BP ET AL RUSSEL M-07

WELL HISTORY REPORT

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BP ET AL RUSSEL M-07

WELL HISTORY REPORT

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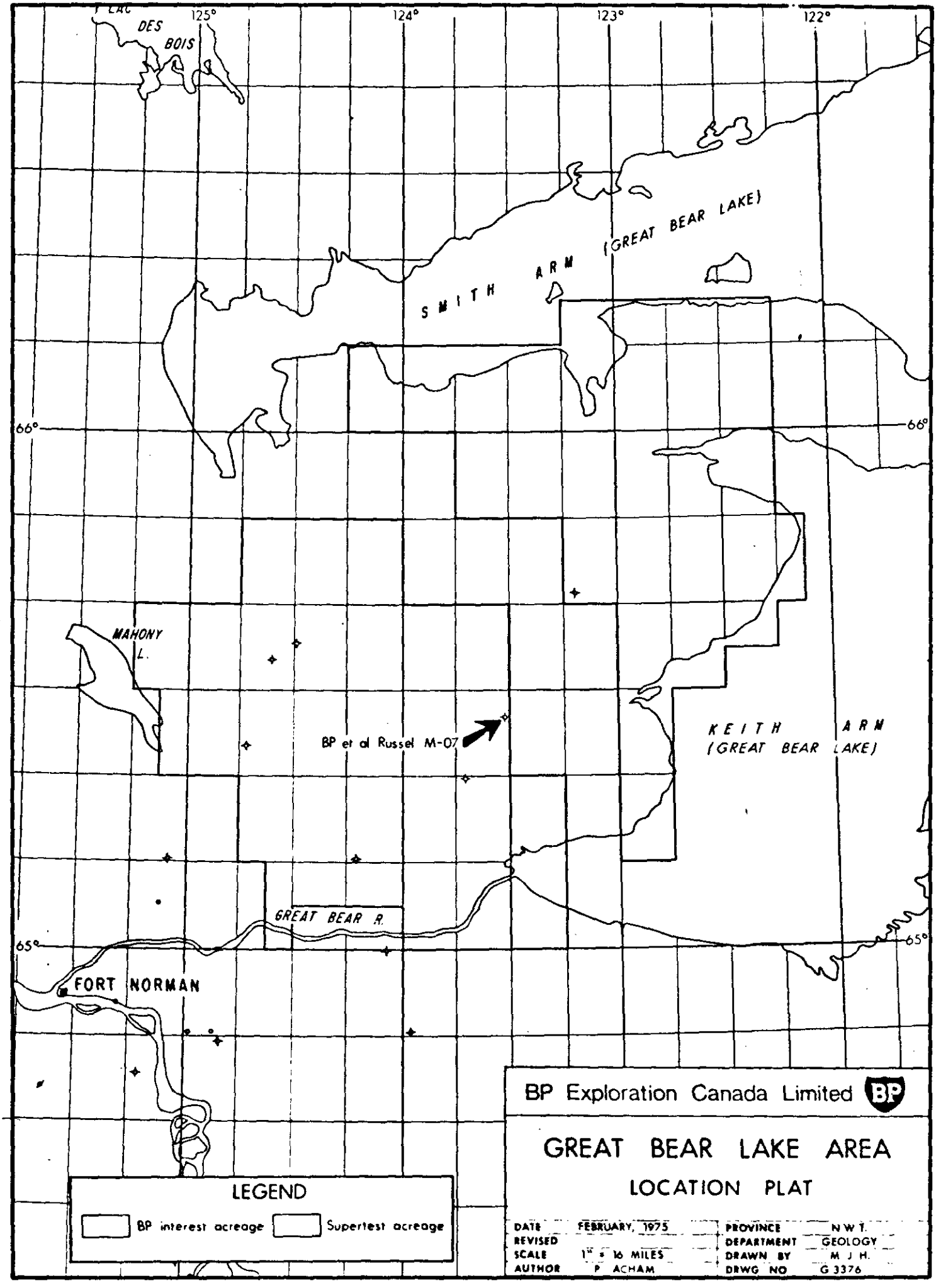
GEOLOGICAL SYNOPSIS

The Great Bear prospect is based on the occurrence of a widespread porous basal Cretaceous sandstone unit averaging 85 feet in thickness, which unconformably overlies Lower Paleozoic carbonates between Smith and Keith Arms of Great Bear Lake. The sand outcrops to the north in the Colville Hills where it is often oil-stained. Other prospective horizons include a possible Lower Cretaceous deltaic sequence overlying the basal sand and porous dolomites in the Ordovician, Silurian and Devonian sequences beneath the basal sand.

B P et al Russel M-07 was drilled on seismic evidence of a northeast-southwest trending anticlinal structure and was designed specifically to evaluate the basal Cretaceous sandstone and overlying deltaic sands.

Good porosity is present in the basal Cretaceous sandstone which was encountered at -693 feet, approximately 83 feet structurally higher than expected. However, the sand is only 23 feet thick and entirely waterbearing at this location. The overlying Lower Cretaceous deltaic sequence is poorly developed and wet. The well was therefore plugged and abandoned.


LAC DES BOIS
125°
124°
123°
122°
SMITH ARM (GREAT BEAR LAKE)
66°
MAHONY L.
BP et al Russel M-07
KEITH ARM (GREAT BEAR LAKE)
GREAT BEAR R.
65°
FORT NORMAN
LEGEND
BP interest acreage
Supertest acreage
BP Exploration Canada Limited
GREAT BEAR LAKE AREA
LOCATION PLAT
DATE FEBRUARY, 1975
REVISED
SCALE 1" = 16 MILES
AUTHOR P ACHAM
PROVINCE N.W.T.
DEPARTMENT GEOLOGY
DRAWN BY M.J.H.
DRWG NO G 3376

SUMMARY OF WELL DATA

1. SUMMARY OF WELL DATA

(a) Name: BP et al Russel M-07

(b) Permittee: Atlantic Richfield Canada Ltd.

(c) Operator: BP Exploration Canada Limited

(d) Location:
Unit M Section 7
Grid System 65-30-123-30
Univ. Well Loc. Ref. Lat. 65.49444 N. Long. 123.63056W.
Unique Well Identifier 300M076530123300

(e) Co-ordinates: Latitude 65°26'58"
Longtitude 123°31'50"

(f) Permit: 4994

(g) Drilling Contractor: Regent Drilling Ltd. Rig #11

(h) Drilling Authority: No. 779 issued 12th Nov 1974

(i) Classification: Exploratory

(j) Elevations: Ground 887' K.B. 901'

(k) Date Spudded: January 26th, 1975

(l) Date Drilling Finished: February 3rd, 1975

(m) Total Depth: 1739'

(n) Well Status: Dry and abandoned.

(o) Date Rig Released: February 5th, 1975

(p) Hole Sizes: 17-1/2" to 40' K.B., 12-1/4" to 331' K.B.,
7-7/8" to 1736' K.B.

(q) Casing: 14" conductor set at 40' K.B.
8-5/8" J-55 ST&C surface casing set at 301'.

GEOLOGICAL SUMMARY

II. GEOLOGICAL SUMMARY

(a) Formation Tops

Formation	Log Depth	Sample Depth
Cretaceous		
Lower Cretaceous Deltaic Sequence	1250 (-349)	1240
Basal Cretaceous Sandstone	1593 (-692)	1582
Devonian		
Bear Rock	1616 (-715)	1611
Total Depth		1739

(b) Cored Intervals

No cores taken.

(c) Core Descriptions

None

(d) Sample Descriptions

Included with this report

(e) Paleontological Determinations

No paleontology studies done.

SAMPLE DESCRIPTIONS

Logged by: Noel Panchy

BP et al RUSSEL M-07

Interval	Descriptions
0 - 10	Sand & Gravel - Sand medium to coarse grained, varicoloured, with granitic pebbles, subangular to subrounded, mainly unconsolidated.
10 - 20	Gravel - varicoloured, imbedded with sands in clay, chips sandstone quartzose and free clear angular quartz grains, coarse size.
20 - 30	Gravel - a/a interbedded with dark grey soft shale.
30 - 40	Gravel - a/a with trace chips light grey/cream dolomite, crypto crystalline in the gravel.
40 - 50	Gravel - a/a and loose sand grains fine to coarse unconsolidated imbedded in mud porosity range doubtful, coarse grain size.
50 - 60	Gravel - a/a
60 - 70	Gravel - a/a
70 - 80	Gravel & Unconsolidated Sand Stringers imbedded in mud.
80 - 90	Gravel - a/a
90 - 100	Gravel - a/a varicoloured igneous and sedimentary rock chips and pebbles with abundant free quartz grains subrounded, fine to coarse grain.
100 - 110	Gravel - a/a with mud, rough uneven drilling.
110 - 120	Gravel & Sand - Imbedded in mud with increasing mud content.
120 - 130	a/a
130 - 140	Gravel - a/a with very little mud - rock chips angular.
140 - 150	Gravel
150 - 160	Gravel - a/a with increasing mud content. Rocks falling to hole bottom making drilling very rough and erratic.
160 - 170	Granules - 2MM - 5MM - varicoloured subrounded granitic, quartz and shale granules with unconsolidated quartz sand grains, fine to coarse, all imbedded in mud. Drilling picking up.
170 - 180	Pea Gravel - 2MM - 8MM a/a very little mud content, angular porosity increase poor to fair.
180 - 190	Pea Gravel - a/a porosity poor to fair.

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190 - 200	Gravel & Unconsolidated sand, heavy oil stain, asphaltic, fluorescence light brown to pale yellow, bright strong fast streaming cut.
200 - 210	a/a heavy oil stain throughout.
210 - 220	Gravel - granitic and sedimentary pebbles and unconsolidated sand grains.
220 - 230	Mudstone - medium gray, semi lithified, with abundant silt and sand grains and granules imbedded (gumbo!)
230 - 240	a/a
240 - 250	Mudstone a/a - grey brown, patchy iron stains.
250 - 260	Mudstone - very soft medium grey, silty, with quartz sand grains and pebbles imbedded.
260 - 270	a/a
270 - 280	a/a - with occasional limonite stain and trace pyrite.
280 - 290	a/a
290 - 300	a/a
300 - 310	Mudstone - light grey, soft, very silty, with numerous white siltstone stringers and occasional pebbles imbedded.
310 - 320	Mudstone - a/a very silty.
320 - 330	Mudstone - a/a very silty, occasional rose coloured quartz grains.
330 - 340	Mudstone - light grey, with white silty patches, calcareous in part.
340 - 350	Mudstone - a/a
350 - 360	Mudstone - a/a
370 - 400	Mudstone - a/a, becoming medium gray.
410 - 440	a/a
440 - 450	Siltstone - a/a with patchy heavy oil stain, trace fluorescence, bright strong yellow cut.
460 & 490	Siltstone - a/a less silt.
480 & 490	Siltstone - light to medium gray, very silty in part (fibrous plant material imbedded)

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490 - 500	Siltstone -	light grey, very soft, silty in part with stringers of white siltstone. Mudstone going into solution with drilling mud.
510 - 620	Siltstone -	a/a with plant and grass roots.
630 - 660	Siltstone -	very soft, very argillaceous, trace plant remains, trace pyrite, trace coal in 650-660 2' seam.
670 - 690	Shale -	medium gray, very soft, silty in part, occasionally micro micaceous.
690 - 700	Shale -	a/a with occasional thin white siltstone stringers.
710 - 750	Shale -	a/a
760 - 800	Shale -	medium gray, soft, silty in part, slightly micro-micaceous.
810 - 820	Shale -	(starting to firm up a bit) Samples washed quality good.
830 - 870	Shale -	a/a trace thin stringer dark brown, crypto crystalline dolomite.
880 - 900	Shale -	medium gray, clean, trace free pyrite, trace chips brown crypto crystal dolomite from occasional thin stringer.
910 - 920	Shale -	a/a with abundant free quartz fine sand grains.
920 - 930	Shale -	medium gray, fissile, with occassional free round medium size quartz sand grains.
940 - 950	Shale -	a/a with trace shale dark grey, blocky (940 only) with white specks imbedded.
960 - 970	Shale -	a/a with trace free white calcite chips and thin sandstone stringer, light grey quartzose, very fine grained, subangular, well sorted, very slightly argillaceous, porosity fair.
970 - 980	Shale -	becoming medium to dark grey, with occasional sandstone (SS) stringer a/a.
990 -1020	Shale -	a/a clean.
1020 -1040	Shale -	a/a/, ironstone nodules and trace fish remains.
1050 -1090		Trace calcified fossil fragments.
1090 -1100	Shale -	a/a with 3' Dolomite very argillaceous, medium brown, crypto crystalline, dense, trace free pyrite and free calcite, fractures.
1110 -1120	Shale -	and thin stringers of Dolomite a/a.

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1130 - 1140 Shale - a/a abundant free white calcite, fractured.

1140 - 1150 Shale - medium gray, clean, with abundant and free calcite, fractured.

1160 - 1210 Shale - a/a with occassional pyrite chips, trace light brown calcareous Siltstone with minor carbonaceous material imbedded.

1220 - 1230 Shale - a/a pyrite in 1230.

1230 - 1240 Shale - a/a with trace glauconitic medium gray Shale, trace pyrite nodules.

1240 - 1250 Sandstone - light grey, very fine grained, dolomitic, glauconitic, 20% carbonaceous material and dark mineral, subangular medium sorted, slightly silty, with trace glauconitic shale a/a.

LOWER CRETACEOUS DELTAIC SEQUENCE 1250'

1250 - 1260 Sandstone - a/a grading to Siltstone with abundant free angular rose and white coloured calcite.

1260 - 1270 Sandstone - light grey, very fine grained, glauconitic, dolomitic, salt and pepper appearance with 30% dark minerals, silty, some carbonaceous material no cut, no fluorescence.

1270 - 1280 Sandstone - a/a with trace thin stringers calcite and crystal dolomite.

1280 - 1290 Siltstone - light grey, salt and pepper in part, dolomitic, interbedded with Shale a/a.

1290 - 1300 Siltstone & Shale interbedded, siltstone argillaceous, abundant pyrite, free and pyritic worm burrows and tubes.

1300 - 1310 Sandstone - light/medium gray, very fine grained, salt and pepper with 20% dark minerals dolomitic, silty and argillaceous.

1310 - 1320 Siltstone - light gray, very argillaceous.

1330 - 1340 Sandstone - a/a.

1350 - 1360 Shale - medium gray, with occassional thin argillaceous Siltstone stringers.

1360 - 1370 Shale - very poor sample.

1370 - 1380 Sandstone - light grey, salt and pepper, very fine grained, dolomitic, glauconitic, 30% dark minerals, slightly argillaceous.

1380 - 1390 Sandstone - a/a with carbonaceous partings, numerous free clear and rose coarse quartz granules rounded, abundant free pyrite.

1390 - 1400 Sandstone - a/a & Shale interbedded with abundant free vari-coloured sand granules (SS glauconitic in part only).

1400 - 1410 a/a

1410 - 1420 Sandstone - a/a interbedded with shale.

1420 - 1430 Siltstone & Shale - interbedded trace smokey grey chert, free round quartz granules and occasional pyritic worm tubes.

1430 - 1440 Sandstone - light gray, very fine/fine grained, abundant glauconitic imbedded, abundant pyrite, imbedded in sandstone and free.

1440 - 1450 Sandstone - a/a with numerous rodlike pyritic fish remains, argillaceous in part.

1450 - 1460 Sandstone - a/a with Shale a/a and Sandstone - clear, quartzose, medium grained, argillaceous in part, abundant free round quartz granules.

1460 - 1470 Siltstone - light gray, argillaceous, interbedded with very fine grained Sandstone.

1470 - 1480 Siltstone - a/a with thin streaks of medium gray Shale.

1480 - 1490 Shale - a/a with thin beds Siltstone buff to light grey, argillaceous in part.

1490 - 1500 Sandstone - clear quartzose, very fine/fine grained, intergranular porosity to 6% in streaks, very slightly argillaceous.

1500 - 1510 Sandstone - a/a trace dead oil stain, scattered flakes pyrite imbedded.

1510 - 1520 Sandstone - clear quartzose, fine to coarse grain, rounded, unconsolidated in part, abundant pyrite free and cement, porosity streaks to 15%, weak patchy calcite cement.

1520 - 1530 Sandstone; Sand granules and unconsolidated quartz grains, subrounded to round porosity.

1530 - 1540 a/a 1530.

1540 - 1550 Sandstone - light grey to buff, very fine/fine grained, quartzose, patchy dead oil stain, argillaceous, silty, porosity 5% in streaks, plugged with gypsum 3' white chalky crypto-crystalline gypsum with quartz sand grains imbedded, abundant free quartz clear and rose chips and round granules.

1550 - 1560 Sandstone - a/a, patchy dead oil stain with thin streaks dark grey fissile clean shale free pyritic and rose and orange and clear quartz granules, porosity trace.

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1560 - 1570 Sandstone - light grey, quartzose, fine grained, well cemented, abundant dead oil stain, trace intergranular porosity, slightly argillaceous.

1570 - 1580 Sandstone - a/a.

BASAL CRETACEOUS SANDSTONE 1592'

1580 - 1590 Sandstone - quartz medium grain to granules, unconsolidated, subangular to round.

1590 - 1600

1600 - 1610 Sandstone - a/a with chips angular, buff porous chert crypto-crystalline and buff micro-crystalline dolomite with patchy dead oil stain.

DEVONIAN (BEAR ROCK) 1611'

1610 - 1620 Dolomite - buff, micro-crystalline, slightly argillaceous, trace earthy porosity 3% minor amounts scattered dead oil stain, no cut, no fluorescence.

1620 - 1630 Dolomite - light brown, micro crystalline, vuggy porosity to 6% in scattered streaks, trace dead oil stain, trace dull brown fluorescence, no cut, argillaceous, silty.

1630 - 1640 Dolomite - light brown microcrystalline to very fine crystalline, occassional vuggy porosity to 3% slightly argillaceous.

1640 - 1650 a/a

1650 - 1660 a/a - with occassional trace dead oil stain, no cut, no fluorescence.

1660 - 1670 Limestone - medium brown, microcrystalline, argillaceous, no fluorescence, no cut.

1670 - 1680 Limestone - a/a with streaks buff microcrystalline dolomite, having 6% porosity, silty.

1680 - 1690 Limestone - a/a with dolomite stringers a/a very slightly argillaceous.

1690 - 1700 Limestone - medium to dark gray/brown, microcrystalline, with streaks, very fine crystalline, inter-crystalline porosity to 4%, argillaceous.

1700 - 1710 Limestone - a/a.

1710 - 1720 Dolomite - buff micro sucrosic very to fine crystalline, trace intercrystalline porosity 3%, slightly calcareous, no cut, no fluorescence, silty.

1720 - 1730 Dolomite - buff microcrystalline, with Limestone streaks, calcareous and abundant orange quartz granules and rounded granitic chips, very slightly argillaceous.

1730 - 1740 Dolomite - medium to dark brown, crystalline to microcrystalline, very calcareous, scattered shadowy pelletoidal structure with streaks buff dolomite microcrystalline having sand grains imbedded, trace porosity, intercrystalline fracture 3% streaks, drusy quartz surfaces free orange quartz grain and rounded granitic grains, porosity streaks to 6%, no fluorescence, no cut.

TOTAL DEPTH 1739'

III. ENGINEERING SUMMARY

(a) Report of Drill Stem Tests

No drill stem tests run.

(b) Casing Record

Conductor — 14" O.D. set at 40' K.B. Cemented with 60 sacks cold set cement.

Surface — 8-5/8" O.D. 24 lb. J-55 ST&C set at 301' K.B. Cemented with 477 sacks cold set cement.

(c) Bit Record

Bit No.	Size	Type	Depth Out	Feet	Hours	Wt.	RPM
-	17-1/2	-	40	40	-	-	-
1A	12-1/4	OTJ	135	95	16-1/4	6	120
2A	12-1/4	OSC3J	146	11	2-3/4	6	120
3A	12-1/4	OSC3	331	185	19-3/4	10	120
1	7-7/8	X3A	1620	1289	26-1/2	15	150
2RR	7-7/8	J55	1739	119	10-1/4	40	25

(d) Mud Report

Gel - water system.

Chemical	Quantity
Gel	10,450 lb
Lime	110 lb
Caustic	200 lb
Bi-Carb	200 lb
CMC	50 lb

(e) Deviation Record

76'	1°	1002'	1-7/8°
135'	1/2°	1316'	1-7/8°
256'	1-1/2°	1600	1/4°
500	1-3/4°	1739	1/2°
800	1-3/4°		

(f) Abandonment Plugs

No. 1	1739' - 1580'	with 50 sacks cement. Plug down 1:00 P.M. February 5, 1975. No feel.
No.2	350' - 250'	with 31 sacks cement. Plug down 2:15 P.M. February 5, 1975. Felt at 10:30 P.M. at 247' K.B.

(g) Lost Circulation Zones

None encountered.

(h) Report of Blowouts

None encountered.

(i) Fishing Operations

None

IV. LOGS

Date	Log	Interval	Run No.
February 4, 1975	Dual Induction Laterolog	1728' - 301'	1
February 4, 1975	Borehole Compensated Sonic-Gamma-Caliper	1722' - 301'	1
February 4, 1975	Formation Density Compensated-Gamma-Caliper	1732' - 301'	1

V. ANALYSES

(a) Core Analysis

None

(b) Water Analysis

None

(c) Gas Analysis

None

(d) Oil Analysis

None

COMPLETION SUMMARY

VI. COMPLETION SUMMARY

(a) Tubing Record

None

(b) Perforation Record

None

(c) Cementation Record

Date	Abandonment Plug No.	Position Ft. - K.B.	Geological Formation	Sacks Cement	Depth Felt
Feb. 5/75	1	1739' - 1580'	Lwr. Cretaceous & Bear Rock	50	No feel
Feb. 5/75	2	350' - 250'	Surf. Casing	31	247'

Casing cut off 3' below ground level and a 5 sack cement plug run. Welded steel plate on top.

(d) Acidization and Fracturing Record

None

(e) Back Pressure and Production Tests

None