95-IT-2-96

WELL HISTORY REPORT

CHEVRON SOBC 12" BIRCH [illegible]

WELL HISTORY REPORT

CHEVRON SOBC WM BIRCH YT E-53

MARCH 20, 1972

R. C. Richardson, P. Eng.
Project Manager

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SECTION I - SUMMARY OF WELL DATA

(a) Well Name and Number

Chevron SOBC WM Birch YT E-53

(b) Permittee, Licensee or Lessee

Western Minerals Limited

(c) Name of Operator

Chevron Standard Limited
400 Fifth Avenue S.W.
Calgary 1, Alberta

(d) Location

Unit E, Section 53, Grid 66_ 10'_ 136_ 45'

(e) Coordinates

Latitude: 66° 02' 21" N; Longitude: 136° 56' 05" W
Note: See amendment of January 10, 1972

(f) Permit or Lease Number

Permit No. 3366

(g) Drilling Contractor

G.P. Drilling Ltd., Rotary Rig #14

(h) Drilling Authority

No. 564, issued December 9, 1971

(i) Classification

Wildcat

(j) Elevations

Ground elevation - 2,025.4K.B. elevation - 2,038.5'

(k) Spudded

12:30 hours, January 20, 1972

(l) Completed Drilling

17:00 hours, February 14, 1972

(m) T.D. and P.B.T.D.

T.D. - 2,245; P.B.T.D. - Surface

(n) Well Status

Dry and permanently abandoned

(o) Rig Release Date

15:00 hours, February 21, 1972

(p) Hole Sizes to Total Depth

30" hole from surface to 61' K.B.
12-1/4" hole from 61' to 737'
8-3/4" hole from 737' to 2,245;

(q) Casing

19" O.D. conductor pipe set at 61' K.B.
9-5/8", J-S , 36# casing set at 733' K.B.

(r) Engineers - L. F. Grumbley, J. Charleston, P. Pandachuck
Geologists - O. Gietz, D. Clark

SECTION II - GEOLOGICAL SUMMARY

a) Formation Tops

Formation	Elevation K.B. 2038.5'	Depth Sample Tops	Depth Log Tops
Orange Marker	1608.5'	-	430'
Basal Cretaceous	710.5'	-	1328'
Permian Sandstone	684.5'	1324'	1354'
Pennsylvanian Siltstone	-51.5'	1990'	2090'

TOTAL DEPTH 2245' (-206.5')

b) Cored Intervals

	Interval	Formation	Recovery
Core #1	1331' - 1340'	Cretaceous	9.0'
Core #2	1340' - 1368'	Cretaceous/Permian	28.0'
Core #3	1368' - 1374'	Permian	4.0'
Core #4	1426' - 1430'	Permian	3.5'
Core #5	1511' - 1513'	Permian	-
Core #6	1620' - 1677'	Permian	44.0'
Core #7	1807' - 1830'	Permian	22.4'

c) Core Descriptions

Core #1 : 1331'-1340' Rec. 9'

Coring Times: 10, 34, 23, 21, 8, 14, 26, 19, 34
Core jammed.

Core Description

1331 - 1340: 9.0 — Chert grit, pale grey to white, well rounded chert grains, minor dark grey chert grains. Matrix varies from siliceous clay to silty and sandy. Much medium to coarse quartz sand grains. Streaks and thin beds of very fine to fine grained brown siliceous sandstone. Irregular slumped bedding partings of dark brown silty shale and siltstone, coaly partings, plant remains, patchy segregations of pyrite. Dip of bedding - 5° near top of core, 45° at base. Streaks and patches of fair intergranular porosity, about 20% of interval. Porosity shows oil stain, cut and fluorescence.

Core #2 : 1340'-1368' Rec. 28' Bit Damaged

Coring Times: 4, 3, 2, 8, 10, 12, 12, 13, 17, 14, 14, 9, 14, 9, 10, 23, 25, 8, 17, 12, 6, 7, 6, 13, 20, 7, 8, 10

Core Description

1340 - 1352.7: 12.7 — Chert grit, grey-brown and grey, few dark grey subrounded chert pebbles up to 2.0 cm. in a sandy, silty matrix, argillaceous, siliceous cement. Irregularly interbedded brown, argillaceous siltstone and sandstone. Few coal partings. Dips irregular, steep. Streaks of poor to fair porosity in coarse beds - about 20% of interval. Trace of cut, fluorescence.

1352.7 - 1362.0: 9.3 — Sandstone, pale grey, medium to coarse grained, matrix to pale grey and white chert pebbles up to 5 mm. Sandstone is well rounded grey and light grey chert, minor subangular quartz grains, siliceous cement. Traces to poor intergranular porosity, no stain. Fair cut, fluorescence.

1362.0 - 1348.0: 6.0 — Sandstone, pale grey - subrounded chert, subangular quartz grains, medium to coarse grained. Scattered thin (1 foot) beds of chert gravel conglomerate. Friable, good porosity, permeability. Fair cut, fluorescence.

Gas reading increased during lower 6' of core. No flame at end of blooey line. No evidence of water.

Running in with smaller core barrel for Core #3.

*Core bit grooved concentric along crown.

Core #3 : 1368'-1374' Rec. 4'

Coring Times: 7, 13, 5, 9, 20, 18
Bit damaged.

Core Description

1368 - 1368.3: 0.3 — Chert conglomerate, light grey and grey, subrounded chert pebbles, up to 2 cm. in coarse chert-quartz sandstone matrix. Good intergranular porosity. Fair fluorescence, cut.

1368.3 - 1369.3: 1.0 — Sandstone, grey, medium to coarse grained. Pale grey and grey chert grains, subrounded, subangular grey quartz grains, fair sorting, siliceous cement, secondary quartz crystal facies. Good intergranular porosity. Questionable stain. Fluorescence, cut in CCl_4.

1369.3 - 1372.0: 2.7 — Chert conglomerate - pale grey, grey, few dark grey chert pebbles, up to 2 cm. in coarse sandstone matrix, siliceous cement. Friable. Good intergranular porosity. Questionable stain. Faint cut and fluorescence in CCl_4.

1372 - 1374: 2.0 — Core not recovered.

*Core bit grooved concentrically on crown.
No flame at end of discharge line.
No evidence of water.

Core #4 : 1426'-1430' Rec. 3.5'

Coring Times: 15, 10, 23, 17

Core Description

1426 - 1427: 1.0 — Sandstone, grey, medium grained, subangular quartz, subrounded chert grains, fairly well sorted, siliceous cement. Fair intergranular porosity, cut and fluorescence.

1427 - 1428.3: 1.3 — Chert grit conglomerate - white, grey and dark grey, rounded chert pebbles in coarse, sandy matrix. Siliceous cement. Fair intergranular porosity, trace of cut and fluorescence.

1428.3 - 1429.5: 1.2 — Sandstone, grey, medium grained, scattered coarse quartz and chert grains, fair sorting, subangular, noncalcareous. Siliceous cement, sand is friable. Fair intergranular porosity, slight cut and fluorescence.

1429.5 - 1430: 0.5 — Core not recovered.

Core #5 : 1511'-1513' No recovery

Coring Times: 10, 12, -

Core #6 : 1620'-1677' Rec. 44'

Coring Times: 32, 7, 12, 9, 12, 22, 31, 21, 30, 25,
16, 19, 13, 15, 15, 12, 15, 15, 6, 5,
5, 5, 5, 6, 5, 8, 16, 16, 17, 29,
28, 21, 19, 24, 21, 19, 22, 20, 21, 22,
25, 20, 20, 23, 18, 19, 20, 20, 19, 20,
19, 13, 8, 8, 6, 6, 5

Core Description

1620 - 1630: 10.0 — Shale, grey and sandstone, grey, medium grained, interbedded 50/50, sandstone has poor porosity with occasional oil cut and fluorescence.

1630 - 1637: 7.0 — Shale, grey, silty with sandy stringers.

1637 - 1639: 2.0 — Sandstone, grey, fine grained, poor porosity, occasional oil cut and fluorescence.

1639 - 1646: 7.0 — Chert conglomerate, fair porosity, trace brown oil stain, oil cut and fluorescence.

1646 - 1649: 3.0 — Chert conglomerate, with silty interbeds.

1649 - 1663: 14.0 — Shale, grey, with silty stringers.

1663 - 1664: 1.0 — Sandstone, grey, medium to coarse grained, good porosity, fair cut and fluorescence.

1664 - 1677: 13.0 — Lost core.

Core #7 : 1807'-1830' Rec. 22.4'

Coring Times: 22, 25, 22, 17, 13, 14, 16, 15, 15, 18, 18, 33, 41, 20, 19, 27, 27, 33, 18, 21, 23, 28, 42 - Core jammed.

Core Description

1807 - 1809.3: 2.3 — Shale, grey, blocky, silty, noncalcareous. Scattered sand grains.

1809.3 - 1811.3: 2.0 — Sandstone, light grey, fine to medium grained, noncalcareous, glauconitic, slightly argillaceous. Fairly well sorted subangular chert and quartz grains, siliceous cement. Scattered bands of coarse chert pebble conglomerate.

1809.3-1810.3 Tight

Fair intergranular porosity, 1810.3-1811.3, no stain, fluorescence or cut.

1811.3 - 1817.7: 6.4 — Sandstone, grey, medium to coars grained, scattered chert grit. Subangular quartz, subrounded pale grey and grey chert grains, glauconitic, siliceous, noncalcareous matrix. Good intergranular porosity, no stain, fluorescence or cut. Streaks of bitumen infilled porosity.

1817.7 - 1820.3: 2.6 — Chert conglomerate, rounded, grey chert pebbles in a medium to coarse grained glauconitic sandstone matrix. Good intergranular porosity, no stain, cut or fluorescence.

1820.3 - 1824.3: 4.0 — Sandstone, grey, medium grained, glauconitic. Abundant chert grit, noncalcareous. Subangular quartz, subrounded chert grains, siliceous cement. Calcareous in lower 0.7 feet. Good intergranular porosity, no stain, cut or fluorescence.

1824.3 - 1824.8: 0.5 — Sandstone, light grey, fine grained, glauconitic, well sorted, subangular quartz grains, slightly argillaceous matrix, calcareous, siliceous. Tight.

1824.8 - 1828.8: 4.0 — Shale, grey, hard, blocky, calcareous. Scattered chert grit, pyrite. Few large thick shelled pelecypods, fossil fragments.

1828.8 - 1829.4: 0.6 — Chert grit - dark grey and grey, subrounded fairly well sorted chert grains in pale grey limestone matrix approx. 25%.

1829.4 - 1830: 0.6 — Core not recovered.

d) Sample Descriptions

60 - 70: Sandstone, light grey, very fine grained, fairly well sorted subangular quartz grains, siliceous, silty matrix, noncalcareous, trace micaceous, carbonaceous flecks. Much interbedded grey and dark grey silty micromicaceous shale. Minor brown siltstone and maroon siltstone.

70 - 80: As above.

80 - 90: As above. Trace of ironstone.

90 - 100: Sandstone, as above, becoming fine grained (0.10 mm)

100 - 110: As above.

110 - 120: No sample.

120 - 130: Sandstone, light brown-grey, very fine to fine grained, siliceous, silty, argillaceous in part, fair to well sorted subangular quartz grains, carbon flecks, trace of glauconite. Trace to minor brown silty shale.

130 - 140: Sandstone, as above. Much rust-red and maroon silty shale and siltstone, interbedded dark grey micromicaceous shale.

140 - 150: Sandstone, light brown, very fine grained, argillaceous, silty, noncalcareous. Fairly well sorted, subangular quartz grains. Minor, interbedded grey and dark grey, micaceous and silty shale.

150 - 160:	As above. Trace of fine, silty lamination.
160 - 170:	Shale, grey and dark grey, subfissile, micromicaceous, noncalcareous. Much sandstone, as above.
170 - 180:	As above.
180 - 190:	As above.
190 - 200:	Shale, grey and dark grey, fissile, micaceous, non-calcareous. Much grey, blocky, silty shale. Traces of pale grey fine grained quartz sandstone.
200 - 210:	Shale, grey, blocky, silty, noncalcareous. Much brown, silty shale, traces of pale grey and brown fine grained sandstone.
210 - 220:	Shale, grey, micromicaceous, subfissile, noncalcareous, silty in part. Trace of brown silty shale.
220 - 230:	As above.
230 - 240:	Shale, as above.
240 - 250:	As above. Trace of brown-grey shale.
250 - 260:	Shale, as above.
260 - 270:	Shale, grey and dark grey, micromicaceous, noncalcareous, subfissile. Minor pale grey silty streaks and fine grained sandstone, carbonaceous flecks, noncalcareous.
270 - 280:	Shale, as above. Trace of brown shale.
280 - 290:	Shale, dark grey, micromicaceous, subfissile, non-calcareous, much dark grey-brown shale. Few silty streaks, trace of grey, very fine grained sandstone.
290 - 300:	As above.
300 - 310:	As above.
310 - 320:	As above.
320 - 330:	Shale, as above.
330 - 340:	As above.
340 - 350:	As above.
350 - 360:	Shale, as above.

360 - 370: As above. Trace of hard, sideritic shale.

370 - 380: As above.

380 - 390: Shale, as above. Much fissile shale.

390 - 410: No sample.

410 - 420: Shale, grey and dark grey, subfissile, micromicaceous, noncalcareous. Few silty streaks, hard shale streaks.

420 - 430: Shale, as above.

430 - 440: Sandstone, grey, medium grained, noncalcareous, slightly argillaceous, coarse grained sandstone streaks. Angular to subangular, fair sorted, quartz and black chert grains, siliceous matrix. Fair to good intergranular porosity, no fluorescence or cut. Much shale, as above.

440 - 450: Sandstone, as above. Much dark grey micaceous shale, brown and reddish-brown and maroon shale, silty in part.

450 - 460: Sandstone, as above. Trace of coarse sandstone. Porosity, as above. No fluorescence or cut. Much shale, as above.

460 - 470: Sandstone, grey, fine grained, argillaceous, noncalcareous, tight. Minor fine grained light brown sandstone, well sorted, subangular quartz grains, noncalcareous, trace of intergranular porosity. Grit and coarse chert sandstone, grey, sideritic cement and fine sandstone matrix - subrounded to rounded pale grey, grey, green and blue-grey chert grit, subangular chert grains. Traces of porosity, heavy cut and fluorescence in chloroethene.

470 - 480: Chert grit, as above, sideritic cement, trace of porosity, sandy matrix in part. Minor sandstone, as above. Fluorescence and cut in chloroethene.

480 - 490: Shale, dark grey and grey, silty, sandy, blocky, hard, noncalcareous. Traces of coarse sandy streaks. Minor chert grit, as above, medium grained brown sandstone.

490 - 500: Shale, grey and dark grey, blocky, micromicaceous, silty streaks, noncalcareous. Trace of ironstone, pyrite.

500 - 510: Shale, dark grey, micromicaceous, silty, blocky to subfissile, noncalcareous. Trace of ironstone, pyrite, sideritic shale.

510 - 520:	Shale, silty, as above.
520 - 530:	As above.
530 - 540:	As above. Trace of ironstone.
540 - 550:	Shale, as above. Minor rust-red shale.
550 - 560:	Shale, grey and dark grey, silty, micromicaceous, blocky.
560 - 570:	Shale, as above.
570 - 580:	As above.
580 - 590:	As above.
590 - 600:	As above. Traces of brown shale.
600 - 610:	Shale, as above. Much brown shale. Traces of brown, fine grained quartz sandstone, traces of chert grit.
610 - 620:	Shale, dark grey, micromicaceous, silty, noncalcareous. Much brown shale, silty. Traces of ironstone.
620 - 630:	Shale, as above. Traces of brown and maroon shale.
630 - 640:	Shale, as above. Sandy streaks.
640 - 650:	Shale, as above. Light brown silty streaks. Ironstone.
650 - 660:	As above.
660 - 670:	As above.
670 - 680:	Shale, as above. Sandy streaks. Minor brown, blocky shale.
680 - 690:	Shale, as above. Trace of grey-green nodular shale.
690 - 700:	Shale, as above. Traces of iron stained, nodular green shale, rusty-red shale. Pyrite.
700 - 710:	Shale, dark grey, micromicaceous, silty, blocky. Trace of fish scales. Trace of pyrite. Calcareous sandy streaks.
710 - 720:	Shale, grey, very sandy, grading to very fine, very argillaceous grey sandstone. Trace finely glauconitic, grey, very calcareous, argillaceous sandstone. Trace of pyrite, fish remains.

720 - 730:	Shale, grey and dark grey, silty, trace sandy limestone streaks. Trace of pyrite, fossil fragments. Minor brown shale.
730 - 737:	As above. Much brown shale.
737 - 750:	Shale, pipe cement, lost circulation material.
750 - 760:	Shale, dark grey, blocky, silty, micromicaceous, noncalcareous.
760 - 770:	Shale, as above. Trace of pyrite.
770 - 780:	As above.
780 - 790:	Shale, as above.
790 - 800:	Shale, as above. Sandy streaks.
800 - 810:	Shale, as above. Trace of pyrite, fossil fragments.
810 - 820:	Shale, as above. Trace of brown-grey blocky, noncalcareous shale. Decrease in silty shale.
820 - 830:	Shale, as above. Trace of dark brown shale.
830 - 840:	Shale, as above. Trace of brown shale, pyrite.
840 - 850:	As above.
850 - 860:	As above. Minor massive pyrite.
860 - 870:	Shale, as above. Gray sandy streaks.
870 - 880:	Shale, as above. Traces of brown ironstone.
880 - 890:	Shale, as above. Trace of pyrite.
890 - 900:	As above. Traces of pyrite.
900 - 910:	Shale, as above. Trace of ironstone.
910 - 920:	Shale, as above, dark grey, subfissile to blocky, noncalcareous. Trace of ironstone.
920 - 930:	As above. Trace of pyrite.
930 - 940:	Shale, as above.
940 - 950:	As above. Trace of ironstone, pyrite.

950 - 960:	Shale, as above.
960 - 970:	As above.
970 - 980:	As above. Trace of pyrite.
980 - 990:	Shale, as above.
990 - 1000:	As above, trace ironstone, pyrite.
1000 - 1010:	As above.
1010 - 1020:	As above.
1020 - 1030:	Shale, as above.
1030 - 1040:	As above.
1040 - 1050:	As above.
1050 - 1060:	Shale, as above. Trace of ironstone.
1060 - 1070:	As above. Trace of pyrite.
1070 - 1080:	Shale, as above.
1080 - 1090:	As above.
1090 - 1100:	Shale, as above. Trace of ironstone.
1100 - 1110:	As above.
1110 - 1120:	Shale, as above.
1120 - 1130:	Shale, as above. Trace of glauconite.
1130 - 1140:	Shale, grey, blocky to subfissile, micromicaceous, noncalcareous. Trace of black chert pebble streaks.
1140 - 1150:	Shale, as above. Trace of pyrite.
1150 - 1160:	Shale, as above. Trace of ironstone, glauconite. Trace of pale grey bentonite.
1160 - 1170:	Shale, as above. Traces of glauconite, pale grey bentonite.
1170 - 1180:	As above. Traces of brown, argillaceous limestone.
1180 - 1190:	Limestone, brown, argillaceous, dense to very fine crystalline - traces of pyrite, glauconite.

1190 - 1200:	Limestone, as above. Much shale, dark grey and grey, noncalcareous, blocky, micromicaceous. Trace of pyrite, glauconite.
1200 - 1210:	Shale, as above. Trace of chert pebbles. Pyrite, bentonite. Trace of grey-green waxy shale.
1210 - 1220:	Shale, as above. Trace of green waxy shale. Much interbedded dark grey calcareous shale, traces of brown argillaceous limestone. Pyrite.
1220 - 1230:	As above. Much dark grey fissile, noncalcareous shale. Trace of pyrite, fossils, glauconite.
1230 - 1240:	Shale, dark grey, micromicaceous, subfissile to blocky, noncalcareous, trace pyrite, glauconite.
1240 - 1250:	As above.
1250 - 1260:	Shale, as above. Traces of pyrite. Trace of brown, siliceous siltstone. Trace chert pebbles.
1260 - 1270:	Shale, as above. Much grey fissile shale. Traces of brown, very fine siliceous sandstone. Traces of pyrite, ironstone, glauconite.
1270 - 1280:	As above. Trace of fossil fragments.
1280 - 1290:	Shale, dark grey, micromicaceous, fissile, non-calcareous. Trace of blocky, glauconitic dark grey shale, faintly calcareous.
1290 - 1300:	Shale, as above. Trace of brown, siliceous siltstone.
1300 - 1310:	As above. Trace of grey limestone.
1310 - 1320:	Shale, as above. Trace of chert pebbles. Pyrite.
1320 - 1330:	Sandstone, pale grey and pale brown, medium to coarse grained - pale grey and grey chert grains, fairly well rounded, in a quartz sand matrix - kaolinitic, siliceous. Poor intergranular porosity. Questionable dead oil stain. Traces of brittle bitumen. Traces of glauconitic, dark grey shale. Slight cut and fluorescence.
1330 - 1331:	Depth correction.
1331 - 1340:	Core #1 - Rec. 9.0'
1340 - 1368:	Core #2 - Rec. 28'

1368 - 1374:	Core #3 - Rec. 4'
1374 - 1380:	Cavings
1380 - 1390:	Cavings Sandstone, pale grey, medium to coarse grained, sub-angular quartz and pale grey chert grains, siliceous cement. Scattered pale grey chert pebbles. Secondary quartz. Good intergranular porosity, trace of dead oil stain, slow cut and fluorescence.
1390 - 1400:	Sandstone, as above. Porosity, cut and fluorescence, as above.
1400 - 1410:	As above. Porosity, cut and fluorescence as above.
1410 - 1420:	Sandstone, as above. Porosity, cut and fluorescence as above.
1426 - 1430:	Core #4 - Rec. 3.5'
1430 - 1440:	Sandstone, grey, fine to medium grained, quartz, sub-angular, and pale grey and white, rounded chert grains, siliceous cement. Few streaks of chert grit conglo-merate. Good intergranular porosity, trace of stain, cut and fluorescence.
1440 - 1450:	As above. Traces of pyrite. Porosity, cut, fluor-escence, as above.
1450 - 1460:	As above. Much pyrite. Porosity, stain and cut, fluorescence, as above.
1460 - 1470:	Sandstone, fine to medium grained, subangular quartz, fairly well sorted, scattered pale grey and grey chert grains. Loose grains, no cement.
1470 - 1480:	As above.
1480 - 1510:	Depth correction - error in tall . Error occurs between 1430 and 1510 feet.
1510 - 1513:	Core #5 - No recovery.
1513 - 1520:	Sandstone, grey, fine and medium grained, scattered grey and dark grey chert pebbles, coarse sandstone streaks, subangular, fair sorting. Trace of grey, pyritic siltstone. Fair intergranular porosity. Cut and fluorescence in CCl_4.
1520 - 1530:	As above.

1530 - 1540: As above. V.P.S. Much shale - caving.

1540 - 1550: As above. V.P.S.

1550 - 1560: Sandstone, grey, coarse grained (≤ .1 mm), subangular to subrounded quartz and chert grains, pyrite cement in part - friable, much loose grains. Good porosity, questionable cut and fluorescence.

1560 - 1570: No sample.

1570 - 1580: Sandstone, grey, medium to coarse grained, subangular quartz, subrounded chert grains, siliceous cement, pyrite. Much loose grains. Fair to good porosity, questionable cut and fluorescence.

1580 - 1590: As above. Much chert grit.

1590 - 1600: Sandstone, grey, medium grained, few streaks of coarse sand and grit. Subangular quartz and chert grains, siliceous, pyrite cement. Much loose grains. Trace of glauconite. Good intergranular porosity. Slight cut and fluorescence.

1600 - 1610: As above. V.P.S.

1610 - 1620: As above. Much loose quartz and chert grains.

1620 - 1677: Core #6 - Rec. 44'

1677 - 1680: Sandstone, grey, medium to coarse grained, subangular quartz, subrounded chert grains, siliceous cement. Scattered coarse chert grains. Fair intergranular porosity. Sandstone is friable, chiefly loose grains.

1680 - 1690: Chert grit - grey and dark grey, rounded chert grains, minor sandy matrix. Trace of pyrite. Good intergranular porosity - chiefly loose grains. No cut or fluorescence.

1690 - 1700: Shale, grey, noncalcareous, silty and sandy, grading in part to argillaceous sandstone. Much chert grit, as above. Pyrite.

1700 - 1710: As above. Much chert grit and sandstone.

1710 - 1720: Sandstone, light grey, fine grained (0.10 mm), subangular, fairly well sorted quartz grains, slightly calcareous to very calcareous, siliceous in part. Trace of glauconite. Trace of grey, argillaceous limestone. Much orange colored chert grit in sandstone matrix. Fair intergranular porosity, very faint cut and fluorescence.

1720 - 1730: As above. Much reddish brown and grey chert grit. Trace of pyrite, trace of fossil fragments. Minor grey, blocky shale, silty in part.

1730 - 1740: Sandstone, light grey, medium grained, fairly well sorted quartz, pale grey, grey and dark grey chert grains, subangular to subrounded, noncalcareous cement. Good intergranular porosity, faint fluorescence and cut. Minor fine grained sandstone, as above. Much chert grit, shale, as above. Trace of fossil fragments, pyrite.

1740 - 1750: Sandstone, light grey, fine grained, siliceous cement, silty, argillaceous matrix, tight. Scattered chert grit pebbles, trace of pyrite.

1750 - 1760: Sandstone, grey, medium grained, few coarser streaks, subangular quartz and chert grains, silica cement. Good intergranular porosity, no cut or fluorescence. Minor chert grit. Much grey and dark grey shale, noncalcareous, silty in part.

1760 - 1770: Chert grit - subrounded grey, blue grey, pale grey and brown grit, siliceous cement, coarse grey sandy matrix. Good intergranular porosity, faint cut and fluorescence.

1770 - 1780: Chert grit, as above. Pyrite. Much pale grey, fine grained siliceous sandstone. Good intergranular porosity, as above, trace of stain, fluorescence, cut.

1780 - 1790: Sandstone, grey, fine grained, siliceous, trace of calcareous sandstone, tight. Shale, dark grey, blocky, silty, noncalcareous. Minor chert grit and coarse sandstone - good porosity, traces of oil stain, cut and fluorescence - caving?

1790 - 1800: Sandstone, pale grey, fine to medium grained, fairly well sorted, subangular quartz grains. Traces of calcareous, glauconitic pale grey sandstone, traces of echinoid spines, fossil fragments. Traces of coarse chert-quartz sandstone, chert grit - good intergranular porosity, spotty oil stain, cut and fluorescence.

1800 - 1805: Sandstone, as above, minor coarse chert-quartz sandstone. Minor dark grey silty, calcareous shale, trace crinoid? fragments. Trace of grey, subfissile, noncalcareous shale.

1805 - 1807: Depth correction.

1807 - 1830: Core #7 - Rec. 22.4'

1830 - 1840: Chert grit, grey and dark grey, subrounded chert in light grey limestone matrix. Traces of pyrite, trace of glauconite. Tight.

1840 - 1850: Sandstone, light grey, fine grained, trace glauconite. Very calcareous. Well sorted, subangular quartz, minor grey and dark grey chert grains, in limestone matrix, trace siliceous cement. Tight.

1850 - 1860: Sandstone, light grey, fine grained, calcareous, as above. Scattered grey chert grit, approx. 20%. Traces of fossil fragments. Pyrite. Tight.

1860 - 1870: Sandstone, as above. Chert grit, as above. Traces of dark grey shale, carbonized plant remains.

1870 - 1880: Sandstone, light grey, grey, calcareous, argillaceous, glauconitic, trace of pyrite, much chert grit. Minor grey, sandy silt, slightly calcareous shale, traces of punctate and lamellar fossil fragments.

1880 - 1890: As above.

1890 - 1900: Sandstone, as above, with interbedded grey silty shale, fossiliferous, spicules, glauconite, pyrite.

1900 - 1910: As above. Sandstone grades in part to sandy, pale grey limestone. Trace of ostracods.

1910 - 1920: Sandstone, grey, fine grained, glauconitic, argillaceous, very calcareous, grading in part to sandy limestone. Minor interbedded grey and dark grey silty glauconitic, calcareous shale. Trace of fossils, pyrite.

1920 - 1930: Shale, grey and dark medium grey, calcareous, silty, few sandy streaks, grading in part to argillaceous limestone. Trace of glauconite, pyrite. Abundant fossil fragments.

1930 - 1940: As above.

1940 - 1950: As above.

1950 - 1960: Shale, dark grey, silty, sandy, noncalcareous to calcareous, trace of glauconite, pyrite. Fossils.

1960 - 1970: As above.

1807 - 1830: Core #7 - Rec. 22.4'

1830 - 1840: Chert grit, grey and dark grey, subrounded chert in light grey limestone matrix. Traces of pyrite, trace of glauconite. Tight.

1840 - 1850: Sandstone, light grey, fine grained, trace glauconite. Very calcareous. Well sorted, subangular quartz, minor grey and dark grey chert grains, in limestone matrix, trace siliceous cement. Tight.

1850 - 1860: Sandstone, light grey, fine grained, calcareous, as above. Scattered grey chert grit, approx. 20%. Traces of fossil fragments. Pyrite. Tight.

1860 - 1870: Sandstone, as above. Chert grit, as above. Traces of dark grey shale, carbonized plant remains.

1870 - 1880: Sandstone, light grey, grey, calcareous, argillaceous, glauconitic, trace of pyrite, much chert grit. Minor grey, sandy silt, slightly calcareous shale, traces of punctate and lamellar fossil fragments.

1880 - 1890: As above.

1890 - 1900: Sandstone, as above, with interbedded grey silty shale, fossiliferous, spicules, glauconite, pyrite.

1900 - 1910: As above. Sandstone grades in part to sandy, pale grey limestone. Trace of ostracods.

1910 - 1920: Sandstone, grey, fine grained, glauconitic, argillaceous, very calcareous, grading in part to sandy limestone. Minor interbedded grey and dark grey silty glauconitic, calcareous shale. Trace of fossils, pyrite.

1920 - 1930: Shale, grey and dark medium grey, calcareous, silty, few sandy streaks, grading in part to argillaceous limestone. Trace of glauconite, pyrite. Abundant fossil fragments.

1930 - 1940: As above.

1940 - 1950: As above.

1950 - 1960: Shale, dark grey, silty, sandy, noncalcareous to calcareous, trace of glauconite, pyrite. Fossils.

1960 - 1970: As above.

1970 - 1980: As above. Trace of brown "earthy" shale.

1980 - 1990: Shale, brownish-grey, silty, sandy, glauconitic, faintly calcareous. Pyrite.

1990 - 2000: As above. Much brown, argillaceous, glauconitic, limestone.

2000 - 2010: Shale, as above. Much interbedded brown-grey, argillaceous, calcareous fine grained glauconitic sandstone, trace of dark brown argillaceous limestone. Trace of fossils, pyrite.

2010 - 2020: Limestone, brown, argillaceous, silty and sandy in part. Minor interbedded dark brown-grey calcareous and noncalcareous shale. Traces of glauconite, fossil fragments, spicules.

2020 - 2030: Shale, dark brown-grey, silty, noncalcareous, to calcareous, glauconitic. Minor brown argillaceous limestone streaks.

2030 - 2040: As above. Fossils, spicules.

2040 - 2050: Shale, dark grey, silty, noncalcareous, hard. Traces of dark grey-brown calcareous shale.

2050 - 2060: Shale, as above. Much interbedded grey-brown shale, and brown argillaceous limestone.

2060 - 2070: Sandstone, pale grey and grey, medium grained, subangular chert, quartz grains, fairly well sorted, siliceous cement, limestone infilling in part - matrix to abundant rounded chert grit pebbles. Streaks of fair intergranular porosity. No stain, cut or fluorescence.

2070 - 2080: Shale, grey and brown-grey, blocky, slightly calcareous, silty in part. Sandstone, pale grey S&P, medium grained, quartz and chert, subangular to subrounded, scattered chert grit. Siliceous cement, limey matrix. Traces of good porosity, no cut or fluorescence. Minor light grey, interbedded fossiliferous limestone.

2080 - 2090: Limestone, brown-grey, micritic matrix to spicules, shell fragments, sandy in part. Minor interbedded fossiliferous, calcareous shale. Trace of glauconite.

2090 - 2100: Shale, dark grey and brown-grey, calcareous, grading in minor part to dark brown very argillaceous limestone. Trace of glauconite.

2100 - 2110: Shale, as above. Minor interbedded brown, micritic, fossiliferous limestone, trace of glauconite.

2110 - 2120: As above. Interbedded dark grey shale, brown fossiliferous limestone.

2120 - 2130: Limestone, brown, argillaceous, micritic, fossiliferous, grading to shale, dark grey, faintly to noncalcareous. Trace of limey sandstone and chert grit.

2130 - 2140: Shale, dark brown-grey, silty in part, blocky, slightly calcareous, glauconitic, grading to minor, interbedded brown, micritic fossiliferous, argillaceous limestone.

2140 - 2150: Limestone, pale grey and grey, micritic to very fine crystalline, silty and sandy, scattered grey, opalescent quartz and chert grit, fossiliferous minor dark grey shale and dark brown-grey argillaceous limestone, as above.

2150 - 2160: Shale, dark brown-grey, blocky, calcareous, trace glauconitic, trace silty. Abundant fossil shell fragments, spicules.

2160 - 2170: Shale, as above. Minor brown micritic to microcrystalline, fossiliferous limestone, as above.

2170 - 2180: As above.

2180 - 2190: Shale, as above. Decrease in limestone content. Fossiliferous.

2190 - 2200: Shale, as above. Limestone, brown-grey, micritic to microcrystalline, argillaceous, fossiliferous.

2200 - 2210: Shale, grey-brown, calcareous, minor interbedded brown-grey argillaceous limestone, fossiliferous, trace of glauconite.

2210 - 2220: Limestone, grey, brown, argillaceous, grading in part to calcareous shale. Traces fossils.

2220 - 2230: Limestone, as above, silty in part. Traces of fossils. Trace of pyrite.

2230 - 2240: Limestone, grey-brown, micritic, silty in part, very argillaceous, grading to grey calcareous shale, fossiliferous, trace of glauconite.

2240 - 2245: T.D. Shale, dark grey-brown and grey, trace glauconite, very calcareous, grading to dark grey-brown very argillaceous limestone. Fossiliferous.

e) Paleontological Determinations

Down to 685' - Lower Cretaceous - Microflora
685' to 573' - Indeterminate
573' to -206.5' - Paleozoic/Permian - Upper Pennsylvanian - Microflora

SECTION III - ENGINEERING SUMMARY

(a) Report of Drillstem Tests

DST #1 1,318' - 1,376' - bottom hole test

Zone Permian Sandstone

Times Preflow 7 min. - V.O. 45 min.
ISI 60 min. - FSI 90 min.
Fair air blow on preflow. Weak air blow on V.O., decreasing to faint in 45 minutes. No gas to surface.

Recovered 330' dirty water containing soap and foam. Cl 50-75 ppm.

Pressures

IHP	424	FHP	424
ISIP	268	FSIP	268
IFP	71	FFP	181

Remarks BHT - 64° F Test satisfactory

DST #2 1,629' - 1.695' - bottom hole test

Zone Permian Sandstone

Times Preflow 4 min. - V.O. 30 min.
ISI 60 min. - FSI 90 min.
Strong air blow on preflow. Good air blow on V.O., decreasing and dying in 15 min. No gas to surface.

Recovered 878' of fluid composed of: 170' of drilling mud, 708' of slightly gas-cut muddy water.

Pressures

IHP	771	FHP	757
ISIP	408	FSIP	409
IFP	308	FFP	406

Remarks BHT - 105°F Tool skidded 6' on opening. Test satisfactory.

(b) Casing Record

Conductor Pipe

26' of 23" O.D., 3/16" wall, insulated conductor pipe, with 3/4" O.D. cooling coils. 20' of 19" O.D., 3/16" wall conductor pipe, set at 45' below ground or 61' K.B.

Conductor pipe cemented with 240 sax of B.J. "coldset" permafrost cement.

Surface Casing

Ran 22 joints (716.01') of 9-5/8", 36#, J-S , 8rd, new, seamless, ST&C, range 2 casing landed at 733' K.B.

Cemented casing with 450 sax Type I cement, plus 2.5% $CaCl_2$. Cement in place at 13:13 hours January 24, 1972. No returns. Cement 20' below ground. Recemented in annulus with 29 sax of Type I Portland cement and 6 sax of "coldset" permafrost cement.

No intermediate and no production casing strings were run.

(c) Bit Record

See attached Bit Record Sheet.

(d) Mud Report

Surface Hole

The 12-1/4" surface hole was drilled from 61' K.B. to 737', using stable foam as the drilling fluid. At 737' the hole was filled with a water gel mud prior to running surface casing. The following materials were used on surface:

Sulfotex Sal	3 drums
Magcogel	126 sax
Fibertex	23 sax
Sawdust	45 sax

Main Hole

The 8-3/4" main hole was drilled to 1,620' using stable foam as the drilling fluid. The hole was then displaced to a water-gel mud system which was continued throughout the remainder of the hole. The following materials were used on the main hole:

Sulfotex Sal	9 drums
Magcogel	448 sax
Caustic Soda	16 sax
Sodium Bicarb.	5 sax
CMC Rig	5 sax
Spersene	4 sax

(e) Deviation Record

108 - 1/4	446 - 1/8	1,196 - 1/2
140 - misrun	542 - 1/4	1,386 - 1/4
170 - 0	630 - 1/2	1,600 - 1/3
230 - 0	730 - 3/4	1,850 - 1/2
290 - 1/8	940 - 3/4	1,910 - 3/4
354 - 1/2	1,060 - 3/4	2,245 - 2-3/4

(f) Abandonment Plugs

Plug #1 (2,245' - 2,170') 50 sax construction cement
Plug #2 (2,140' - 2,000') 90 sax construction cement plus 3% $CaCl_2$ Felt @ 1978'
Plug #3 (1,400' - 1,250') 120 sax construction cement plus 3% $CaCl_2$ " " 1273'
Plug #4 (780' - 680') 84 sax construction cement plus 3% $CaCl_2$ " " 534'
Rerun Plug #4 (78' - 680') 81 sax construction cement plus 3% $CaCl_2$
Surface plug 5 sax construction cement

(g) Lost Circulation Zone

Although no complete or severe lost circulation occurred on this well, approximately 120 barrels of mud were lost to the Permian Sandstone formation during the drilling operations.

(h) Report of Blowouts

No blowout or kick on this well.

A formation pressure breakdown test was run prior to cement plug #4 (780' - 680') across the surface casing shoe at 733' K.B. Formation broke down at 1,400 psi and fed at 1.5 bbls. per minute at 1,000 psi. Instantaneous standing pressure at 900 psi steady for 5 minutes. Mud weight was 9.0 #/gal. and viscosity 75 sec./qt.

SECTION IV - LOGS

The following Schlumberger logs were run on February 16, 1972:

Dual Induction Laterolog	(2,2 36 - 732')
BHC Sonic/Gamma Ray/Caliper	(2,2 42 - 732')
Formation Density Compensated	(2,2 42 - 732')
Sidewall Neutron Porosity	(2,2 42 - 150')
Gamma Ray Neutron	(2,2 40 - 150')

24 Sidewall Cores were shot and 22 were recovered as follows:

2,134'	1,513' (B)
2,117'	1,465' (A)
2,076' not recovered	1,465' (B)
2,049'	1,440' not recovered
1,869'	1,306'
1,787'	1,275'
1,756'	1,237'
1,742'	1,158'
1,588'	1,050'
1,586'	988'
1,523'	893'
1,513' (A)	814'

SECTION V - ANALYSIS

(a) Core Analysis

Core analysis enclosed in back folder.

(b) Water Analysis

Water analysis enclosed in back folder.

(c) Gas Analysis

No gas analysis.

(d) Oil Analysis

No oil analysis.

SECTION VI - COMPLETION SUMMARY

(a) Tubing Record

No tubing run.

(b) Perforation Record

No perforations

(c) Cementation Record

Abandonment Plug #1 (2,245' - 2,170')

Cemented with 50 sax construction cement. Cement in place at 2:00 hours February 19, 1972. No feel for plug #1.

Abandonment Plug #2 (2,140' - 2,000')

Cemented with 90 sax construction cement plus 3% Ca Cl_2.
Cement in place at 03:05 hours Feburary 19, 1972.
Felt plug #2 at 1,978' at 11:15 hours February 19, 1972 after 8 hours WOC.

Abandonment Plug #3 (1,400' - 1,250')

Cemented with 120 sax construction cement plus 3% $CaCl_2$.
Cement in place at 13:40 hours February 19, 1972.
Felt plug #3 at 1,273' at 22:00 hours February 19, 1972 after 8 hours WOC.

Abandonment Plug #4 (780' - 680')

Cemented with 84 sax construction cement plus 3% $CaCl_2$.
Cement in place at 00:30 hours February 20, 1972.
Felt plug #4 at 534' at 09:30 hours February 20, 1972.
Plug too high. Drilled out plug #4 and recemented with 81 sax of construction cement plus 3% $CaCl_2$.
Cement in place at 22:25 hours February 20, 1972.
Felt rerun plug #4 at 640' at 08:00 hours February 21, 1972.

Surface Plug

Cut off casing at original ground level and cemented top of casing with 5 sax of cement. Welded on casing plate and well identifier sign.

(d) Acidization and Fracturing Record

No acidizing of fracturing operations.

(e) Back Pressure and Production Tests

No back pressure or production tests.

CHEVRON STANDARD LIMITED

BIT RECORD

CHEVRON SOBC WM

WELL NAME BIRCH YT E-53 CONTRACTOR G.P RIG No. 24 PUMP No 1 D-500

SPUD DATE JAN. 20, 1972 RIG RELEASED FEB 21, 1972 DRILLING DAYS 32 PUMP No 2 C-250

BIT No	MAKE	SIZE	TYPE	DEPTH FROM	DEPTH TO	FOOTAGE	TIME	DRLG RATE	NOZZLE SIZES	JET VEL	WEIGHT M #	RPM	No 1 PUMP LINER	No 1 PUMP SPM	No 2 PUMP LINER	No 2 PUMP SPM	PUMP PSI	HHP AT BIT	DP ANN.	DC ANN	MUD WT	MUD VIS	DULL COND T	DULL COND B	DULL COND G	DEV
1S	HW	12¼	OSC-3	61	737	676	39¾	17	2-16 1-15		8-10	100	Foam		300 cfm		150 psi						5	3	I	¾
1	HW	8¾	XDV	737	1331	594	41	14.4	3-22		10-12	100	Foam		300 cfm		150 gpm 200 psi						2	4	I	½
1C	will	8 11/16	◇	1331	1340	9	3½	2.6	-		12-15	50-58	Foam		300 cfm		180 gpm 250 psi						GOOD			-
RR 1C	will	8 11/16	◇	1340	1368	38	10¼	3.6	-		12-15	50-58	Foam		300 cfm		180 gpm 250 psi						DAMAGED.			
2C	Wat.	6 3/16	◇	1368	1374	6	½	3	-		10	40-50	Foam		300 cfm		180 gpm 260 psi						DAMAGED.			
2	Sec	8¾	S-88	1374	1376	2	½	4	3-22		8-10	50	Foam		300 cfm		180 gpm 250 psi						1	1	I	
RR 2	Sec	8¾	S-88	1376	1426	50	5½	9.5	3-22		8-10	55	Foam		300 cfm		180 gpm 250 psi						1	1	I	
3C	Wat.	6 3/16	◇	1426	1430	4	1¼	3.2	-		4-6	55	Foam		300 cfm		180 gpm 250 psi						DAMAGED.			
RR 2	Sec	8¾	S-88	1430	1511	81	6¼	13	3-22		10	100	Foam		300 cfm		180 gpm 250 psi						1	1	I	¼
4C	Wat	6 3/16	◇	1511	1513	2	1	2	-		2-6	50	Foam		300 cfm		180 gpm 250 psi						DAMAGED.			
RR 2	Sec	8¾	S-88	1511	1620	109	9½	11.3	3-22		8	50	Foam		300 cfm		180 gpm 250 psi						2	2	O	⅛
3	HW	8¾	XDV		1620	-	14¼	-	3-13		Ran to mud up & clean out hole.										8.9	90				
5C	Wat	6 3/16	◇	1620	1677	57	16¼	3.5	-	-	5-8	30-44	5½	54			900				9.0	75	GOOD			
RR 3	HW	8¾	XDV	1677	1701	24	2¾	8.75	3-13	270	25	60-65	5½	63			950				9.0	75	4	1	O	
4	Sec	8¾	S-88	1701	1807	106	8	13.3	3-14	250	25	40	5½	66			850				9.2	70	1	1	I	
RR 5C	Wat	6 3/16	◇	1807	1830	23	9	2.5	-	-	8	75	5½	45			800				9.2	70	GOOD.			
5	HW	8¾	XDV	1830	1910	80	17¾	4.5	3-13	270	25-30	40-50	5½	60			900				9.2	70	7	1	I	¾
6	Sec	8¾	S-88	1910	2245	335	54¾	6.1	3-14	240	25-30	45-50	5½	64			900				9.2	70	2	2	I	2¾

JOHNSTON

Schlumberger

technical report

JOHNSTON
Schlumberger

TEST DATA

Type of Test	Open Hole, Bottom Hole				
Time Started in Hole	0255	Hrs	Tool Opened	0454	Hrs.
First Flow	4	Min.	Initial Shut-In	60	Min.
Second Flow	30	Min	Second Shut In		Min.
Third Flow		Min	Final Shut In	90	Min.
Pulled Loose @	0758	Hrs.	Out of Hole		Hrs.
Wt. Set on Packers	30,000	#	Pulled Loose Wt.	3,000	#

Description of Blow During Test

Strong initial puff. Good air blow on second flow, decreasing fast, dead in 15 minutes.

FLUID RECOVERY

Was Test Reverse Circulated Yes ☐ No ☒

Total Fluid Recovered 878' Ft

Description of Fluid Recovered

170' drilling fluid.
708' muddy water. (small amount of gas in water.)

GAS BLOW MEASUREMENT

Measured With I.D. Riser

Time	Stce. Choke	Reading psi inches	M Cubic Feet Day
			NIL

REMARKS: Tool opened 12' off bottom and skidded 6'.
6 pipe samples taken.
Both shut-ins stabilized.

RESISTIVITY			SALT CONTENT
Recovery Water	@ °F.	150	ppm.
Mud Pit sample filtrate	@ °F	300	ppm.

TOOL SEQUENCE

Tool	Length	O.D.
Sub	.88	
MFE Tool	10.14	
Bypass Tool	2.95	
Safety Joint	1.75	
Safety Seal	4.92	
Packer	4.30	7 3/4"
T.C. & Packer	5.30	7 3/4"
Total	30.24	
Stub	1.10	
Perfs	18.00	
Recorder	5.90	
Recorder	5.90	
Sub	.86	
Drill Collar	31.12	
Subs	1.35	
B.N. & Perf	1.76	
Total Interval	65.99	
TOTAL LENGTH	96.23	

Elevation G.L. 2032 K.B. 2047

Bottom Hole Choke Size 1/2"

Fluid Cushion Type nil Amt

MUD AND HOLE DATA

Mud Type Gel W.L. 6.8

Filter Cake 2/32 Visc 63 Wt 9.2

Time Taken

Contractor G.P. Drilling Rig No 24

Drill Pipe Size 4½" FH

Drill Collar Size 2 7/8" ID &

Drill Collar Length 432.89' &

Main Hole Size Rat Hole

District Inuvik Ticket No. D06656 Date February 9/72 Test No. 2 J.T. No. 2

Company Chevron Standard Limited Address 400 - 5th Ave. S.W.

Well Name Chevron SOBC Wm Birch YT E-53 Calgary 1, Alberta

Number 66°02'21"N 136°56'05"W Field Wildcat Province Yukon

Formation Permian Sandstone Thickness Engr. Rep. J. Charleston

Interval 1629 - 1695 T.D. 1700 Tester D. Matson

Distribution of Reports 8 - Mr. Bob Condon, Calgary

JT 181-SB

JOHNSTON TESTERS

CALGARY, ALBERTA • PH. 259-1151

		D06656	PRESSURE DATA	FLUID SAMPLE REPORT
INSTRUMENT No.		AK1-3409	AK1-2085	Sample No. 530
CAPACITY psig		3600	4400	Type 5"
INSTRUMENT DEPTH FT		1648	1654	Depth 1611 ft
INSTRUMENT OPENING		Inside	Outside	Volume 2500 cc
PRESSURE GRADIENT psi/FT				
WELL TEMP °F 105				Sample Pressure psig. at Surface
INITIAL HYDROSTATIC	A	772#	771#	Gravity API @ F
FIRST FLOW	B	174#	172#	Gas Oil Ratio Cu.Ft. bbl
	B-1	313#	308#	
INITIAL SHUT-IN	C	411#	408#	Recovery
SECOND FLOW	D	335#	333#	Cu. Ft. Gas
	D-1	410#	406#	cc. Oil
SECOND SHUT-IN	E			cc. Water
THIRD FLOW	F			cc. Mud
	F-1			Total Liquid cc
FINAL SHUT-IN	G	411#	409#	
FINAL HYDROSTATIC	H	758#	757#	

REMARKS: MFE sample held at location.

PRESSURE INCREMENTS

POINT MINUTES	PRESSURE	T - ∆t / ∆t	POINT MINUTES	PRESSURE	T - ∆t / ∆t	POINT MINUTES	PRESSURE	T - ∆t / ∆t

JT-1 & E-13A

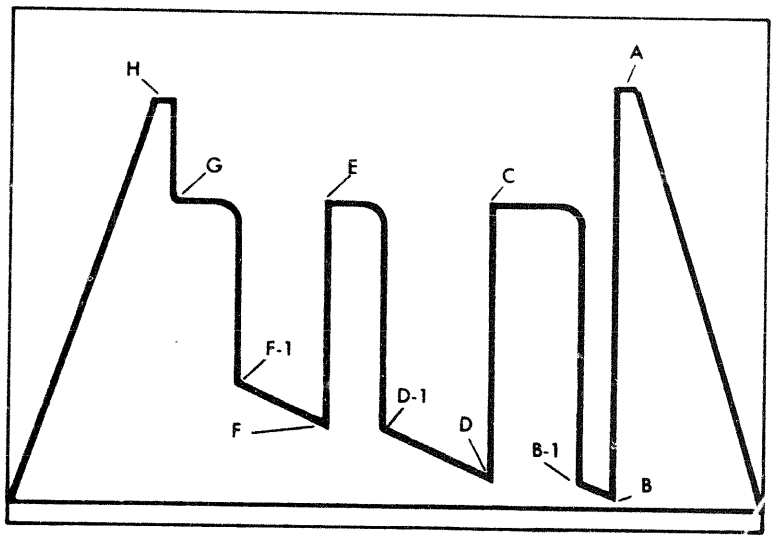
JOHNSTON Schlumberger

JOHNSTON TESTERS 321 50TH AVENUE S.E. · CALGARY 24, ALBERTA · PH 255 1151

A DIVISION OF SCHLUMBERGER CANADA LIMITED

GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS

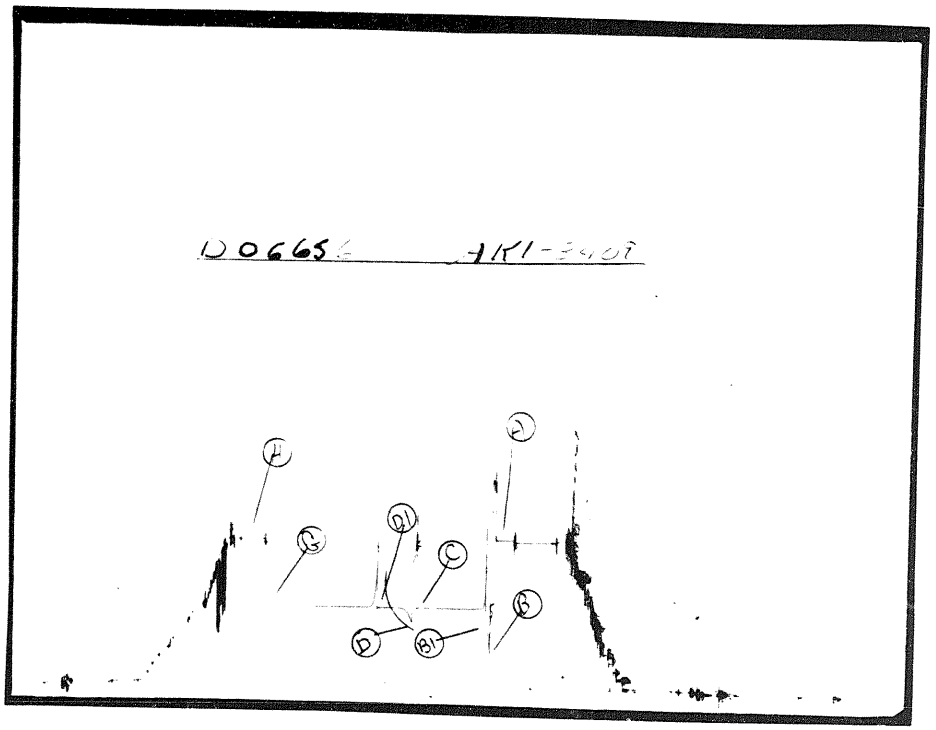
FIELD REPORT NO.	RECORDER NO.
D06656	AK1-3409



A. Initial Hyd. Mud
B. First Flow
C. Initial Shut-In
D. Second Flow
E. Second Shut-In
F. Third Flow
G. Final Shut-In
H. Final Hyd. Mud

The following points are either fluctuating pressures or points indicating other packer settings (testing different zones).

A-1, A-2, A-3, etc. Initial Hyd. Pressures
Z — Special pressure points such as pumping pressures recorded for formation breakdown.



JT-1 & E-13A

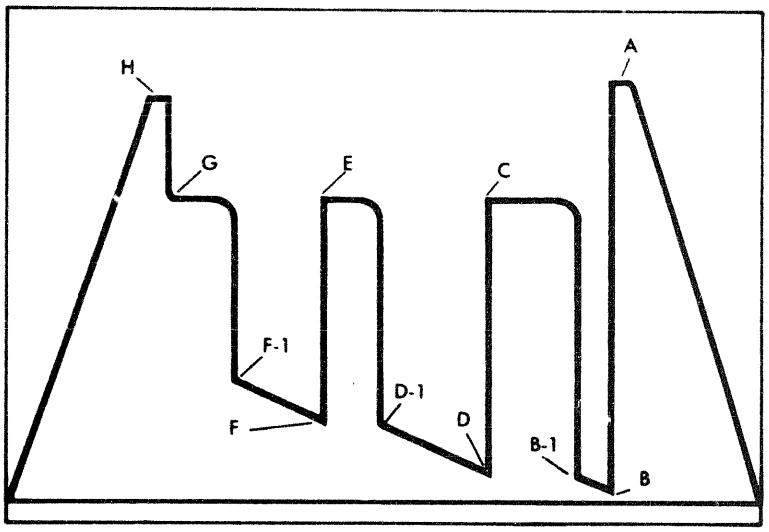
JOHNSTON Schlumberger

JOHNSTON TESTERS 321 50TH AVENUE S.E. · CALGARY 24 ALBERTA · PH 255-1151

A DIVISION OF SCHLUMBERGER CANADA LIMITED

GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS

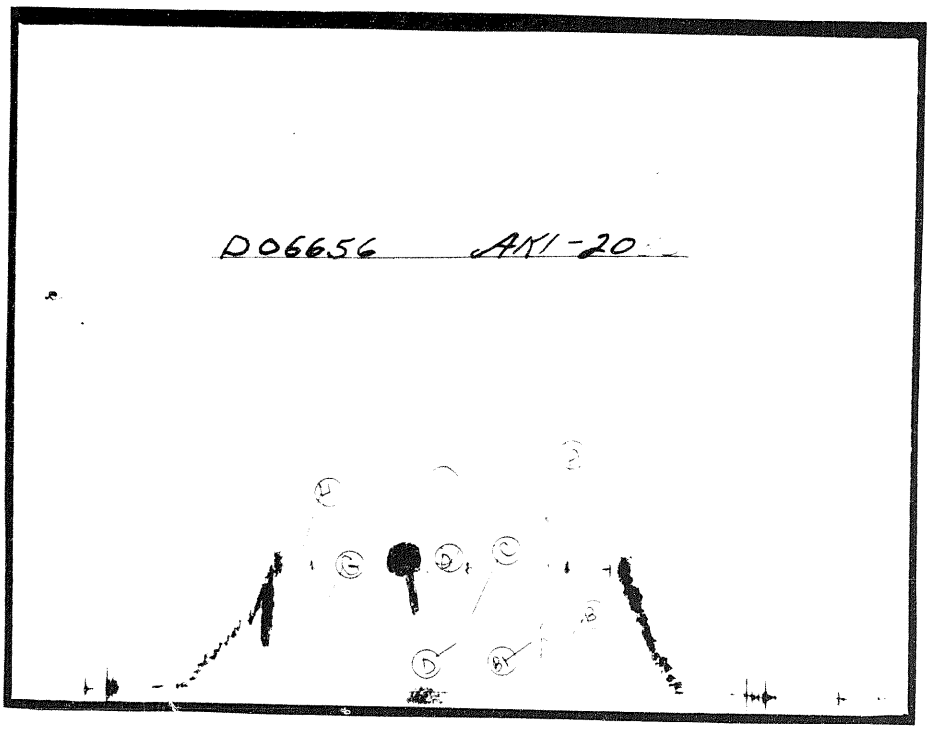
FIELD REPORT NO.	RECORDER NO.
D06656	AK1-2085



A. Initial Hyd. Mud
B. First Flow
C. Initial Shut-In
D. Second Flow
E. Second Shut-In
F. Third Flow
G. Final Shut-In
H. Final Hyd. Mud

The following points are either fluctuating pressures or points indicating other packer settings (testing different zones).

A-1, A-2, A-3, etc. Initial Hyd. Pressures
Z — Special pressure points such as pumping pressures recorded for formation breakdown.



JOHNSTON

Schlumberger

technical report

JOHNSTON TESTERS 321 - 50TH AVENUE S.E. • CALGARY 24, ALBERTA • PH. 255 1151

A DIVISION OF SCHLUMBERGER CANADA LIMITED

JT-10E-45

TEST DATA

Formation		Zone Thickness			Ft
Interval	1325 To 1376	T.D.	1376		Ft
Type of Test	Open hole, Bottom hole.				
Time Started in Hole	1800 Hrs	Tool Opened	0923	Hrs	
First Flow	7 Min	Initial Shut-In	60	Min	
Second Flow	45 Min	Second Shut In		Min	
Third Flow	Min	Final Shut in	90	Min	
Pulled Loose @	0055 Hrs	Out of Hole		Hrs	
Wt. Set on Packers	35,000 #	Pulled Loose Wt	17,000	#	

Description of Blow During Test: Fair blow for 20 minutes on second flow, decreasing to weak. Remaining steady throughout flow period. No gas to surface.

FLUID RECOVERY

Was Test Reverse Circulated Yes ___ No xx

Total Fluid Recovered 330 Ft

Description of Fluid Recovered

330' Dirty water containing soap and foam.

GAS BLOW MEASUREMENT

Measured With ___ I.D. Riser

Type of Instrument

Time	Sfce. Choke	Reading psi inches	M Cubic Feet Day
		NIL	

REMARKS: Test satisfactory. Measurments indicate test was run 7 ft. off bottom after skidding 13 ft. to bottom. Tool was chased 13' during test period. Shut-ins stabilized, no breakdowns made.

	RESISTIVITY		CHLORIDE CONTENT	
Recovery Water	@	°F.	under 2,000	ppm.
Mud Pit sample filtrate	@	°F.		ppm.

TOOL SEQUENCE

Tool	Length	O D
P.O. Sub	.90	
Sub	.85	
MFE Tool	9.10	
Bypass Tool	3.00	
Recorder	5.90	
Safety Joint	1.75	
S.S. & Packer	9.20	7 3/4"
T.C. & Packer	5.10	7 3/4"
Total	35.80	
Stub	1.00	
Perfs	10.00	
Recorder	5.90	
Sub	.90	
Drill Collar	30.21	
D.P. Sub	1.35	
B.N. & Perf	1.80	
Total Interval	51.16	
TOTAL LENGTH	86.96	

Elevation 2047 KB 2032 GL

Bottom Hole Choke Size 1/2"

Fluid Cushion Type Nil Amt

MUD AND HOLE DATA

Mud Type Foam W L

Filter Cake Visc Wt

Time Taken

Contractor G.P. Drilling Rig No. 24

Drill Pipe Size 4 1/2" FH

Drill Collar Size 2 7/8" ID Length 434'

Main Hole Size 8 3/4"

Rat Hole Size

District Inuvik Ticket No D06584 Date February 1/72 Test No 1 J.T. No. 1

Company Chevron Standard Limited Address 400-5th Ave. S.W.

Well Name Chevron SOBC Wm Birch YT E-53 Calgary 1, Alberta

Number 66°02'21"N 136°56'05"W Field Wildcat Province Yukon

Formation

and Interval 1325 - 1376 Co. Rep J. Charleston

Technician J. Fulk

Distribution of Reports

8 - Calgary Attention: Mr. Bob Condon

JT-18E-5B

JOHNSTON TESTERS

D06584		PRESSURE DATA		FLUID SAMPLE REPORT
INSTRUMENT No.		AK1-2085	AK1-2097	Sample No.
CAPACITY psig		4400	4600	Type
INSTRUMENT DEPTH FT		1303	1336	Depth ft
INSTRUMENT OPENING		Inside	Outside	Volume
PRESSURE GRADIENT psi/FT				
WELL TEMP °F 64				
				Sample Pressure
				psig at Surface
INITIAL HYDROSTATIC	A	407#	424#	Gravity API @ F
FIRST FLOW	B	31#	44#	Gas Oil Ratio Cu Ft bbl
	B-1	57#	71#	
INITIAL SHUT IN	C	250#	268#	
SECOND FLOW	D	67#	86#	
	D-1	153#	181#	Recovery
SECOND SHUT IN	E			Cu Ft Gas
THIRD FLOW	F			cc Oil
	F-1			cc Water
FINAL SHUT IN	G	250#	268#	cc Mud
FINAL HYDROSTATIC	H	406#	424#	Total Fluid cc

REMARKS: MFE Sample drained at service centre.
Sample chamber #548 given to Engineer, Jim Charleston.

PRESSURE INCREMENTS

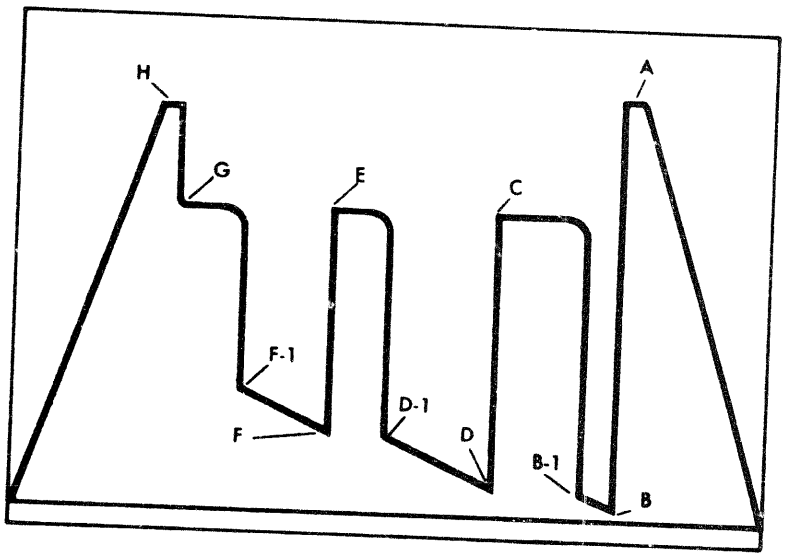
POINT MINUTES	PRESSURE	T - t / t	POINT MINUTES	PRESSURE	T - t / t	POINT MINUTES	PRESSURE	T - t / t

JOHNSTON Schlumberger
JOHNSTON TESTERS 321 50TH AVENUE S.E. · CALGARY 24, ALBERTA · PH. 255-1151
A DIVISION OF SCHLUMBERGER CANADA LIMITED

GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS

FIELD REPORT NO. D06584

RECORDER NO. AK1-2085



A. Initial Hyd. Mud
B. First Flow
C. Initial Shut-In
D. Second Flow
E. Second Shut-In
F. Third Flow
G. Final Shut-In
H. Final Hyd. Mud

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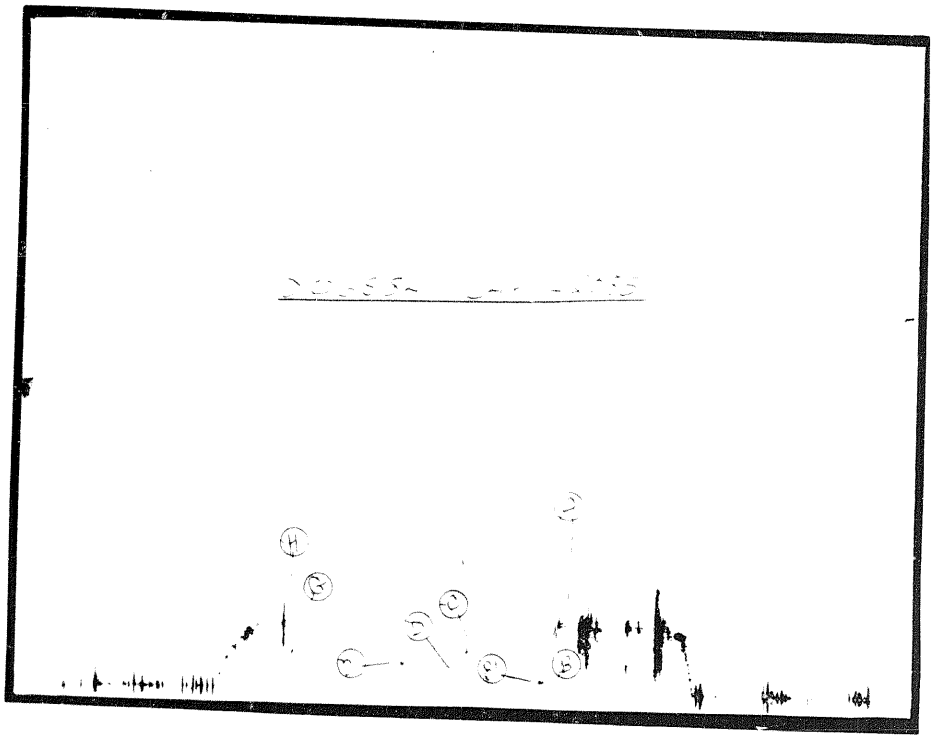

JT-1 & E-13A

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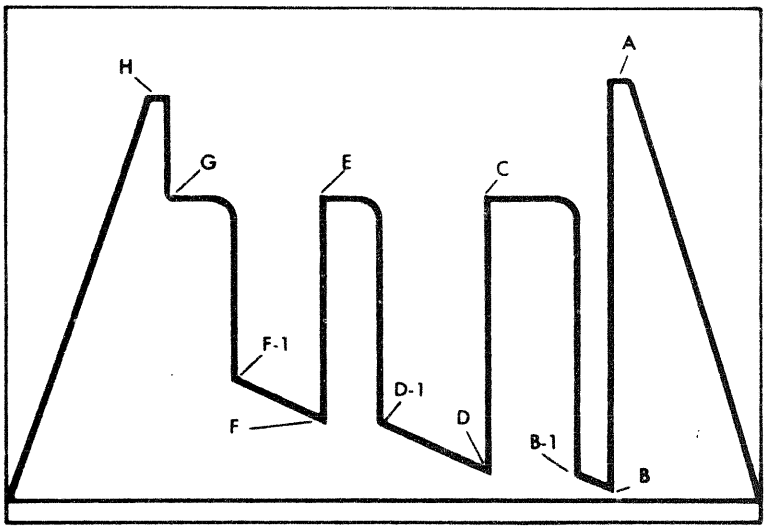
GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS

FIELD REPORT NO.	RECORDER NO.
D06584	AK1-2097



A. Initial Hyd. Mud
B. First Flow
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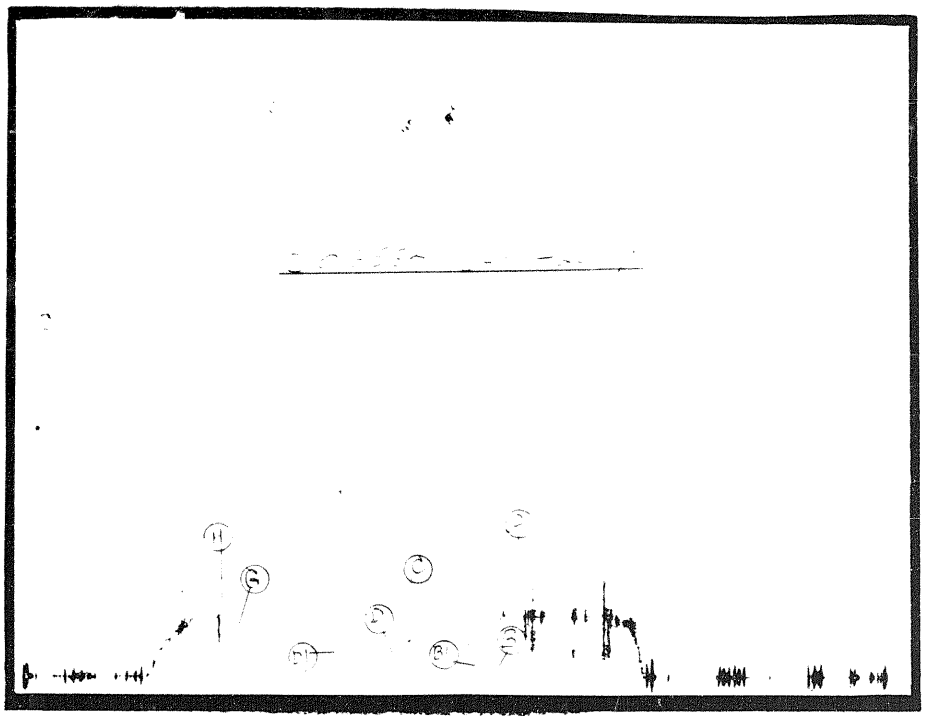


CORE ANALYSIS REPORT

FOR

CHEVRON STANDARD LIMITED

CHEVRON SOBC WM BIRCH YT E-53
WILDCAT, BIRCH RIVER AREA
YUKON TERRITORIES

CORE LABORATORIES - CANADA LTD.
Petroleum Reservoir Engineering
CALGARY - EDMONTON - REGINA

CORE LABORATORIES - CANADA, LTD.

Company	CHEVRON STANDARD LIMITED	Formation		Page	1 of 2
Well	CHEVRON SOBC WM BIRCH YT E-53	Drilling Fluid	WATER BASE MUD	File	913-248
Field	WILDCAT, BIRCH RIVER AREA, YUKON TERRITORIES			Date Report	FEB. 3/72
Location	66° 02' 21.00" N. LAT.	Analysis	FULL DIAMETER & RESIDUAL SATURATIONS	Analysts	CC SP BK
	136° 56' 05.00" W. LONG.	Remarks	ALL SAMPLES SANDBLASTED PRIOR TO KH ANALYSIS.		

AST - APPEARS SIMILAR TO
* - BROKEN CORE (K90 USED FOR SUMMARY PURPOSES)
** - PERMEABILITY > 30000 MD
– - PERMEABILITY <
FS - FINE SAND
MS - MEDIUM SAND
CS - COARSE SAND
CONG - CONGLOMERATE
DOL - DOLOMITE
SH - SHALE
LMY - LIMY
SHY - SHALY
/BK - BREAK
BIT - PYROBITUMEN
CARB - CARBONACEOUS
A - ANHYDRITE
FOSS - FOSSILIFEROUS
XLN - CRYSTALLINE
LAM - LAMINATIONS
V - VUGULAR
LV - LARGE VUGS
SV - SMALL VUGS
PPV - PIN POINT VUGS
I - INTERGRANULAR
STY - STYLOLITIC
HF - HORIZONTAL FRACTURE
VF - VERTICAL FRACTURE
SS - SMALL CHIP SAMPLE
SL - SLIDE
VF - VERY
W - WET

Sample Number	Interval Represented, Feet		Permeability to Air, Millidarcys			Permeability Feet	Porosity, Per Cent	Porosity Feet	Density, gm./cc.		Residual Saturations, Per Cent Pore Space		Visual Examination
	Depth	Thick	K Max	K90°	KV				Brik	Grain	Oil	Total Water	
	CORED INTERVAL 1368' - 1374'												
	CORE NO. 3 1368' - 1374' (REC. 4.0') (1 BOX)												
1	1368.0-68.4	0.4	22360.00	20054.00	4415.00	8944.00	19.3	7.72	2.10	2.60	0.0	37.6	CONG
2	1368.4-68.9	0.5	20975.00	16144.00	5469.00	10487.50	23.3	11.65	1.99	2.60	0.0	32.5	MS
3	1368.9-69.4	0.5	5545.00	5152.00	2420.00	2772.50	22.4	11.20	2.02	2.60	0.0	22.1	MS
4	1369.4-70.2	0.8	10946.00	9118.00	369.00	8756.80	18.6	14.88	2.11	2.60	0.0	72.6	CONG
5	1370.2-70.8	0.6	3214.00	1736.00	609.00	1928.40	17.4	10.44	2.15	2.60	0.0	53.6	CONG
6	1370.8-71.3	0.5	904.00	853.00	187.00	452.00	15.8	7.90	2.21	2.63	0.0	42.2	CONG
7	1371.3-72.0	0.7	4544.00	3653.00	1159.00	3180.80	18.9	13.23	2.15	2.65	0.0	40.8	CONG
–	1372.0-74.0	2.0	–	–	–	–	–	–	–	–	–	–	LOST CORE.

CORE LABORATORIES – CANADA, LTD.

Petroleum Reservoir Engineering

WELL: CHEVRON SOBC WM BIRCH YT E-53

PAGE: 2 OF 2

FORMATION:

FILE: 913-248

SUMMARY INTERVAL: 1368.0 - 1374.0

TOTAL FOOTAGE: 6.0

FOOTAGE ANALYZED 4.0

FOOTAGE NOT ANALYZED: TOTAL: 2.0 DENSE .0 LOST 2.0 DRILLED .0 *NABR .0 RUBBLE .0

SUMMARY OF ANALYZED CORE:

	FOOTAGE	% OF ANALYZED CORE	WEIGHTED AVERAGE POROS. %	POROSITY FEET	WEIGHTED AVERAGE PERM. MD.	PERM. FEET	WEIGHTED AVERAGE RESID OIL %	WEIGHTED AVERAGE TOT WATER %
TOTAL	4.0	100.00	19.26	77.02	9130.50	36522.00	.00	45.56
BY PERM RANGES:								
LESS THAN 0.10 Md.	.0	.00	.00	.00	.00	.00	.00	.00
0.10 0.49 Md.	.0	.00	.00	.00	.00	.00	.00	.00
0.50 0.99 Md.	.0	.00	.00	.00	.00	.00	.00	.00
1.00 9.99 Md.	.0	.00	.00	.00	.00	.00	.00	.00
GREATER THAN 9.99 Md.	4.0	100.00	19.26	77.02	9130.50	36522.00	.00	45.56

*NOT ANALYZED BY REQUEST

CHEMICAL & GEOLOGICAL LABORATORIES LTD.

WATER ANALYSIS

Lab No. C72-4371

Received: Feb.22,1972 Reported: March 22,1972

Well: Location: Chevron SOBC Win Birch YTE-53 66°02'21"N 136°56'05"W

Operator: CHEVRON STANDARD LIMITED

Field or Area:

Elev.: K.B. Grd. Zone/Formation: Sample Interval:

Method of Production: D.S.T. #2 Sampled from: 98' above t[illegible] Sampled by: Date: Feb.9,1972

OTHER PERTINENT DATA Recovery: 170' mud
708' water

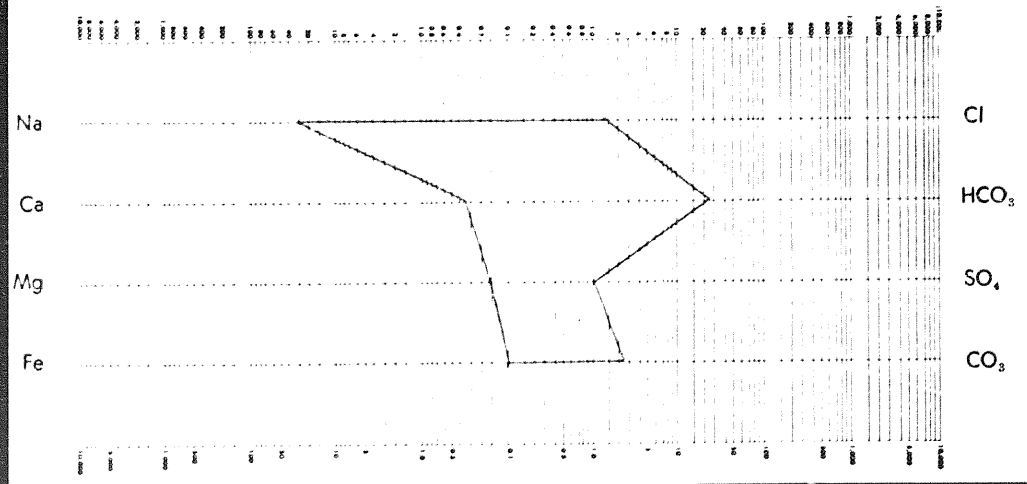
(Signed)

	Na & K		Ca	Mg					SO_4	Cl			CO_3	HCO_3		
Mg./L	701		7	2					51	50			74	1590		
Meq./L	30.50		0.35	0.16					1.06	1.41			2.46	26.08		
Meq. %	49.18		0.56	0.26					1.71	2.27			3.97	42.05		

Total Solids Mg/L. By Evaporation 1,856 Fe Present Specific Gravity 1.004 @60°F Observed pH 9.3 @ 75°F

Calculated 2,475 After Ignition 1,675 H_2S Nil Refractive Index 1.3330 @25°C Resistivity 3.88 ohm meters @ 68°F

Pattern Unit Meq./L



Remarks and Conclusions

Analysis determined on clear colorless filtrate recovered from muddy water. Much organic matter detected in evaporated total dissolved solids.

CHEMICAL & GEOLOGICAL LABORATORIES LTD.

WATER ANALYSIS Lab No. C72-4372

Received: Feb.22,1972 Reported: March 22,1972

Well: Location: Chevron SOBC Wrn Birch YTE-53 66°02'21"N 136°56'05"W

Operator: CHEVRON STANDARD LIMITED

Field or Area:

Elev.: K.B. Grd. Zone/Formation: Sample Interval:

Method of Production: Sampled from: Sampled by: Mr. J. Charleston Date: Feb.9,1972

OTHER PERTINENT DATA

This sample was taken of the soap solution used for foam drilling.

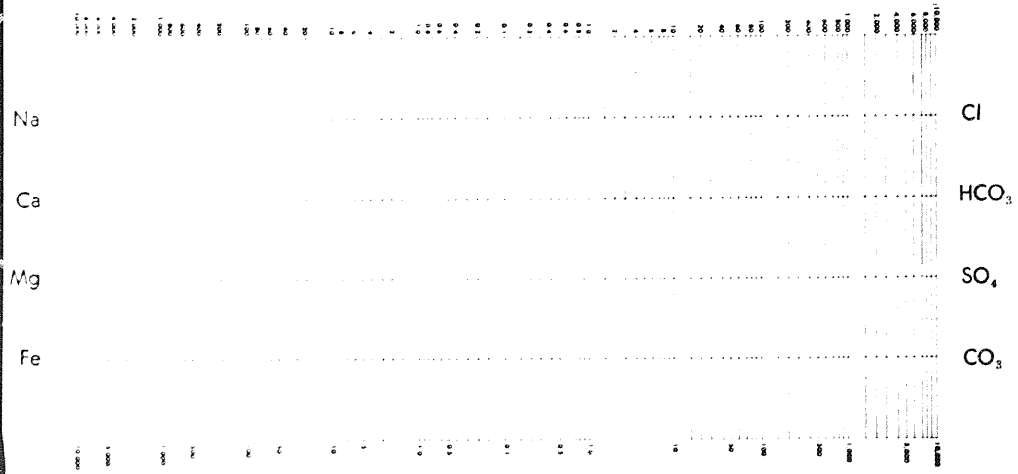
(Signed)

	Na	K	Ca	Mg					SO_4	Cl			CO_3	HCO_3		
Mg./L																
Meq./L																
Meq. %																

Total Solids Mg./L By Evaporation Fe Specific Gravity 1.004 @60°F Observed pH 7.3 @ 75 °F

Calculated After Ignition H_2S Nil Refractive Index 1.3330 @25°C Resistivity 20.3 ohm meters @ 68 °F

Pattern Unit Meq./L



Remarks and Conclusions

Analysis determined on amber colored solution. Chloride could not be done due to interference by the soap.

CHEMICAL & GEOLOGICAL LABORATORIES LTD.

WATER ANALYSIS Lab No. C72-4373

Received: Feb.22,1972 Reported: March 22,1972 Well: Location: Chevron SOBC Wrn Birch YTE-53 66° 02' 21" N 136° 56' 05" W

Operator: CHEVRON STANDARD LIMITED Field or Area:

Elev.: K.B. Grd. Zone/Formation: Sample Interval:

Method of Production: Sampled from: Flow Test Sampled by: Date:

OTHER PERTINENT DATA Interval: 732'

Water was produced by circulating hole with air to give an extended flow test.

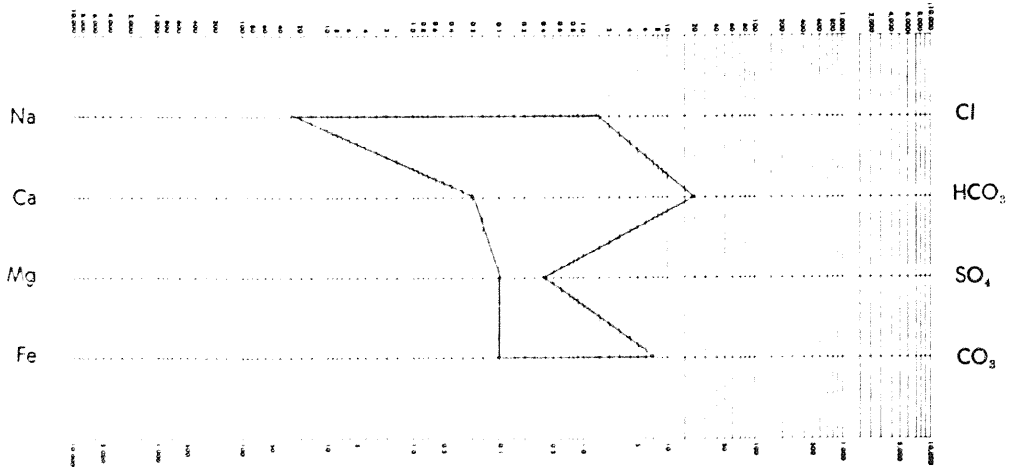
(Signed)

	Na & K		Ca	Mg					SO_4	Cl			CO_3	HCO_3		
Mg./L	656		4	1					18	50			217	1210		
Meq./L	28.57		0.20	0.08					0.37	1.41			7.23	19.84		
Meq. %	49.51		0.35	0.14					0.64	2.44			12.53	3.438		

Total Solids Mg L. By Evaporation 1,648 Fe Nil Specific Gravity 1.004 @60°F Observed pH 9.0 @ 75 °F

Calculated 2,156 After Ignition 1,550 H_2S Nil Refractive Index 1.3330 @25°C Resistivity 4.18 ohm meters @ 68 °F

Pattern Unit Meq./L



Remarks and Conclusions

Analysis determined on clear colorless filtrate recovered from water containing a trace of sediment. Organic matter detected in evaporated total dissolved solids.