spring. All employees and contractors working on site will be required to read and acknowledge the GNWT Environment & Natural Resources (ENR) manual *Safety in Grizzly and Black Bear Country* (Environment and Natural Resources 2017). The *Husky Bear Safety Manual* (2014) and *Camps and Accommodations Roles & Responsibilities* (2015) will also be on site and available to all workers.

Any inquiries related to wildlife and bear safety will be made to the Norman Wells Area GNWT-ENR Office in Norman Wells, NT at (867) 587-3506 or the Emergency Line at (867) 587-2422.

2.11.1 Wildlife Monitoring

Husky has awarded the contract for wildlife monitoring to the local Norman Wells Renewable Resources Council (NWRRC) and Tulita Renewable Resources Council (TRRC). As part of the contract, each wildlife monitor is responsible for providing their own firearm and ammunition for the duration of their shift. Husky has reviewed the roles and responsibilities of the wildlife monitors with the RRCs during the scoping process and will also review the matters of firearm safety, handling, and storage prior to starting work. The wildlife monitors will each be responsible for the safe handling of their firearm and ammunition while working in the field whereas Husky will be responsible for the safe handling and storage while at camp in the evenings. Firearms and ammunition will be stored separately in locked cabinets and keys will be held by the Husky Site Safety Supervisor. Husky will also take regular inventory of all ammunition.

The RRCs will ensure that the wildlife monitors they hire for the program will have a valid Possession and Acquisition Licence (PAL) which allows them to possess and acquire firearms as well as ammunition and the RRCs will provide copies of individual PALs to Husky. The RRCs facilitated a federal firearms safety training in previous years so that additional wildlife monitors could be trained and certified.

Wildlife monitors are responsible for:

- Advising workers and supervisors on the location and proximity of dangerous wildlife and any precautions requiring to be implemented;

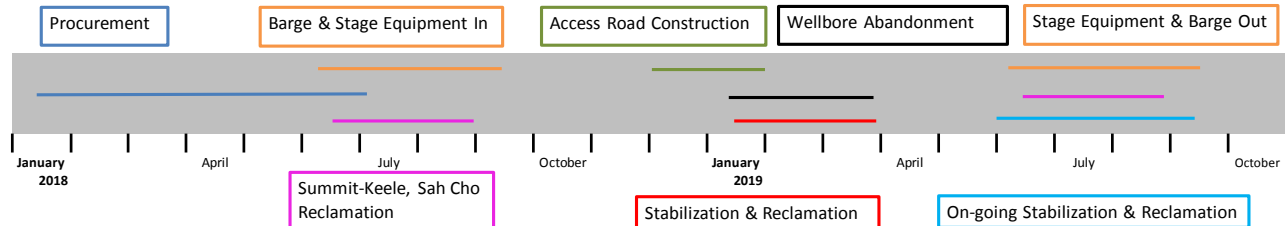
- Training all personnel in wildlife awareness;
- Issuing, maintaining and tracking wildlife deterrent kits;
- Possession of firearm on-site;
- Managing on site animal presence in a manner conducive to both personnel and wildlife;
- Advising supervisors and work groups on proper lease maintenance as it relates to wildlife management to ensure waste streams are managed properly and wildlife attractants are minimized.

During the site orientation, all workers will receive awareness training which will include discussions on the treatment of wildlife, including not feeding wildlife, and not hunting, fishing, trapping, or harassing wildlife. All work crews will be encouraged to support the work that the wildlife monitors do.

2.12 Program Schedule

An estimated timeline of construction and well abandonment activities is provided in **Figure 2-1** below. This timeline is heavily dependent on weather and operational efficiency and is therefore subject to change within the 2018/19 winter season.

Figure 2–12: Slater River 2018-19 Well Abandonment Program Schedule



2.13 Equipment Demobilization & Clean-up

Lease and access clean-up will take place once the rig and equipment has been moved out and will include:

- the removal of any remaining trash and debris;
- cleanup of any spills on site;
- removal of liners;
- installation of appropriate signage at well centre; and,
- reclamation in-place of the pad and access.

Upon completion of well abandonment, the service rig, associated equipment and remaining consumables will be demobilized south from the project area on the GNWT winter road.

2.13.1 Equipment Storage

In the event that the GNWT winter road closes before Husky is able to demobilize equipment, consumables and materials, they will be stored at Husky's base camp or staging site until barging season opens in 2019 following spring break-up. Aside from materials and equipment required for the winter 2018/19 program, Husky will be storing certain equipment and materials as required for ongoing maintenance of remaining work sites (all-weather road, base camp, and staging site).

2.14 Reclamation & Remediation

If any windrowed slash material remains from construction, it will be rolled back during the cleanup. Husky will ensure areas of ground disturbance are repaired and reseeded within one full growing season with a seed mix approved by the GNWT-Lands Department Land Use Inspector in Norman Wells. Alternatively, a plan for natural re-growth will be presented for approval if appropriate for the site conditions. Areas prone to erosion, such as steep slopes, will be stabilized through the spreading of available slash over the topsoil and side ditching if required.

Other erosion control techniques may be employed, if required with reference to the "*Erosion Control and Sedimentation Management Plan*" that Husky prepared for the project when it was originally permitted. In areas where ground disturbance and high erosion potential are identified, stabilization materials, such as coconut-straw matting and silt fencing, may be installed to anchor the soil, prevent runoff water from channelling, and reflect solar energy, reducing the potential for permafrost degradation during spring and summer. The wellsites will be inspected in the summer of 2019 and annually thereafter for the duration of the licence term. Husky has also developed a Closure and Reclamation Plan for the Slater River project that covers activities under LUPs S13X-003 and LUP S13A-002 (submitted under separate cover).

3.0 Stakeholder Engagement

Husky is committed to comprehensive, meaningful, and ongoing engagement with stakeholders and, most specifically, with the local communities. In accordance with the Mackenzie Valley Land and Water Board "Draft Consultation and Engagement Policy" (MVLWB, 2013), Husky developed and implemented an engagement plan that seeks to identify and mitigate concerns raised by stakeholders, and maximize opportunities and benefits in the region. The engagement plan has guided Husky's activities by ensuring that affected stakeholders are identified; key issues and concerns are identified and addressed; and, where reasonable and feasible, feedback is incorporated back into project planning.

Husky is also committed to building local employment capacity and continues to work with communities and organizations to identify employment opportunities and support related training.

Husky has presented and discussed its proposed program with community members of Norman Wells and Tulita at public meetings in January and November 2018. Prior to the public consultation meetings, Husky initiated numerous phone calls and emails to the community Land Corporations, the Tulita District Land Corporation (TDLC), and Renewable Resources Councils

(RRCs) informing them that Husky would be in the communities, and to coordinate schedules that would provide the greatest exposure to Husky's plans for the proposed program to the communities.

Public meetings were held in in Tulita on January 31, 2018 and Norman Wells on February 1, 2018. Notice posters were either faxed or emailed to several community organizations in Norman Wells and Tulita during the weeks prior, with the request that copies be posted to inform community members of the meetings (refer to meeting notices in **Appendix 3**). During the same community visits, Husky also met with the Tulita Renewable Resources Council (TRRC), Fort Norman Métis Land Corporation (FNMLC), Tulita Land Corporation (TLC), Tulita District Land Corporation (TDLC), Norman Wells Land Corporation (NWLC) and Norman Wells Renewable Resources Council (NWRRC). The communities of Norman Wells and Tulita were well represented, with the public, local business people, elders, and regulators taking an interest in the proposed activities (refer to attendance lists in **Appendix 3**).

Each public session included a catered supper. During the January consultations and informational meetings, Husky provided a complete review of the Summit-Keele wellsite reclamation program, the current status of the Slater River program (access/camp/quarries) and summaries of field assessments and project inspections.

Following the review, Husky provided a detailed preview of the upcoming Slater River 2018/19 wellsite abandonment program of existing wells N-09 and H-64 including:

- Definitions of terminology for the restoration of sites;
- Domestic and industrial waste handling and fuel storage;
- Hydrocarbon well abandonment procedures;
- Groundwater monitoring well abandonment/decommissioning;
- Procurement procedure and schedule; and
- Environmental compliance and regulatory permitting.

Husky met with the same organizations in November 2018 to provide details of the final scope of work for the winter 2018/19 well abandonment program (refer to PowerPoint presentation in **Appendix 3**).

In addition, Husky met with GWNT-Lands (March), GNWT-ITI Petroleum Resources (March), Office of the Regulator of Oil and Gas Operations in the NWT (OROGO) (June) and the SLWB (face-to-face in March and ongoing email correspondence) to provide them with informational updates on previous and proposed projects.

Husky has a strong record at consultation and engagement with individuals and organizations and will continue throughout the duration of Husky's operations within EL494. Among those contacted and/or met with were representatives from organizations summarized in **Table 3-1**.

Table 3–1: Face to Face Meetings

Local Organizations	
NWLC	TDLC
NWRRC	TRRC
FNMLC	SLWB
TLC	
Territorial Organizations	
GNWT	OROGO
- Lands	
- Industry, Tourism and Investment (ITI)	

These meetings and conversations have provided the opportunity to discuss program components, goods and services requirements, and employment opportunities.

3.1 Communities

3.1.1 Norman Wells

3.1.1.1 Norman Wells Land Corporation & Norman Wells Renewable Resources Council

Husky representatives met with board members of the NWLC and NWRRC together on February 2, 2019 at the Heritage Hotel boardroom. The session began with a catered lunch along with introductions of the Husky team. Activity maps were posted and Husky delivered a PowerPoint presentation (refer to **Appendix 3**) detailing the activities listed above. Questions were encouraged throughout the meeting and discussion topics included future activities at Quarry M, the all-weather road, employment for local environment & wildlife monitors, the remote wildlife camera program, and Husky’s funding toward the community fall hunt.

Husky met the NWLC and NWRRC board members again on November 5, 2018 at the Land Corporation office. Husky provided handouts of the PowerPoint presentation that detailed the proposed winter 2018/19 well abandonment program, commencing with winter access construction at the beginning of December 2018. The meeting took a casual approach with questions throughout the presentation. Topics discussed included the plan to keep the all-weather road, the reclamation plan for Quarry M, and Husky’s updated Alcohol & Drug Policy with respect to the legalization of cannabis.

3.1.1.2 Community of Norman Wells

A public consultation was scheduled in Norman Wells on February 1, 2018 at the Canol Legion, Melnyk Hall. The session began with a catered supper along with introductions of the Husky team. Activity maps were posted and Husky delivered the PowerPoint presentation detailing the activities listed above. Questions were welcomed during the presentation and the discussion surrounded the groundwater well abandonment procedure and employment opportunities. Overall, the input received from the attendees was positive.

Husky hosted another public consultation meeting on November 7, 2018 at the Canol Legion, Melnyk Hall. The session began with a catered lunch along with introductions of the Husky team. Activity maps were posted and Husky delivered the PowerPoint presentation detailing the proposed winter 2018/19 well abandonment program, commencing with winter access construction at the beginning of December 2018. Questions and discussion topics included reviewing specific details of the well abandonment process and Husky's plans for potential future exploration in the area.

3.1.2 Tulita

3.1.2.1 Tulita Renewable Resource Council

Husky representatives met privately with the board members of the TRRC at the Two Rivers Hotel boardroom on January 31, 2018 from 10:00 a.m. to 11:00 a.m. The session began with introductions of the Husky team. Activity maps were posted and handouts of the PowerPoint presentation were provided.

Questions were encouraged throughout the meeting and discussion topics included the existing project name, the Summit-Keele wellsite remediation, meaning of "abandonment", quarries, winter airstrips, the all-weather road, the importance of Traditional Knowledge, funding for the TRRC, and employment opportunities.

Husky met with the TRRC again on November 6, 2018 from 12:00 p.m. to 1:30 p.m. at the Tulita Cultural Centre. Husky provided handouts of the PowerPoint presentation that detailed the proposed winter 2018/19 well abandonment program, commencing with winter access construction at the beginning of December 2018. The meeting took a casual approach with questions throughout the presentation. Topics discussed included the existing project name, timing of project activities and the potential impact on caribou, Husky's updated Alcohol & Drug Policy with respect to the legalization of cannabis, firearms licensing issues for wildlife monitors, and reviewing specific details of the well abandonment process.

3.1.2.2 Tulita Land Corporation

Husky representatives met privately with the board members of the TLC at their office on January 31, 2018 from 11:30 a.m. to 1:00 p.m. The session began with introductions of the Husky team. Activity maps were posted and handouts of the PowerPoint presentation were provided. Questions were encouraged throughout the meeting and discussion topics included the meaning of site closure, the all-weather road, availability of Husky inventory, vendor contract opportunities, procurement process, traffic intensity, and the Husky scholarships.

Husky met with the TLC again on November 6, 2018 from 2:00 p.m. to 3:30 p.m. at their office. Husky provided handouts of the PowerPoint presentation that detailed the proposed winter 2018/19 well abandonment program, commencing with winter access construction at the beginning of December 2018. The meeting took a casual approach with questions throughout the presentation. Topics discussed included benefits of the program activity to the community,

opportunities to acquire excess project materials & supplies from Husky, and current initiatives that Husky sponsors in the community.

3.1.2.3 Fort Norman Métis Land Corporation

Husky representatives met privately with the board members of the FNMLC at their office on January 31, 2018 from 1:30 p.m. to 2:30 p.m. The session began with introductions of the Husky team. Activity maps were posted and handouts of the PowerPoint presentation were provided. Questions were encouraged throughout the meeting and discussion topics included land tenure, all-weather road, vendor contract opportunities, procurement process, well abandonment, waste volumes and water use.

While Husky tried to arrange a face-to-face meeting with the FNMLC board members while in Tulita on November 6, 2018, the members were unable to attend. Husky provided the executive with a copy of the PowerPoint presentation ahead of time that detailed the proposed winter 2018/19 well abandonment program, commencing with winter access construction at the beginning of December 2018 and made themselves available for private questions following the public consultation meeting.

3.1.2.4 Community of Tulita

A public consultation was held in Tulita on January 31, 2018 from 6:00 p.m. to 9:00 p.m. in the Tulita Arena Hall. An opening prayer was delivered by Elder Joe Bernard, and interpreting services during the meeting were provided by Leon Andrew. The session began with a catered supper along with introductions of the Husky team. Activity maps were posted and Husky delivered the PowerPoint presentation detailing the activities listed above.

Questions were encouraged throughout the meeting and discussion topics focused primarily on vendor contract and employment opportunities, procurement process, well abandonment procedure, ongoing Husky support to the community. Overall, the input received from the attendees was positive.

Husky hosted another public consultation meeting on November 6, 2018 from 6:00 p.m. to 9:00 p.m. at the Arena Hall. The session began with a catered supper along with introductions of the Husky team. Activity maps were posted and Husky delivered the PowerPoint presentation detailing the proposed winter 2018/19 well abandonment program, commencing with winter access construction at the beginning of December 2018. Questions and discussion topics included Husky's procurement process with respect to contract award to Tulita Dene and Metis registered businesses, Husky's updated Alcohol & Drug Policy with respect to the legalization of cannabis, and reviewing specific details of the well abandonment process.

3.2 Tulita District Land Corporation

Husky representatives met with board members of the TDLC on January 31, 2018 from 4:00 p.m. to 5:00 p.m. Activity maps were posted and handouts of the PowerPoint presentation were provided. Questions were encouraged throughout the meeting and discussion topics included the

all-weather road, traffic intensity, ongoing Husky support to the community, upcoming well abandonment program and procurement process.

Husky met with the TDLC again on November 6, 2018 from 4:00 p.m. to 5:30 p.m. at their office. Husky provided handouts of the PowerPoint presentation that detailed the proposed winter 2018/19 well abandonment program, commencing with winter access construction at the beginning of December 2018. The meeting took a casual approach with questions throughout the presentation. Topics discussed included Husky's procurement process with respect to contract award to Tulita Dene and Metis registered businesses, Husky's Emergency Response Plan for the duration of the project, Husky's updated Alcohol & Drug Policy with respect to the legalization of cannabis, and traffic intensity.

3.3 EL462/463 Project Committee

The EL462/463 Project Committee is mandated by the Access Agreement and Benefits Agreement. The Project Committee includes three representatives from Husky and one representative from each of the three local land corporations (FNMLC, NWLC, and TLC) and has three basic functions:

- to facilitate communication with Husky and the land corporations;
- requirement to qualify Dene and Métis businesses that have been registered in the Tulita District;
- managing an annual budget for each of the ELs and to screen, review and approve requests for community support (donations).

In the past year, funds have been donated to a variety of programs, initiatives and community events including:

- TRRC and NWRRC spring and fall community hunts
- Family Recover Support Program in Tulita
- Sahtu Dene and Métis Comprehensive Land Claim Agreement (SDMCLCA) Workshop in Norman Wells
- National Indigenous Peoples Day celebrations in both Norman Wells and Tulita
- Youth/Adult Dene hand games cultural event
- SDMCLCA 25th anniversary celebrations

The Project Committee has regular correspondence as Husky receives donation requests. We have held teleconference calls and email communication. The current Project Committee representatives from the three Land Corporations (LCs) also sit as board members of their respective LC and have been kept apprised of Husky activities in the region and specifically on the proposed well abandonment program.

3.3.1 Commitment to Communities / Relationship Building

Husky has also committed to the education of the youth within Tulita District. For several years Husky has donated \$30,000.00 annually to the Chief Albert Wright School in Tulita to fund their healthy breakfast and snack program. Husky participated in the career fair at the schools in Tulita

and Norman Wells, where companies active in Tulita District outlined the educational requirements for various careers in the oil and gas industry. In addition to this, Husky had extensively promoted its scholarship program.

Husky is committed to build and maintain positive relationships with stakeholders in the Tulita District. Husky was instrumental in funding, and assisting with the planning, for construction of a traditional moose-skin boat. The initiative allowed for the preservation of skills and created an opportunity for Elders and youth to work together.

3.3.2 Training and Job Shadowing Opportunities

During Husky's previous winter operations season in 2012/2013, Husky provided twelve training opportunities to local residents. Although the winter 2018/19 abandonment program is a much smaller scale and shorter duration than previous programs in the area, Husky is offering the following training opportunities to residents of Tulita District:

- Standard First Aid
- Workplace Hazardous Materials Information System (WHMIS)
- H₂S Alive
- Transportation of Dangerous Goods (TDG)
- Husky Procurement Bidders Workshops
- Husky Site Safety Orientation
- Job Shadowing

In previous years of operations, Husky personnel spent considerable time in the Tulita District to evaluate contractors' safety management systems and work directly with them to provide specific training, depending upon gaps identified during the evaluation process. This training helped prepare them for work with major oil and gas companies which require a standardized Safety Management System.

Husky takes a keen interest in training northern workers and while this program is of very short duration, Husky is making available a job shadowing opportunity for two individuals for Site Security services. This is one position and will be shared between two individuals on a "two week on and two week off" rotation. In these positions, the trainees get on-the-job training and experience, thus acquiring highly marketable skills.

4.0 Regulatory Requirements

4.1 Oil and Gas Authorizations

Following devolution on April 1, 2014, the regulation of oil and gas operations in the NWT are administered by the OROGO under the Oil and Gas Operations Act (OGOA). Under the OGOA an annual operating licence is required. The OROGO issued operating licence NWT-OL-2014-006 is in effect from April 1, 2018 to March 31, 2019.

Husky submitted an Operations Authorization (OA) application to OROGO for the 2018/19 well abandonment program and OA-2018-002 is currently being considered and will require approval of the Chief Conservation Officer of OROGO. Downhole abandonment of the two exploration wells will also require Approval to Alter Conditions (ACW) of a Well, which are issued by OROGO.

In addition to the approvals of the OA and ACW, the Oil and Gas Operations Act requires that a Canada Benefits Plan receive Ministerial Approval prior to the issuance of any work of activity under the Oil and Gas Operations Act. Husky submitted a Canada Benefits Plan to the GNWT Petroleum Resources Division Program and has received approval from the Minister's office.

4.2 Land Use Permits and Water Licences

Husky's exploration activities in the Slater River program area are administered under existing LUPs and WLs as issued by the SLWB:

- LUP S13X-003 (consolidated from S11T-002 and S12F-007) and WL S13L1-006 (consolidated from S11L3-002 and S12L8-007) – site wide services (staging, access road construction, logistics, security and camp operations)
- LUP S13A-002 (consolidated from S11A-003) and WL S13L1-005 (consolidated from S11L1-003) – vertical well exploration drilling and completions
- LUP S12X-006 – groundwater monitoring wells

No new lands or access will be required. All work will occur within existing land disturbances authorized under existing LUPs and WLs. Water use will be less than previous programs and will be less than the volumes authorized by existing Water Licences. Access and staging for the winter 2018/19 downhole well abandonment program will be conducted under existing LUP S13X-003 and WL S13L1-006. The downhole well abandonment will be conducted under existing LUP S13A-002 and WL S13L1-005.

5.0 Conclusion

Husky is committed to responsible stewardship of NWT lands and wildlife habitat, and that every reasonable effort will be made to minimize potential negative impact on the environment. The program area will be inspected the following summer, and annually throughout the term of the permit, to ensure that areas of concern have recovered.

Respectfully submitted,
Husky Oil Operations Limited



Jenica von Kuster, Envi. Tech, EP
Environmental & Regulatory Specialist – NWT