



FILE: WID # 1831

**INITIAL COMPLETION PROGRAM  
RANGER NOTA CREEK C-17**

**Date:** 2/15/98

**AFE No.:**

**Status:** Tight Hole

**WELL DATA**

**Operator:** Ranger Oil Limited

**Location:** Ranger Nota Creek C-17

**Elevations:** GL 166.72 m  
KB 172.22 m  
KB-CF 5.15 m

**Total Depth:** 1953 m KB (Drillers Measured Depth)

**Conductor Casing:** 1 jt, 508 mm driven to refusal @ 8m below ground level.

**Surface Casing:** 14 jts, 339.7 mm, 81.1 kg/m, K-55, ST&C casing landed at 164 mKB. Cemented with 29 t Arctic Set + 7.4% D71 + .5% D65 +.5% B71 + 33kg Celloflake w/.6m<sup>3</sup> cement returns. Cement fell back out of sight while WOC.

**Intermediate Casing:** 45jts, 244.5mm, J-55, LT&C @ 53.8kg/m & landed at 589.00mKB. Cemented w/19t RFC + 1% CaCl<sub>2</sub> + .2% D46 + 5l/t F52.1 w/continuous returns throughout. Est. cement top @ 77mKB.

**Production Casing:** 137 jts, 177.8 mm, 34.23 kg/m, K55, LT&C casing, landed 24m off bottom at 1929 mKB. Float collar at 1928.21mKB., External Casing Packer @ 1911.45 mKB & Stage tool @ 405mKB.

Cemented:

**Stage 1** – 25m<sup>3</sup> 1:1:2 "G" + 18% D44 + .1% B71 fill cement & tailed in w/3m<sup>3</sup> RFC + 1% B30 + .3% B71 + .2% D46 w/calculated cement top @ 1750mKB

**Stage 2** - 6.1m<sup>3</sup> RFC + .3% B71 + .1% B30 + .2% D46 w/.5m<sup>3</sup> good cement returns.

**Wellhead:** Rector 352 x 339 mm, 21 MPa flanged casing bowl c/w 177.8 mm automatic slip and seal. Note that seals did not engage due to cement in casing bowl.

**Formation Data:** Precambrian Dolomite - 1929 to 1953m Open hole.

Formation Pressure: kPa

Formation Temperature: °C

H<sub>2</sub>S: Expected

<b>Casing Data:</b>	<b>Size:</b>	177.8	73
	<b>Weight:</b>	34.23	9.67
	<b>Grade:</b>	K-55	J-55
	<b>Thread:</b>	LT&C	EUE
*	<b>Drift ID mm</b>	158.50	59.61
	<b>Collapse (kPa):</b>	22,550	52,950
	<b>Burst (kpa)</b>	30,060	50,060
	<b>Tension (daN)</b>	151700	44,331
	<b>Capacity (m<sup>3</sup>/m)</b>	.020538	.003021
	<b>Ann. Capacity (m<sup>3</sup>/m)</b>		.016346

## OPERATIONS PROGRAM

1. Review the completion program with Calgary operations prior to proceeding with the initial completion.

Move in the Shehtah Service rig #4 c/w Class III BOP, pump, tank, rig mats, pipe rack and catwalk.

Spot the equipment and rig up in compliance with OH&S and NEB government and safety regulations.

Additional rental equipment (e.g.: boiler, power swivel, flow test separator and tankage will also be spotted. Note: Equipment positioning to take in consideration that low levels of H<sub>2</sub>S gas could be produced.

2. Conduct a safety meeting with all personnel on location outlining rig safety, safety clothing policy, WHMIS, H<sub>2</sub>S safety, crew responsibilities for well control and pressure testing procedures.

Ensure emergency services phone numbers are placed on the doghouse, engineers office and a copy provided to the first aid attendant.

3. Install a Rector 346 mm, 21 MPa x 179 mm 35 MPa flanged tubing head assembly. Ensure primary and secondary seals are installed. Pressure test secondary seals to 18 MPa.

Nipple up the rig BOP's, and pressure test ram preventors, wellhead, choke and manifold lines and all valves on manifold to 1500 kPa and 15000 kPa for 10 minutes each. Test annular preventor and casing to 1500 kPa and 10000 kPa. Check motor shut offs, rig horn, all accumulator functions. All deficiencies will be corrected and re-tested before continuing with completions operations.

4. Pick up a 156 mm tooth bit and 6 – 121 mm drill collars and tally in hole on drifted 73 mm, 9.6 kg/m, J-55, EUE tubing.

Rig in a pack-off assembly & circulated hole down to top of cement above the stage tool @ 405mKB. Drill out cement and stage tool using fresh water. POOH and pick up a casing scraper tensioned for 177.8mm casing @ 34.7kg/m. Work scraper through the stage tool area to ensure full hole bore.

5. Run in and reverse circulate well clean to PBTD to remove all cement and drilling mud material. Circulate well over to fresh water + .2% Standril. POOH standing back the tubing and collars. Recover the casing scraper.
6. Rig in the logging tools. Pressure casing to 7Mpa & run a CBL-VDL- GR-CCL log from PBTD to 1750 m KB correlated on depth to Schlumberger's CNL-LDT-GRC log dated 98/02/10.

Note and log 25m above and below cement tops for stage 1 & 2.

Record a section of "free pipe" on the bond log for correlation purposes.

Fax section of the bond log into Calgary office, ASAP for evaluation and review of perforating intervals.

Pressure test the casing string to 1500 kPa and 21000 kPa.

7. Pick up the 156 mm tooth bit and 6 – 121 mm drill collars and RIH on 73 mm, 9.6 kg/m, J-55, EUE tubing. Tag PBTD.

Rig in a pack-off assembly & circulated hole down to top of cement above the float collar. Check wellhead and BOP stack for leakage. Drill out the float collar and float shoe pumping down the tubing up the casing. POOH & lay down the DC.

8. RIH as follows from bottom up:

- 1 - 156mm Tooth bit c/w X-Over to 73mm tubing.
- 1 - 73mm J-55 EUE tubing jt @ 9.67kg/m.
- 1 - 73mm Baker 'F' Nipple w/58.73mm profile
- 1 - 73mm x 3.03m J-55 EUE pup jt.
- xx - 73mm J-55 EUE tubing at 9.67 kg/m to surface.

Circulate out the bottom of the shoe joint and circulate out the calcium carbonate pill spotted on bottom from the drilling operation. Clean down to the original well TD of 1953mKB. Monitor fluid returns to determine if losses are occurring.

9. Contact Calgary with the results of the above circulation. If the well remains static and does not lose circulation, confirm w/Calgary that the well TD is to be drilled out and drilled ahead an additional 2m. Again monitor returns throughout to determine if lost circulation is occurring. If losses occur, suspend drilling and pull up into the casing.
10. Swab/Flow the well to evaluate initial production. Monitor closely for formation saltwater production and record level of H<sub>2</sub>S if present. Contact Calgary w/detailed flow and fluid rates.

Inflow rates will determine if an acid squeeze is recommended. Should formation water production be evident, stimulation work would be canceled, the tubing string would be pulled and the zone would be abandon w/a wireline BP & 8vm of cement. The BP is to be tested to 7Mpa prior to dumping cement.

11. Pick up a full lubricator. RIHw/127mm EHSC gun loaded at 14 SPM w/36 grm premium charges. Correlate to collars on the CBL log run previously and perforate the Mt. Clark formation:

1900.50 - 1906.00mKB - 5.5m  
1894.50 - 1898.00mKB - 3.5m

POOH w/spent guns, noting shots fired, misfired or misdirected. Note and record fluid level and surface pressures before and after perforating.

12. Top up well w/.2% standrill water if required. RIH w/ 'F' nipple one jt up on 73mm tubing. Land tubing in dognut w/bottom at 1906m. Swab the well to determine zone potential per step 9 above. Confirm requirement and design for an acid or sand fracture stimulation & proceed w/same per instruction from the Calgary office.
13. Swab/flow the well to determine capability. Contact Calgary w/detailed flow & fluid rates. Once sufficient information has been obtained to determine the well capability, POOH & proceed w/zone suspension w/a BP and cement per step 10. Pressure test BP set to 7Mpa for 10min. prior to dump bailing cement.
14. Pick up a full lubricator. RIH w/127mm EHSC gun loaded at 14 SPM w/36 grm premium charges. Correlate to collars on the CBL log run previously and perforate the Arkia/Bear Rock formation:

303.00 – 306.00mKB - 3.0m

293.50 – 295.50mKB - 2.0m

POOH w/spent guns, noting shots fired, misfired or misdirected. Note and record fluid level and surface pressures before and after perforating.

15. Top up well w/.2% standrill water if required. RIH w/ 'F' nipple one jt up on 73mm tubing. Land tubing in dognut w/bottom at 306m. Swab the well to determine zone potential per step 9 above. Confirm requirement and design for an acid or sand fracture stimulation & proceed w/same per instruction from the Calgary office.
16. Swab/flow the well to determine capability. Contact Calgary w/detailed flow & fluid rates. Once sufficient information has been obtained to determine the well capability, POOH & proceed w/zone suspension w/a BP and cement per step 10. Pressure test BP set to 7Mpa for 10min. prior to dump bailing cement.
17. Remove the rig BOP's and install the wellhead. Install tapped bullplugs w/needle valves on all valves, chain & lock valve handles. Rig out & release service rig and equipment.

#### **MORNING REPORTS:**

An 0800 hour status, morning report will be phoned into Ranger's Calgary office at 232-5250, by the company representative:

After hour contacts:

	<b>Don Sorkilmo</b>	<b>558-2187 Cellular - 557-8106</b>
<b>Alternate</b>	<b>Leroy Brown</b>	<b>932-7351 Cellular - 860-4832</b>
	<b>FAX Number</b>	<b>261-7010</b>

#### **FIELD TICKETS/INVOICES:**

Field tickets are to be completed in detail with the **Well Name and Number**, **A.F.E. No.** and details of the service work. Tickets are to be signed by the company representative. **A.F.E. No. D94-035.**

Completion Program  
Wota Creek C-17  
Page 6

Invoices are to be mailed to:

**RANGER OIL LIMITED**  
**#1600, 321-6th Avenue S.W.**  
**Calgary, Alberta**  
**T2P 3H3**  
**ATTENTION: ACCOUNTS PAYABLE**

Prepared by:

*J. L. Brown*

J. L. Brown P. Eng.

Approved by:

Date: **February 18, 1998**

DGS/pc