Northrock et al North MaC Kay I-77 October 31, 1999
Hume Test

SURFACE LOCATION IS: Unit I, Section 77, Grid Area 64-50-125-30
NEB #:

CO-ORDINATES: **Lat 64 46 39.470**
Long -125 43 17.990

OBJECTIVE: Complete in the Hume Carbonate for Oil Production. This program can vary depending on secondary zones that appear productive.

ELEVATIONS:

KB:	200.5m
GL:	197.1m
TD:	2350mKB(estimated)

CASING DATA:

Conductor Pipe:

340mm, 71.43kg/m, J-55 at 30mKB. Will be cemented with 2.9m3 of Artic set cement.

Surface Casing:

244.5mm, 53.6kg/m, J-55 at +/-600mKB. Will be cemented with 35.0m3 of Artic set cement.

Production Casing:

177.8mm, 38.7/34.2kg/m, J-55 at 2350mKB. Will be cemented with 49.4m3 RFC thixotropic.

PRODUCTION TUBING: 73mm, 9.6kg/m J-55

COMPLETION INTERVAL:

Zone:	**Hume**
Perforations:	To be determined from logs
BHP:	+/- 14500kPa
BHT:	+/- 70C
H2S:	**none expected**

Ensure that first aid equipment and supplies are in the designated location and readily available for use.

Record the fire extinguisher's number and location, and ensure that they have recent inspection tags on them.

Ensure that all confined areas around the rig are thoroughly checked out with both a toxic gas detector and explosive meter, before workers enter the confined spaces.

Ensure that the air quality is monitored on locations where H_2S may be present.

Supervisor and the rig manager should be familiar with Northrock's emergency response plan. When working in an area where Northrock does not have an established field operation, the supervisor and rig manager will be responsible for the initial implementation of the ERP.

Ensure that on wells with site specific emergency response plans, the crew members are briefed and trained about their respective duties when an ERP goes into effect.

Ensure that security around the wellsite is adequately maintained, to prevent unauthorized entry, and prevent the theft and damage of materials and supplies.

NOTES:

All operations carried out on behalf of Northrock Resources shall be conducted in a safe manner, in compliance with the occupational health and safety act, National Energy Board regulations, and any other relevant act, regulation, or law.

Northrock's operations must protect and maintain the quality and integrity of the environment in compliance with all environmental acts and regulations.

All tickets to be stamped and labeled with the AFE number or cost center number, coded and signed by the Completion Field Supervisor.

All contracted services must have an on-going safety program in place, which is being implemented and monitored.

A copy of this program shall be on location at all times.

Ensure that C.A.O.D.C. safety inspections are completed on a weekly basis and faxed to Northrock's Calgary office.

Ensure safety meetings are held on a weekly basis with each crew. Minutes of these meetings are to be forwarded to Northrock's Calgary office with the morning report, and noted in the tour book.

Ensure that all personnel on site are aware of Northrock's Safety and Environmental Policy.

Ensure pre-job safety meetings are held and documented.

Ensure all personnel protective equipment is in place and kept in good useable condition.

Ensure all personnel are wearing/using personal protective equipment as required.

Ensure that hazards are identified and marked where required:
- **Sump fences or markers should be in place**
- **Check and locate pipelines, power lines, and telephone lines before digging or trenching.**

Ensure that all spills are reported and cleaned up or recovered, this includes spilled drilling fluid, oil, produced water, diesel fuel or other chemicals.

Ensure that all wastes are disposed of in an approved manner, whether they are liquid or solid wastes.

Review M.S.D.S. sheets with crewmembers when handling hazardous chemicals.

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Hu[redacted]e Test

THIS PROGRAM IS A GUIDE ONLY AND CANNOT REPLACE GOOD JUDGEMENT ON THE WELLSITE.

PROGRAM:

1. Notify the following people 24 hours prior to the commencement of operations:

➢ Northrock Completions Manager	Ken Dow	**269-3100**
➢ NEB	Rick Fisher	**299-2798**

2. Report all contacts made on first morning report.

3. Send morning report into the Calgary office each morning.

4. Conduct a Safety and Procedures meetings with all personnel on location prior to conducting each operation. Ensure all operations conducted on the lease follow Northrock Resources Standard Safety Practices. Document meetings on the morning report.

5. The completion of this well will be conducted with the drilling rig. Pick up 73mm tubing and RIH to PBD of +/- 2350mKB. Circulate hole over to 3% KCl. POOH with 73mm tubing string and stand in derrick.

6. Move in Schlumberger's electric wireline. Make up a CBL-VDL-GR-CCL log. RIH and log from PBD to 1700m and find cement top Conduct a 7MPa pressure pass if required.

7. Make up a 127mm expendable retrievable TCP gun on the 73mm tubing string c/w 36 gram charges, 17spm, 60 degree phasing. Include a drop-off sub, flow sub, double grip retrievable production packer, F&R profiles and radio-active collar with the BHA. Tally in hole to the desired perforating interval. Run in hole with a Gamma Ray Tool and make corrections to tubing string accordingly. **Set the packer and pressure test the annulus to 7MPa.**

8. Move drilling rig off the hole. Nipple up wellhead. Swab down well with wireline, leaving a 100m vertical cushion on top of the guns. Rig in a P-tank and 400 bbl. tank. Drop bar, perforate desired interval and monitor pressure response.

9. Open well at pre-determined controlled rates and flow test. If rates are not favorable an acid stimulation will be considered.

10. If the well is to be suspended run two tubing plugs, one in the R nipple and one in the F nipple. Bleed off wellhead pressures after setting each plug to ensure it is holding.

11. Shut in well, chain wellhead and move equipment off lease.

NOTE: This program is designed as a single zone completion. If logs suggest that secondary zones exist, a supplemental program will be forwarded.