



File: WID# 1879  
December 17, 1999

Mr. W. T. Logan  
NL Fisher Supervision & Engineering Ltd.  
326, 510-5th Street S.W.  
Calgary, Alberta  
T2P 3S2

Attention: Mr. Logan

**Re: Authority to Drill a Well for:  
Northrock et al East Mackay I-77**

We have reviewed the additional information submitted on November 19 and December 2, 1999 with regard to the proposed drilling program. Therefore, pursuant to subsection 83(1) of the *Canada Oil and Gas Drilling Regulations*, please find attached an approved copy of an "Authority to Drill a Well" for the proposed well Northrock et al East Mackay I-77. Please ensure all amendments to the originally submitted program are included on the drill site copy.

A copy of the *Canada Oil and Gas Drilling Regulations* and the *Oil and Gas Occupational Safety and Health Regulations* should be available to all individuals at the drill and camp site. A copy of the Authority to Drill a Well should be displayed at a prominent place on the drill site.

If you have any additional questions please contact Chris Knoechel at 299-3866 or Rick Fisher at 299-2798.

Yours sincerely,

T. M. Baker  
Chief Conservation Officer

cc: J. McCarthy  
M. Fortier  
R. Bergman  
R. Fisher

Exploratory  
Development

x

Delineation  
Service

# APPROVAL TO DRILL A WELL

This application is submitted under Section 82 of the Canada Oil and Gas Drilling Regulations. When approved under Section 83 of the Regulations, it is the requisite approval for the commencement of drilling operations.

Well Name: **Northrock et al MacKay 1-77**  
Operator: **Northrock Resources Ltd.** Drilling Program No.:  
Contractor: **Akita Sahtu Drilling** Interest identifier:  
Drilling Rig or Unit: **51** Estimated Well Cost: **\$3,000,000**  
Location-Unit: I Section: **77** Grid Area: **64-50-125-30**  
Coordinates: Lat.: **64 46 39.470** Long.: **-125 43 17.990**  
Area: **Tulita** Field/Pool: **MacKay**  
Elevation-KB/RT: **200.5** (ASL) GL/Seafloor: **197.1**  
Approx. Spud Date: **December 10, 1999** Est. Days on Location: **30**  
Anticipated Total Depth: **2350m** Target Horizons: **Hume, Bear Rock, Ramparts**

## EVALUATION PROGRAM

Ten-metre sample intervals **N/A**  
Five-metre sample intervals **From Surface Casing to Ramparts - 3m intervals thereafter**  
Canned sample intervals  
Conventional cores at **Possibility of 2 - 18m cores in the Hume**  
Logs and Tests **E-log, Sonic, Neutron - Density from TD - Surface Casing, Dipmeter from TD to Ramparts**

## CASING AND CEMENTING PROGRAM

O.D. (mm)	Weight (kg/m)	Grade	Setting Depth (m KB)	Cementing Program (m <sup>3</sup> )
340mm	71.43	J-55	30m	2.9m3 Artic Set Cement
244.5mm	53.8	J-55	600m	35.0m3 Artic Set Cement
177.8mm	38.7/34.2	J-55	2350m	49.4m3 RFC

B.O.P. Equipment: **Shaffer spherical 279mm x 21MPa annular preventer. 2 - Shaffer LWS 279mm x 21MPa single gate ram preventers.**  
Valvecon **340 litre x 21MPa 5 station accumulator, electric remote. Cameron WKM 51mm x 76mm x 21MPa choke manifold.**

Other Information:

Signed: *Algoe for* Title: Drilling Manager  
Responsible Officer

Name: **Brian Merchant** Company: **Northrock Resources Ltd.**

Date: **October 29, 1999** Phone:

## APPROVAL

An approved copy of this notice is to be posted at each wellsite.

Date: Signed:

File: Chief Conservation Officer

WID: