FORM "B"

DEPARTMENT OF NORTHERN AFFAIRS AND NATIONAL RESOURCES

NORTHERN ADMINISTRATION BRANCH

RESOURCES DIVISION

For the period from . . . . . .

to . . . . . .

REPORT of ~~COMPLETION~~ ~~WORKOVER~~ ~~RECOMPLETION~~ ~~SUSPENSION~~ ABANDONMENT of a Well

Permit No. 1484 . .

Name of well DECALTA ET AL ROND LAKE NO. 5 STRUCTURE TEST . Lease No. . . . .

Registered owner WESTERN DECALTA PETROLEUM Drilling Company BOYLES BROS. . . .

Location 67° 06' 00" . . . . . N. Lat. 128° 21' 55" W. Long.

Survey description, if available . . . . . .

Elevation: Ground . 898 . . . . Last previous depth . . . . . .

Kelly bushing. 905 . . . . Present depth . . 559 . . . . . .

Spudded . August 5, 1960. . . . . Finished drilling Aug. 22/60 Rig Released . August 24, 1960. .

Deviations from vertical . . NONE TAKEN . . . . . .

. . . . . .

CASING RECORD

Date	Size O.D.	Weight lbs/ft	Grade	Set at feet	Sacks Cement	Top of Cement
1 Aug. 6	4½"	. . . .	. . . .	80'	6	No Returns.
2. . .	. . . . .	. . . .	. . . .	. . . .	. . . .	. . . .
3. . .	. . . . .	. . . .	. . . .	. . . .	. . . .	. . . .
4. . .	. . . . .	. . . .	. . . .	. . . .	. . . .	. . . .

TUBING RECORD

Size	Wt. Lbs/foot	Grade	Amount	Landed Depth	Remarks
. . . .	. . . . .	. . . .	. . . .	. . . .	. . . .
. . . .	. . . . .	. . . .	. . . .	. . . .	. . . .

Wellhead . . . . . .(Manufacturer). . . . (Size). . . .(Series)

Status of well on completion of drilling ABANDONED

Producing / Injection Zone . . NIL . . . . . and formation . . . . NIL . . . . . .

Cord intervals 120-125; 132-137; 141-146; 146-156; 157-161; 161;166; . . . . .

. . . . . 166;172; 172-178; 208-212; 246-249; 516-523; 552-559. . . . . .

. . . . . .

. . . . . .

Interval logged: E-log . . NIL . . . . . Other logs . . . . . .

R-log . . NIL . . . .

M-log . . NIL . . . .

Velocity log . . NIL . . . . . .

The above logs (are)
(will be) submitted in accordance with Section 65 of the Regulations.

DRILL STEM TESTS

Test No.	Date	Interval Tested	Duration	Results
1	Aug. 10/60	Bailed dry at 117'.	Recovered slightly oil cut mud.	

(If space insufficient, attach further sheet)

(Strike out the non-applicable) (Completion) (Rework) (Recompletion)

Perforations Bullet. . . . . .

Shootings . . . . . .

Hydraulic fracturing . . . . . .

Chemical treatment . . . . . .

Date initial production tests . . . . . .

Initial production data . . . . . .

Pumping or flowing . . . . . .

Plug back . . . . . .

Other . . . . . .

. . . . . .

. . . . . .

. . . . . .

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CEMENT PLUGS SET

Date	Plug set at	Sacks cement	Method	Top found at
Aug. 22/60	Surface	4	Poured in hole.	Surface
	Wooden plug set at surface.			

Washed well samples have been sent to Geological Survey of Canada, Calgary

Cores will be stored at Geological Survey of Canada, Calgary, Alberta. . . .

Core analysis (was made) of the Intervals . . . . . .
(to be made)

Oil analysis (was made) of the Intervals. . . . . .
(to be made)

Gas analysis (was made) of the Intervals. . . . . .
(to be made)

Water analysis (was made) of the Intervals. . . . . .
(to be made)

The above analyses (are)
(will be) submitted in accordance with Section 70(2) of the Regulations.

ADDITIONAL DETAILS AND COMMENTS

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Signed. A. M. Patterson
A. M. Patterson.

Address Western Decalta Petroleum Limited,
703 - 5th Street S. W.,
Calgary, Alberta.

Date February 17, 1961. . . . .

(To be submitted in triplicate in accordance with Sections 68, 69, 70 and 71, of the Territorial Oil and Gas Regulations to the Oil Conservation Engineer at Calgary, Alberta.)


GEOLOGICAL SURVEY OF CANADA
JAN 6 1961

DRILLING REPORT

ON

DECALTA ET AL ROND LAKE NO. 5

N.W.T.

A. M. PATTERSON

WESTERN DECALTA PETROLEUM LIMITED

OCTOBER, 1960

TABLE OF CONTENTS

DAILY PROGRESS REPORTS

July 31, 1960.	Started move of rig with Beaver from Fort Good Hope to Rond Lake and from Rond Lake to location with Bell G-1 Helicopter.
August 1, 1960.	Rig move continued.
August 2, 1960.	Rig move completed.
August 3, 1960.	Crew arrived on location. Setting up camp.
August 4, 1960.	Rig assembled and skidded 1000' to location.
August 5, 1960.	Rig up completed. Spudded: 1:30 p.m. 0'-82' Glacial Drift. Unable to set pipe to bottom.
August 6, 1960.	Reamed hole and set surface pipe with six saxs. No returns.
August 7, 1960.	Waiting on cement and rigging timber tripod in place of aluminium.
August 8, 1960.	Rigged up Blowout Preventor and drilled out at 10:00 a.m.
August 9, 1960.	Lost circulation at 117½'. Water supply dried up. Rigging hose and pump to lake 1/4 mile east of camp.
August 10, 1960.	Hose arrived - laying remainder of hose to rig. Perforated Rond Lake No. 2. Lost circulation again. Bailed hole. Unable to get bailer beyond 95'.
August 11, 1960.	Cleaning hole and starting to run AX casing. Rain.
August 12, 1960.	Bottom joint of 2½" casing fell off and lodged in hole. Cored window in this joint. Set AX through to 102'. Rain.
August 13, 1960.	Lost circulation at 142'. Cored blind to 156'. Bailed hole dry. Rain.

August 14, 1960.	Carried cement and sawdust from Rond Lake No. 2. Mixed oatmeal, cement, sawdust, cornflakes, gel and chloride. Allowed to set. Drilled out - lost circulation at 157'. Heavy rain.
August 15, 1960.	Alternately drilled and cored blind to 212'. No returns. Used above mixture twice to regain circulation - no success. Heavy rain.
August 16, 1960.	Depth 230' when surface casing turned and dropped. Pilling and Patterson hiked to Rond Lake. Fired rifle and picked up by helicopter. Called various stations on radio. Finally reached Good Hope and ordered more AX casing in time for tonight's plane. Rig shut down.
August 17, 1960.	Casing arrived in evening via Inuvik as Norman Wells field unserviceable. Began running casing. Rain.
August 18, 1960.	Casing landed at 180'. Circulation regained and lost so casing taken on down.
August 19, 1960.	Casing landed at 222'. Circulation regained.
August 20, 1960.	Drilled to 500' when AX casing parted. Casing recovered and drilling resumed at 2:30 p.m.
August 21, 1960.	Drilling at 550'. Casing parted. Glacial drift washed into hole. Spent day cleaning hole. Ran in with core barrel. Recovered Lower Ramparts.
August 22, 1960.	Rig torn down. Moved by helicopter. and Beaver to Fort Good Hope.
August 23, 1960.	Patterson, Pilling and Fraser to Norman Wells.
August 24, 1960.	Patterson, Pilling and Fraser to Inuvik.
August 25, 1960.	Patterson, Pilling and Fraser to Calgary.

SAMPLE DESCRIPTIONS

0'- 10'		Glacial drift, sand, weathered granite minerals, boulders.
10'- 20'		" " " " "
20'- 30'		" " " " "
30'- 40'		" " " " "
40'- 50'		" " " " "
50'- 60'	60%	Drift as above.
	30%	Limestone, finely crystalline, grey and brown, grading to fragmental.
	5%	Shale, limy micaceous, grey.
	5%	Dolomite, finely crystalline, brown.
60'- 70'	70%	Drift as above.
	25%	Limestone, light brown to tan, finely crystalline.
	5%	Shale, as above.
70' - 80'	40%	Glacial material.
	25%	Limestone, light brown, finely crystalline to finely granular.
	25%	Dolomite, light tan to brown, finely crystalline.
	10%	Shale, as above.
80'- 90'	40%	Shale, grey, slightly limy, micaceous, spores abundant.
	20%	Shale, dark grey to black, limy.
	20%	Limestone, dolomitic, grading to limy dolomite. White to light brown, granular to crystalline.
	20%	Sandstone, very fine grained, rust colored.

90'-100'	40%	Shale, grey as above.
	30%	Dolomite, light tan to brown, granular, trace inter-granular porosity and stain.
	15%	Grey, limestone as above.
	15%	Sandstone, as above. Very poor sample.
100'-110'	20%	Shale, as above, grey and black.
	20%	Shale, rust to brown, silty, limy.
	30%	Sandstone, as above.
	30%	Dolomite, light brown, granular.
110'-120'	40%	Brown, silty shale, grading to sandy shale.
	40%	Sandstone, as above.
	10%	Shale, grey, as above.
	10%	Chert, grey, probably cavings. Poor sample.

NOTE: In the above samples the percentage of carbonates is probably too high. There is a lot of limestone and dolomite in the glacial drift and probably much of these samples are cavings. The section from 80' to 120' is probably mainly shale.

CORE NO. 1 120'-125' Recovered 11".

9" Shale, grey to dark grey, banded like varves. Non-limy.

2" Shale, black, carbonaceous, petroliferous streak. Long carbonaceous streaks like pine needles.

NOTE: The intervals 127' to 270' and 280' to 310' were drilled and cored blind with no returns to surface. Drilling characteristics suggest that the cored intervals are representative of the whole.

CORE NO. 2 132'-137'. Recovered 15".

14" Sandstone, very fine grained, angular to sub-angular. Clear quartz, friable, excellent porosity.

1" Shale, black carbonaceous, brown petroliferous streak - similar to Core No. 1.

CORE NO. 3 141'-146'. Recovered 27".

8" Shale, black carbonaceous rods. Greasy brown petroliferous streak. Well developed fine bedding.

7" Shale, grey, silty, carbonaceous.

12" Shale, black as above.

CORE NO. 4 146'-156'. Recovered 15".

8" Siltstone quartz, carbonaceous, soft, friable.

7" Shale, grey, brown, finely micaceous.

CORE NO. 5 157'-161'.

Recovered 2' shale, grey to brown, limy thinly bedded. Dip 10° to 15°, spores common.

CORE NO. 6	161'-166'.
	Recovered 2' of shale as above. Dip - 15°.
CORE NO. 7	166'-172'.
	Recovered 18" shale as above. Dip - 20°.
CORE NO. 8	172'-178'.
	Recovered 2 1/2' shale as above. Olive grey-green with brown interbeds, limy. No dip.
CORE NO. 9	208'-212'.
	Recovered 4' shale as above. No dip. Abundant spores. One crinoid stem.
CORE NO. 10	246'-249'.
	Recovered 2' shale as above.
270'-280'	Shale, grey to grey-brown, limy, micaceous.
310'-330'	Shale, grey, micaceous, limy.
330'-340'	As above.
340'-350'	As above.
350'-370'	As above.
370'-380'	As above.
380'-390'	As above, rust stained.

400'-410'	Shale, grey to dark grey, micaceous, limy.
410'-500'	" " " " " " "

CORE NO. 11 — 516'-523'.

Recovered 4 1/2' shale, brown, petroliferous, limy, (varies) finely disseminated pyrite. Fish scales and spores (?) common. Bottom 2" grey limy shale.

530'-540'	Shale, as above.
540'-550'	As above, mainly dark grey.

CORE NO. 12 — 552'-559'.

Recovered 15" limestone, grey-brown, fine to medium crystalline, fragmental nodular interbeds with black limy shale. Brachiopods abundant, coquinoid.

SUMMARY

REASON FOR DRILLING

This well was drilled to evaluate a possible high velocity body in the Hare Indian shale. The velocity anomaly was indicated from the refraction seismic survey conducted in conjunction with drilling Rond Lake Nos. 1, 2, 3, and 4.

RESULT

Anomalous dips were cored in the Hare Indian shale from 150' to 170', the steepest dip (at 170') was 20°. At 175' cores indicated no dip. The stiffness of the drill pipe precludes binding 20° in five feet so the dips must be genuine and not due to deviation of the hole.

The sand at 125' and silt at 145' is very similar to the sand outcropping south of the seep and the sand drilled at the seep in Rond Lake No. 2. The shale above this sand was not encountered in Rond Lake No. 2. This shale suggests the sand is Devonian - correlating with the sands at Norman Wells, Thunder River, Gossage River and elsewhere. Why this sand is oil stained at the outcrop south of the seep (elevation 702'), oil saturated in Rond Lake No. 2 (elevation 758'), but completely clean in this well (elevation ⁄864') is not explained.

An alternate correlation is that the sand is Cretaceous and the overlying shale Devonian. The shale-sand contact being a fault contact and the underlying anomalous

SUMMARY OF WELL DATA

WELL NAME:	Decalta et al Rond Lake No. 5
LOCATION:	67° 06' 00" N. 128° 24' 55" W.
ELEVATION:	Ground: 898'
SPUDDED:	August 5, 1960.
ABANDONED:	August 22, 1960.
TOTAL DEPTH:	559'
SURFACE CASING:	80' X 2½" with 6 saxs.
LOGS:	Nil
ABANDONMENT:	4 saxs cement and wooden plug at surface.
TESTING:	Bailed dry at 117'. Recovered slightly oil cut mud.
	137' Hole completely dry through lost circulation.
	280' Hole bailed dry.

dips being the result of drag along the fault. The lost circulation from 117' to 310' is probably the result of this fault. The seismic anomaly then could possible be caused by this fault and the thrusting up of Lower Ramparts between Rond Lakes Nos. 2 and 5. This fault, of course, could also be the migration path of oil from lower horizons to the surface at the seep. This explanation assumes that the Bear Rock and Silurian porosity at Rond Lakes Nos. 1 and 2 do not extend to the fault.

OPERATIONAL NOTES:

A great deal of trouble was encountered at this well. All of this trouble can be attributed directly or indirectly to lost circulation. In future it would be advisable to set more surface casing and to have on hand sufficient "AX" or similar casing to set to total depth. It would also be advisable to use a BBS-1 rig with a hydraulic head rather than screw feed head. What was demonstrated by the drilling of this well is that it is quite feasible and practical to drill holes up to 1,200' with this type of rig and that the rig move by helicopter and float plane is relatively simple. Even with the troubles encountered in this venture, the cost per foot was less than during last winters operation. The fact that there is no road building needed, and the reduced camp, crew, fuel and rig costs more than compensate for the slow drilling and expensive air transport.

PERMAFROST NOTES

At Rond Lake No. 1, 173' of glacial drift was encountered, all of it frozen. At 222' the mud system froze and the drill pipe was frozen in the hole for some hours. At 950' to 1,000' fracture porosity was encountered and sulphur water with a freezing point of 29° F. was subsequently bailed. At 1,326' to 1,351' a drillstem test flowed sulphur water at a temperature of 34° F. The permafrost at this well extended to below 173' and presumably fairly close to 900' if the water temperature at 1,326' is an indication and there is a temperature gradient even close to normal (1.8° per 100 feet).

At Rond Lake No. 2 (1 1/2 miles northeast from No. 1) core recoveries from 73' to 83' were sandstone with ice filled fractures. This ice did not melt during coring or recovery of the core (mud system temperature about 34° to 36° F.) so presumably the natural temperature of the rock is well below freezing. At 805' sulphur water with a freezing point of 29° was bailed from the hole.

At Rond Lake No. 5 (one mile northeast of No. 2) unfrozen glacial deposits were encountered at 70'.

At Rond Lake No. 4 (one mile northeast of No. 5) the glacial drift was 70' thick and was frozen to the bottom.)

At Rond Lake No. 3 (one mile northeast of No. 4) the permafrost extended to less than 100' and as at Rond Lake No. 5, hole trouble resulted. It appears that the permafrost

depth is very irregular and in places much shallower than anticipated.

The following is a tabulation of minimum depths of permafrost as outlined above.

	PERMAFROST THICKNESS	K.B.	ELEVATION BASE PERMAFROST
Rond Lake No. 1	222 (+)	399	+177
Rond Lake No. 2	83 (+)	793	+710
Rond Lake No. 5	70	898	+828
Rond Lake No. 4	70 (+)	890	+820
Rond Lake No. 3	100 (-)	889	+789

The deepest permafrost was found in the valley and oddly enough next to a fairly large body of water.

Also of interest is the fact that certain sections of the winter road deteriorated very badly during the summer due to melting of the permafrost and subsequent slumping. It would appear that a company would have to count on a certain amount of new cutting during a second winters operation in an area like this.

A. M. Patterson,
P. Eng.


GEOLOGICAL & EVALUATION
DIVISION
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OTTAWA, CANADA.
Dept. of Northern Affairs & National Resources