



Sahtu Land and Water Board

Staff Report

Division Land Program	Report No. 02
Date Prepared: September 3, 2004	File No. S04A-006 / S04L1-006
Meeting Date: September 8, 2004	
Subject: Type A Land Use Permit and Type B Water Licence Applications by Northrock Resources Ltd. for exploratory oil and gas drilling in the Summit Creek area on Sahtu Lands and Exploration Licence 397 in the Tulita District.	

1. Purpose/Report Summary

To inform the Board of a Type A Land Use Permit and Type B Water Licence applications by Northrock Resources Ltd. for exploratory well drilling 60 km SSW of Tulita in the Summit Creek area on Sahtu Lands and Exploration Licence 397 in the Tulita District.

2. Background

2.1 Project overview

This program will be called Summit Creek 2004/2005 drilling program, to identify the activities as separate and distinct from the Northrock Summit Creek B-44 drilling program LUP S02A-004. Four drilling sites are proposed. Northrock Resources Ltd. (NRK) plans to drill one exploratory well on either Sub-Surface Land Parcel M-37, Sahtu Lands under an Access Agreement with the Tulita District Land Corporation (TDLC), or on EL 397. The drilling program is being proposed to test the hydrocarbon potential from data received from the 2D Summer Seismic program. The Keele River Staging area will be utilized to transport fuel to the wellsite. A 34 person mobile sleigh construction camp and a 60 person stationary rig camp will be established. Approximately 10km of access will be constructed to the proposed wellsite from the existing S02A-004 access route. A Type B Water Licence for water usage will be required for road construction, drilling, and camps. The project time schedule is estimated to be 66 days.

2.2 Process Requirements

A Type A Land Use Permit is required for the following activities: drilling operations, road construction, construction of a lease and a camp. The application with fees in the amount of \$760.00 was received on July 23, 2004.

A Type B Water Licence is required for road construction, lease construction, a campsite, drilling activities, domestic water usage for a 60 person rig camp and a portable 34 person sleigh camp. Road construction water usage is estimated at 3,500m³,

to be drawn from km 59 lake. Rig camp water usage is estimated at 4,750m³. Drill waste will be deposited into a sump and mix-buried-covered.

Rig camp waste will be buried in a sump. The Water Licence application with fees in the amount of \$30.00 was received on July 23, 2004.

The applications were deemed complete August 5, 2004. The 42 day processing period ends on September 16, 2004. The applications were distributed to 28 referral organizations August 6, 2004, requesting a response by August 26, 2004.

2.3 Attachments

- Map - S04A-006/S04L1-006 Northrock Resources Ltd. Summit Creek 2004/2005 Drilling Project

3. Comments

3.1 Permission of Land Owner/Community Consultation/TEK

NRK has an Access Agreement for Sub-Surface Land Parcel M-37, Sahtu Lands, and a Benefits Plan for EL 397 in place with the Tulita District Land Corporation.

3.1.2 Community Consultation

Norman Wells Community Meeting, June 3, 2004

The Ernie McDonald Land Corporation (EMLC) held consultation with 6 community members and Northrock Resources Ltd. representatives in attendance:

EMLC attendees:

Ruby McDonald
Winter Lennie
Ceci McCauley
Tony Grandjambe
Pamela Lennie
Todd McCauley

Northrock attendees:

Laurier Laprise
Art Stirrett

Northrock representatives reviewed last winter's drilling program, the summer seismic program and the 2004/2005 winter drilling program. The following points were communicated:

- A lot of manpower will be required to complete the seismic program inside of a two month time frame.
- Stewart Lake airstrip is required for fixed wing air support, re-fueling, etc.
- Northrock expressed that the winter drilling program is dependent on results from the summer seismic program.
- All attendees thought that the seismic and winter drilling programs were of significance to members of the community and the Sahtu region.

Hamlet of Tulita Community Meeting, July 21, 2004

A community meeting was held on July 21, 2004 between 7:00 PM and 9:00 PM. Northrock representatives summarized the proposed winter drilling and construction activities associated with drilling one new well, together with completions of the B-44 project in the Summit Creek area. The following points were addressed:

- Four potential drill locations were identified, but only one will be drilled. The location will be disclosed following reports from the summer seismic program.
- The total depth of the new well will be 3650m, 590m deeper than the well at the B-44 wellsite.
- An alternate route for the access road has been scouted to avoid the km 42 hill. A safer, easier route has been selected to avoid the tow hill. The old km 42 hill will be reclaimed.
- Northrock's preference is to resource as many services and qualified workers as possible from the Tulita District.
- Northrock indicated a preference to hire local companies whenever possible. Community members requested that they be informed with up-to-date information as the work activities progress.

Ernie McDonald Land Corporation Committee Meeting, July 28, 2004, Norman Wells

The Ernie McDonald Land Corporation (EMLC) comprised of 10 committee members, together with Northrock Resources Ltd. representatives, held consultation at the EMLC office. The following points were discussed:

- Equipment will be barged in and staged at the Keele River Staging Area. The timing of other activities is dependent on freeze-up, i.e. access construction. The rig will be brought in January 2005. Drilling activities are expected to last 66 days. When drilling is completed the rig will be trucked off the lease.
- Employment opportunities will be made available at the drilling rig and camp, completion rig and camp, as well as access construction and maintenance crews.
- One access modification will be put in place at the km 42 hill to minimize side hill grades and the uphill slope. This change will enhance safety and address potential environmental concerns with the old route.

3.1.3 Traditional Environmental Knowledge

MacKay Range Contracting and Lemon Ventures Incorporated (LVI) have prepared "*The Stewart Lake Traditional Ecological Knowledge Study*". This study is site-specific Traditional Environmental Knowledge for Northrock's proposed 2004/2005 drilling program. The methodology of this study was to interview area-specific knowledgeable land users in the Tulita District and correlate this information with a GIS database. The result is an overlay of information in ArcMap format for the program area. The information identifies the cultural, wildlife and vegetative layers in the proposed winter drilling project area. The following summary identifies responses from community members interviewed for this study:

- All disturbances at Stewart and Tate Lakes must be minimized. These areas are vital ecosystems to the Mountain Dene people.
- The access road from previous work programs is a few metres away from Stewart Lake, and is considered an extreme potential hazard.

- The study group would like to receive from Northrock, maps and shapefiles for all activities in the area.
- Oral history of the Mountain Dene People indicates that as many as 1,000 people may have habitated this area.

Recommendations from community members interviewed for this study:

- Work activities in the Caribou and Flintstone range will try to avoid close contact with wildlife.
- All materials used and wastes produced during the work activities to be removed from worksites.
- Community environmental monitors should participate in all aspects of the program, and be present on each work crew.

3.2 Potential Environmental and Mitigation Measures

3.2.1 Physical Chemical Environment

Ground Water

Water Quality Changes - Northrock has a Fuel Oil and Spill Contingency Plan in place. The project will be conducted during winter conditions (frozen ground and snow cover) when spills are highly visible, and can be cleaned-up before infiltration occurs.

Surface Water

Flow Level or Changes - Domestic water for the camps will be taken from nearby lakes. Bottled drinking water for the camps will be brought in. Water withdrawal for drilling will come from specified lakes in the program area upon approval.

Water Quality Changes - Fuel caches will be set-back a minimum of 100m from the high water mark of any water body. No materials will be stored on the surface ice of any waterbody or within 100m of the normal high-water mark. Camps will be set-back a minimum of 100m from the high-water mark of any waterbody to reduce the potential of infiltration of blackwater.

Noise

Noise Increase - Conducting the program during the late winter will minimize activity during critical periods for wildlife (Spring and Fall). Noise will be limited to the access road and drill sites. Noise will be transient (along access) and local and temporary (access and wellsite).

Land

Soil Contamination - Fuel sleighs will be equipped with secondary containment to prevent accidental spillage. Northrock has a Fuel and Oil Spill Contingency Plan in place. The project will be conducted during winter conditions (frozen ground and snow cover) when spills are highly visible and can be cleaned-up before infiltration occurs.

Soil Compaction & Settling - Access will be constructed using snow and ice that will create a protective layer over the soil profile. Bulldozers will be equipped with shoes for the blades to prevent disturbance to soil and vegetation. Removal of vegetation and soil will be restricted to the wellsite.

Destabilization/Erosion - Stream crossings will be at the most level locations possible, constructed using clean snow fill, and will be at 90 degrees to the banks. Watering the access road will further reduce potential for erosion. Felled trees will be windrowed within the right-of-way. If ground disturbance does occur, it will be recontoured and reseeded with an approved mix immediately, and inspected within one full growing season.

Permafrost Regime or Alterations - Wherever possible, existing cut lines will be utilized for access to limit new clearing. Frozen ground conditions will limit potential damage to surface soils and permafrost. Cat blades will have protective shoes to elevate the blade, leaving some snow cover to protect vegetative mat and, thereby, reduce potential for erosion and damage to permafrost. Drilling waste will be mixed-buried-covered. The sumps will be covered with excess material placed on top to account for settling. The access and well site will be monitored for melting permafrost from solar exposure and rutting in the event of warming conditions.

Non-Renewable Resources/Air/Climate/Atmosphere

Resource Depletion - The project itself will not deplete local non-renewable natural resources.

Air/Climate/Atmosphere

Greenhouse Gases - Vehicles, heavy equipment and drilling operations will emit greenhouse gases but are necessary to conduct the project. Reservoir productivity testing may include flaring. Flaring will be conducted in accordance with accepted and required testing practices and regulations.

3.2.2 Biological Environment

Vegetation

Species Composition – Predominant vegetative cover is Black Spruce in poorly drained, muskeg areas, with White Spruce and Aspen in drier areas. A significant portion of the access route and wellsite are contained in an older burn (1977-78).

Species Introduction - Vehicles and equipment shall be inspected and cleaned to ensure that weeds, naturalized, foreign or exotic plant species are not introduced.

Wildlife and Fish

Special Concern or Threatened Species - The Committee on the Status of Endangered Wildlife Species in Canada (COSEWIC) lists Grizzly Bear and Wolverine as species of Special Concern; the Anatum Peregrine Falcon and Woodland Caribou as Threatened species.

- Although unlikely to be present in the program area, NRK personnel should be directed to look for evidence of bear denning activity.
- The activities of this project will not disturb cliff ledges, known to be the habitat of the falcon.
- Woodland Caribou suffer from a combination of natural predation, habitat fragmentation or destruction, human disturbance, and intense hunting activity. Caribou are considered a major food source by aboriginal residents. Caribou populations in the region are considered healthy.

Fish Population Changes – Fuel caches will be setback a minimum of 100m from the ordinary high water mark of any waterbody. Should a spill occur the NWT 24 Hour Spill

Line will be called. If any deleterious materials fall into a water body, it will be removed immediately.

Breeding Disturbances - Program conducted during winter conditions to avoid critical breeding and birthing periods for wildlife (late Spring and early Fall).

Population Reduction - The project has a potential to indirectly cause population reduction through increased stress from disturbance, habitat change, increased predation or hunting pressure. The project is not expected to directly cause any significant population reduction. Mitigation measures listed under rare/threatened species, habitat effects, and game species effects apply.

Habitat Changes/Effects – No endangered species have been identified. Crews will be restricted to movement along the access road. Slash will be windrowed with 7m breaks every 330m to allow passage of wildlife.

Game Species Effects - The disturbance is short in duration and localized. Breaks in windrowed slash will allow passage of wildlife.

Wildlife May be Attracted to Garbage or Harmed by Debris from Operations – Combustible waste will be incinerated on site. Non-combustible waste will be removed from the program area to Tulita or Norman Wells for disposal. Sumps will be fenced-off.

Forestry Changes - Windrows will have 7m breaks every 300m to allow passage by animals and reduce the potential of forest fires. Existing cut lines will be utilized for access wherever possible. Line widths will be restricted to 1.5m and cut with tree avoidance techniques. Portions of the program are located in burn areas

3.2.3 Interacting Environment

Habitat and Communities

Wildlife Habitat/Ecosystem Composition Changes – Improved access through the area will assist Tulita residents.

Reduction/Removal of Keystone or Endangered Species - Caribou winter habitat has been identified on the Flintstone range above the tree line. Disturbance will be limited to the wellsite and existing access.

Removal of Wildlife Corridor or Buffer Zone – Slash will be windrowed with 7m breaks every 330m to allow passage of wildlife.

Social and Economic

Increase in Urban Facilities or Services – Local personnel and business will be employed wherever possible.

Human Health Hazard - The drilling camps will utilize sumps for the disposal of sewage waste (blackwater). The sumps will be located at least 100m from the ordinary high water mark of any water body. Fuel caches will be setback a minimum of 100m from the ordinary high water mark of any water body. Drilling will utilize a non-toxic, freshwater-based gel chem. drilling fluid as well as a mineral oil based or salt based drilling fluid. Drilling waste will be disposed of in a sump using the mix-bury-cover method. No materials will be stored on the surface ice of any waterbody or within 100m of the ordinary high-water mark. The program will be conducted during winter conditions (frozen ground and snow cover) when spills are highly visible and can be cleaned-up before infiltration occurs.

Quality of Life Changes - Access into the area will be improved. Local personnel and businesses will be employed wherever possible. An Access Agreement and Benefits Plan have been signed which will contribute to the local economy through employment of personnel, contractors and businesses. The approximate total of persons working on the project is 54-62, with approximate local employment opportunities between 40-49 persons for 535 days, for a total of 2463-3057 Local Person Days of work for this program.

Cultural and Heritage

Increase Pressure on Archeological Sites – While there are cultural heritage sites near the program area, none are impacted by the project. If a suspected site is discovered during the conduct of the project, workers will not disturb the site. The SLWB and the Prince of Wales Northern Heritage Centre will be contacted for advice.

Effects to Aboriginal Lifestyle – If any existing trails are crossed, a gap will be left in the windrow to allow access across the trails.

3.3 Preliminary Environmental Screening

Section 124 (1) of the Mackenzie Valley Resource Management Act requires the SAHTU Land & Water Board to undertake a Preliminary Screening of any proposed development prior to the issuance of a Licence, Permit, or Authorization.

Based on the information provided in the application and by referral agencies (see below) a Preliminary Environmental Screening was performed. The Preliminary Environmental Screening Report is attached. The report concludes that the environmental impact of the proposed project can be mitigated with known technologies and that no significant public concerns have been raised. The Preliminary Environmental Screening Report will be forwarded to the MVEIRB once it has received approval from the Board.

3.4 Conformity with Land Use Plan

A referral letter dated August 24, 2004 from the Sahtu Land Use Planning Board (SLUPB) certifies that there is a Preliminary Draft Land Use Plan; however, there is no approved Land Use Plan for the area affected by the application. The SLUPB confirms that the Sahtu Land and Water Board has met the referral obligations as outlined in the Mackenzie Valley Resource Management Act.

Special Management Area - Stewart Lake has been identified as a Special Management Intensive Traditional Use Area. Oil and Gas Exploration and Development is an acceptable activity in this Traditional Use Area.

Conservation Area – Keele River is designated as a Conservation Area. The drilling program with proposed exploration activities would be in conformity with the Preliminary Draft Plan for this area; however an approved Land Use Plan does not currently exist for the Sahtu Region.

3.5 Draft Permit/Draft Licence

Drafts of the Permit and the Licence are attached.

3.6 Terms and Conditions

Draft Terms and Conditions are attached for the Permit and the Licence.

4. Other Agency Comments

The application was circulated to 28 organizations requesting a reply by August 26, 2004. Organizations were initially contacted on August 20, 2004. To date 14 written responses have been received. The following organizations offered comments on the application:

4.1.1 Sahtu Renewable Resources Board

The Sahtu Renewable Resources Board is satisfied that all requirements have been met, provided that the following conditions are followed:

- Land use operations will be suspended or shut down if caribou and/or muskox are spotted within 500m of any work/camp site.
- Department of Fisheries and Oceans (DFO) approved screens will be placed on all water intake pipes to prevent the uptake of fish.
- The Board will rely on and support decisions made by Department of Fisheries & Oceans regarding impacts to fish and fish habitat.
- Trained environmental monitors familiar with the Summit Creek area will be utilized and hired through the Tulita and Norman Wells Renewable Resources Councils.
- At least one week prior to commencement of the program, community residents and organizations in Tulita will be notified via posted notices
- If re-seeding is required, it is hoped that every effort will be made to use a native seed source or, if not possible, to ensure that an uncontaminated seed source is used.

4.1.2 Department of Fisheries and Oceans

The Department of Fisheries and Oceans (DFO) has issued a Letter Of Advice. The following mitigation measures if implemented should prevent any potentially harmful impacts to fish and fish habitat. These measures include:

- Every effort should be made to retain riparian vegetation, as it is critical for the protection of littoral and riparian fish habitats, as well as for providing cover and enhancing bank stability.
- Water volumes should be carefully tracked to ensure the 5% maximum withdrawal of available volume under an ice cover of 1.5 metres is not exceeded. **At the conclusion of the winter drilling program, a properly corroborated record of water withdrawal for each water source should be submitted to DFO.**
- Water intakes should be properly screened with fine mesh of 2.54mm (1/10") to prevent the entrainment of fish. Refer to the *DFO Protocol for Water Withdrawal for Oil & Gas Activities in the NWT* and the *Freshwater Intake End-of-Pipe Fish Screen Guideline* (DFO 1995).
- "Mushroom shoes" or "boots" on the blades of vehicles (i.e. loaders) are recommended as a protective measure to minimize ground disturbance and erosion during activities such as winter access and wellsite construction.