



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,

A handwritten signature in black ink, appearing to read "T. M. Baker".

T. M. Baker  
Chief Conservation Officer

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

444 Seventh Avenue SW  
Calgary, Alberta T2P 0X8

444 Septième Avenue S.-O.  
Calgary (Alberta) T2P 0X8

Canada

Telephone/Téléphone : (403) 292-4800  
Facsimile/Télécopieur : (403) 292-5876  
<http://www.neb.gc.ca>



# 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 I-77 .....

Operator: Northrock Resources Ltd..... Drilling Program No.: .....

Contractor: Akita Sahtu Drilling .....

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

*Replanned  
NOV 24/99*

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

B.O.P. Equipment: Shaffer spherical 279mm x 21MPa annular preventer. 2 – Shaffer LWS 279mm x 21MPa single gate ram preventers .....

Valvcon 340 litre x 21MPa 5 station accumulator, electric remote. Cameron WKM 51mm x 76mm x 21MPa choke manifold .....

Other Information: .....

Signed: *ALSO C/ for* Responsible Officer Title: Drilling Manager .....

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: .....