WELL HISTORY REPORT

CHEVRON SOBC WH E. PORCUPINE YT F-18

MAY 29, 1972

AUG 10 1972

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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 E. Porcupine YT F-18.
- b) Permittee, Licensee or Lessee
 Western Minerals Ltd.
- c) Name of Operator

Chevron Standard Limited 400 Fifth Avenue S.W. Calgary, Alberta T2P 0L7

d) <u>Location</u> Unit F, Section 18, Grid 66-10-137-45.

e) <u>Coordinates</u>

Latitude: 66° 07' 25" N; Longitude: 137° 48' 16" W

f) Permit or Lease Number
Permit No. 3362.

g) <u>Drilling Contractor</u>
GP Drilling Ltd., Rotary Rig #24.

h) <u>Drilling Authority</u>
No. 583 issued February 29, 1972.

i) <u>Classification</u>
Wildcat.

j) <u>Elevations</u>
Ground elevation. 1,701' K.B. elevation: 1,716'

k) <u>Spudded</u>
13:00 hours - March 6, 1972.

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

T.D. - 0,728'

P.B.T.D. - Surface

n) Well Status

Dry and permanently abandoned.

o) Rig Release Date

08:00 Hours - May 1, 1972.

p) Hole Sizes to Total Depth

30" Hole from surface to 60 K.B. 12-1/4" Hole from 60 to 806 K.B. 8-3/4" Hole from 806 to 6,728 K.B.

q) Casing

19" O.D. conductor pipe set at 60.30' K.B. 9-5/8" O.D. 3-55, 36# casing set at 801.98' K.B.

r) Engineering

B. J. Schaefer

L. F. Grumbly

H. Herring

R. Hansen

Geologist

O. Gietz

SECTION II - GEOLOGICAL SUHLIARY

a) Formation Tops

· .	Depth	1	Elevation
Formation	Samples	Logs	K.B. 1716°
Blackie Sandstone	3900 1	38501	-2134
KL-4 Shale	4100'	4160'	-2444
KL-3 Siltstone	5009 '	49781	-3262'
KL-2 Shale	yeste	5312'	-3596 '
Basal Siltstone	***	5860 ¹	-4144 '
Chance Sandstone	6160'	61841	-44681
Upper Miss. Cherty Ls.	6620	6630"	-4914

TOTAL DEPTH - 6723'

b) Cored Interval

Core No.	Interval	Formation	Recovery
1	6214' - 6272'	Mississippian	55.1'

c) Core Description

Core #1 6214' - 6272' Cut 58' Rec. 55.1'

Coring Times: minutes per foot (left to right)

6214 - 17, 12, 13, 14, 17, 17, 18, 13, 16, 11, 14, 18, 25, 29, 32, 40, 39, 32, 24, 21, 25, 30, 23, 22, 23, 21, 24, 24, 25, 21, 20, 19, 24, 23, 23, 26, 20, 23, 18, 20, 24, 23, 21, 23, 23, 27, 27, 26, 28, 35, 31, 28, 32, 31, 33, 36, 33, 33 - 6272

6214 - 6215.3: Sandstone, brown, fine grained, slightly calcareous, kaolinitic. Fairly well sorted subround quartz and light grey chert grains. Poor intergranular porosity approximately 10%. Oil stain, fluorescence and cut.

6215.8 - 6218.2: Sandstone, pale grey, fine grained, very calcareous, tight.

6218.2 - 6218.9: Sandstone, brown, fine grained, calcareous, kaolinitic.

9.7 Poor intergranular porosity approximately 8%. Poor permeability. Light oil stain, cut and fluorescence.

6218.9 - 6221.4: Sandstone, pale grey, fine to medium grained, slightly S&P. Fairly well sorted subround quartz and chert grains, very calcareous matrix, siliceous cement. Tight.

- 6221.4 6222.9: Sandstone, brown, fine to medium grained, calcareous, kaolinitic. Fairly well sorted subrounded quartz and chert grains, calcareous matrix. Trace to poor intergranular porosity approximately 6%. Light stain, cut, fluorescence.
- 6222.9 6225.4: Sandstone, brown, very fine to fine grained slightly
 2.5 calcareous, argillaceous. Fairly well sorted subangular
 quartz and chert grains, silty, calcareous matrix.
 Tight. Scattered silty, argillaceous partings,
 stylolitic breaks. Dip near horizontal. Streaks of
 oil bleeding at 6222-6223'.
- 6225.4 6227.6: Sandstone, brown, fine grained, scattered coarser chert grains, calcareous, lustre mottled in part. Fairly well sorted, subround to subangular quartz and chert grains in a silty, calcareous matrix. Trace of porosity, faint cut and fluorescence.
- 6227.6 6228.8: Siltstone, dark brown, calcareous, argillaceous, 1.2 few argillaceous partings.
- 6228.8 6240.2: Shale, dark grey-brown, calcareous, slightly bituminous.

 11.4 Abundant fossil fragments Brachiopods, Crinoids.

 Interbedded silty shale and grey, argillaceous calcareous siltstone.
- 6240.2 6241.2: Limestone, light grey, matrix to dark brown, well rounded and sorted bituminous shale "oolites." Matrix approximately 50%, pellets or oolites approximately 50%.
- 6241.2 6244.5: Limestone, brown-grey, very silty, argillaceous.
 3.3 Scattered dark grey shale partings, grades to inter-bedded dark grey, calcareous, fossiliferous shale.
- 6244.5 6244.8: Shale, dark grey, calcareous, slightly bituminous, 0.3 fossiliferous. Scattered grey silty laminae.
- 6244.8 6247.2: Limestone, grey, microcrystalline, compact, faintly argillaceous, shaly partings. Scattered fine fossil remains.
- 6247.2 6254.0: Shale, dark grey, calcareous, fine silty laminae.
 6.8 Trace of pyrite. Pockets of abundant Brachiopods,
 Crinoids.
- 6254.0 6254.5: Limestone, grey, silty and sandy, grading to very calcareous, fine sandstone.

6.9 Sandstone, fine grained, grey, slightly S&P, very calcareous. Fairly well sorted subangular quartz grains, silty, calcareous matrix, siliceous cement.

Band of black chert nodules at 6256.5'. Oil bleeding, 6258-6259'.

6261.4 - 6263.7: Siltstone, grey, argillaceous, calcareous, siliceous cement. Scattered shaly partings.

5263.7 - 6265.8: Sandstone, grey, fine grained, calcareous, tight.

2.1 Subround, fair sorted quartz grains, calcareous matrix, siliceous cement. Scattered streaks of brown oil bleeding.

6265.8 - 6269.1: Shale, dark grey, calcareous, grey silty streaks and laminae. Bedding is near horizontal.

6269.1 - 6272: Core not recovered.

d) Sample Description

70 - 80:

Sandstone, grey, S&P, fine grained, argillaceous, slightly calcareous, tight. Shale, dark grey, blocky, noncalcareous. Much grey, nodules shale with plant remains. Trace of coal.

80 - 90:

Shale and sandstone, interbedded, as above.

90 - 100:

Shale, as above. Minor sandstone, as above, grading in part to grey siltstone. Trace of ironstone.

100 - 110:

Shale, as above. Much grey-green nodular, massive

100 - 110: Shale, as above. Much grey-green nodular, massive shale (clay).

110 - 120: Shale, as above. Much grey argillaceous siltstone.

120 - 130: As above.

130 - 150: Sandstone, grey, S&P, fine grained, argillaceous, noncalcareous. Streaks of medium to coarse sand. Much shale, as above.

150 - 160: Shale, dark grey, blocky, silty in part. Much grey green blocky shale. Minor sandstone, as above.

160 - 170: Sandstone, pale grey, SEP, fine to medium grained, silty, argillaceous, non-calcareous, tight. Much shale, as above.

170 - 180:	Shale, grey and dark grey, blocky, silty in part, noncalcareous.
180 200:	Shale, as above. Much grey-green blocky shale. Interbedded fine grained grey sandstone, slightly calcareous.
200 - 220:	Shale, grey and grey-green, blocky, noncalcareous. Silty streaks.
220 - 230:	Shale, as above. Much grey argillaceous siltstone interbedded.
230 - 240:	Shale, as above. Sandstone, pale grey S&P, argillaceous, slightly calcareous. Subangular, poor to fair sorted quartz and chert grains. Tight.
240 - 250:	Shale, grey and dark grey, minor grey-green nodular massive shale, blocky, noncalcareous. Much very fine grained grey, argillaceous sandstone, grading to siltstone, interbedded.
250 - 260:	As above. Much grey, $S\&P$ fine to medium grained slightly calcareous, argillaceous quartz-chert sandstone.
260 - 290:	Shale, grey, green-grey and dark grey, blocky, silty in part. Trace of plant remains.
290 - 320:	Shale, as above. Minor grey, S&P, fine grained, slightly calcareous sandstone, grading in part to silty shale and siltstone.
320 - 340:	Shale, as above - 70%. Sandstone - 30%, pale grey S&P, medium grained, silty, slightly calcareous, argillaceous - 30%.
340 - 360:	Siltstone, grey, argillaceous, noncalcareous. Much shale, sandstone, as above.
360 - 380:	Shale, grey, green-grey and brown-grey, nodular, massive, blocky, noncalcareous, silty in part.
380 - 420:	Shale, as above. Traces of ironstone. Minor interbedded grey, argillaceous sandstone.
420 - 430:	Sandstone, pale grey, S&P, fine grained, argillaceous grading in part to argillaceous siltstone, faintly calcareous.

430 - 470:	Shale, grey, grey-green and brown-grey, nodular, massive, noncalcareous. Huch grey-brown shaly siltstone.
470 - 490:	Shale and silty shale, as above. Minor pale grey, S&P medium grained, trace glauconitic sandstone.
490 - 510:	Shale, grey, brown-grey and green-grey, blocky, nodular, massive, noncalcareous, silty streaks.
510 - 520:	Shale, dark grey, silty, sub-fissile, noncalcareous, much grey and brown-grey, greenish-grey shale, as above.
520 - 540:	Shale, grey-green, grey brown-grey, massive, nodular, noncalcareous. Minor dark grey shale. Silty streaks.
540 - 550:	Siltstone, grading to fine sandstone, grey, argillaceous, noncalcareous. Much shale, as above. Trace of ironstone.
550 - 570:	Sandstone, grey, very fine to fine grained, S&P in part, argillaceous, noncalcareous, trace micaceous. Carbon flecks or bitumen. Much shale, as above.
570 - 590:	Shale, grey-green, grey and brown-grey, blocky nodular, noncalcareous. Minor silty streaks.
590 - 610:	Sandstone, grey S&P, fine grained, argillaceous, silty, noncalcareous, grading to argillaceous siltstone. Much shale, as above. Trace of red shale. Trace of plant remains.
610 - 620:	Shale, dark grey, blocky, silty in part, noncalcareous.
620 - 640:	Shale, grey and dark grey, minor brown-grey shale, silty in part, noncalcareous, blocky - 70%. Sandstone, grey, S&P, fine grained, argillaceous, noncalcareous. Trace of coaly plant remains.
640 - 650:	Shale, grey, brown grey and dark grey, traces grey-green shale, massive, blocky, noncalcareous. Silty streaks, fine sandy streaks.
650 - 680:	Shale, as above. Minor rusty brown shale - nodular. Trace of plant remains. Trace of ironstone.
680 - 690:	Shale, grey, waxy, massive, nodular, noncalcareous. Traces of rusty brown shale, ironstone.
690 - 710:	Shale, as above. Much light grey shale. Much rusty red nodular shales, silty streaks.
710 - 720:	No sample.

720 - 740:	Shale, grey, light green-grey, waxy, nodular, dark grey, blocky, noncalcareous shale. Grey silty streaks.
740 - 760:	Shale, as above. Much grey-brown shale. Silty streaks.
760 - 770:	Shale, grey, minor light grey shale, trace of reddish brown shale.
770 - 780:	Sandstone, grey S&P, fine to medium grained, sub- angular quartz and chert grains, fair sorting, black chert and shale grains, silty, noncalcareous. Tight. Much shale, as above.
780 - 800:	Shale, dark grey, sub-fissile, noncalcareous. Traces of grey silt, traces of plant remains. Trace of sandstone, as above. Much grey and green-grey nodular shale.
800 - 810:	Shale, dark grey, blocky, noncalcareous.
810 - 820:	Casing cement.
820 - 830:	Shale, dark grey, blocky, noncalcareous, silty streaks.
830 - 870:	Shale, grey, blocky, silty, sandy, grading to very argillaceous grey sandstone, noncalcareous.
870 - 865.	Shale, grey, dark grey, blocky, noncalcareous. Trace of green shale.
880 - 920:	Shale, dark grey, noncalcareous, blocky to sub-fissile. Much grey, waxy shale, trace of pyrite. Trace of grey, sandstone streaks.
920 - 940:	Sandstone, grey, fine grained, argillaceous, kaolinitic. Nuch loose sand.
940 - 960:	Sandstone, as above. Much grey and dark grey shale, as above.
960 - 970:	Sandstone, grey, fine to medium, subangular to sub- round quartz and chert grains, fairly well sorted, argillaceous, kaolinitic matrix, friable, noncalcareous.
970 - 1000:	Shale, grey and dark grey, noncalcareous, minor green, blocky shale.
1000 - 1020:	Shale, grey, waxy, traces of plant remains, brown silty shale streaks, trace of red and grey mottled shale, trace of grey-green shale, brown shale, trace of ironstone. Minor dark grey, sub-fissile, micaceous shale.

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	1020 - 1030:	Shale, dark grey, blocky, noncalcareous, silty in part.
	1030 - 1050:	Sandstone, grey, S&P, argillaceous, silty, noncal- careous, trace micaceous, tight. Subround to sub- angular chert and quartz grains fairly well sorted. Trace of medium sandstone streaks. Much dark grey, grey and brown shale, trace of green shale.
	1050 - 1060:	Shale, grey, silty, dark grey, sub-fissile, non-calcareous. Minor sandstone, as above.
	1060 - 1070:	Shale, grey, blocky, nodular, and brown-grey, blocky, nodular shale, trace of grey-green shale.
	1070 - 1090:	Shale, grey, blocky, waxy to nodular, grey-brown in part.
	1090 - 1100:	Shale, grey and grey-brown, nodular, blocky, non-calcareous.
-	1100 - 1120:	Siltstone, grey, argillaceous, noncalcareous, micaceous.
	1120 - 1130:	Shale, grey, waxy, blocky, noncalcareous. Traces of brown-grey shale. Trace of ironstone.
	1130 - 1140:	Shale, dark grey and grey, sub-fissile, interbedded grey micaceous, argillaceous siltstone.
	1140 - 1180:	Shale, grey, nodular, blocky, noncalcareous, trace of brown-grey shale, grey-green shale. Much dark grey, sub-fissile shale.
	1180 - 1190:	Sandstone, grey S&P, fine grained, calcareous. Sub-round to subangular, fair sorted, chert, quartz grains, carbon flecks, in silty, argillaceous matrix. Trace of carbon partings. Much shale, as above.
	1190 - 1270:	Shale, rusty red, dark brown-red, blocky, waxy to hard, noncalcareous. Minor maroon silty shale. Minor interbedded rusty red, fine grained sandstone and siltstone.
	1270 - 1280:	Siltstones grey, S&P, noncalcareous, argillaceous, micaceous. Shale, grey, nodular, noncalcareous, trace of green blocky shale.
	1280 - 1310:	Shale, grey, blocky, micromicaceous, noncalcareous, much grey, silty, micromicaceous shale, grey, blocky to nodular shale.

1310 - 1320:	Shale, grey, nodular to blocky, minor brown-grey blocky, silty shale.
1320 - 1330:	Sandstone, grey, S&P, argillaceous, silty, calcareous. Few medium grained streaks. Interbedded grey silty shale.
1330 - 1340:	Siltstone, grey, argillaceous, grading to very silty shale, noncalcareous.
1340 - 1350:	Siltstone, as above, grading in part to fine grained grey S&P calcareous sandstone. Traces of grey-brown silty shale, grey nodular shale.
1350 1360:	Shale, grey, nodular, noncalcareous, interbedded dark grey sub-fissile, micaceous, to smooth, blocky shale.
1360 - 1370:	Shale, as above, minor interbedded grey, S&P fine to medium grained noncalcareous sandstone.
1370 - 1380:	Sandstone, grey, S&P, faintly calcareous, fine grained, grading to siltstone, argillaceous, silty. Much shale, as above.
1380 - 1390:	Sandstone, grey, S&P, fine grained, noncalcareous, argillaceous, silty, minor brown-grey sandstone. Much grey shale, brown shale, as above.
1390 - 1410:	Siltstone, grey, S&P, grading to fine sandstone, argillaceous, noncalcareous. Much dark grey, silty shale and grey nodular shale.
1410 - 1420:	Siltstone, as above. Shale, grey, nodular, waxy. Trace of green silty shale.
1420 - 1430:	As above. Trace of medium sandstone.
1430 - 1450:	Siltstone, grey, argillaceous, noncalcareous, inter- bedded grey and dark grey, micaceous shale.
1450 - 1470:	Shale, dark grey, silty, minor non-silty shale, grading to argillaceous siltstone, micaceous, non-calcareous. Trace of pyrite.
1470 - 1490:	Shale, dark grey, sub-fissile, noncalcareous. Few silty streaks.
1490 - 1500:	Shale, as above. Traces coaly fragments.
1500 - 1510:	Siltstone, grey, fine S&P, argillaceous, noncalcareous, traces micaceous. Trace of fine sandy streaks. Much interbedded grey and dark grey shale. Trace of ironstone.

1510 - 1530:	Sandstone, grey, S&P, fine grained, argillaceous, noncalcareous. Subangular chert and quartz grains, dark grey chert grains, fairly well sorted, trace of glauconite.
1530 - 1540:	Shale, grey, silty, trace micaceous, blocky, much grey, smooth, sub-fissile to blocky shale. Sandstone streaks as above.
1540 - 1550:	V.P.S.
1550 - 1560:	Shale, dark grey, blocky, noncalcareous, few silty, sandy streaks.
1560 - 1570:	Siltstone, grey, finely S&P, argillaceous. Trace of fine grey kaolinitic sandstone. Much shale, as above.
1570 - 1580:	Shale, grey, blocky, dark grey, sub-fissile, micaceous in part, noncalcareous.
1580 - 1590:	Sandstone, grey S&P, fine grained, slightly calcareous, argillaceous. Subangular to subround chert and quartz grains, black chert or shale grains, trace glaucopite, trace of mica.
1590 - 1600:	Shale, grey, brown grey, waxy, nodular, minor dark grey sub-fissile shale. Trace of plant remains, iron-stone.
1600 - 1610:	Shale, grey, waxy, nodular, minor dark grey shale.
1610 - 1620:	Shale, as above, silty.
1620 - 1630:	Shale, grey, silty, blocky, noncalcareous. Much grey-brown shale, silty in part. Hinor dark grey subfissile shale.
1630 - 1640:	Sandstone, grey, S&P, fine grained, noncalcareous, argillaceous, trace of mica. Subangular quartz and chert grains, fair sorting, tight.
1640 - 1650:	Shale, dark grey, micromicaceous, sub-fissile, non-calcareous. Much grey, finely S&P siltstone and fine sandstone.
1650 - 1670:	Shale, grey and green-grey, massive, silty in part. Interbedded grey siltstone, dark grey shale.
1670 - 1680:	Siltstone, grey, argillaceous, noncalcareous, grading to silty grey shale.

1680 - 1		Shale, green-grey, and grey, waxy, nodular. Traces of pale grey shale. Much dark grey, micromicaceous, sub-fissile and fissile shale.
1690 - 1		Sandstone, grey, S&P, fine grained, grading to siltstone, argillaceous, noncalcareous. Trace of plant remains. Much shale, as above. Trace of ironstone.
1710 - 1	720:	Sandstone, grey, S&P, fine to medium grained, calcareous, argillaceous. Subround to subangular quartz and chert grains, black chert grains, in silty, argillaceous matrix, traces of plant remains.
1720 - 1	730:	Shale, dark grey, sub-fissile, noncalcareous. Traces of plant remains.
1730 - 1	.740:	Sandstone, grey, S&P, medium to fine grained, calcareous, subround to subangular quartz and chert grains, silty, argillaceous matrix.
1740 - 1	.750:	Shale, dark grey, sub-fissile, noncalcareous. Traces of micromicaceous shale, trace of plant remains.
1750 - 1	1780:	Sandstone, grey, S&P, fine to medium grained, slightly calcareous, argillaceous. Trace of mica, plant remains, trace of ironstone.
1780 - 1	L 790:	Siltstone, pale grey, very calcareous, grading to silty limestone.
1790 - 1	L800:	Siltstone, grey, argillaceous, noncalcareous, grading in part to grey, silty shale.
1800 - 1	1820:	Shale, dark grey, sub-fissile, noncalcareous. Trace of plant remains and coaly partings. Trace of silty streaks.
1820 - 1	1830:	Shale, as above. Trace to minor grey fine sandstone. Trace of ironstone.
1830 - 3	1840:	Siltstone, grey, finely S&P, argillaceous, noncalcareous, grading in part to fine, argillaceous sandstone.
1840 - 1	1850:	Shale, dark grey, sub-fissile, noncalcareous. Trace of ironstone, minor silty shale.
1850 - 1	1360:	Shale, dark grey and grey, sub-fissile to blocky. Trace of coaly plant remains, trace of ironstone.
1860 -	1380:	Shale, as above. Traces of light grey silty shale.

1880 - 1890:	Sandstone, grey, S&P, very fine to fine grained, faint to slightly calcareous, argillaceous, tight subangular to subround quartz, chert grains, black chert or carbon flecks, silty, siliceous matrix, traces calcareous cement. Trace of glauconite.
1890 - 1900:	Sandstone, as above, grey, S&P, medium grained, calcareous.
1900 - 1910:	Shale, grey and dark grey, minor brown shale, silty in part, noncalcareous. Minor dark grey micaceous, sub-fissile shale.
1910 - 1920:	Siltstone, grey, S&P, argillaceous, noncalcareous. Much shale, as above.
1920 - 1940:	Sandstone, grey, S&P, fine grained, slightly calcareous, argillaceous, trace micaceous. Much shale, as above. Trace of coaly plant remains.
1940 - 1950:	Sandstone, grey, S&P, fine to medium grained, argillaceous, noncalcareous, 50%. Shale, 50%, grey, grey-brown and dark grey, blocky to sub-fissile, noncalcareous. Trace grey-green shale.
1950 - 1980:	Sandstone, grey, S&P, fixe grained, argillaceous, noncalcareous. Much shale, as above. Trace of coaly plant remains.
1980 - 1990:	Sandstone, grey, fine grained, S&P, faintly calcareous, argillaceous, trace plant remains and coaly flecks. Much grey, grey-green massive shale, dark grey subfissile shale. Trace ironstone.
1990 - 2000:	V.P.S.
2000 - 2010:	Shale, dark grey, sub-fiscile to blocky, noncalcareous. Trace of ironstone.
2010 - 2020:	Siltstone, grey, finelty S&P, argillaceous, noncal-careous, micaceous. Trace of pyrite.
2020 - 2060:	Shale, dark grey, sub-fissile, noncalcareous. Much grey, nodular, waxy shale. Interbedded grey, SSP fine grained slightly calcareous sandstone and silt-stone. Trace of ironstone.
2050 - 2070:	Shale, dark grey, sub-fissile, noncalcareous, mica-ceous, minor grey massive, nodular shale. Siltstone, grey, finely S&P, noncalcareous, argillaceous. Trace of ironstone.

2070 - 2080:	Shale, as above. Siltstone, as above, argillaceous, slightly calcareous. Trace of ironstone.
2080 - 2090:	Shale, as above. Sandstone, grey, S&P, fine grained, argillaceous, noncalcareous, trace glauconitic.
2090 - 2100:	Shale, dark medium grey, silty in part, micaceous, noncalcareous. Much dark grey nodular shale, trace of green silty shale. Traces of interbedded grey micaceous sandstone.
2100 - 2120:	Shale, crey and dark grey, massive, nodular, non-calcareous. Trace of light grey and brown-grey shale.
2120 - 2130:	Siltstone, grey, finely S&P, much brown siltstone, argillaceous, noncalcareous.
2130 - 2140:	Shale, grey and dark grey, nodular to sub-fissile, micaceous, interbedded grey siltstone, very fine argillaceous sandstone.
2140 - 2150:	Shale, as above. Minor grey, S&P fine grained faintly calcareous sandstone. Trace of brown and pale grey shale.
2150 - 2160:	Shale, grey, nodular, massive, and dark grey, sub- fissile, micaceous in part. Much hard brown shale, brown nodular shale. Trace of ironstone.
2160 - 2170:	Shale, grey and dark grey, nodular, massive to sub- fissile, micaceous, noncalcareous. Interbedded grey, argillaceous micaceous siltstone.
2170 - 2180:	Siltstone, grey, micaceous, argillaceous, noncalcareous grading in part to very fine, grey S&P sandstone.
2180 - 2190:	Sandstone, grey S&P, argillaceous, oncalcareous, micaceous. Subangular to subrounded quartz and chert grains, silty, argillaceous matrix, trace of coaly flecks.
2190 - 2200:	Sandstone, grey, S&P, medium grained, silty, noncal-careous, trace micaceous. Subrouned chert and quartz grains, fair sorting, silty matrix.
2200 - 2220:	Sandstone, as above, fainlty calcareous, friable.
2220 - 2240:	Shale, dark medium grey, blocky, non-calcareous, much silty shale, dark grey micaceous, noncalcareous, sub-fissile shale. Trace of ironstone.

2240 - 2260:	Shale, as above. Much silty shale. Interbedded sandstone, grey, S&P, fine to medium grained, non-calcareous, argillaceous, silty, carbonaceous flecks. Tight.
2260 - 2270:	Sandstone, grey, S&P, fine graned, noncalcareous, argillaceous, silty, trace of glauconite. Sub-angular quartz, grey and black chert grains, fair sorting, tight.
2270 - 2280:	Shale, grey-green, silty in part, modular to massive, noncalcareous, minor dark grey fissile shale, trace of brown shale.
2280 - 2290:	Sandstone, grey, S&P, very fine grained, grading in part to siltstone, argillaceous, noncalcareous, trace micaceous. Minor dark grey nodular shale, trace of plant remains.
2290 - 2300:	Shale, grey-green and grey, massive, nodular, non-calcareous, silty in part, grading to argillaceous siltstone. Minor brown silty shale.
2300 - 2310:	Shale, dark grey, blocky, silty in part, noncalcareous, micromicaceous.
2310 - 2320:	Sandstone, grey, S&P, fine grained, argillaceous, silty, noncalcareous, trace glauconite, mica. Subangular grey, quartz and grey and black chert grains. Trace of bitumen on partings. Tight.
2320 - 2360:	Shale, grey and dark grey, minor brown shale, massive, nodular, silty in part, green-grey, nodular shale. Trace of coaly fragments, plant remains, ironstone.
2360 - 2380:	Siltstone, grey, argillaceous, slightly micaceous, grading in part to very fine grained sandstone.
2380 - 2420:	Shale, grey and dark grey, nodular, massive, micaceous, noncalcareous, silty in part. Trace of ironstone.
2420 - 2430:	Shale, light brown grey, grey, waxy, nodular, non-calcareous, much grey green waxy, nodular shale.
2430 - 2440:	Siltstone, grey, finely S&P, argillaceous, noncal-careous, grading to silty grey shale and very fine grained grey sandstone.
2440 - 2450:	Shale, grey, nodular, micaceous in part. Much dark grey sub-fissile shale, trace of ironstone.

2450 - 2460:	Sandstone, grey, S&P, fine grained, noncalcareous, argillaceous. Tight, trace of carbon flecks.
2460 - 2470:	Sandstone, grey, S&P, very fine grained, grading to argillaceous siltstone, noncalcareous.
2470 - 2480:	Sandstone, grey, S&P, medium grained, silty, non-calcareous to faintly calcareous. Subangular quartz and chert grains, minor black chert grains, coaly flecks. Tight.
2480 - 2490:	Shale, grey, greenish grey, nodular, noncalcareous, silty in part. Minor dark grey subfissile to blocky, noncalcareous shale. Traces of sandstone, as above.
2490 - 2530:	Sandstone, grey, S&P, medium grained, subangular quartz and chert grains, carbon flecks, argillaceous, silty matrix. Much shale, as above. Trace of mica, plant remains.
2530 - 2540:	Siltstone, grey, argillaceous, grading in part to silty shale, noncalcareous.
2540 - 2550:	Shale, dark medium grey, silty, micromicaceous, blocky, llinor dark grey shale, trace of plant remains.
2550 - 2570:	Sandstone, grey, S&P, fine to medium grained, non-calcareous, slightly argillaceous, silty. Trace micaceous. Much dark grey, grey and trace of brown shale.
2570 - 2590:	Shale, dark grey, very silty, blocky, noncalcareous. Minor interbedded dark grey sub-fissile shale with plant remains.
2590 - 2600:	Siltstone, pale grey and grey, very argillaceous, noncalcareous, trace micaceous, grading in part to light medium grey silty shale.
2600 - 2640:	Sandstone, grey, S&P, medium grained, subangular fair storted quartz, chert, black chert and carbon flecks in argillaceous, silty matrix. Tight.
2640 - 2650;	Sandstone, as above. Trace of coarse streaks, trace of intergranular porosity, no fluorescence. Shale, dark grey, sub-fissile to blocky, micromicaceous, much dark grey, blocky, silty shale, brown shale. Hinor grey, brown massive nodular shale.
2650 ~ 2670:	Sandstone, grey, S&P, medium to coarse grained sub- angular quartz, chert grains, silty matrix, non- calcareous. Trace of intergranular porosity, no cut or fluorescence.

2670 - 2680:	Sandstone, grey, S&P, medium grained, subround to subangular quartz and chert grains, silty, argillaceous matrix, noncalcareous, tight.
2680 - 2690:	Sandstone, as above. Much grey and dark grey massive to sub-fissile shale.
2690 - 2710:	Shale, dark grey, sub-fissile to blocky, noncalcareous. Minor grey silty streaks.
2710 - 2720:	Shale, as above. Minor dark grey micaceous shale, trace rusty maroon shale, trace of ironstone.
2720 - 2730:	Shale, dark grey, sub-fissile to blocky, non-calcareous, minor micaceous shale.
2730 - 2740:	Quartzite, pale grey, scattered fine sand grains in siliceous, dense, silty matrix, hard, vitreous.
2740 - 2750:	Shale, dark grey, sub-fissile to blocky, micaceous, silty streaks, grey-green nodular shale. Traces of quartzite, as above.
2750 - 2810:	Shale, dark grey, blocky, silty, noncalcareous. Interbedded grey siltstone and very fine sandstone, argillaceous. Traces coal fragments.
2810 - 2820:	Shale, as above - cvg. in part. Sandstone, grey, S&P, fine grained, subangular quartz, chert grains, black chert grains, in silty, argillaceous matrix, trace mica. Siltstone, pale grey, argillaceous, siliceous.
2820 - 2830:	Siltstone, pale grey, traces of brown siltstone, argillaceous, siliceous, hard.
2830 - 2840:	Siltstone, grey, argillaceous, noncalcareous, micromicaceous, grading to darker grey very argillaceous siltstone, and to light grey, finely S&P, very fine grained sandstone.
2840 - 2850:	Shale, grey and dark grey, silty, micaceous in part, dark grey shale is sub-fissile, micaceous, to smooth, trace of plant remains. Trace of pyrite.
2850 - 2900:	Siltstone, dark grey, argillaceous, finely S&P, grading to very fine grained argillaceous sandstone, noncalcareous.
2900 - 2910:	Sandstone, grey, 3&P, very fine to fine grained, non-calcareous. Subangular quartz and grey and black chert grains, silty, argillaceous matrix, trace of laminated siltstone.

2910 - 2920:	Sandstone, grey, S&P, fine grained to medium grained, subround to subangular quartz and chert grains, silty, shaly matrix. Traces coaly partings and plant remains.
2920 - 2940:	Sandstone, grey-brown, S&P, medium grained, non-calcareous. Coaly partings. Much dark grey, micaceous, fissile shale, dark grey smooth, nodular shale.
2940 - 2950:	Shale, dark grey, nodular, to dark grey, micaceous, sub-fissile. Hinor silty streaks and silty shale.
2950 - 2980:	Shale, dark grey, blocky, silty, noncalcareous. Scattered argillaceous, fine sandy streaks.
2980 - 2990:	Shale, dark grey, blocky to sub-fissile, non-calcareous. Trace of coal, trace of pyrite.
2990 - 3000:	Shale, dark grey, sub-fissile to blocky, noncalcareous traces of dark brown, blocky shale, traces of interbedded silty shale.
3000 - 3010:	Shale, as above. Trace of coal.
3010 - 3030:	Shale, as above. Sandstone, very fine grained, grey, S&P, argillaceous grading in part to very fine argillaceous sandstone. Trace of coal, coaly partings.
3 0 3 0 - 3 0 5 0 :	Shale and sandstone, as above. Trace of grey-brown fine grained sandstone, trace of porosity, cut and fluorescence.
3050 - 3070:	Shale, dark grey, sub-fissile to blocky, noncalcareous, minor green-grey, nodular waxy shale. Scattered grey silty streaks.
3070 - 3080:	Shale, nodular, massive, grey, brown grey, silty in part, minor grey-green nodular, waxy shale, dark grey sub-fissile shale, trace of coaly shale.
3080 - 3090:	Shale, as above. Traces coaly shale and coal. Sandstone, pale grey and brown, S&P, fine to medium grained, noncalcareous, silty, argillaceous, trace micaceous. Subangular and subrounded quartz and chert grains, poor to fair sorting.
3090 - 3100:	Shale, as above. Interbedded brown-grey argillaceous siltstone and silty shale.

3100 - 3110:	Shale, grey and dark grey, sub-fissile, traces coaly shale, silty streaks. Pyrite.
3110 - 3120:	Sandstone, grey, very fine to fine grained, grading ro grey siltstone, argillaceous, noncalcareous, much shale and coaly shale.
3120 - 3130:	Shale, grey and dark grey, as above. Much brown, blocky shale. Silty streaks, much grey green nodular shale.
3130 - 3140:	Sandstone, grey-brown, very fine grained, grading to siltstone, noncalcareous, argillaceous. Much dark grey, micromicaceous, sub-fissile shale, silty grey shale, trace prown-grey shale and green nodular shale.
3140 - 3150:	Shale, brown grey and dark grey, sub-fissile, non-calcareous. Trace of coaly shale.
3150 - 3160:	Sandstone, grey, S&P, very fine grained, argillaceous, noncalcareous.
3160 - 3190:	Shale, grey, silty, blocky, noncalcareous. Much grey, blocky, and dark grey sub-fissile shale. Trace of ironstone, trace to minor dark brown blocky to splintery shale.
3190 - 3210:	Shale, as above. Minor grey, very fine grained, S&P, argillaceous sand- stone.
3210 - 3220:	Shale, brown-grey, red, grey, massive, nodular, waxy in part. Much light brown and brown siltstone, interbedded. Trace of ironstone.
3220 - 3240:	Shale, grey, nodular to waxy, and shale - dark grey, fissile, noncalcareous. Trace of dark brown shale, silty streaks. Trace of plant remains, ironstone.
3240 - 3260:	Shale, dark grey, blocky, silty texture in part, non-calcareous. Minor grey, sub-fissile to waxy shale, trace of plant remains.
3260 - 3270:	Siltstone, grey, S&P, finely micaceous, argillaceous, grading in part to very fine grained sandstone. Much shale, as above. Trace of ironstone.
3270 - 3290:	Interbedded shale and siltstone, as above. Shale, pale green-grey, finely silty, nodular, waxy, non-calcareous - approximately 20%.

3290 - 3300:	As above. Trace of grey, coarse, S&P, quartz - chert sandstone - cvg?
3300 - 3310:	Shale, dark grey, blocky to sub-fissile, micro-micaceous in part. Few silty streaks.
3310 - 3320:	Shale, as above. Minor grey silty shale and silt-stone.
3320 - 3330:	Shale, dark grey and brown-grey, blocky, noncal- careous. Much grey, blocky shale, calcareous in part.
3330 - 3340:	Shale, grey, blocky, noncalcareous to very calcareous streaks.
3340 - 3360:	Shale, dark medium grey, sub-fissile, noncalcareous.
3360 - 3370:	Sandstone, grey, S&P, very fine grained, argillaceous, noncalcareous, grading to grey, argillaceous siltstone. Much shale, as above, traces of grey shale and dark grey sub-fissile shale.
3370 - 3380:	Shale, dark grey, sub-fissile, noncalcareous. Traces of silty streaks.
3380 - 3390:	Shale, as above. Traces of coal. Trace of grey, very fine grained argillaceous sandstone.
3390 - 3420:	Shale, dark grey and grey, sub-fissile, noncalcareous.
3420 - 3430:	Shale, dark grey, micromicaceous, sub-fissile, non-calcareous. Minor grey, blocky shale, trace of coaly plant remains. Micaceous silty streaks. Trace of ironstone.
3430 - 3450;	Shale, as above. Trace of pyrite, ironstone. Sandstone grey, very fine grained, grading to argillaceous siltstone, noncalcareous, trace glauconitic.
3450 - 3460:	Limestone, grey, very argillaceous, grading to very calcareous shale. Much shale, as above.
3460 - 3470.	Limestone, grey and dark grey, very argillaceous, grading to very calcareous shale. Much interbedded dark grey micaceous shale, silty, blocky shale, minor grey siltstone streaks.
3470 - 3480:	Shale, black, micaceous, fissile, noncalcareous. Siltstone, grey and dark grey, argillaceous, non- calcareous. Traces of dark red, blocky shale, brown shale.

3480 - 3490:	Shale, grey and dark grey, nodular to sub-fissile, traces of coaly plant remains, noncalcareous.
3490 - 3500:	Shale, as above. Hinor faintly calcareous grey and brown-grey silty streaks.
3500 - 3520:	Shale, grey, nodular to waxy, dark grey, sub-fissile noncalcareous. Minor grey, S&P very fine sandstone streaks, grading to siltstone, noncalcareous, argillaceous.
3520 - 3560:	Shale, grey and dark grey, blocky, waxy to sub-fissile, noncalcareous, traces micaceous, silty shale. Scattered grey siltstone, argillaceous, noncalcareous.
3560 - 3570:	Sandstone, grey, S&P, fine grained, silty, argillaceous faintly calcareous. Subround to subangular, poor to fair sorted, light grey quartz and chert grains, minor dark grey shale and carbon flecks. Vitreous in part. Tight. Trace of very fine glauconite.
3570 - 3580:	Shale, grey and dark grey, nodular, traces of coaly plant remains.
3580 - 3600:	Shale, as above. Trace of brown-grey shale. Trace of ironstone, plant remains.
3600 - 3620:	Shale, as above. Trace of brown-grey noncalcareous siltstone.
3620 - 3630:	Shale, as above, with interbedded brown siltstone. Traces to minor pale grey fine grained, slightly S&P, faintly calcareous sandstone, trace of glauconite.
3630 - 3640:	Shale, light medium grey, grey and dark grey, non-calcareous, massive, few silty streaks. Trace of very pale grey shale. Interbedded brown-grey noncalcareous siltstone. Trace of pale grey sandstone, as above.
3640 - 3650:	Shale, grey and dark grey, blocky, traces silty shale and siltstone.
3650 ~ 3660:	Shale, as above. Trace of pale grey and brown, very fine grained sandstone, silty, and siltstone. Trace of glauconitic, faintly calcareous.
3660 - 3670;	Siltstone, light brown and grey, argillaceous, non-calcareous, grading in part to silty shale. Trace of pale grey slightly calcareous, very fine grained sst.

3670 - 3680:	Siltstone, as above.
3680 - 3700:	Shale, grey, dark grey, blocky to sub-fissile, noncalcareous. Minor siltstone, as above.
3700 - 3710:	Shale and siltstone, as above. Trace of pale grey, slightly S&P, and brown, very fine siliceous sandstone, trace glauconite.
3710 - 3740:	Siltstone, brown-grey, argillaceous, noncalcareous, grading in part to dark grey-brown silty shale.
3740 - 3760:	Shale, grey-brown, very silty, noncalcareous, grading to brown, argillaceous siltstone. Much dark grey, sub-fissile shale, trace of coaly partings.
3760 - 3780:	Siltstone, brown-grey, argillaceous, faintly calcareous, trace finely glauconitic, grading in part to very fine grained pale brown sandstone.
3780 - 3790:	Siltstone, as above, grading to darker grey-brown silty shale, noncalcareous. Trace of lamination.
3790 - 3800:	Siltstone, as above, much grey and dark grey coaly shale. Traces of ironstone.
3800 - 3820:	Siltstone, light brown, argillaceous, very faintly calcareous. Much grey and dark grey, blocky to subfissile shale.
3820 - 3840:	Sandstone, pale grey, slightly S&P, vitreous, faintly calcareous, fine grained. Subangular, fairly well sorted quartz grains, silty matrix. Trace of glauconite.
3840 - 3850:	Sandstone, as above, brown grey and pale grey, becoming more argillaceous. Much grey silty shale, dark grey fissile shale.
3850 - 3860:	Sandstone. pale grey, $S\&P$, witreous, fine grained, very faintly calcareous, fair sorting of subangular quartz grains, trace of glauconite.
3860 - 3870:	Shale, dark grey, sub-fissile, noncalcareous. Much dark brown-grey silty, blocky shale, brown-grey argiliaceous siltstone.
3870 - 3880:	Sandstone, pale grey, slightly S&P, vitreous, fine grained, very faintly calcareous, fairly well sorted subangular quartz grains, silty, siliceous matrix. Much dark grey sub-fissile shale.

3880 - 3900:	Sandstone, pale grey, very fine grained, vitreous, slightly S&P, very faintly calcareous, trace glauconite, grading to light grey-brown argillaceous siltstone.
3900 - 3920:	Sandstone, pale grey, vitreous, fine grained, faintly calcareous, subangular quartz grains, well sorted, trace glauconite.
3920 - 3950:	Sandstone, as above. Slight gas kick. No stain, trace of very fine intergranular porosity, faint cut, fluorescence in wet sample.
3950 - 3960:	Sandstone, as above. Trace of very fine intergranular porosity. No stain or fluorescence. Slight gas kick.
3960 - 3970:	Shale, dark grey and black, sub-fissile and splintery, trace of plant remains, noncalcareous. Trace of browngrey silty shale. Much sandstone (40%) as above.
3970 - 3980:	Sandstone, brown-grey, S&P, noncalcareous, very fine grained, grading to siltstone. Trace of plant remains.
3 980 - 4000:	Shale, dark grey, sub-fissile to splintery, noncalcareous, trace brown silty streaks. Much pale grey sandstone, as above.
4000 - 4015:	Shale, dark grey, micromicaceous streaks, sub-fissile to blocky, noncalcareous. Trace of dark brown shale, silty streaks.
4015 ~ 4030:	Sandstone, pale grey, slightly S&P, vitreous, trace of glauconite, fine grained. Subangular to subround, well sorted quartz grains, faintly calcareous, siliceous cement. Trace of fine intergranular porosity, no stain, cut or fluorescence.
4030 - 4050:	Sandstone, grey, very fine to fine grained, argillaceous, grading to dark medium grey very argillaceous sandstone. Much dark grey sandy shale. Noncalcareous.
4050 - 4060:	Shale, dark grey, blocky to sub-fissile, traces of carbonized plant remains, noncalcareous. Minor greybrown siltstone, trace of sandstone - cvg?
4060 - 4070:	Shale, as above. Trace of pale grey, fine grained, well sorted quartz sandstone.
4070 - 4080:	Siltstone, grey-brown, argillaceous, noncalcareous, trace of lamination.
4080 - 4100:	Sandstone, pale grey, slightly S&P, fine grained, vitreous well sorted subangular quartz grains, silty matrix, trace of argillaceous partings.

4100 - 4110:	Siltstone, grey, finely S&P, vitreous, argillaceous, grading in part to silty shale. Shale, dark grey, micaceous in part, sub-fissile, noncalcareous.
4110 - 4120:	Shale, dark brown-grey, silty, grading to very argillaceous siltstone, micaceous, noncalcareous.
4120 - 4130:	Siltstone, pale grey and grey, argillaceous, non-calcareous. Much dark grey, interbedded, micaceous, silty shale.
4130 - 4150:	Shale, dark grey, micaceous, sub-rissile, much dark brown silty shale and brown siltstone, trace of lamination.
4150 - 4180:	Shale, dark grey, micaceous, sub-fissile to fissile. Trace of ironstone. Much brown and dark brown silty shale.
4180 - 4200:	Shale, dark grey and dark brown, blocky to sub-fissile, micromicaceous; noncalcareous, much silty shale. Trace of ironstone.
4200 - 4240:	Shale, dark grey, blocky to sub-fissile, noncalcareous. Minor brown-grey argillaceous, siltstone.
4240 - 4250:	Shale, as above. Much brown shale, siltstone.
4250 - 4300:	Shale, dark grey, noncalcareous, micaceous in part, subfissile. Minor pale grey and brown siltstone.
4300 - 4310:	Shale, as above. Traces of dark brown shale and siltstone.
4310 - 4330:	Shale, dark grey, noncalcareous, sub-fissile, micaceous in part. Traces to minor brown-grey silty shale, silty streaks. Trace of coaly laminae.
4330 - 4370:	Shale, dark grey, noncalcareous, blocky to sub-fissile, micaceous in part. Trace to minor brown, argillaceous siltstone, trace glauconitic. Trace of sandstone streaks.
4370 - 4390:	As above. Trace of iron tone.
4390 - 4540:	Shale, as above. Trace of pyrite, ironstone.
4540 - 4720:	Shale, dark grey, micromicaceous, blocky, splintery to sub-fissile, noncalcareous. Trace of pyrite, ironstone.
4720 - 4940:	Shale, dark grey, micromicaceous, blocky, splintery to fissile, noncalcareous. Trace of pyrite.

4100 - 4110:	Siltstone, grey, finely S&P, vitreous, argillaceous, grading in part to silty shale. Shale, dark grey, micaceous in part, sub-fissile, noncalcareous.
4110 - 4120:	Shale, dark brown-grey, silty, grading to very argillaceous siltstone, micaceous, noncalcareous.
4120 - 4130:	Siltstone, pale grey and grey, argillaceous, non-calcareous. Much dark grey, interbedded, micaceous, silty shale.
4130 - 4150:	Shale, dark grey, micaceous, sub-rissile, much dark brown silty shale and brown siltstone, trace of lamination.
4150 - 4180:	Shale, dark grey, micaceous, sub-fissile to fissile. Trace of ironstone. Much brown and dark brown silty shale.
4180 - 4200:	Shale, dark grey and dark brown, blocky to sub-fissile, micromicaceous; noncalcareous, much silty shale. Trace of ironstone.
4200 - 4240:	Shale, dark grey, blocky to sub-fissile, noncalcareous. Minor brown-grey argillaceous, siltstone.
4240 - 4250:	Shale, as above. Much brown shale, siltstone.
4250 - 4300:	Shale, dark grey, noncalcareous, micaceous in part, subfissile. Minor pale grey and brown siltstone.
4300 - 4310:	Shale, as above. Traces of dark brown shale and siltstone.
4310 - 4330:	Shale, dark grey, noncalcareous, sub-fissile, micaceous in part. Traces to minor brown-grey silty shale, silty streaks. Trace of coaly laminae.
4330 - 4370:	Shale, dark grey, noncalcareous, blocky to sub-fissile, micaceous in part. Trace to minor brown, argillaceous siltstone, trace glauconitic. Trace of sandstone streaks.
4370 - 4390:	As above. Trace of iron tone.
4390 - 4540:	Shale, as above. Trace of pyrite, ironstone.
4540 - 4720:	Shale, dark grey, micromicaceous, blocky, splintery to sub-fissile, noncalcareous. Trace of pyrite, ironstone.
4720 - 4940:	Shale, dark grey, micromicaceous, blocky, splintery to fissile, noncalcareous. Trace of pyrite.

4940 - 4990: Shale, as above. Trace of dark green fissile shale.

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4990 - 5000:	Shale, as above. Much dark grey, blocky, silty shale.
5050 - 5070:	Shale, dark grey, blocky, sub-fissile, noncalcareous. Minor silty streaks.
5070 - 5100:	Shale, dark grey, sub-fissile to blocky, noncalcareous, trace of glauconite, ironstone.
5100 - 5130:	Shale, dark grey, blocky, non-calcareous. Minor silty shale. Trace of ironstone.
5130 - 5140:	Shale, dark grey, fissile, noncalcareous. Much grey argillaceous, very glauconitic siltstone and silty shale, minor brown argillaceous siltstone. Trace of grey-green, soft, fissile shale. Ironstone. Trace of chert pebbles.
5140 - 5150:	Siltstone, grey, argillaceous, noncalcareous, glau- conitic, grading in part to silty shale.
5150 - 5160:	Siltstone, as above. Minor brown siltstone, trace of brown shale.
5160 - 5180:	Siltstone, grey, argillaceous, noncalcareous, trace glauconitic. Much dark grey fissile shale.
5180 ~ 5210:	As above, interbedded siltstone and dark grey shale. Traces of fossiliferous limestone and grey, argillaceous limestone.
5210 - 5220:	Shale, dark grey and dark brown-grey, sub-fissile, noncalcareous, minor silty shale. Trace of ironstone, pyrite.
5220 - 5230:	Shale and silty shale, as above. Minor brown shale. Pyrite.
5230 - 5240:	Shale, grey and dark grey, sub-fissile, noncalcareous. Minor interbedded grey, argillaceous siltstone, faintly calcareous. Trace of pyrite. Trace of calcite-lined fractures.
5240 - 5250:	As above, siltstone grades in part to very fine grained, faintly calcareous, S&P sandstone. Trace of pyrite. Traces of lamination of siltstone.
5250 - 5260:	Shale, brown-grey, brown, dark grey, blocky to fissile, silty in part, noncalcareous.

5260 - 5270:	Shale, grey, sub-fissile and blocky, noncalcareous, micromicaceous sheen. Minor dark grey, fissile shale, noncalcareous. Much interbedded grey silt-stone, noncalcareous.
5270 - 5290:	Shale, dark grey and black, blocky to sub-fissile, noncalcareous, micromicaceous. Trace of pyrite.
5290 - 5390:	Shale, grey and dark grey, blocky, noncalcareous. Trace of silty streaks.
5390 - 5400:	Siltstone, light grey, finely S&P, grading to fine grained, pale grey sandstone, very faintly calcareous. Much shale, as above. Trace of chert pebbles.
5400 - 5410:	Shale, dark grey, micromicaceous, blocky to sub- fissile, noncalcareous. Hinor brown-grey silty, argillaceous streaks, trace of ironstone.
5410 - 5420:	Shale, grey and dark grey, blocky, noncalcareous, minor grey silty streaks, brown siltstone. Trace of pyrite, ironstone.
5420 - 5530:	Shale, dark grey, noncalcareous, sub-fissile to blocky. Trace of pyrite, ironstone.
5530 - 5540:	Shale, dark medium grey, blocky, noncalcareous. Much dark grey, fissile, splintery shale. Trace of pyrite. Trace of dark brown shale.
5540 - 5570:	Shale, dark medium grey and dark grey, sub-fissile to blocky, noncalcareous. Trace of pyrite.
5570 - 5590:	Shale, as above. Trace of pyritized coaly fragments. Trace of ironstone.
5590 - 5670:	Shale, dark grey, noncalcareous, fissile to subfissile. Trace of silty streaks. Trace of ironstone, pyrite.
5670 - 5680:	Shale, dark grey and grey, as above, sub-fissile to fissile, noncalcareous. Trace of ironstone, pyrite. Trace of grey, argillaceous limestone.
5680 - 5690:	Shale, grey and dark grey, as above. Trace of iron-stone, pyrite.
5690 - 5780:	Shale, grey and dark grey, blocky to sub-fissile, noncalcareous. Few silty streaks. Trace of chert pebbles, pyrite, ironstone.
5780 - 5790:	Shale, as above. Much ironstone. Trace of pyrite, chert pebbles.

5790 - 5840:	Shale, grey, blocky, noncalcareous, and dark grey, sub-fissile, noncalcareous. Scattered brown silty streaks. Trace of pyrite, ironstone.
5840 - 5860:	Shale, as above. Trace of light grey, smooth, waxy shale. Trace of chert pebbles, ironstone, pyrite.
5860 - 5870:	Shale, grey and dark grey, silty in part, grading to grey, argillaceous siltstone, noncalcareous. Trace of pale grey and green waxy shale - bentonite. Trace of pyrite.
5870 - 5880:	Limestone, dark grey brown, argillaceous, silty in part. Trace of fossiliferous limestone. Trace of pyrite, glauconite.
5880 - 5890:	Siltstone, grey and dark grey, argillaceous, blocky, very faintly calcareous, grading in part to silty shale, trace micaceous, trace glauconite. Minor brown-grey limestone, as above.
5890 5950:	Siltstone, as above, interbedded dark grey fissile, noncalcareous shale. Traces of bentonite. Trace of glauconite.
5950 ~ 5960:	Siltstone, dark brown grey, faintly calcareous to noncalcareous, argillaceous, grading to silty shale, glauconitic streaks. Shale, dark grey, sub-fissile to soft, fissile, noncalcareous. Trace of ironstone.
5960 - 5970:	Interbedded shale and silty shale, siltstone, as above.
5970 - 6000:	Siltstone, grey, noncalcareous, argillaceous, trace glauconite, pyrite, trace of ironstone. Much shale, as above.
6000 - 6010:	Siltstone, grey and dark grey, argillaceous, non-calcareous, much grey-brown siltstone.
6010 - 6020:	Shale, dark grey, sub-fissile, micromicaceous, non-calcareous. Trace of silty streaks.
6020 - 6030:	Shale as above. Much pyrite. Trace of ironstone. Siltstone, grey and dark grey, argillaceous, non-calcareous.
6030 - 6040:	Shale, dark grey, sub-fissile, noncalcareous, minor grey and brown-grey partly calcareous siltstone. Trace of glauconite.
6040 - 6060:	Shale, as above. Interbedded and interlaminated grey argillaceous siltstone. Trace of pyrite, ironstone

6060 - 6090: Shale, dark grey, sub-fissile and fissile, noncalcareous, micromicaceous in part. Traces of silty streaks. Trace of pyrite, ironstone. Trace of dark grey to pale grey well rounded chert grit grains. 6090 - 6150: Shale, grey and dark grey, blocky, to sub-fissile, noncalcareous, silty in part. Trace of pyrite, glauconite, trace of bentonite. Streaks of dark grey-brown argillaceous siltstone. 6150 - 6160: Sandstone, grey, very fine grained, argillaceous, slightly to noncalcareous. Very pyritic, very glauconitic. 6160 - 6170: Limestone, brown-grey, S&P, sandy, vitreous in part, grading to pale grey sandy, argillaceous, sub-earthy limestone. Trace of calcite infilled fractures. 6170 - 6180: Limestone, dark brown, argillaceous, micritic, matrix to scattered fossil fragments. Nuch interbedded dark brown calcareous shale. 6180 - 6190: Sandstone, pale grey, S&P, fine to medium grained, scattered streaks of coarse chert grit, rounded to subrounded quartz, chert grains, limestone matrix, trace of siliceous cement. Poor to fair sorting of clastics. Tight. 6190 - 6200: Sandstone, fine to medium grained, calcareous, siliceous cement, light brown, silty in part. Much pale grey, coarse sandstone, as above. Subround to subangular, fairly well to poorly sorted quartz and chert grains. Trace of porosity, bitumen infilling. Faint cut in CCl₄. 6200 - 6214: Sandstone, light brown, fine grained, calcareous, trace of coarse sandstone streaks. Subround to subangular, fair sorted quartz and chert grains, siliceous cement, calcareous matrix. Poor intergranular porosity, very faint cut. 6214 - 6272: Core #1, Rec. 55.1' 6272 - 6280: Siltstone, pale grey, very calcareous, and dark grey, argillaceous, calcareous, grading to silty, calcareous shale. 6280 - 6290: Shale, dark grey, silty, calcareous, grading in part to shaly calcareous siltstone. Trace of black, slightly bituminous, sub-fissile shale.

6290 - 6300:	Siltstone, pale grey to brown-grey, very calcareous, grading to silty, dense limestone. Minor dark brown, argillaceous, calcareous siltstone and silty shale. Trace of Brachiopods. Trace of dark brown chert.
6300 - 6310:	Siltstone, brown-grey and dark brown-grey, very calcareous, grading to silty, brown limestone, argillaceous. Trace of dark brown chert. Much interbedded black, fissile noncalcareous shale, and dark brown calcareous shale.
6310 - 6320:	Limestone, dark brown-grey, silty, argillaceous.
6320 - 6330:	As above - silty, dark brown limestone. Nuch limestone, dark brown grey and brown, sandy, grading to very calcareous sandstone.
6330 - 6350:	Siltstone, grey brown, argillaceous, calcareous. Much interbedded dark brown very calcareous silty shale.
6350 - 6360:	Siltstone, grey, very calcareous, grading in part to silty limestone. Much grey and dark brown-grey, argillaceous, calcareous siltstone. Trace of pale grey chert.
6360 - 6380:	Shale, dark brown-grey, calcareous, blocky, silty in part, grading to argillaceous, silty limestone. Much grey, argillaceous, very calcareous siltstone, as above.
6380 - 6390:	Shale, dark grey-brown to black, calcareous, fossili- ferous - Brachiopods. Minor interbedded streaks of brown fossil fragmental limestone.
6390 - 6400:	Shale, dark grey-brown, very calcareous, grading to dark brown argillaceous limestone. Trace of grey, silty limestone. Brachiopods, streaks of fossil fragmental limestone.
6400 - 6410:	Shale, dark grey-brown, very calcareous, siliceous, grading in part to dark brown argillaceous, siliceous limestone. Trace of Brachiopods, fossil fragments.
6410 - 6430:	Limestone, dark brown, argillaceous, siliceous in part. Minor interbedded dark brown-grey calcareous shale. Traces of Brachiopods.
6430 - 6440:	Limestone, dark brown, argillaceous, siliceous in part. Much fine fossil fragments, interbedded browngrey finely fragmental, argillaceous limestone. Trace of crinoids.

Limestone, brown, dark brown, micritic, argillaceous, 6440 - 6450: siliceous, in part grading to brown chert. Interbedded dark grey fossiliferous, calcareous shale, crinoid, brachiopod fragments. Limestone and calcareous shale, as above, matrix to 6450 - 6460: crinoidal, fragmental limestone streaks. Trace of dark brown chert, as above. 6460 - 6470: Limestone, brown-grey and light grey, crinoidalbioclastic, matrix of micritic dark brown limestone and dark grey calcareous shale. Limestone, brown-grey, micritic, argillaceous, dense. 6470 - 6480: Limestone, pale brown, silty in part, microcrystalline, compact. Much brown and dark brown chert. Minor fossiliferous shale and fragmental limestone, as above. 6480 - 6500: Limestone, grey-brown, argillaceous, siliceous in part, dense - 40%. Lime stone, pale brown-grey and brown, microcrystalline, faintly argillaceous - 40%. Chert, brown and dark brown, splintery - 10%. Trace of crinoidal shale - cvg? Limestone, brown, dense to microcrystalline, faintly 6500 - 6520: argillaceous, grading to dark brown argillaceous limestone, trace siliceous. Minor brown and dark brown chert. Limestone, grey - crinoid and fragmental limestone 6520 - 6530: in a black shale matrix - matrix approximately 30%, devoid approximately 70%. Much dense to microcrystalline limestone, as above. Dark brown and grey chert. Trace of Brachiopods. Minor interbedded dark grey calcareous shale. Limestone, grey - crinoidal-bioclastic fragments, 6530 - 6540: dark grey shale matrix. Minor interbedded dark grey shale. Trace of brown-grey chert. Trace of Brachiopods. Limestone, brown, microcrystalline, slightly argil-6540 - 6560: laceous, and dark brown, micritic, faintly argillaceous, siliceous. Much dark brown splintery chert. Limestone, brown and dark brown, micritic to micro-6560 - 6600: crystalline, siliceous in part. Traces of dark brown chert. Minor dark grey, calcareous shale.

6600 - 6620: Limestone, dark brown and brown, micritic to microcrystalline, dense, siliceous, argillaceous. Traces of dark brown chert. Much pale grey, slightly argillaceous limestone. 6620 - 6630: Limestone, pale grey and grey, microcrystalline, silty, siliceous, faintly argillaceous. Nuch light grey 'speckled' chert - silicified limestone. Trace of Brachiopod fragments, sponge spicules. 6630 - 6640: Limestone, pale grey, as above. Much chert, as above. Interbedded dark brown siliceous limestone, dark brown chert. 6640 - 6650: Limestone, pale grey, S&P, microcrystalline to subearthy, silty, siliceous, grading to very calcareous siliceous siltstone. Much pale grey and smoky grey 'speckled' chert. 6650 - 6690: Chert, pale grey and pale brown-grey, minor dark brown chert, splintery, speckled in part. Minor pale grey and brown limestone, as above. Traces of dark grey, calcareous shale. 6690 - 6700: Limestone, pale grey and brown, slightly speckled, micritic to microcrystalline, trace silty, siliceous -60%. Chert, pale grey, grey and brown, minor dark brown chert - 40%. Trace of black, noncalcareous 6700 - 6710: Chert, grey, brown and dark brown, speckled in part. Minor pale grey and grey limestone, dark brown siliceous limestone. 6710 - 6720: Limestone, dark brown and brown-grey, micritic, dense, siliceous. Minor pale grey microcrystalline limestone. Chert, dark brown, splintery, and grey, slightly speckled, grading in part to siliceous limestone. 6720 - 6728: Limestone, brown and light brown, dense to microcrystalline, siliceous, silty in part. Chert, grey, speckled in part, and dark brown, splintery. T.D. - 6728'

e) Paleontological Determination

Surface to 4950': Upper Albian

4998' to 5492' : ?Upper Barremian to Middle Albian

6227' to 6272' : Late Mississippian to Early Pennsylvanian

Note: Due to lack of continuous sample control it is not possible to pick the age boundaries exactly. Therefore, the sampled intervals only are mentioned. For closer picks see the geologists.

SECTION III - ENGINEERING SUMMARY

a) Reports of Drillstem Tests (service reports in attached envelope)

DST #1 (6,187' - 6,272') Dual Straddle

Zone: Chance Sandstone

Times: Preflow 5 mins. VO 90 mins. ISI 30 mins. FSI 180 mins.

Pressures: IHP 3,608 psi FHP 3,604 psi ISIP 1,647 psi FSIP 2,618 psi IFP 29 psi FFP 61 psi

Preflow 75 psi

Recovery: 100' Drilling Fluid

GTS in 8 mins. TSTM 4' flare

Remarks: No BHT

Test Satisfactory

DST #2 (3,852' - 3,932') Dual Straddle Bypass

Zone: Blackie Sandstone

VO 90 mins. Times: Preflow 5 mins. ISI 30 mins. FSI 150 mins.

Pressures: IHP 2,278 psi FHP 2,223 psi ISIP 1,557 psi FSIP 1,625 psi FFP 1,090 psi 830 psi IFP

Preflow 912 psi

Recovery: 600 Gas Cut Drilling Fluid GTS in 10 mins. at 70 MCFD

Test conclusive but not entirely satisfactory

DST #3 (3,970' - 4,074') Dual Straddle Bypass

Zone: Blackie Sandstone

VO 90 mins. Times: Preflow 5 mins. ISI 30 mins. FSI 180 mins.

2,416 psi Pressures: IHP 2,444 psi FHP

ISIP FSIP 1,566 psi

IFP 279 psi FFP 812 psi

Preflow 210 psi

Recovery: 834' Drilling Fluid
30' Gas Cut Drilling Fluid

No GTS

Remarks: BHT - 118°F

Test Satisfactory

DST #4 (930' - 1,036') Straddle, Selective Zone

Zone: Eagle Plain

Remarks: Misrun

b) Casing Record

Conductor Pipe: 25' of 23" OD, 18-1/2" ID insulated double walled

conductor pipe with 3/4" OD.

Cooling coils.

20' of 19" OD, 18-1/2" ID conductor pipe set at

60.30' KB.

Conductor pipe cemented with 150 sax BJ cold set

cement.

Surface Casing: Ran 25 joints (785.03') of 9-5/8", 36#, K-55 8 rd,

new seamless ST&C casing landed at 801.98' KB. Cemented casing with 425 sax of Type I cement plus 3% CaCl2. Cement in place 4:30 P.M. March 10, 1972.

c) Bit Record

See attached Bit Record Sheet.

Mud Report

The 12-1/4" surface hole was drilled from 60' KB to Surface Hole:

806' KB using stable foam. The hole was then displaced to mud. The following materials were used on surface:

4 drums Sulfotex Sal (stable foam) 69 sax Gel Fiberseal 8 sax Sawdust (on rig floor) 55 sax

Main Hole: The 8-3/4" main hole was drilled to 6,728' KB using a

gel-water-rapidril system. The following materials were

used on the main hole:

Gel	521	sax
Wt. Material	1749	sax
Fiberseal	40	sax
Ammonium Nitrate	2	sax
CMC	22	sax
Caustic	39	sax
Bicarbonate of Soda	5	sax

Sawdust (rig floor only)	151	sax
Rapidril	84	bags
Sola Ash	24	sax
Spersene	5	sax
Aluminum Stearate	100	lbs.

e) Deviation Record

202-0°	1030-1/2°	2106-7/8°	3084-7/3°	4190-1-3/40	5053-2°
263-1/8°	1161-1/2°	2137 -?	3209-16	4253-1-1/8°	5168-1-1/4°
315-1/8°	1288-1/4°	2169-7/8°	3365-1 ⁰	4410-2-1/40	5290-1-1/20
417-1/8	1382-1/2 ⁰	2200-7/3°	$3458-1-1/2^{\circ}$	4442-2-1/20	5387-2-1/40
510 – 1/8 ⁰	1477-3/4°	2327-7/8 ⁰	$3522-1-1/2^{\circ}$	4505 -2°	5410-1-1/2
600-1/2°	1520-3/4°	2452-7/8 ⁰	3617-1-1/20	4568 -1- 7/8°	5513-1-1/2°
630 -1 /2 ⁰	1560-3/4 ⁰	2546-7/8 ⁰	3743-1-1/40	4663-2-3/4°	5600-1-1/4
690 –1/2⁰	1665-1/4 ⁰	2641-1/2°	3846-1°	4726-1-3/4	5890-1-3/4
790 - 1/2 ⁰	1 7 90-1/4 ⁰	2767-1/20	3969-1-1/2°	4788-2-1/20	5948-1-7/8°
876-1/2°	1910-1/2°	2832-1/8°	4032-1°	4883-2°	6519-1-1/40
940-1/2°	2010-1/2°	2989-7/8 ⁰	4074-1	4977-2°	6725-4-1/4

f) Abandonment Plugs

Plug #1 (6,728'-6,628') 55 sex Type I cement.
Plug #2 (6,270'-6,130') 80 sax Type I cement.
Plug #3 (4,070'-3,800') 160 sax Type I cement.
Plug #4 (2,250'-2,150') 60 sax Type I cement plus 2% CaCl₂.
Plug #5 (870'-750') 75 sax Type I cement plus 3% CaCl₂.
Plug #6 surface casing plug, 5 sax Type I cement.

g) Lost Circulation Zones

No lost circulation.

h) Report of Blowouts

No kicks or blowouts on this well.

SECTION IV - LOGS

The following Schlumberger logs were run on April 22-23, 1972.

BHC Sonic/Gamma Ray/Caliper (6,724'-800'). Formation Density Compensated (6,725'-800'). Dual Induction Laterolog (6,725'-800'). Microlog (6,724'-6,140') (4,150'-800'). SNP (6,725'-5,860') (4,200'-800').

Ran sidewall core gun. Shot 20 as follows:

5,492'	4,930'
5,450'	4,8251
5,336'	4,753'
5,280'	4,696'
5,220'	4,675'
5,180'	4,612'
5,088'	4,598'
5,025'	4,568'
4,998'	4,410'
4,950'	4.3021

SECTION V - ANALYSIS

- a) <u>Core Analysis</u>

 Core analysis enclosed.
- b) Water Analysis
 No water analysis.
- c) Gas Analysis

 No gas analysis.
- d) <u>Oil Analysis</u>No oil analysis.

SECTION VI - COMPLETION SUMMARY

a) Tubing Record

No tubing run.

b) Perforation Record

No perforations.

c) Cementation Record

Abandonment Plug #1 (6,728'-6,628')

Cemented with 55 sax Type I cement. Cement in place at 10:15 P.M. April 28, 1972. No feel on Plug #1.

Abandonment Plug #2 (6,270'-6,130')

Cemented with 80 sax Type I cement. Cement in place at 11:20 P.M. April 28, 1972. Felt Plug #2 at 6,120° at 7:30 A.M. April 29, 1972.

Abandonment Plug #3 (4,070'-3,800')

Cemented with 160 sax Type I cement. Cement in place at 1:10 P.M. April 29, 1972. Felt Plug #3 at 3,780° at 9:10 P.M. April 29, 1972.

Abandonment Plug #4 (2,250'-2,150')

Cemented with 60 sax Type I cement plus 2% CaCl₂. Cement in place at 10:30 P.M. April 29, 1972. Felt Plug #4 at 2,135' at 6:30 A.M. April 30, 1972.

Abandonment Plug #5 (870'-750')

Cemented with 75 sax Type I cement plus 3% CaCl₂. Cement in place at 9:40 A.M. April 30, 1972. Felt Plug #5 at 745 at 8:00 P.M. April 30, 1972.

Abandonment Plug #6 (Top of Surface Casing)

Cemented with 5 sax Type I cement. Welded on steel plate and well sign.

d) Acidization and Fracturing Record

No acidizing or fracturing operations.

e) Back Pressure and Production Tests

No back pressure or production tests.

CHEVRON STANDARD LIMITED BIT RECORD

WELL NAME K. FOR CLIPTONE YT F-18 CONTRACTOR	60	RIG No. XA	PUMP NO 1 D-S OC	00 /
SPUD DATE 1914CCH 6 1972 RIG RELEASED	MA: 1, 1978	DRILLING DAYS 56	PUMP No 2 C - Z : O	DP 4 1/2
BIT MAKE SIZE TYPE DEPTH FOOTAGE TIME DRLG NOZZLE	VEL M# RPM LINER SPM	NO 2 PUMP PUMP HHP DP	DC MUD DULL COND DEV	REMARKS
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Schlumberger

technical report

Schlumberger

	TEST	DATA		TOOL	SEQUENCE	Andrew Compositions
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First Flow		Initial Shut-In	30 Min.	Sub	.90	ļ
Second Flow	90 Min.	Second Shut In	Min.	MFE Tool	9.10	
Third Flow	Min	i	180 Min	Bypass Tool	3.00	
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Vt. Set/on Packers		Pulled Loose Wt	20,00 0 <i>≃</i>	Safety Joint	1.70	
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:						
				Stub	1,10	
				Perfs	10,00	
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Recovery Water Mud Pit sample filtra District Inuvik Company Chevi	te (i Ticke ron Standard	t No D07130 Limited	400 ppm. ppm. Date April 15 Address 400 - 5t	Drift Collar Size 2 7/8" Drift Critar Length 330! Main Hole Size 8 3/4 1972 The Ave. S.W.	ID 5 fo VII Ray H. e	701
Recovery Water Mud Pit sample filtra District Inuvik Company Chevi Well Name Chevi	te a Ticke ron Standard ron SOBC Wm 8	t No DO7130 Limited Porcupine YI	400 ppm. ppm. Date April 15 Address 400 - 5t F-18 Calgary.	Drift Collar Size 2 7/8" Drift Critar Length 330" Main Hole Size 8 3/4 1972 rest	TD 5 5 VIII - Rar H. c NO 1 2	1
Recovery Water Mud Pit sample filtra District Inuvik Company Chevi Weil Name Chevi Number 66	te (i Ticke ron Standard	Porcupine YI 3'16"W	400 ppm. ppm. Date April 15 Address 400 - 5t F-18 Calgary Field Wildcat	Drift Collar Size 2 7/8" Drift Critar Length 330" Main Hole Size 8 3/4 1972 Yest h Ave. S.W. Alberta Province Yuko	TD 5 5 VIII - Rar H. c NO 1 2	1 1
Recovery Water Mud Pit sample filtra District Inuvik Company Chevi Well Name Chevi Number 66 0	te @ Ticke ron Standard ron SOBC Wm E 7'25"N 137 ⁰ 48	Porcupine YI 3'16"W	400 ppm. ppm. ppm.	Dritt Collar Size 2 7/8" Dritt Critar Length 330' Main Hole Size 8 3/4 5 1972 Th Ave. S.W. Alberta Province Yuko	TD 5 5 VIII - Rar H. c NO 1 2	1
Recovery Water Mud Pit sample filtra District Inuvik Company Chevi Well Name Chevi Number 66 0	te @ Ticke ron Standard ron SOBC Wm E 7'25"N 137 ⁰ 48	Porcupine YI 3'16"W TO 6272	400 ppm. ppm. ppm.	Dritt Collar Size 2 7/8" Dritt Critar Length 330' Main Hole Size 8 3/4 5 1972 Test A Ave. S.W. Alberta Province Yuko Hansen	TD 5 5 VIII - Rar H. c NO 1 2	

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JOHNSTON TESTERS

SOTH AMEN'S SE . CALCARY, ALBERT 1, 120 283 . PH. 255 . 53

VISION OF SCH. JABBERGER CANADA LIMITED.

D07130			PRESSURE	DATA	FLUID S	AMPLE REPORT
INSTRUMENT No.		AK1-4374	AK1-4371		Sample No.	542
CAPACITY (psig)		7/00	7400		Type	5"
INSTRUMENT DEPTH FT		6165	6199		Depth	6162 ft.
INSTRUMENT OPENING		Inside	Outside	The second of th	Volume	2500 cc
WELL TEMP. °F. 98		The second secon		CONTRACTOR OF THE PROPERTY OF	MANUFACTO V AND A REPORT OF THE PARTY OF THE	As constructed in 1988 Affilian Physiological and an Affilian Affi
er og en			THE THE PARTY OF T		Sample Pressure	
INITIAL HYDROSTATIC	A	3608#	3622#	The state of the second	CONSTRUCTION OF SEC. 1919	psig. at Surface
FIRST FLOW	В	67#	70#		Gravity	API@ °F
Make and remove with a control of the first of the delegative of the Advantage and stage of the security of th	B-1	75#	66#		Gas Oil Ratio	Cu.Ft. bbl.
INITIAL SHUT-IN	С	1647#	1644#		The later control of the second control of t	er og en
SECOND FLOW	D	29#	28#		PRODUCTION TO THE OWN OF THE PRODUCTION OF THE P	
	D-1	61#	63#	AND	Recovery:	
SECOND SHUT-IN	E	F. St. H.			Cu. Fr Gas	
THIRD FLOW	F				cc. Oil	
	F-1			The second secon	cc. Water	
FINAL SHUT-IN	G	2618#	2613#		cc Mud	THE RESERVE OF THE PROPERTY OF
FINAL HYDROSTATIC	н	3604#	3613#	Ministration (Market Ministration of Assessment Market Company)	Total Liquid cc	
DELLA DICC:		JUVAN	JULUV			

REMARKS:

Sample chamber #542 sent to Core Lab.

PRESSURE	INCREMENTS	ON	RECORDER	# 1	AK1-4	374	1

In	itial Shu		F	inal Shut				
POINT MINUTES	PRESSURE	<u> Τ + Δ †</u> Δ †	POINT MINUTES	PRESSURE	T + 2 t	POINT MINUTES	PRESSURE	1 + 4 t
			0	61	New life and with			
Still	in afterf	low, no	10	817	10.50			
break	down made	9	20	1343	5.75		4	
			30	1671	4,17			
			40	1962	3.38			
			50	2127	2.90			
			60	2234	2,58		:	The Control of the Co
			70	2313	2.36			
			80	2366	2.19			
			90	2411	2,06			
			100	2449	1.95			
			110	2480	1.86			
			120	250 6	1.79			
			130	25 31	1.73			
_			140	2552	1.68		*	
			150	2572	1.63		***************************************	
		NO BEN CONTO THE	160	2589	1,59			
		water water to the transfer and the second	170	260 5	1.56			
		THE THE THREE THRE	180	2618	1.53		İ	
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JT-IAE-SB Re	v 72							

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JOHNSTON TESTERS 321 - SOTH AVENUE SE . CALGARY 24. ALBERTA . PH 255.1151 A DIVISION OF SCHLUMBERGER CANADA LIMITED

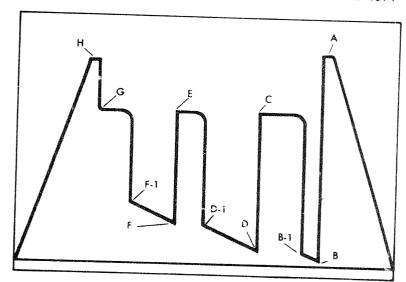
GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS

FIELD REPORT NO.

RECORDER NO

D07130

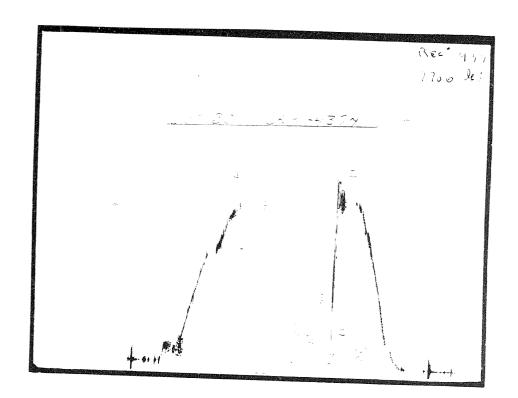
AK1-4374

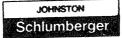


- A. Initial Hyd. Mud
- B. First Flow
- C. Initial Shut-In
- D. Second Flow
- E. Second Shut-In
- F. Third Flow G. Final Shut-In
- H. Final Hyd. Mud

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 TESTERS 321 SOTH AVENUE S.E + CALGARY 24. ALBERTA + PH 255-1151

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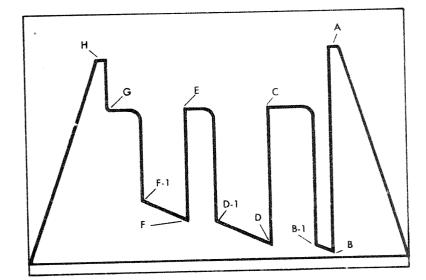
GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS

FIELD REPORT NO.

RECORDER NO.

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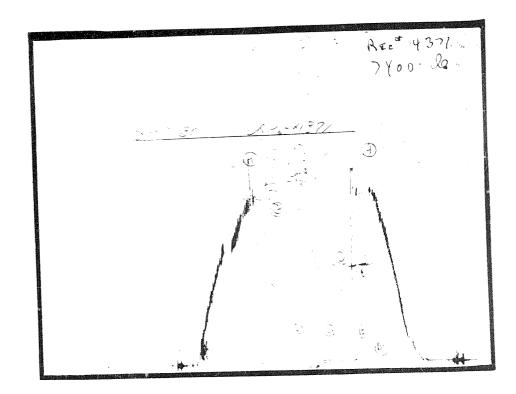
AK1-4371



- 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.



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technical report

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321 SOTH AVENUE S.E. . CALGARY 24 ALBERTA . PH. 255-115 A DIVISION OF SCHLUMBERGER CANADA LIMITED

		TEST DATA		TOOL S	EQUENCE	
Type of Tes	t Open ho	le, Straddle,	Bypase.	Tool	Length	O.D.
Time Started		30 Hrs Tool Op		P.O. Sub	1.00	
First Flow		5 Min. Initial S		Jars	6.85	
Second Flow		90 Min Second		Sub	.80	
Third Flow		Min. Final Sh		MFE Tool	9,50	
Pulled Loose	<i>a</i> 17			Bypass Tool	2.95	
Wt. Set, on F				H. Sub	1.00	
			tial puff on preflow.	Safety Joint	1.75	
			final flow.		8.50	7 3/4"
GAS TO	suriaca in	10 mpininical 330	ETHEL LION,	S.S. & Packer		7 3/4"
				T.C. & Packer	4.60	1 3/4
<u> </u>			7 100 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Total	36,95	-
		aller and the second		Stub	1,20	
FLUID RECO	VERY W	as Test Reverse Circ	ulated Yes 🗌 No 🔯		30,00	
Total Fluid R	200.000		Ft	R. Sub	1,00	
	of Fluid Recovere			Recorder	5.90	
Description o		Gas cut, dr	1111ng fluid		5,90	
	- 600	GER CUL, GI	TEAN, PANCE.	Recorder	.80	
			dildes fluid at 16101	Sub	30,80	
			illing fluid at 1410'	Drill Collar		
	and	another at 9	OU*.	Sub	1.35	
				Travel Collar	3.05	
				Total Interval	80.00	-
		AS BLOW MEASURE	MENT 2" I.D. Riser		2 20	7 3/4"
Measured M	A experience of the second sec	meter gauge	M Cubic Feet/Day	Packer	2,80 5,85	7 3/4"
Time	Stce. Choke	Reading psi		T.C. & Packer	5.90	1/3/4
1345	1/4"	8	27.0	Recorder		-
1400	1/4"	16	40.9	Perfs	5.00	_
1415	1/4"	24	53,2	Sub	.80	
1430	1/4"	30	61.9	Drill Pipe	2772,67	
1445	1/4"	32	64.6	B.N. & Perf	2.50	
1500	1/4"	33	66,2	Total Below Intv.	2795.52	
1515	1/4"	34	67.5			
1530	1/4"	34	67.5			
				TOTAL LENGTH	2912,47	
				Elevation G.L. 1701	К.В.	1716
				Bottom Hole Choke Size	1/2	
REMARKS	: Test com	aclusive, but	not entirely	Fluid Cushion Type	N11 Amt	
eatisf	ectory. Ker	ot losing mud	in annulus on preflow		D HOLE DATA	
so shut	-in, the re	eopened, mud s	seemed to hold better.	Mud Type Gel		6.4
There	appeared to	be some commu	mication from below	Filter Cake V		11,2
interv	al, after by	ypass pipe plu	igged, by the amount of	Time Taken 2000 hrs.		
fluid	recovered.	it would sugge	est that test was	Contractor G.P. Dril	handrad - Maring and American	lig No 24
conclu	sive on zon	e tested, (See	Remarks 2nd Page)	Drill Pipe Size 4 1/2"		
	RESIST		SALT CONTENT	Drill Collar Size 2 7/8"	The second secon	
Recovery W	ater	@	°F. ppm.	Drill Collar Length 330		
Mud Pit sam	iple filtrate	(a	°F. ppm.	on S administration of the second sec	Rat Hole	
District	Imusik	Ticket No.	006972 Date April 25		lo 2]	T No. 2
Company		tandard Limite				
Well Name			upine YT F-18 Calgary	<u>Alberta</u>		
Nümber	66 ⁰ 07125"	N 137°48'16"W	Field Wildcat	Province Yuk o	m	
Formation			kness Co Rep H. He :	rring		
Interval	3852 - 39	32 T.D.	Marine, A R. L. And Constitution of the Consti	DNG S		
Distribution	of Reports 12		Attention: Mr. B. Co	onnon		
	6			A CONTRACTOR OF THE STATE OF TH		

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JOHNSTON TESTERS

321 SOTH AVENUE SE • CLIGARY ALBERTA, 126 283 • PH 255 113
A DIVISION OF SCHLUMBERGER CANADA LIMITED

	PRESSURE DATA FLUID SAMPLE REP						
	AK1-4366	AK1-4371	AK1-4374	Sample No.	509		
	7250	7400	7700	Туре	5"		
	3884	3890	3940	Depth	38331		
	Outside	Outside	Inside	Volume	2500 cc		
				Sample Pressure	:		
A	2278#	2261#	2307#		psig. at Surface		
В	830#	810#	877#	Gravity	API@ °F		
B-1	912#	901#	947#	Gas/Oil Ratio	Cu.Ft./bbl.		
С	1557#	1546#	1585#				
D	830#	825#	865#	_			
D-1	1098#	1083#	1123#	Recovery.			
E	AND THE RESERVE OF THE PARTY OF			Cu. Ft. Gas			
F	and the second s		Ran Below	cc. Oil			
F-1			Straddla	cc. Water			
G	1625#	1600#	1646#	cc Mud			
н	2223#	2200#	2249#	Total Liquid co			
	B B-1 C D D-1 E F F-1 G	7250 3884 Gutside A 2278# B 830# B-1 912# C 1557# D 830# D-1 1098# E F F-1 G 1625#	AK1-4366 AK1-4371 7250 7400 3884 3890 Gutside Outside A 2278# 2261# B 830# 810# G- 1557# 901# C 1557# 1546# D-1 1098# 1083# E F F-1 G 1625# 1600#	AK1-4366 AK1-4371 AK1-4374 7250 7400 7700 3884 3890 3940 Gutside Outside Inside A 2278# 2261# 2307# B 830# 810# 877# G 1557# 1546# 1585# D 830# 825# 865# D-1 1098# 1083# 1123# E F Ran Below F-1 G 1625# 1600# 1646#	AK1-4366 AK1-4371 AK1-4374 Sample No. 7250 7400 7700 Type 3884 3890 3940 Depth Outside Outside Inside Volume		

MFE Sample sent to labratory.
No prints made on AK1-4371 or AK1-4374.

PRESSURE INCREMENTS ON RECORDER

POINT AINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$	POINT MINUTES	PRESSURE	<u>T + \(\Delta\) t</u>	POINT MINUTES	PRESSURE	T + Δ †
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JOHNSTON TESTERS 321 SOTH AVENUE S.E. + CALGARY 24 ALBERTA + PH 255 1151

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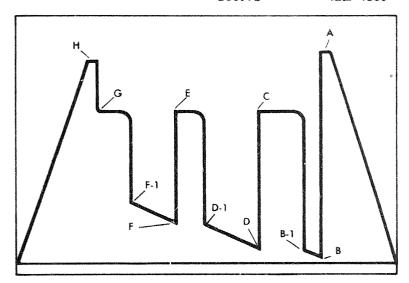
GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS

FIELD REPORT NO.

RECORDER NO.

D06972

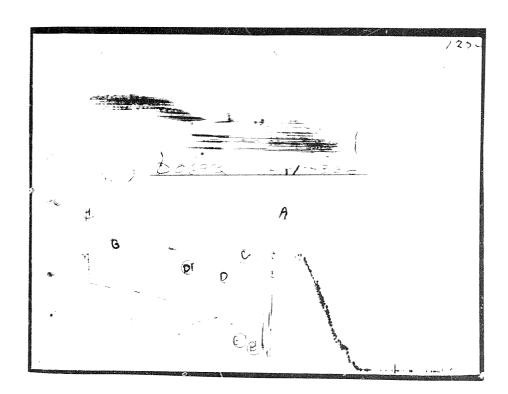
AK1-4366

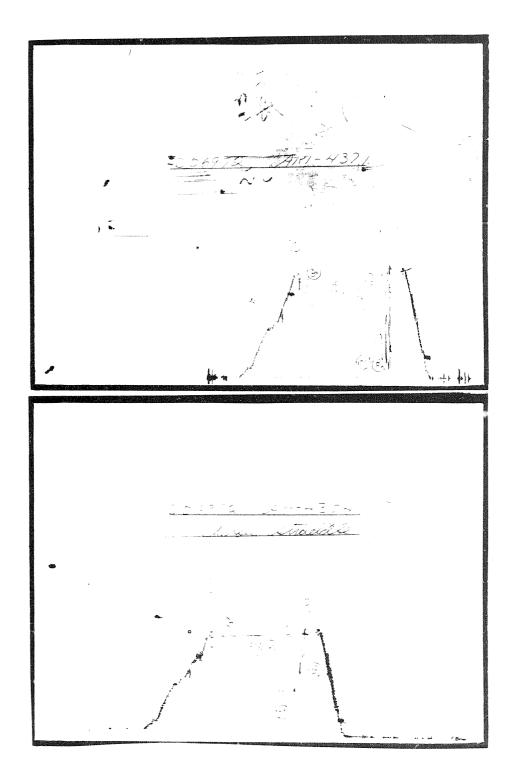


- A. Initial Hyd. Mud
- B. First Flow
- C. Initial Shut-In
- D. Second Flow
- E. Second Shut-In
- F. Third Flow
- G. Final Shut-In
- H. Final Hyd. Mud

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.





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technical report

TEST DATA	TOOL	SEQUENCE	
Type of Test Open Hole, Straddle, Bypass,	T ()	Length	
Time Started in Hole 0145 Hrs Tool Opened 0500 Hrs	Jars & Sub	9.40	
First Flow 5 Min Initial Shut-In 30 Min	P.O. Sub	1.00	
Second Flow 90 Min Second Shut in Min	Sub		I
Third Flow Min Final Shut in 180 Min	MFE Tool	9.50	
Pulled Loose (a 1015 Hrs Out at Hale 0200 Hrs	m m 1	2.95	
Wt Set on Packers 40,000 # Pulled Loose Wt 20,000 #	H. Sub	1.00	
Description of Blow During Test Good initial puff on preflow.	Safety Joint	1.75	
Good final flow, dead in 90 minutes,	S.S. & Packer	8,50	7 3/4"
	T.C. & Packer	4,60	7 3/4"
	Total	39.50	
		1	
	Stub	1.20	1
FLUID RECOVERY Was Test Reverse Circulated Yes . No	Perfs	23.00	and adjacents of the second se
Total Fluid Recovered 864	R. Sub	1.00	
Description of Fluid Recovered	Recorder	5.90	
834' Drilling fluid.	Recorder	5.90	
30' Gas cut drilling fluid.	Sub	.80	
Do gdb car attitiff trave.	Drill Collar	62,00	
	Sub	1,35	
	Travel Collar	3,05	
	Total Interval	104.20	1
GAS BLOW MEASUREMENT	TOTAL THEELVAL	104.20	
Measured With D Riser	Packer	2,80	7 3/4"
Time Stee Choke Reading psi ncho M Cubic Feet Day	T.C. & Packer	5,85	7 3/4"
Time Sice Choke Reading par reces 141 Cade received		5,90	+1 3/4
	Recorder	33.00	
	Perfs	23.00	
	Sub	.80	
NO GAS TO SURFACE.	Drill Pipe	2615.69	· •
	Total Below Intv.	2034.04	

A CONTROL OF THE PROPERTY OF T	Page 1980 to 1		And the second s
			-
	TOTAL LINGTH	2797.74	
	Elevation of L 1701		1716
	buttom Hole Choke Size		V COMPANY STREET
REMARKS: Test satisfactory, While tool was open,	Fluid Cosmon Type	N11 And	
lost about 10 bbls, of drilling fluid in	MUD AN		
hole.	Mud Type Gel	√ <u>V</u> Ł	VAT
	Friter Case 2/32	-sc 120 At	11.4
	ine lake		
	Contractor G.P. Dril		ig No 24
	Drini Pipe Size 4 1/2"		Accompany of the contract of t
resistivity Salt content	Drie Collar Size 2 7/8"	ID	
MANAGEMENT OF THE PROPERTY OF	Drin Char Jenum 3001		
Recovery Water (a) F rpm.		#T way or y	
Mud Pit sample filtrate 'a E ppm	Main Mule Size 8 3/4	NEW AND ADDRESS OF THE PARTY OF	
Mud Pit sample filtrate (a) F ppm District Inuvik Ticks No D06973 Data April 27	Mar Hole Size 8 3/4	·	33
Mud Pit sample filtrate & F ppm District Inuvik Ticke No D06973 Data April 27 Company Chevron Standard Limited Acares 400 - 5t	Min mue Size 8 3/4 1972 : h Ave. S.W.		3
Mud Pit sample filtrate & F ppm District Inuvik Ticke No D06973 Data April 27 Company Chevron Standard Limited April 200 - 5t Well Name Chevron SOBC Wm E Porcupine YT F-18 Calgary.	Min rice Size 8 3/4 1972 h Ave. S.W. Alberta		3
Mud Pit sample filtrate & F ppm District Inuvik Ticke No D06973 Data April 27 Company Chevron Standard Limited Acare 400 - 5t Well Name Chevron SOBC Wm E Porcupine YT F-18 Calgary, Number 66 07 25 N 137 48 16 W Wildcar	Marrice Size 8 3/4 1972 h Ave. S.W. Alberta	· 3	3
Mud Pit sample filtrate Output District Inuvik Ticke No D06973 Company Chevron Standard Limited Well Name Chevron SOBC Wm E Porcupine YT F-18 Calgary, Number 66 07 25 N 137 48 16 W Formation Formation	Marrice Size 8 3/4 1972 h Ave. S.W. Alberta Yuko	3	3
Mud Pit sample filtrate & F ppm District Inuvik Ticke No D06973	Marrice Size 8 3/4 1972 h Ave. S.W. Alberta Yuko	<u> </u>	3
Mud Pit sample filtrate & F ppm District Inuvik Ticke No D06973	Marrice Size 8 3/4 1972 h Ave. S.W. Alberta Yuko	n.	

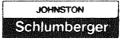
JOHNSTON TESTERS

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D06973	ng pamaga pagga pangandafakalah deminintak di Seri Salah Seri	and the contract contract to the contract of t	PRES	FLUID SAMPLE REPORT	
INSTRUMENT No		AK1-4366	AK1-4371	AK1-4374	Sample No 525
CAPACITY psig		7250	7400	7700	, Type 5"
INSTRUMENT DEPTH FT		3995	4000	4087	, Depth 3951!
INSTRUMENT OPENING		Outside	Outside	Inside	vetume 2500 cc
WELL TEMP "F 118	1	. O and a common relative and an included an included and an included			↓ The second of the secon
Minimum Companies 1 considerate many only of the control of the process of the parties of the				1	Sample Penssure:
INITIAL HYDROSTATIC	A	2444#	2460#	2496#	psig. at Surface
FIRST FLOW	8	90#	111#		Gravity API 'd F
	B-1	210#	226#	A-1 2638#	Gas Oil Ratio Cu Ft bbl
INITIAL SHUT-IN	C	and the second s		1	g
SECOND FLOW	D	2 79#	302#	Ran Below	1 Recovery
gggggatetine destructional Montal construction is a second destruction of the second o	D-1	812#	829#	Straddle	The same of the sa
SECOND SHUT-IN	Ε	appropries - 1 to the contract of the second desired by the contract of the co		personal is transmitted to the control of the contr	Cu Ft Gas
THIRD FLOW	F	Separation and the control of the co		A-2 1167#	cc Oil
	F-1	The second state of the second	1	A-3 2132#	ce Water
FINAL SHUT-IN	G	1566#	1585#		cc Mud
FINAL HYDROSTATIC	н	2416#	2442#	2467#	Total organd co
REMARKS		MFE Sample	a drained at	service centre.	

PRESSURE INCREMENTS ON RECORDER

POINT MINUTES	PRESSURE	T + t	POINT MINUTES	PRESSURE	The state of the s	POINT MINUTES	PRESSURE	And the second s
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AND THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.								
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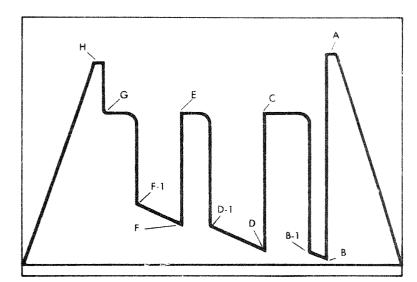
GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS

REPORT NO.

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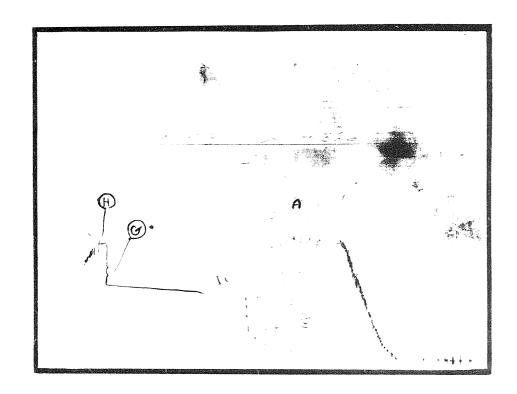
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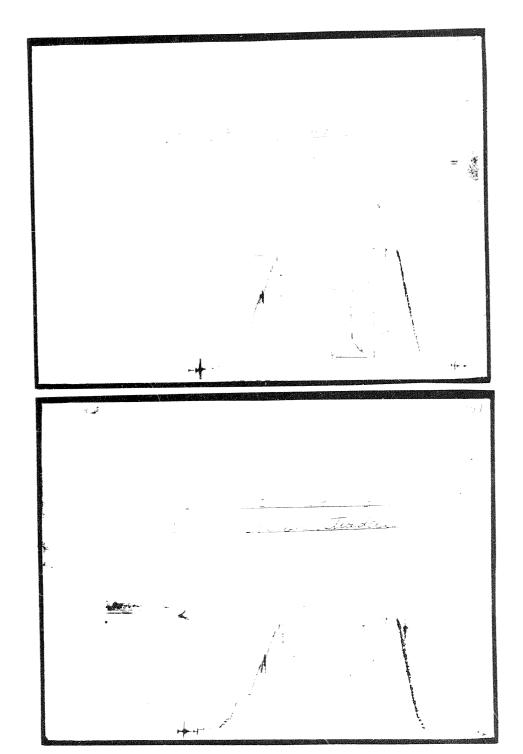


- A. Initial Hyd. Mud
- B. First Flow
- C. Initial Shut-In
- D. Second Flow
- E. Second Shut-In
- F. Third Flow
- G. Final Shut-In
- H. Final Hyd. Mud

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.





Schlumberger

technical report

Schlumberger

TEST DATA	TOOL	SEQUENCE	
Type of Test Open hole, Staddle, Selective Zone.	1001	Length	00
Time Started in Hole 1000 Hr. Titll Opened Hrs	P.O. Sub	1,00	
First Flow Min nitial Shutter Min	Sub	.80	ANT OF COST
Second Flow Min Servind Shut in Min	MFE Tool	9.50	
Third Flow Ain Find Shurin Min	Bypass Tool	2,95	
Pulled Loose (it 1230 - Out + Hole 0400 Hrs	Safety Joint	1.75	1
Wt Set on Packers 40,000 # Palid - g Wt =	S.S. & Packer	8.50	7 3/4"
Description of Biow During Te -	T.C. & Packer	4.60	7 3/4"
Page And Continued and Continu	Total	29.10	
NIL		haran samuela	
	Stub	1.20	
The second district of	Recorder	5.90	
SI JID DECOVEDY	Recorder	5,90	
FLUID RECOVERY Was Test Reverse Organized Test No.	Perfs	25,00	
Total Fluid Recovered	Sub	.80	
Description of Faid Recovered	Drill Collar	62.00	
THE PARTY OF THE P	Sub	1.35	
NIL CONTRACTOR OF THE PROPERTY	Travel Collar	3.05	
	Total Interval	105.20	The second secon
	Packer	2.80	7 3/4"
The second secon	T.C. & Packer	5.85	7 3/4"
GAS BLOW MEASUREMENT	Blank off Sub	1,00	1 3/4
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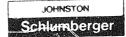
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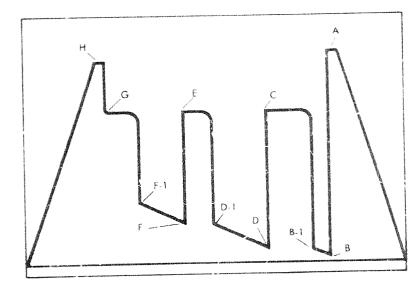
GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS

REPORT NO.

RECORDER NO

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AK1-2106



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