WELL HISTORY REPORT

SOBC WM E PORCUPINE YT I-13

MAY 27, 1971

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

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SECTION I - SUMMARY OF WELL DATA

(a) Well Name and Number

SOBC WM E Porcupine YT I-13

(b) Permittee, Licensee or Lessee

Western Minerals Ltd.

(c) Name of Operator

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

(d) Location

Unit I, Section 13, Grid: 66° 10' N 137° 45' W

(e) Co-ordinates

Latitude: 66° 02' 35" N; Longitude: 137° 46' 58" W
Universal Well Location Reference: Lat. 66.04305°N., Long. 137.78278°W.

(f) Permit or Lease Number Unique Well Identifier: 300I136610137450

Permit No. 3362

(g) Drilling Contractor

G. P. Drilling Ltd., Rotary Rig No. Fourteen

(h) Drilling Authority

No. 498 Issued January 27, 1971

(i) Classification

Wildcat

(j) Elevations

Ground Elevation: 1645' KB Elevation: 1665'

(k) Spudded

0330 Hours February 10, 1971

(l) Completed Drilling

0730 Hours April 19, 1971

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

T.D. 8004' P.B.T.D. Surface Logger's T. D. 8003'

(n) Well Status

Dry and Abandoned

(o) Rig Release Date

2400 Hours May 2, 1971

(p) Hole Sizes to Total Depth

30" Hole from Surface to 45' K.B.
24" Hole from 45' to 64'
17½" Hole from 64' to 804'
12¼" Hole from 804' to 825'
8-3/4" Hole from 825' to 8004'

(q) Casing

19" O.D. Conductor Pipe Set at 64' K.B.
13-3/8" J-55, 54.5# Casing Set at 798.86' K.B.

SECTION II - GEOLOGICAL SUMMARY

(a) Formation Tops

Formation	Depth Samples	Depth Logs	Elevation K.B. 1666
Eagle Plain	Surface		
Blackie Sandstone	3630	3629	-1963
Permo-Penn Sandstone	5985	5980	-4314
Chance Sd. equivalent		7526	-5860
Fault		7840	-6174

T.D. 8004 (-6338)

(b) Cored Intervals

Core #	Interval	Formation	Recovery
1.	3658-3717	Blackie Sand	57.3
2.	6002-6020	Permo-Penn. Sand	16.7
3.	6020-6040	Permo-Penn. Sand	13.6
4.	6130-6153	Permo-Penn.	22.6

(c) Core Descriptions

Core #1 3658 - 3717 Cored 59' Rec. 57.3'

Coring Times:

9	13	13	10	10	15	10	11	28	19
15	19	12	19	18	25	18	10	10	18
11	7	13	8	10	10	13	10	17	18
16	22	18	20	24	17	33	27	7	10
7	5	6	12	12	14	16	10	15	13
15	11	13	13	14	23	24	21	25	

3658-3665.5
7.5 Sandstone, grey, fine grained, well sorted sub-angular and angular quartz grains, few chert grains, trace of glauconite. Fine lamination and current bedding, bitumen partings.

Poor, very fine intergranular porosity, in part bitumen-filled.
Questionable fluorescence and cut.

3665.5-3666.8
1.3 Shale, dark grey to black, micro-micaceous, sub-bituminous. Scattered grey silty streaks.

3666.8-3667.7
0.9 Sandstone, grey, fine grained, non-calcareous, siliceous, tight. No stain.

3667.7-3669.7
2.0 Shale, dark grey to black, sub-fissile, micro-micaceous, non-calcareous, sl. bituminous.

3669.7-3670.7 1.0	Sandstone, grey, very fine grained, trace glauconitic. Finely laminated and current bedded. Tight.
3670.7-3671.5 0.8	Shale, dark grey, sub-fissile to blocky, slightly bituminous, micro-micaceous.
3671.5-3671.8 0.3	Sandstone, grey, very fine grained, argillaceous, siliceous, tight.
3671.8-3674.1 2.3	Shale, dark grey, micro-micaceous, sub-fissile, non-calcareous. Lower 0.5 ft. silty.
3674.1-3675.6 1.5	Sandstone, grey, very fine grained to fine grained, few laminae of coarse grains; argillaceous, non-calcareous, trace glauconitic. Nucaceous, argillaceous partings, bituminous. Trace of very fine porosity. Questionable fluorescence and cut.
3675.6-3690.0 14.4	Sandstone, grey, fine to medium grained; fairly well sorted sub-angular to angular quartz grains, minor black chert grains, trace of glauconite. Non-calcareous, silty, siliceous. Laminated, current bedded in part. Traces to fair intergranular porosity. No stain, indistinct cut or fluorescence. Conglomerate band, black, grey and brown chert pebbles up to 5 MM, in sandstone matrix 3676.1 - 3676.3.
3690.0-3695.0 5.0	Shale, dark grey, micro-micaceous, non-calcareous, sub-fissile. Much lenses and laminae of grey siltstone and very fine grained sandstone.
3697.0-3712.6 17.6	Sandstone, grey, medium grained; sub-angular well sorted quartz grains, few black chert grains, trace of glauconite, in a siliceous matrix. Finely laminated and current bedded, micaceous, bituminous partings. Laminae dip at 20^{o} to core axis. Upper contact irregular, dip at 30^{o}. Brown oil bleeding in lower 7 feet of core. Porosity, poor to fair, intergranular. Some clogging of porosity by bitumen. Questionable fluorescence and cut in upper 10 feet of core, above oil-bleeding zone. Thin bituminous shale band (0.1 ft.) at 3706'.
3712.6-3713.6 1.0	Shale, dark grey to black, micro-micaceous, sub-fissile to blocky, few silty streaks.

3713.6-3714.3 1.7	Siltstone, very fine grained sandstone, grey, siliceous, trace glauconitic. Few bituminous partings and laminae.
3714.3-3717 2.7	Core not recovered.

Core #2 6002 - 6020 Rec. 16.7'

Coring Times:										
18	37	18	22	20	20	25	23	18	29
30	20	23	37	37	30	30	60		
						Core jammed.			

6002-6005.5 3.5	2 ft. of rubble at top. Sandstone, grey brown, medium to coarse grained, sub-angular quartz grains, fairly well sorted, very limey (20%) matrix. Abundant coarse chert and chert grit, rounded, to sub-rounded, in sandstone matrix. Trace of glauconite, pyrite. Tight.
6005.5-6006.5 1.0	Sandstone, grey-brown, medium grained quartz grains, fairly well sorted, sub-angular, in limey matrix. Much coarse chert "grit." Trace of glauconite, pyrite. Fractures. Scattered large pelecypod shells.
6006.5-6007.0 0.5	Sandstone, grey-brown, fine to medium grained, argillaceous, very calcareous. Scattered coarse, rounded chert grains. Trace of glauconite and pyrite.
6007-6008.7 1.7	Sandstone, brown-grey, medium to coarse grained, sub-angular to sub-rounded. Much rounded, coarse chert and chert grit. Traces of glauconite, pyrite, fossil fragments. Calcareous - tight.
6008.7-6010.9 2.2	Sandstone, brown-grey, medium grained, very calcareous; scattered coarse chert "grit." Trace of glauconite, pyrite. Tight.
6010.9-6018.5 7.6	Sandstone, grey-brown, fine to medium grained, scattered coarse chert grains. Very calcareous. Scattered large pelecypod shells, few bands of coarse sandstone. Vertical fractures. Trace of glauconite, pyrite and chert.

6018.5-6018.7 0.2	Sandstone, light brownish-grey, medium to coarse grained, sub-angular quartz, coarse rounded and sub-rounded chert grains and chert grit. Very calcareous, tight. Trace of glauconite, pyrite.

Core #3 6020 - 6040 Rec. 13.6 ft.

Coring Times:	15	25	20	35	32	33	25	26	30	30
	45	40	32	28	30	28	35	42	43	29

Core jammed.

6020-6024.1 4.1	Sandstone, grey-brown, fine to medium grained, very calcareous, tight. Trace of pyrite, glauconite, fossils. Much scattered coarse quartz and chert grains.
6024.1-6025.1 1.0	Sandstone, brown-grey, coarse chert grit, well-rounded, in matrix of brown-grey, medium grained very calcareous sandstone, as above. Trace of glauconite, pyrite, fossil fragments.
6025.1-6030.1 5.0	Sandstone, fine grained, grey, hard, very calcareous, in part a sandy limestone. Well sorted, sub-angular quartz grains. Vertical fractures. Trace of glauconite, pyrite. Traces of fossils.
6030.1-6031 0.9	Shale, green, soft, fissile, faintly calcareous. Grading in lower part through very pyritic argillaceous limestone and calcareous sand, to limey sandstone.
6031-6033.6 2.6	Sandstone, fine grained, grey-brown, calcareous, grading in part to sandy limestone. Well sorted, sub-angular quartz grains. Trace of glauconite, pyrite. Traces of fossils. Trace of porosity - very fine intergranular, 6032 - 6033.6, oil stain, cut and fluorescence.

6033.6-6040 6.4	Core not recovered.

Core #4 6130 - 6153 Rec. 22.6

Coring Times:										
10	15	10	8	10	7	7	5	8	5
5	8	12	25	18	27	25	20	15	15
10	13	17							

6130-6132.9 2.9	Shale, dark brown-grey, micro-micaceous, blocky non-calcareous. Scattered fossil shells. Trace of pyrite. Silty and sandy in lower part.
6132.9-6142.8 9.9	Sandstone, grey, fine to medium grained, very calcareous. Trace of pyrite, glauconite. Scattered coarse chert grains. Scattered spicules and fossil shell fragments. Upper contact gradational from shale, pyritic, argillaceous at base. Traces of oil staining, cut and fluorescence 6135.6 - 6142.8.
6142.8-6150.3 7.5	Shale, dark brown-grey, splintery to blocky, non-calcareous, pyritic, scattered fossil shells. Lower 1 ft. becomes sandy, grading to underlying sandstone.
6150.3-6152.6 2.3	Sandstone, grey, fine to medium grained, very calcareous, pyritic, trace of glauconite. Scattered fossil shells, tight.
6152.6-6153 0.4	Core not recovered.

(d) Sample Description

150	**Shale, dark grey, blocky, micro-micaceous, non-calcareous.** Interbedded grey silty streaks, traces of dark grey S & P fine grained sandstone. Trace of rusty spotted shale - weathered pyrite?
180	Shale, as above, silty streaks. Sandstone, grey, argillaceous, medium grained, micaceous in part, non-calcareous. Minor grey-green shale, brown-grey shale. Trace of ironstone.
210	Shale, grey, grey-green, brown, blocky, non-calcareous, trace of iron staining. Trace of carbonized plant fragments. Minor to traces of interbedded grey, argillaceous fine to medium grained sandstone and siltstone.
220-240	Shale, grey and dark grey, blocky, non-calcareous, minor brown-grey shale. Trace of silty and sandy streaks. Trace of grey-green shale, trace rusty colored mottling.
240-250	Shale, grey, dark grey, micro-micaceous, blocky, non-calcareous. Trace of brown, siliceous, hard, blocky shale. Minor sandstone, grey, fine grained, argillaceous, non-calcareous, trace of ostracod? pockets. Trace of ironstone.
250-260	Claystone, light grey, lumpy, blocky, non-calcareous, few silty streaks.
260-280	Shale, grey and dark grey, sub-fissile, micaceous, non-calcareous, much nodular and blocky claystone, as above. Minor grey, argillaceous, non-calcareous sandstone.
280-290	Claystone, grey-green and grey, sandy in part, lumpy and blocky, non-calcareous. Minor sandstone, grey, argillaceous.

290-300	Siltstone and very fine grained sandstone, grey, non-calcareous, slightly argillaceous. Pyrite. Much shale, as above.
300 - 310	Shale, grey and dark grey, sub-fissile, non-calcareous, micro-micaceous. Minor silty and sandy streaks. Trace of carbonized plant remains.
310-320	N.S.
320-330	Shale, grey, nodular and blocky, non-calcareous, (claystone). Much dark grey micro-micaceous shale, as above.
330-350	N.S.
350-370	Siltstone, grey, argillaceous, non-calcareous, grading to streaks of fine grained grey quartz-chert sandstone, argillaceous, tight. Much dark grey micro-micaceous shale and grey, green-grey nodular, blocky claystone.
370-380	Interbedded claystone, shale, minor siltstone, as above.
380-390	Siltstone and fine grained sandstone, grey, argillaceous, non-calcareous. Much interbedded dark grey micro-micaceous, non-calcareous, sub-fissile shale.
390-400	Shale, dark grey, sub-fissile, micro-micaceous, non-calcareous, minor grey-green blocky claystone. Traces of silty and sandy streaks.
400-420	Claystone, grey-green, iron stained mottling, blocky, nodular, non-calcareous, much brown claystone. Minor dark grey sub-fissile shale.
420-430	Claystone, shale, as above. Siltstone and fine grained sandstone 20%, grey, argillaceous, non-calcareous.
430-440	Sandstone, medium grained, grey, S & P, sub-angular quartz and chert grains, shale flecks. Non-calcareous, argillaceous. Trace of porosity, no stain visible (Note - samples washed in diesel oil).

440-450	Shale, dark grey, silty, non-calcareous, grading to argillaceous siltstone; micro-micaceous, sub-fissile.
450-470	Shale, dark grey, sub-fissile, non-calcareous, claystone, grey-green, brown mottled, nodular. Much grey fine grained argillaceous quartz-chert sandstone and grey siltstone. Trace of pyrite.
470-490	Sandstone, grey, S & P, medium grained, silty argillaceous, non to faintly calcareous, sub-angular quartz, chert and black shale? flecks. Trace of pyrite. Trace of intergranular porosity.
490-500	Siltstone, grey, argillaceous, non-calcareous, micaceous in part, grading to very fine sandstone. Interbedded dark grey micaceous, sub-fissile shale.
500-520	Claystone, grey-brown and green-brown, blocky, nodular, non-calcareous. Minor interbedded grey argillaceous siltstone.
520-530	Sandstone, grey, S & P, fine grained, silty, argillaceous, sub-rounded quartz, chert grains, angular black chert grains. Tight.
530-540	Shale, dark grey, silty in part, micro-micaceous, sub-fissile, non-calcareous. Sandstone, grey, S & P, fine grained grading to siltstone, argillaceous, non-calcareous, trace micaceous.
540-550	Siltstone, grey, argillaceous, non-calcareous, grading to silty shale. Shale, dark grey, micro-micaceous, non-calcareous, fossils. Much grey, blocky, nodular claystone.
550-560	Sandstone, grey, S & P, fine to medium grained sub-angular quartz, grey and black chert grains, in silty, non-calcareous matrix. Trace kaolinitic, micaceous. Much loose grains. Trace of intergranular porosity.

560-570	Shale, dark grey, sub-fissile to blocky, non-calcareous. Much grey-green nodular blocky claystone, minor sandstone, as above.
570-590	Siltstone, grey, argillaceous, non-calcareous. Minor dark grey and grey shale.
590-600	Siltstone, grey shale, as above. Trace of brown, medium grained calcareous sandstone. Trace of coarse, grey,S & P sandstone, kaolinitic, trace of intergranular porosity.
600-610	Shale, dark grey, micro-micaceous, silty in part, non-calcareous; sub-fissile. Claystone, grey and greenish-grey, blocky, nodular. Minor grey, S & P, non-calcareous fine to medium grained sandstone.
610-630	Sandstone, grey, S & P, medium to coarse grained, non-calcareous. Sub-angular quartz and chert grains, non-calcareous, trace of intergranular porosity. Much shale, as above.
630-680	Shale, dark grey, blocky to sub-fissile, non-calcareous. Much grey and grey-green nodular claystone, minor grey silty shale. Minor grey, S & P, very fine grained, argillaceous sandstone, grading to argillaceous siltstone.
680-690	Shale, as above, minor nodular claystone. Minor grey argillaceous, very fine grained sandstone, trace of grey, medium grained sandstone, faintly calcareous.
690-710	Sandstone, 40% grey, S & P, fine to medium grained, non-calcareous, trace faintly calcareous streaks. Sub-angular quartz and light grey and black chert grains, fair sorting. Trace of intergranular porosity. Shale, as above. 60%.
710-730	Shale, grey, blocky, non-calcareous, silty, micro-micaceous. Much micro-micaceous sub-fissile shale; grey-green claystone.

730-750	Shale and claystone, as above. Minor sandstone, fine to medium grained, grey, S & P, argillaceous, trace of intergranular porosity.
750-790	Shale, dark grey, sub-fissile, micro-micaceous, silty streaks. Claystone, grey and green-grey, nodular, soft, minor brown and brown-grey claystone. Trace of medium to coarse grained quartz-chert sandstone, trace of good intergranular porosity.
790-800	Shale, dark grey, sub-fissile, micro-micaceous, non-calcareous. Trace silty streaks. Claystone, grey, grey-green, brownish-grey, nodular, massive, non-calcareous.
840-870	Shale, dark grey, sub-fissile as above. Trace of silty streaks.
870-900	Sandstone and siltstone, fine to medium grained grey. Slightly calcareous with poor to fair porosity (0-12%) and poor permeability.
900-950	Shale, micro-micaceous, dark grey sub-fissile. Trace of glauconite, arkosic. Some interbedded siltstones.
950-980	Siltstone and sandstone, fine to very fine grained grey, subrounded and medium sorted. Slightly calcareous (0-12% porosity).
980-1010	Shale as above, dark grey, with interbedded siltstones.
1010-1040	Sandstone and siltstones as above, fine to very fine grained, sub-angular and medium sorted. Poor to fair porosity and poor permeability.
1040-1050	Sandstone, grey, S & P, fine grained, streaks of medium grained slightly calcareous sandstone, argillaceous. Sub-angular quartz, chert grains, silty, siliceous matrix. Tight.

1050-1060	Shale, dark grey, sub-fissile to blocky, non-calcareous, micro-micaceous. Minor coal. Trace of pyrite.
1060-1070	Shale, dark grey, blocky, non-calcareous, scattered silty streaks, minor sandy streaks.
1070-1080	Sandstone, 50%, grey, S & P, fine to medium grained, non-calcareous, silty, argillaceous. Shale, as above, 50%.
1080-1100	Shale and sandstone, as above. Trace slightly calcareous, medium grained sandstone. Traces of coaly fragments. Trace of pyrite.
1100-1110	Sandstone, grey, S & P, medium grained, sub-angular quartz and chert grains, silty, siliceous, faintly calcareous matrix.
1110-1120	Coal. 5 ft. bed. Shale, dark grey, blocky, non-calcareous.
1120-1160	Shale, dark grey, blocky, non-calcareous. Scattered silty streaks. Coaly streaks 1140-1150.
1160-1180	Shale, as above; 50%. Sandstone, 50%, grey, S & P, silty, argillaceous, non-calcareous. Fine grained quartz, chert grains, poor to fair sorting, sub-angular. Tight.
1180-1230	Shale, dark grey, blocky, silty streaks, non-calcareous. Minor interbedded grey, fine grained sandstone. Traces of coaly streaks.
1230-1240	Shale, dark grey, blocky, silty, non-calcareous, micro-micaceous.
1240-1250	Shale, as above, interbedded grey, very argillaceous siltstone, very fine to fine grained sandstone.
1250-1270	Sandstone, grey, S & P, very fine to fine grained, argillaceous, non-calcareous; 50%. Shale, as above. 50%.

1270-1280	Shale, dark grey, sub-fissile to blocky, silty, non-calcareous.
1280-1290	Sandstone, grey, S & P, very fine to fine grained, argillaceous, silty, non-calcareous, micaceous.
1290-1320	Sandstone, grey, S & P, medium grained, faintly calcareous. Fair sorting, sub-angular quartz and chert grains, silty matrix, traces of plant remains. Fair to good intergranular porosity. No fluorescence.
1320-1340	Sandstone, as above. 50%. Shale, dark grey, blocky, non-calcareous, micro-micaceous. 50%.
1340-1350	Shale, dark grey, sub-fissile to blocky, silty, non-calcareous, micro-micaceous, interbedded grey, argillaceous siltstone.
1350-1370	Sandstone, 50% grey, S & P, fine grained, argillaceous, silty, non-calcareous. Shale, 50%, as above. Trace of coal fragments.
1370-1430	Shale, dark grey, blocky to sub-fissile, few silty streaks, micro-micaceous in part, non-calcareous. Coal fragments. Traces of light grey, slightly calcareous, blocky claystone.
1430-1460	Sandstone, grey, S & P, very fine grained to fine grained argillaceous, non-calcareous. 50%. Shale, as above, 50%. Trace of pyrite. Traces of coal fragments.
1460-1510	Shale, dark grey, blocky to sub-fissile, non-calcareous, micro-micaceous in part, trace coaly partings. Minor brown-grey blocky shale.
1510-1540	Shale, as above. Trace coal fragments. Much interbedded grey, argillaceous, blocky siltstone.
1540-1570	Shale, dark grey, sub-fissile to blocky, non-calcareous, micro-micaceous. Trace of coaly partings. Trace of blue-green-grey silty, blocky shale. Minor silty streaks.

1570-1610	Shale, dark grey, blocky to sub-fissile, micro-micaceous, non-calcareous. Minor grey-brown blocky shale. Trace of grey-green shale.
1610-1620	Shale, as above, 60%. Sandstone, 40%, grey, fine to medium grained, argillaceous, non-calcareous, tight. Quartz grains, black chert and traces of rusty red chert grains, poor to fair sorting, sub-angular.
1620-1630	Shale, dark grey, blocky to fissile, non-calcareous, micro-micaceous. Trace of blocky grey-green shale.
1630-1670	Shale, as above. 50%. Sandstone, 50%, grey and light grey, S & P, very fine to fine grained, argillaceous, slightly calcareous, tight, micro-micaceous.
1670-1680	Shale, as above, 50%, trace of pyritized Ostracods. Siltstone 50%, grey, argillaceous, non-calcareous, micro-micaceous, traces of fine grained sandstone.
1680-1700	Sandstone, grey and light grey, fine to medium grained, non-calcareous, sub-angular quartz and chert grains, siliceous, silty matrix, trace micaceous. Fairly well sorted.
1700-1730	Sandstone, as above, coarser grained, calcareous. Trace of glauconite ? Trace of poor, intergranular porosity. No fluorescence.
1730-1770	Shale, dark grey, silty, non-calcareous, blocky, micro-micaceous.
1770-1790	Sandstone, grey and light grey, S & P, medium grained, fair sorting, sub-angular quartz and chert grains, non-calcareous. Few coarse sandstone streaks. Trace to fair intergranular porosity; no fluorescence.
1790-1800	Shale, grey, silty, grading to grey argillaceous siltstone, non-calcareous. Much sandstone, as above.
1800-1810	As above. Much grey-green blocky, silty shale.

1810-1850	Sandstone, grey, S & P, fine-medium to coarse grained, silty, argillaceous, non-calcareous. Trace of intergranular porosity in coarser fractions; no fluorescence. Much dark grey, micro-micaceous shale. Trace of glauconite.
1850-1860	Sandstone, 70%, as above. Trace of porosity, as above. Shale, 30%, as above. Trace of grey-green silty shale and reddish brown blocky shale.
1860-1870	Shale, dark grey, micro-micaceous, non-calcareous, blocky to sub-fissile, silty streaks.
1870-1880	Sandstone, light grey, S & P, fine to medium grained, fair sorting, sub-angular quartz and chert grains in argillaceous, silty, non-calcareous matrix. Trace of porosity in coarser streaks. No stain.
1880-1930	Shale, dark grey, blocky, micro-micaceous, non-calcareous, silty streaks.
1930-1950	Siltstone, very fine grained sandstone, grey, argillaceous, non-calcareous, micaceous. Pyrite.
1950-1960	Sandstone, grey, S & P, fine grained, silty, non-calcareous, tight. Streaks of medium grained sandstone, trace of porosity, no stain. Minor grey, grey-green and light grey shale.
1960-1970	As above. Minor coal.
1970-1990	Shale, grey, blocky, non-calcareous. Much interbedded grey siltstone and very fine grained sandstone.
1990-2030	Shale, dark grey, blocky, micro-micaceous, few silty streaks. Trace of pyrite.
2030-2100	Sandstone, light grey and grey, S & P, medium grained quartz and chert grains, sub-angular, non-calcareous. Trace of fair intergranular porosity. Trace of coarse sandstone. Scattered greenish chert grains, red and pink chert. No stain, fluorescence or cut.

2100-2120	Sandstone, as above, 50%. Shale, dark grey, blocky, non-calcareous, 50%.
2120-2140	Shale, dark grey, blocky, non-calcareous, micro-micaceous. Trace of grey and green-grey shale. Minor sandstone, as above - cvg. ?
2140-2170	Shale, dark grey, blocky, non-calcareous, micro-micaceous.
2170-2230	Shale, as above. Minor silty streaks.
2230-2270	Sandstone, light grey, S & P, medium to fine grained, sub-angular quartz, chert grains, silty, argillaceous. Fair porosity in coarse sands. No stain. Good porosity 2250-2270.
2270-2300	Shale, dark grey, blocky, non-calcareous, micro-micaceous. Trace of grey-green blocky shale. Much sandstone, as above - cvg. ?
2300-2320	Shale, as above. Minor interbedded siltstone and very fine grained grey, argillaceous sandstone.
2320-2330	Shale, dark grey, blocky, non-calcareous, micro-micaceous. Silty streaks.
2330-2340	Shale, as above. Trace coaly partings. Sandstone, fine grained, grey, argillaceous, non-calcareous, tight.
2340-2420	Shale, dark grey, blocky, micro-micaceous, non-calcareous, few silty, sandy streaks. Trace of light grey and green-grey shale.
2420-2460	Shale, as above. Trace light grey shale. Much inter-bedded grey fine grained argillaceous silty sandstone, grading in part to medium grained sandstone, sub-angular quartz and chert grains, trace of porosity. No stain.
2460-2480	Shale, dark grey, blocky, silty, micro-micaceous, non-calcareous. Minor medium grained and fine grained sandstone, as above - cvg. ?

2480-2500	Sandstone, very fine grained to fine grained, grey, argillaceous, slightly calcareous, silty.
2500-2560	Sandstone, light grey, S & P, medium grained sub-angular quartz and chert grains, silty in part, non-calcareous. Trace of porosity, no stain. Good porosity, friable sand, 2520-2560. Trace of staining, fluorescence and cut. Spotty. Trace of intergranular gilsonite.
2560-2570	Sandstone, as above, 40%. Fair porosity, trace of staining, cut, fluorescence, as above. Shale, dark grey, silty, sandy in part, non-calcareous, micaceous in part. 60%.
2570-2590	Shale, as above. Much dark grey-green blocky shale.
2590-2690	Shale, dark grey, silty, non-calcareous, blocky, micro-micaceous. Minor light grey blocky shale, trace of dark grey-green shale.
2690-2700	Shale and silty shale, as above. Much coal fragments. Pyrite.
2700-2720	Shale, dark grey, blocky, non-calcareous, silty streaks. Traces dark brown-grey, blocky shale.
2720-2730	Shale, as above. Minor (30%) sandstone, fine grained, grey, silty, non-calcareous, tight. Traces coaly fragments.
2730-2770	Shale, dark grey, blocky, silty streaks, non-calcareous, trace plant fragments. Trace of brown, blocky shale, 2750-2760.
2770-2790	Sandstone, very fine to fine grained, grey, siliceous, silty, tight. Trace of glauconite.
2790-2800	Shale, dark grey, blocky, micro-micaceous, non-calcareous, silty streaks. Traces of grey-brown shale, green blocky shale. Minor sandstone, as above - cvg. ?

2800-2910	Shale, as above. Interbedded grey, very fine grained sandstone. Traces coaly fragments. Trace of grey-green and brown, blocky shale.
2910-2930	Shale, as above, 50%. Trace of ironstone, pyrite. Sandstone, 50%, grey, S & P, fine grained, non-calcareous, silty, siliceous, tight.
2930-2940	As above. Much ironstone, pyrite.
2940-2960	Shale, dark grey, blocky to sub-fissile, micro-micaceous, non-calcareous. Minor brown-grey shale, grey and green-grey shale. Silty, micaceous streaks. Trace of plant remains.
2960-2970	Shale, 50%, as above. Trace ironstone. Siltstone 50%, brown-grey, argillaceous, non-calcareous, hard, micro-micaceous, grading to silty shale.
2970-3000	Shale, dark grey, sub-fissile to blocky, non-calcareous, micro-micaceous, silty streaks. Traces of brownish-grey silty shale. Pyrite, coaly partings. Much black, sub-bituminous shale.
3000-3040	Shale, as above, 40%; much black, sub-bituminous shale. Sandstone, 60%; very fine grained, light grey, S & P, silty, argillaceous, non-calcareous, micaceous. Trace of ironstone.
3040-3050	Sandstone, grey, S & P, fine grained, hard siliceous, silty, argillaceous. Angular and sub-angular quartz and chert grains, poor to fair sorting. Trace of glauconite, gilsonite. Tight.
3050-3060	Sandstone, as above, 50%. Shale, dark grey, blocky, non-calcareous, 50%.
3060-3080	Shale, dark grey, blocky, silty, micro-micaceous, trace of plant remains.
3080-3090	Shale, as above, much black, sub-bituminous coaly shale. Sandstone, grey, S & P, very fine to fine grained, argillaceous, silty, non-calcareous, trace of glauconite.

3090-3100	Shale, dark grey, silty, blocky, micro-micaceous. Much black coaly shale, sub-bituminous, blocky. Trace of coaly fragments, silty streaks, faintly calcareous.
3100-3110	Shale, as above. Siltstone, brown-grey, faintly calcareous, argillaceous, hard.
3110-3130	Shale, dark grey, blocky to sub-fissile, non-calcareous, micro-micaceous in part, silty streaks. Trace to minor brown-grey silty shale.
3130-3140	Shale, as above. Much light grey, hard, siliceous, silty, blocky shale, grey, massive shale, trace pyrite. Traces of very light grey claystone.
3140-3160	Siltstone, very fine grained sandstone, light grey and grey, trace micaceous, argillaceous, trace glauconite. Trace of porosity - no stain, fluorescence or cut.
3160-3170	Sandstone, light grey, S & P, fine grained, siliceous, silty, argillaceous, trace glauconitic. Sub-angular, fairly well sorted quartz and minor chert grains. Tight.
3170-3180	Sandstone, medium grained, grey, S & P, non-calcareous to faintly calcareous. Sub-angular, fairly well sorted quartz and chert grains, silty, siliceous matrix. Carbonized flecks, traces of pyro-bitumen, glauconite. Trace? of porosity - no stain, fluorescence or cut. Trace of coal.
3180-3190	Sandstone, as above, 50%. Shale, dark grey, blocky, silty in part, traces of grey shale, brown-grey silty shale, 50%.
3190-3220	Shale, as above, few silty streaks, trace of coaly partings, coal fragments, ironstone.
3220-3230	Shale, dark grey blocky, trace of grey, hard; siliceous shale, grey blocky claystone. Traces of dark grey-brown silty shale. Trace plant remains, pyrite.

3230-3250	Siltstone, brown, argillaceous, faintly calcareous, trace micro-micaceous, trace finely laminated.
3250-3260	Siltstone, as above. Trace of pyro-bitumen, 60%. Shale, dark grey, blocky, micro-micaceous, minor grey and green shale, trace of slickensides; 40%.
3260-3270	Shale, as above, silty streaks. Trace of ironstone. Minor siltstone, as above - cvg. ?
3270-3310	Shale, as above. Minor dark grey-brown siltstone, traces coal, pyrite, faintly calcareous.
3310-3320	Shale, dark grey, blocky, non-calcareous, micro-micaceous in part. Trace of coaly partings. Minor brown-grey siltstone.
3320-3330	Shale, as above, 60%. Trace of coal fragments. Siltstone, 40%, dark grey-brown, argillaceous, faintly calcareous, blocky. Trace of ironstone.
3330-3340	N.S.
3340-3380	Siltstone, 60%, dark brown-grey, argillaceous, siliceous, faintly calcareous. Trace of pyrite, ironstone. Shale, as above, 40%.
3380-3390	Shale, minor siltstone, as above. Much ironstone.
3390-3450	Shale, dark grey, micro-micaceous in part, non-calcareous; minor grey blocky shale, brown, hard shale - ironstone. Trace of pyrite.
3450-3470	Siltstone, very fine sandstone, grey and brown-grey, siliceous, argillaceous, hard, faintly calcareous, 60%. Shale, as above, 40%. Trace of fractures.
3470-3530	Shale, 70%, dark grey, blocky, non-calcareous, coaly flecks. Siltstone, 30%, brown-grey, argillaceous, micro-micaceous, faintly calcareous, trace of pyrite.
3530-3550	Shale, dark grey, grey, minor light grey and brown shale, trace of ironstone, coaly flecks. Traces silty, micaceous shale. Minor silty streaks.

3550-3560	Shale, dark grey, blocky to sub-fissile, non-calcareous, minor silty, micaceous shale. Trace to minor light grey, argillaceous, siliceous dense siltstone.
3560-3590	Siltstone, light grey and grey, very argillaceous, siliceous, hard. 30%. Trace of glauconite, pyrite. Much shale, as above - 70%.
3590-3610	Shale, dark grey, micro-micaceous, sub-fissile, non-calcareous, traces of coal flecks. 50%. Siltstone, dark grey-brown, argillaceous, non-calcareous, siliceous, hard. 50%, trace glauconite.
3610-3630	Siltstone, as above; grading to very fine grained brown, quartz sand, fair to good sorting, trace of glauconite, siliceous. Tight. Much dark grey and brown shale, traces ironstone and pyrite.
3630-3658	Sandstone, light grey, fine to medium grained, quartz grains, well sorted, sub-round to sub-angular, scattered black chert grains, trace of glauconite. Good intergranular porosity, no cut or fluorescence. Mud logging unit indicates gas show. Some lamination of bituminous material.
3658-3717	Core #1 59' Rec. 56.3 ft.
3717-3755	Sandstone, light grey, fine grained, vitreous; sub-angular to angular, well sorted quartz grains, few black chert grains, siliceous cement, trace glauconite. Scattered bituminous flecks and partings. Trace to poor intergranular porosity, streaks of fair porosity. No staining. Much dark grey blocky to sub-fissile shale.
3755-3785	Shale, dark grey, sub-fissile to blocky, trace of carbonized plant remains. Trace of bituminous shale. Minor sandstone, as above - cvg. ?

3785-3795	Sandstone, pale grey, fine to medium grained, well sorted, sub-angular to sub-rounded quartz, minor chert grains, trace of glauconite, siliceous cement. Much bitumen - intergranular, and as fine laminae. Poor to fair intergranular porosity, no stain. Questionable cut and fluorescence.
3795-3805	Sandstone, as above. Questionable cut, fluorescence. Increase in shale content, minor grey silty streaks.
3805-3814	Sandstone, pale grey, fine to medium grained, well sorted, sub-angular to sub-rounded quartz, minor chert, trace of glauconite, siliceous cement. Scattered intergranular bitumen. Poor to fair intergranular porosity, no stain, faint cut, fluorescence?
3814-3830	Sandstone, fine grained to very fine grained, grey, non-calcareous, slightly argillaceous, silty. Well sorted, sub-angular quartz grains, siliceous cement. Trace micaceous, pyrite, glauconite. Bituminous flecks and partings. Tight.
3830-3840	Sandstone, as above, 50%. Shale, dark grey, silty, micro-micaceous in part, sub-fissile, non-calcareous, 50%. Trace of pyrite.
3840-3875	Sandstone, as above; 70%. Trace of glauconite. Shale, as above; 30%.
3875-3880	Sandstone, as above. Increase in bitumen content. 70%. Shale, as above; 30%. Trace of pyrite.
3880-3885	Sandstone, light grey, fine grained, sub-angular quartz, well sorted, siliceous, silty, hard, tight. Minor grey, argillaceous sandstone. Trace of lamination. Trace of pyrite.
3885-3905	Sandstone, pale grey, fine grained, vitreous; sub-angular, well sorted quartz grains, silty, siliceous matrix. Trace of glauconite. Scattered black chert grains. Minor grey, argillaceous sandstone. Trace of intergranular porosity, no stain, cut or fluorescence.

3905-3925	Sandstone, as above; 60%. Much dark grey arg. sst. Shale, dark grey and black, micro-micaceous, slightly bituminous, fissile, 40%. Trace of fractures, pyrite, ironstone. Trace of intergranular porosity. Trace of cut and fluorescence.
3925-3955	Shale, dark grey to black, sub-fissile to blocky, sl. bituminous, micro-micaceous, non-calcareous, silty in part. Much sandstone, as above - cvg. in part.
3955-4010	Shale, as above. Trace of pyrite, ironstone. Trace of fractures. Minor interbedded dark grey silty shale, argillaceous siltstone.
4010-4080	Shale, dark grey and grey, blocky to sub-fissile, micro-micaceous, non-calcareous, silty streaks. Trace of pyrite. Trace of very argillaceous dark grey-brown, laminated siltstone.
4080-4180	Shale, dark grey, blocky to sub-fissile, micro-micaceous, non-calcareous. Trace of pyrite. Siltstone, dark brown-grey, argillaceous, siliconic, hard.
4180-4200	N.S.
4200-4280	Shale, dark grey to black, blocky to sub-fissile, sl. bituminous, micro-micaceous. Trace of pyrite. Siltstone, dark brown-grey, argillaceous, siliceous, hard. Trace micaceous, glauconitic, grading in part to very fine grained sandstone.
4280-4425	Shale, as above. Trace of silty streaks, trace of brown, very fine grained argillaceous sandstone. Trace of pyrite.
4425-4440	Shale, as above. Siltstone, dark brown-grey, argillaceous, siliceous, hard, grading to silty shale.
4440-4450	Shale, dark grey and black, sub-fissile to blocky, non-calcareous, micro-micaceous. Trace of silty shale. Trace of pyrite. Trace of anhydrite and pyrite fracture filling 4440-4450.

4450-4480	Shale, as above. Trace to minor interbedded silty shale, argillaceous siltstone.
4480-4620	Shale, dark grey and black, blocky to sub-fissile, micro-micaceous. Trace of pyrite. Trace of chert pebbles. 4560-4580.
4620-4650	Shale, as above. Trace of grey silt laminae. Trace of pyrite. Trace of grey, micaceous, sandy claystone, 4630-4640.
4650-4730	Shale, dark grey to black, sub-fissile, micro-micaceous, non-calcareous.
4730-4770	Shale, as above. Minor grey-brown silty shale, trace of ironstone.
4770-4800	Shale, dark grey, micro-micaceous, blocky to sub-fissile, trace silty shale, sl. bituminous. Much sideritic, glauconitic dark grey-brown shale. Trace of pyrite, ironstone.
4800-4820	Shale, as above, slightly bituminous, silty. Trace of sideritic and glauconitic shale. Pyrite.
4820-4850	Shale, dark grey to black, micro-micaceous, sl. bituminous, minor silty shale, much ironstone, trace pyrite, glauconite. Trace of fractures.
4850-4860	Shale, dark grey, micro-micaceous, sub-fissile to blocky, silty in part, trace bituminous. Trace of ironstone, trace of pyrite. Trace of grey, very argillaceous, dense limestone.
4860-4930	Shale, as above. Traces of dark brown-grey silty shale. Trace of glauconite, pyrite, ironstone. Trace of green, waxy shale.
4930-5020	Siltstone, grey and dark brown-grey, very argillaceous, grading to very silty shale. Trace micro-micaceous. Trace of pyrite. Trace of ironstone, waxy green shale, glauconite. Much glauconitic siltstone, ironstone 4980-5020. Trace of pale grey calcareous siltstone, ironstone.

5020-5080	Siltstone, as above. Trace glauconitic, pyritic. Trace of light grey, calcareous siltstone, ironstone. Trace of light grey micaceous, very fissile, soft shale.
5080-5100	Siltstone, as above. Trace glauconitic, trace calcareous siltstone. Trace of light green, waxy shale. Increase in black, sub-fissile shale. Pyrite. Trace of calcite filled fractures.
5100-5190	Shale, dark grey, silty, blocky, minor black fissile shale. Trace glauconite, pyrite, ironstone.
5190-5240	Shale, dark grey to black, sub-fissile to blocky, micro-micaceous, few silty streaks. Trace of pyrite, ironstone.
5240-5330	Shale, dark grey to black, sub-fissile to fissile, micro-micaceous. Trace of silty shale. Trace of pyrite, much ironstone.
5330-5370	Shale, as above. Trace of pyrite, ironstone.
5370-5390	Shale, dark grey and black, micro-micaceous, sub-fissile to blocky, traces silty streaks. Much brown ironstone, trace of pyrite.
5390-5520	Shale, dark grey and black, micro-micaceous, sub-fissile to fissile. Trace of plant remains. Trace of pyrite, ironstone. Trace of brown, argillaceous limestone 5440-5450. Trace of glauconite.
5520-5590	Shale, as above, trace glauconitic shale. Trace of ironstone, pyrite. Trace of silty shale. Trace of chert fragments and pebbles. Trace of dark green blocky shale. Trace of grey-brown, dense, argillaceous limestone, 5550-5560.
5590-5670	Shale, dark grey, blocky to sub-fissile, micro-micaceous. Trace of pyrite. Much ironstone. Trace of fractures. Trace of chert pebbles, 5640-5670.
5670-5680	N.S.

5680-5700	Shale, as above. Trace of silty streaks. Much brown ironstone. Traces to minor grey and brown-grey, dense, argillaceous limestone. Trace of chert pebbles.
5700-5740	Shale, dark grey to black, sub-fissile and fissile, micro-micaceous, slightly bituminous in part. Trace of glauconitic shale. Trace of silty shale. Trace of pyrite, ironstone. Trace of chert fragments.
5740-5760	As above. Minor (traces +) pale grey-green waxy - bentonite. Trace of dark grey very argillaceous limestone.
5760-5770	Shale, dark grey and black, sub-fissile to fissile, micro-micaceous, trace pyritic. Trace of interbedded silty shale and light grey siltstone. Trace of dark brown-grey argillaceous limestone. Trace of glauconite.
5770-5790	Shale, as above. Trace pyritic, trace of glauconite. Trace of brown, dense argillaceous limestone, as above. Trace of pale grey waxy bentonite, trace of ironstone.
5790-5800	Shale, as above. Minor silty, sandy streaks; 30%. Trace of grey siltstone. Trace of limestone, as above. Traces of ironstone, pyrite, as above.
5800-5830	Siltstone, grey and dark grey, siliceous, argillaceous, grading to silty shale. Much shale, as above. Trace of glauconitic sandy shale, trace of limestone. Trace of bentonite, pyrite.
5830-5860	Siltstone, grey, argillaceous, finely laminated in part, non-calcareous to faintly calcareous. Tight. Trace of grey v.f.g. sandstone, trace glauconitic. Trace of brown oil staining, fluorescence, cut, 5840-50. Trace of light brown dense limestone. Trace of bentonite, ironstone.
5860-5900	Shale, dark grey and black, micro-micaceous, much silty shale. Trace of pyrite, bentonite. Trace of light brown, dense limestone.

5900-5940	Shale, dark grey and black, micro-micaceous, blocky, silty in part, fairly glauconitic. Trace of pyrite. Trace of dark brown argillaceous limestone.
5940-5960	Shale, as above. Much brown, very glauconitic, calcareous siltstone. Trace of pyrite, trace of brown, dense limestone.
5960-5980	As above. Decrease in brown glauconitic siltstone.
5980-5990	Shale, as above. Sandstone, pale grey, medium grained sub-angular to sub-rounded, fairly well sorted quartz, minor chert grains, silica cement, trace glauconitic. Abundant coarse chert grit. Traces to fair porosity, no stain or cut.
5990-6002	Sandstone, pale grey, medium grained, sub-rounded fairly well sorted quartz, minor pale grey chert grains, siliceous, trace of glauconite. Much grey and pale grey chert grit. Fair to good intergranular porosity. No stain, cut or fluorescence.
6002-6020	Core #2 Rec. 16.7'
6020-6040	Core #3 Rec. 13.6'
6040-6050	Sandstone, light grey and brown-grey, medium to fine grained, very calcareous, in part a sandy limestone. Sub-angular fairly well sorted quartz grains. Trace of glauconite, pyrite. Abundant coarse dark grey and grey rounded chert grains. Traces of fossil fragments.
6050-6060	Sandstone, as above. Trace of poor, very fine intergranular porosity. Oil stain, cut, fluorescence.
6060-6070	Sandstone, as above. Much cavings - shale.

6070-6090	Chert, brown and dark brown, minor light grey chert, massive. Trace of limey chert and sandy textured limey chert - siliceous sandy limestone - glauconitic. Much pale grey sandy, glauconitic marl. Trace of fractures, pyrite. Trace of fossil remains. Trace of chert grit, intergranular porosity, cut, fluorescence. Much dark brown, bituminous blocky, non-calcareous shale.
6090-6100	Sandstone, light grey-brown, very calcareous, fine to medium grained, sub-angular quartz and chert grains, grading to sandy limestone. Siliceous in part. Trace of fossil shell fragments. Glauconite. Scattered coarse chert grit in calcareous sandy matrix. Minor dark brown, blocky non-calcareous shale. Trace of poor, intergranular porosity. Stain, cut, fluorescence.
6100-6120	Sandstone, light grey-brown, fine grained to medium grained, calcareous, siliceous. Fairly well sorted sub-angular quartz, chert grains, traces to fairly glauconitic, trace kaolinitic. Trace of poor intergranular porosity, oil stain, cut, fluorescence. Limestone, pale, grey, sandy, glauconitic, much coarse limestone and fossil fragments, chalky in part, siliceous. Matrix to coarse dark grey chert grit.
6120-6130	Sandstone, fine to medium grained, grey-brown, fairly well sorted sub-angular quartz, minor chert, siliceous, slightly calcareous, trace kaolinite, glauconitic. Traces of poor intergranular porosity, stain, cut, fluor. Much pale grey, very calcareous medium grained sandstone, glauconitic, grading in part to sandy limestone. Fossil remains - spicules, shells. Matrix to scattered chert grit. Minor brown, blocky non-calc. shale.
6120-6153	Core #4 Rec. 22.6

6153-6160	Sandstone, pale grey, fine to medium grained, very calcareous. Trace of fossil fragments - spicules. Fairly well sorted sub-angular to sub-rounded quartz, minor chert grains, in limestone matrix - 30%. Trace coarse grains. Trace of pyrite. Tight.
6160-6170	Shale, dark grey to black, sub-fissile to blocky non-calcareous, slightly bituminous. Trace of silty streaks. Pyrite.
6170-6180	Sandstone, fine grained, pale grey, trace glauconitic, calcareous. Matrix and cement - 10%. Fairly well sorted sub-round quartz grains, few coarser, well rounded chert and quartz grains, trace of chert "grit." Pyrite. Trace of fossil fragments, trace of sandy limestone.
6180-6220	Shale, dark grey and black, sub-fissile to blocky, non-calcareous, trace of pyrite; slightly bituminous. Trace of ironstone, argillaceous limestone streaks. Fossil shell fragments.
6220-6290	Shale, dark grey, blocky, slightly calcareous, silty texture. Streaks of grey-brown argillaceous limestone, trace of fossil fragments. Trace of pyrite.
6290-6310	Sandstone, pale brown-grey, medium grained, much coarse grains. Poorly sorted, sub-angular to sub-round quartz, minor chert grains, much glauconite. Lime matrix - 30%. Fossil shell fragments.
6310-6450	Shale, dark grey and brownish grey, calcareous, fossiliferous, non-calcareous streaks. Blocky, slightly bituminous. Argillaceous limestone streaks. Minor limey sandstone, as above. Trace of crinoids.
6350-6370	Shale, dark grey and dark brown, non-calcareous, blocky, slightly bituminous. Minor calcareous shale, limestone streaks. Trace of fossil fragments, crinoids.

6370-6450	Shale, dark grey and brown-grey, calcareous, few non-calcareous streaks. Blocky to sub-fissile. Fossil shell fragments, argillaceous limestone streaks. Trace of pyrite. Trace of crinoids, ostracods, spicules. Much fossiliferous limestone, 6410-6420.
6450-6470	Shale, dark grey, calcareous, blocky to sub-fissile, interbedded minor dark brown argillaceous limestone, micritic to micro-crystalline. Traces of fossil fragments.
6470-6490	Shale, dark grey and brown-grey, calcareous, blocky to sub-fissile, trace of pyrite. Much limestone, brown, micritic to micro-crystalline; scattered fossil fragments.
6490-6550	Shale, dark grey and dark brown, calcareous, blocky. Few non-calcareous shale beds. Few streaks of dark brown, argillaceous micritic to micro-crystalline limestone, trace of fossil fragments, pyrite. Gastropod - 6530-6540 sample.
6550-6620	Shale, as above. Calcareous in part. Minor limestone, interbeds, as above. Traces of silty, calcareous shale. Pyrite. Trace of ostracods 6560-6570.
6620-6660	Siltstone, grey and brownish grey, calcareous, siliceous in part, argillaceous.
6660-6720	Siltstone, very fine grained sandstone, pale grey, very calcareous, siliceous in part, grading to silty limestone.
6720-6740	Sandstone, light grey, medium grained, very calcareous (25%) matrix. Sub-rounded quartz and chert grains, poor to fair sorting, slightly siliceous cement. Scattered coarse grains and chert "grit." Trace of bitumen infilled porosity.
6740-6760	Limestone, dark brown and brown, argillaceous, grading to very calcareous shale and silty shale. Fossil fragments. Much pale grey calcareous siltstone and very fine grained calcareous sandstone. Pyrite.

6760-6820	Shale, dark brown, very calcareous, much fine fossil fragments. Minor, interbedded brown argillaceous limestone. Coarse shell fragments, spicules. Much fossiliferous limestone, 6810-6820.
6820-6850	Siltstone, very fine grained sandstone, argillaceous, very calcareous, siliceous in part, grading to calcareous, silty shale, brown and dark brown, much pale grey siltstone. Trace of fossil fragments, pyrite.
6850-6870	Shale, brown and dark brown, calcareous, minor non-calcareous streaks, blocky. Much interbedded brown, argillaceous "silty" shale; fossiliferous limestone.
6870-6890	Shale, grey and dark grey, non-calcareous, blocky, trace micro-micaceous, silty streaks.
6890-6900	Shale, as above. Much limestone, light brown, fossiliferous, and brown, argillaceous, dense limestone.
6900-6940	Shale, grey and dark grey, blocky, calcareous, minor fissile, non-calcareous shale. Minor, interbedded fossiliferous, very fine crystalline argillaceous limestone. Trace of crinoids, spicules.
6940-6960	Shale, as above. Traces of fossil shells. Much interbedded fossiliferous limestone, pale brown very fine crystalline slightly argillaceous limestone, silty.
6960-6980	Shale, dark grey and dark brown, calcareous, blocky, matrix to fine fossil debris. Interbedded dark brown argillaceous, fossiliferous limestone stringers.
6980-7020	Shale, as above. Much brown, argillaceous limestone and very calcareous, silty shale.

7020-7150	Siltstone, light brown, very calcareous, siliceous in part, grading to silty limestone. Much brown and dark brown slightly argillaceous micritic limestone, siliceous - grading to dark brown chert, 7030-7040. Trace of fossil fragments.
7150-7220	Limestone, brown and dark brown, micritic, argillaceous, siliceous in part. Much dark brown and brown silty, siliceous limestone, grading to very calcareous siltstone. Trace of brown chert, 7210-7220.
7220-7250	Limestone, brown and light brown, micritic to micro-crystalline (bit shattered), slightly argillaceous, siliceous in part. Much light brown and brown chert. (30% - 40%).
7250-7300	Limestone, brown, argillaceous, micritic, silty in part siliceous, grading to very calcareous siliceous shale. Traces of brown and brown-grey chert.
7300-7340	Limestone, brown, argillaceous, micritic to micro-crystalline, siliceous in part, silty.
7340-7350	Shale, brown, very calcareous, siliceous in part. Much silty, argillaceous, siliceous limestone, as above.
7350-7390	Limestone, brown, micritic to micro-crystalline, argillaceous, siliceous, silty in part, grading in part to very calcareous, siliceous shale. Traces of fossil fragments, spicules. Trace of chert. Pyrite.
7390-7430	Shale, dark grey and dark brown, calcareous, blocky to splintery, grading in part to dark brown, argillaceous dense limestone.
7430-7440	N.S.
7440-7550	Shale, dark brown, very calcareous, splintery, grading in part to dark brown argillaceous limestone.

7550-7580	Shale, dark grey and dark brown, calcareous, blocky, splintery. Scattered fine fossil debris, fossiliferous limestone streaks, trace of chert pebbles. Trace of spicules, ostracods.
7580-7600	Shale, dark grey and dark brown, non-calcareous and calcareous, blocky to sub-fissile. Trace of fossil shells, crinoids, spicules.
7600-7690	Shale, as above. Interbedded brown, very argillaceous limestone.
7690-7800	Shale, as above. Much brown and dark brown, argillaceous, dense limestone, siliceous in part.
7800-7820	N.S.
7820-7850	Limestone, dark brown and brown, argillaceous, dense. Much dark brown calcareous shale, as above.
7850-7870	Shale, dark brown, sub-fissile and blocky, calcareous. Minor brown, argillaceous limestone, scattered fine fossil fragments.
7870-7930	Shale, dark brown, blocky, calcareous, trace silty. Minor interbeds of dark brown, dense, argillaceous limestone, siliceous in part.
7930-7970	Shale, dark brown and black, blocky, calcareous, silty, speckled by abundant scattered very fine fossil fragments. Trace of black, non-calcareous, fissile shale. Traces of minor interbedded fossiliferous limestone.
7970-8004 T.D.	Limestone, lt. brown and dark brown, silty, sandy, siliceous in part, argillaceous. Much dark brown, calcareous shale, as above.

SECTION III - ENGINEERING SUMMARY

(a) Report of Drillstem Tests — Field Pressures Reported

DST #1 3620 - 3658

Zone: Cretaceous

Times:

Preflow	8 mins.
ISI	30 mins.
VO	65 mins.
FSI	65 mins.

Pressures:

IHP	1779 psi	FHP	1779 psi
ISIP	567 psi	FSIP	405 psi
IFP	283 psi	FFP	270 psi
Preflow	283 psi		

Recovery: Recovered 455 feet of slightly watery mud

Remarks: Test satisfactory

DST #2 3639 - 3813

Zone: Cretaceous

Times:

Preflow	8 mins.
ISI	30 mins.
VO	60 mins.
FSI	90 mins.

Pressures:

IHP	1753 psi	FHP	1753 psi
ISIP	1645 psi	FSIP	1524 psi
IFP	1631 psi	FFP	1618 psi
Preflow	310 psi		

Recovery: 1085 feet of drilling mud

Remarks: Test a misrun

DST #3 3629 - 3813

Zone: Cretaceous

Times:

Preflow	10 mins.
ISI	30 mins.
VO	60 mins.
FSI	60 mins.

Pressures:	IHP	1771 psi	FHP	1771 psi
	ISIP	790 psi	FSIP	1099 psi
	IFP	386 psi	FFP	924 psi
	Preflow	388 psi		

Recovery: 595 feet of drilling mud

Remarks: Test a misrun

DST #4 5977 - 6053

Zone: Permo-Penn

Times:	Preflow	3 mins.
	ISI	30 mins.
	VO	5 mins.
	FSI	30 mins.

Pressures:	IHP	3200 psi	FHP	2880 psi
	ISIP	N/A	FSIP	N/A
	IFP	360 psi	FFP	N/A
	Preflow	200 psi		

Recovery: 1290 feet of drilling mud

Remarks: Test a misrun

DST #5 7800 - 8004

Zone: Chance Sand Equivalent

Times:	Preflow	3 mins.
	ISI	30 mins.
	VO	90 mins.
	FSI	120 mins.

Pressures:	IHP	4477 psi	FHP	4376 psi
	ISIP	1348 psi	FSIP	2386 psi
	IFP	70 psi	FFP	120 psi
	Preflow	120 psi		

Recovery: Strong air blow on preflow
Gas to surface in 5 min. at 51 Mcf/Day
186' black sulphurous drilling mud recovered

Remarks: Test satisfactory

DST #6 2487 - 2565

Zone: Cretaceous

Times:		
	Preflow	5 mins.
	ISI	30 mins.
	VO	120 mins.
	FSI	120 mins.

Pressures:				
	IHP	1368 psi	FHP	1308 psi
	ISIP	645 psi	FSIP	947 psi
	IFP	342 psi	FFP	665 psi
	Preflow	282 psi		

Recovery: 558 feet of drilling mud

Remarks: Test a misrun

DST #7 5982 - 6060

Zone: Permo-Penn

Times:		
	Preflow	3 mins.
	ISI	30 mins.
	VO	120 mins.
	FSI	120 mins.

Pressures:				
	IHP	3892 psi	FHP	3414 psi
	ISIP	2410 psi	FSIP	2334 psi
	IFP	462 psi	FFP	1144 psi
	Preflow	608 psi		

Recovery: Good air blow on preflow
Gas to surface in 10 mins. at 13 Mcf/Day
190' gas cut mud
2320' salt water

Remarks: Test satisfactory

DST #8 2487 - 2565

Zone: Cretaceous

Times:		
	Preflow	3 mins.
	ISI	30 mins.
	VO	90 mins.
	FSI	90 mins.

Pressures:	IHP	1393 psi	FHP	1344 psi
	ISIP	1344 psi	FSIP	1330 psi
	IFP	750 psi	FFP	1282 psi
	Preflow	527 psi		

Recovery: 125 feet gas cut mud

Remarks: Test a misrun

DST #9 2486 - 2548

Zone: Cretaceous

Times:	Preflow	5 mins.
	ISI	30 mins.
	VO	120 mins.
	FSI	120 mins.

Pressures:	IHP	1393 psi	FHP	1380 psi
	ISIP	955 psi	FSIP	1017 psi
	IFP	109 psi	FFP	121 psi
	Preflow	97 psi		

Recovery: Good air blow on preflow
Fair to strong air blow on flow period
150' drilling mud watery near base

Remarks: Test satisfactory

(b) Casing Record

22 feet of 23" O.D. insulated conductor pipe from surface to 22 feet, complete with 3/4" cooling coils.
28 feet of 19" O.D. 3/16" pipe set at 50 feet below ground or 64 feet K.B.
Conductor pipe cemented with 210 sax permafrost cement.
Ran 25 joints (813.77') of 13-3/8" 54.5#, J-55, 8-round, new seamless casing landed at 798.86' K.B. Cemented casing with 1320 sax construction cement plus 3% $CaCl_2$. CIP 1320 Hours February 16, 1971.

(c) Bit Record

See attached sheets for bit record.

(d) Mud Report

Surface Hole - Surface hole was drilled using a stable foam. (Combination of air water and sulfotex sal.) At T.D. surface the hole was displaced to a gel water system to permit logging of the 17½" hole. The following materials were used on surface:

Sulfotex Sal	10 Drums
Gel	108 Sax
Caustic	4 Sax
Aluminum Stearate	1 Sax
Sawdust	25 Sax

Main Hole - The main hole was drilled using an XC polymer mud system. Mud up was immediately below the surface casing. The following materials were used on the main hole:

Gel	854 Sax
Caustic	84 Sax
Kelzan "AL"	124 Sax
Bicarbonate of Soda	6 Sax
CMC	3 Sax
Aluminum Stearate	3 Sax
Redwood Fiber	15 Sax
Weight Material	808 Sax
Dowicide "B"	4 Sax
Plaster of Paris	9 Sax
Ammonium Nitrate	3 Sax
Chrome Alum	1 Sax
Spersene	41 Sax
Sawdust	567 Sax

(e) Deviation Record

Surface Hole

110	-	1°	445	-	1°
140	-	1°	510	-	1/2°
202	-	1-1/8°	570	-	1/2°
254	-	1°	633	-	1°
285	-	1°	690	-	3/4°
315	-	7/8°	757	-	1/4°
385	-	7/8°			

Main Hole

901	-	1°	4305	-	1/2°
963	-	1°	4463	-	1°
1027	-	1°	4557	-	1°
1059	-	1°	4652	-	1°
1090	-	1°	4739	-	1°
1147	-	7/8°	4834	-	3/4°
1174	-	1°	4960	-	3/4°
1211	-	1°	5117	-	1-1/8°
1258	-	1°	5212	-	1-1/2°
1342	-	1°	5275	-	1-7/8°
1437	-	1°	5337	-	1-3/4°
1500	-	1°	5405	-	1-1/3°
1610	-	1°	5502	-	1-7/8°
1690	-	1°	5554	-	1-3/4°
1780	-	1°	5615	-	1-1/2°
1879	-	1°	5677	-	1-1/2°
2015	-	3/4°	5775	-	1-3/4°
2100	-	1/2°	5838	-	1-1/2°
2258	-	1/2°	5930	-	2°
2415	-	1°	6002	-	2°
2600	-	1/2°	6064	-	1-3/4°
2760	-	3/4°	6130	-	2°
3045	-	1/2°	6163	-	2°
2920	-	7/8°	6275	-	1-1/2°
3236	-	1°	6464	-	3-1/4°
3420	-	1-1/2°	6558	-	3-2/3°
3490	-	1-1/4°	6636	-	3-1/4°
3550	-	1-1/2°	6776	-	3-7/8°
3610	-	1-1/8°	6880	-	4°
3740	-	1°	7030	-	4-1/4°
3834	-	1°	7116	-	4-1/2°
3929	-	1°	7217	-	4-1/2°
4022	-	1/2°	7470	-	4-7/8°
4178	-	1/4°	7536	-	4-1/2°
			7633	-	5-1/4°
			7895	-	5-1/4°
			(T.D.) 8004	-	5°

(f) Abandonment Plugs

Plug #1 (8004 - 7800) 120 Sax Construction Cement + 0.4% Spersene
Plug #2 (6100 - 5900) 140 Sax Construction Cement + 0.4% Spersene
Plug #3 (3800 - 3550) 170 Sax Construction Cement. Felt @ 3500'.
Plug #4 (2600 - 2450) 100 Sax Construction Cement. Felt @ 2430'.
Plug #5 (850 - 750) 130 Sax Construction Cement + 3% $CaCl_2$. Felt @ 715'.
Surface Plug - 5 Sax Construction Cement

(g) Lost Circulation Zones

No lost circulation

(h) Report of Blowouts

No blowouts

SECTION IV - LOGS

The following Schlumberger logs were run on surface hole on February 15, 1971:

I - ES	(787' - 70')
BHC/Sonic/G R	(779' - 70')
Microlog Caliper	(786' - 70')

The following logs were run on main hole on April 20, 1971:

BHC/Sonic/Gamma Ray/Caliper	(8001' - 797')
SNP/Gamma Ray/Caliper	(7998' - 5800') & (4000' - 3600')
Dual Induction Laterolog	(7998' - 797')
FDC/Gamma Ray/Caliper	(7998' - 5800') & (4000' - 3600')

Ran a velocity survey on April 19, 1971 with check shots at the following levels: 115, 215, 315, 415, 515, 810, 1400, 2000, 2550, 3140, 3630, 4430, 5200, 5980, 6620, 7015, 7525, 7975, 7080.
Also ran a Depth Determination for Core Slicer Log.
Total depth loggers at 8003 feet K.B.

SECTION V - ANALYSIS

(a) Core Analysis

Core analysis enclosed in back folder

(b) Water Analysis

Water analysis enclosed in back folder

(c) Gas Analysis

Gas analysis enclosed in back folder

(d) Oil Analysis

No oil analysis

SECTION VI - COMPLETION SUMMARY

(a) Tubing Record

No tubing run

(b) Perforation Record

No perforations shot

(c) Cementation Record

Abandonment Plug #1: (8004' - 7800') Upper Mississippian?
Cemented with 120 sax construction cement plus 0.4% spersene. Cement in place 0415 hours May 1, 1971. No feel on plug #1.

Abandonment Plug #2: (6100' - 5900') Permo-Penn
Cemented with 140 sax construction cement plus 0.4% spersene. Cement in place 0600 hours May 1, 1971. Tagged plug #2 after 8 hours W.O.C. at 5840'.

Abandonment Plug #3: (3800' - 3550') Blackie Sand
Cemented with 170 sax construction cement. Cement in place 1700 hours May 1, 1971. Tagged plug #3 after 8 hours W.O.C. at 3500'.

Abandonment Plug #4: (2600' - 2450') Eagle Plain Formation Sand
Cemented with 100 sax construction cement. Cement in place 0130 hours May 2, 1971. Tagged plug #4 after 8 hours W.O.C. at 2430'.

Abandonment Plug #5: (850' - 750') Cretaceous/Surface Casing
Cemented with 130 sax construction cement plus 3% $CaCl_2$. Cement in place 1030 hours May 2, 1971. Tagged plug #5 after 8 hours W.O.C. at 715'.

Surface Plug: Cut off casing below ground level, cemented casing with a 5 sax surface plug and welded on steel plate. A well sign with well name and location was then welded to the casing plate.

(d) Acidization and Fracturing Record

No acidizing or fracturing

(e) Back Pressure and Production Tests

No back pressure or production tests

CHEVRON STANDARD LIMITED

BIT RECORD

ELL NAME. E. PORCUPINE CONTRACTOR GENERAL PETROLEUMS RIG No. 14 PUMP No 1 NATIONAL C-

PUD DATE FEB 10 1971 RIG RELEASED DRILLING DAYS PUMP No. 2 NATIONAL C-

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.
1	HW	17½	OSCIM	64	331	267	25	10.7	3-16		8-5												2	2	1	
2	"	17½	RETIP OSC16	331	660	329	29	13.7	3-18		10												2	3	1	
3	"	17½	RETIP OSC16	660	804	144	14¾	9.8	3-18		10												3	3	1	
4	"	12¼	RETIP OSC16	804	825	21	¾	28.0	3-9		10	70	5	50	5½		900						2	1	1	
5	SMITH	8¾	SDT	825	1037	212	12¼	17.3	3-9		10-8	60/95	"	50	"		1400						2	1	1	
6	HW	"	X16	1037	1221	184	16¾	11.0	"		8-10	90	"	50	"		1400						2	1	1	
7	HW	"	X16	1221	1657	436	24	18.2	"		30	90	"	50	"		1400						3	2	1	
8	SMITH	"	SVH	1657	2038	381	25	15.2	"		"	60	"	55	"		1600						4	2	1	
9	SEC	"	S-88	2038	2840	802	44¼	18.1	"		"	52	"	53	"		1650						3	3	1	
10	SEC	"	S-88	2840	3658	818	55¼	14.8	"		20/40	48	"	53	"		1650						4	2	1	
11	CHRIST	6 3/16	◇	3658	3717	59	16½	3.6	—		15	80	"	40	"		550						-	-	-	
12	HW	8¾	XV	3717	3754	37	8	4.6	2-9 1-10		32	55	"	56	"		1500						6	2	0	
13	SEC	"	S-88	3754	3813	59	9¾	6.0	"		30	50	"	54	"		1600						-	-	-	
13b	SEC	"	S-88	3813	4009	196	25	7.8	"		30	50	"	50	"		1400						3	4	0	
14	SMITH	"	3JS	4009	4739	730	62½	11.7	"		32	50	"	48	"		1200						3	1	1	
15	SEC	"	S-88	4739	4505	666	68½	9.7	3-10		25/35	50	"	52	"		1300						3	5	1	
16	HW	"	X55R	5405	5701	296	44½	6.6	3-10		35	60	"	52	"		1300						2	8	1	
17	SEC	"	M88	5701	6002	301	38¼	7.9	2-9 1-10		25/35	60	"	52	"		1400						2	3	1	
18	BOWLES	6 3/16	◇	6002	6020	18	8½	2.1	—		12	85	"	46	"		700						-	-	-	
18b	BOWLES	6 3/16	◇	6020	6040	20	12	1.7	—		12	80	"	45	"		700						JUNK			
19	HW	8¾	XDV	6040	6046	6	2½	2.4	2-9 1-10		30	48	"	52	"		1600						8	4	0	
20	SEC	"	H77S	6046	6064	18	5¼	3.4	2-10 1-9		35	50	"	54	"		1600						4	3	1	
21	HW	"	RG1K	6064	6130	66	17	3.9	"		40	50/75	"	56	"		1700						1	3	1	

CHEVRON STANDARD LIMITED

BIT RECORD

ELL NAME E. PORCUPINE · CONTRACTOR G. P · RIG No. 14 · PUMP No 1 _____

UD DATE FEB 10, 1971 · RIG RELEASED MAR 8 1971 · DRILLING DAYS 4/10/71 68 DAYS · PUMP No. 2 _____

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.
2R	Varel	6 3/16	◇	6130	6153	23	6 1/2	3.5	—		12	85	5"	46			900						-	-	-	
23	HW	8 3/4	XDV	6153	6163	10	2 3/4	3.6	2-10 1-9		40	50	"	56			1650						5	1	1	
24	HW	"	R69X	6163	6188	25	10	2.5	"		40	50	"	56			1650						1	1	1	
25	Sec	"	S-88	6188	6636	448	55 1/2	8.8	"		28/28	50	"	56			1650						1	1	1	
26	Sec	"	M-88	6636	6881	245	96 1/2	5.3	"		40	50	"	56			1700						5	8	0	
27	HW	"	XSSR	6881	7116	235	37	6.3	"		"	40	"	54			1650						8	6	0	
28	HW	"	XSSR	7116	7217	101	15 3/4	6.4	"		"	"	"	54			1650						6	5	1	
29	Sec	"	H-100	7217	7536	319	70 1/4	4.5	"		"	"	"	52			1650						2	4	1	
30	Sec	"	H-100	7536	7634	98	33	3.0	"		"	"	"	52			1600						1	0	1	
31	HW	"	XSSR	7634	7895	261	43 3/4	6.0	3-10		"	"	"	54			1600						1	1	1	
32	HW	"	XSSR	7895	8004	109	22 3/4	4.8	3-10		"	"	"	54			1600						1	2	1	

PRO - 302 - CS (11/70)

~~A~~ "ELK"

50BC E. Porcupine YT I-13

CORE LABORATORIES - CANADA, LTD.
Petroleum Reservoir Engineering
CALGARY, ALBERTA

Company SOBC NM E. PORCUPINE Formation BLACKIE Page 1 of

Well Outward ↓ Date Report File 913-181

Field, Province D. Fluid Analysts

Location Analysis CORE #1 Remarks SAMPLES 10-24 SALT ANALYSIS

DEPTH - 3658 - 3718

CORE ANALYSIS RESULTS

(Figures in parentheses refer to footnote remarks)

Depth Feet	Ft. Rec.	Permeability Millidarcys K Max	K 90°	KV	Perm. Ft.	Porosity Percent	Porosity Feet	Density Bulk	Density Grain	Residual Saturation Oil % Pore	Residual Saturation Total water % Pore	Visual Examination
		CORE #					(REC. 57') (12 BOXES)					
	3.9											DENSE SILTY & SHALY
1	0.9	0.03	0.03	<0.01	0.03	4.9	4.41	2.52	2.65			FG SANDY
	2.5											DARK SILTY & SHALY
	1.3											SHALE
	1.0											DENSE SILTY
	1.9											SHALE
	5.5											DENSE SILTY & SHALY
2	1.6	0.04	0.04	<0.01	0.06	5.9	9.44	2.51	2.67			FG SILTY
3	1.3	0.84	0.57	0.16	1.09	7.3	9.49	2.44	2.64			FG F
	1.4	0.65	0.61	0.03	0.91	6.2	8.68	2.46	2.62			FG SANDY
5	1.4	1.02	0.93	0.13	1.43	7.6	10.64	2.42	2.62			FG
6	1.6	0.67	0.61	0.05	1.07	7.1	11.36	2.43	2.62			FG SANDY
7	2.0	0.94	0.85	0.15	1.89	7.2	14.46	2.45	2.64			FG SANDY
8	1.6	1.03	0.96	0.03	1.65	6.3	10.08	2.43	2.65			FG SANDY
9	1.4	0.33	0.33	<0.01	0.46	6.5	9.10	2.48	2.65			FG SANDY
	5.8											DENSE SILTY & SHALY
	1.5											SHALE
10	1.0	14.76	14.36	0.97		8.2		2.47	2.69	5.1	15.3	

CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING

GAS ANALYSIS

Company: Chevron Standard Limited — Page: 1 of 1

Well: — File: 921-1331

Field: — Analyst: PB

Location: — Elevation: K.B. — Grd.

Formation: — Depth:

Sampled from: E. Porc. #7 — by:

Sampling pressure: — psig — Sampling temp.: — °F — Ambient temp.: — °F

Date sampled: — Date received: Apr. 30/71 — Date analysed: Apr. 30/71

Container pressure: 6 psig — Mud: — Water cushion:

Recovery or flowrate:

COMPONENT	MOLE %	IMP. GPM @ 14.65 psia and 60°F
Hydrogen		
Helium		
Nitrogen	.38	
Carbon Dioxide	4.64	
Hydrogen Sulphide	.00	
Methane	89.96	
Ethane	3.61	
Propane	.78	.178
Iso Butane	.18	.049
Normal Butane	.20	.052
Iso Pentane	.09	.027
Normal Pentane	.06	.018
Hexanes	.06	.020
Heptanes Plus	.04	.015
Total	100.00	.359
Pentanes Plus		.080

SPECIFIC GRAVITY

Calculated .636 — Measured

GROSS B.T.U. per SCF 1061.8

Calculated @ 14.65 psia, 60°F, moisture and acid - gas free.

VAPOR PRESSURE of PENTANES PLUS

(calculated) 12.4 psia @ 100°F

Pseudo Critical Pressure 690.7 psia

Pseudo Critical Temperature 366.0 °R

Remarks: Cylinder #C-169