

WELL HISTORY REPORT

SOBC WM. SHAEFFER

CK YT 0-22

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MAY 27, 1971


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



(i)

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SECTION I - SUMMARY OF WELL DATA

- (a) Well Name and Number
SOBC WM Shaeffer CK YT 0-22
- (b) Permitter, Licencee or Lessee
Western Minerals Ltd.
- (c) Name of Operator
Chevron Standard Limited
400 Fifth Avenue S.W.
Calgary 1, Alberta
- (d) Location
Unit 0; Section 22; Grid: 66° 50' N; 137° 15' W
- (e) Coordinates
Latitude: 66° 41' 54" N; Longitude: 137° 19' 40" W
- (f) Permit or Lease Number
Permit No. 3324
- (g) Drilling Contractor
General Petroleum Drilling Ltd., Rotary Rig Number Fifteen
- (h) Drilling Authority
Number 464, Issued December 7, 1970
- (i) Classification
Wildcat
- (j) Elevations
Ground: 1,139; K.B: 1,155
- (k) Spudded
0700 Hours, January 12, 1971
- (l) Completed Drilling
1630 Hours, April 27, 1971

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

T.D: 10,373 P.B.T.D: Surface Logger's Depth: 10,374'

(n) Well Status

Dry and abandoned

(o) Rig Release Date

1159 Hours, May 9, 1971

(p) Hole Sizes to Total Depth

30" Hole from surface to 63' (78' K.B.)

17½" Hole from 78' K.B. to 1,205' K.B.

8-3/4" Hole from 1,205' K.B. to 10,373' K.B.

(q) Casing

23" O.D. conductor pipe set at 22'

19" O.D. conductor pipe set at 78' K.B.

13-3/8" J-55, 54.5# casing set at 1,200.66' K.B.

SECTION II - GEOLOGICAL SUMMARY

(a) Formation Tops

<u>Formation</u>	<u>Depth</u>		<u>Elevation K.B. 1155</u>
	<u>Samples</u>	<u>Logs</u>	
Upper Cretaceous Shale	Surface		
Blackie Sand	-	503	+652
Cretaceous-Devonian Unconformity	2025	-	-870
"Pure Shale" marker	-	6612	-5457
Middle Devonian Reef	8330	8326	-7171
T.D. 10373 (-9215)			

(b) Cored Intervals

<u>Core #</u>	<u>Interval</u>	<u>Formation</u>	<u>Recovery</u>
1	8910-8970	Middle Devonian	60 ft.
2	8971-9031	Middle Devonian	56.8 ft.
3	9033-9088	Middle Devonian	53.7 ft.
4	9090-9150	Middle Devonian	58.8 ft.

(c) Core Descriptions

Core #1	8910-8970	Rec. 60.0 ft.
Coring Times:	9 8 7 6 7 9 9 8 12 10	
	12 13 13 13 11 13 11 12 12 12	
	7 12 9 10 11 10 12 10 9 8	
	12 10 12 12 10 12 10 9 10 11	
	12 11 10 10 11 10 13 9 12 9	
	12 9 9 12 10 8 10 13 10 10	

Core Description:

8910-8936.7 Limestone, light tan, crypto-crystalline, tight.
 26.7 Massive stromatoporoids, stromatoporoid fragments,
 in dark grey argillaceous crypto-crystalline limestone
 matrix. Traces of crinoids, small brachiopods,
 solitary corals. Thin (0.3ft.) finely laminated
 calcareous bituminous shale break at base.

- 8936.7-8953.0 Limestone, light tan, crypto-crystalline, tight.
16.3 Massive stromatoporoid limestone. Styloitic.
- 8953.0-8970 Limestone, light tan, crypto-crystalline, tight.
Large calcite-infilled fracture, 8968-8970. Massive
stromatoporoids, laminae stromatoporoids, stromato-
poroid fragments, few scattered coarse crinoid
fragments, *amphipora?* in dense limestone matrix,
framework 80%, matrix 20%.

End of Core #1.

Core #2 8971 - 9031 Recovered 56.8 feet

Coring Times:	10	9	10	8	7	8	7	7	7	6
	8	8	6	7	5	8	7	6	6	14
	8	7	5	7	7	7	6	6	8	6
	7	8	4	8	8	7	7	6	6	8
	7	7	6	6	7	8	3	1	7	11
	9	8	9	11	9	9	8	7	9	10

Core Description:

- 8971-9016.1 Limestone, light grey and light tan, crypto-
45.1 crystalline to micro-crystalline, matrix to abundant
massive to fragmented stromatoporoids. Scattered
crinoid fragments, brachiopods. Styloitic.
Orthoceratid fossils, at 9005 feet and 9007 feet.
Massive stromatoporoids 8980-8996.
- 9016.1-9017.3 Limestone, light brown, micro-crystalline. Vugs, in-
1.2 filled with light brown, very fine crystalline,
sucrosic limestone, earthy and fine intergranular
porosity, no stain, cut or fluorescence. Vugs are
leached stromatoporoid masses and fragments. Large
calcite infilled fracture at top.
- 9017.3-9019.2 Limestone, light tan and light grey, micro-
1.9 crystalline, tight. Abundant stromatoporoid fragments
and laminae. Abundant brachiopods at top and base.
Rubble in part.
- 9019.2-9024.4 Limestone, light grey, micro-crystalline dense,
5.2 shatter-fractured. Matrix to scattered stromatoporoid
fragments, brachiopods, coarse crinoids. Tight.

- 9024.4-9025.6 Limestone, light brown, micro-crystalline. Leached
1.2 stromatoporoid laminae, very fine intergranular
porosity in leached laminae. No stain, cut or
fluorescence.
- 9025.6-9027.8 Limestone, light grey, micro-crystalline, matrix
2.2 to stromatoporoid fragments and laminae, scattered
coarse crinoid fragments. Tight.
- 9027.8-9031 Core not recovered.
3.2

Core #3 9033 - 9088 Recovered 53.7 feet

Coring Times:

18	15	7	8	8	7	9	7	8	7
7	8	9	9	8	8	7	8	8	7
8	8	6	8	11	9	9	8	10	9
8	8	7	9	9	9	8	9	8	8
9	6	8	8	9	8	7	8	8	8
8	9	7	8	7	Core jammed.				

Core Description:

- 9033-9058.8 Limestone, light grey and light tan, micro-crystalline,
25.8 tight. Massive and fragmented stromatoporoids in
light grey limestone matrix. Few brachiopods.
Calcite-filled veining and fractures.
- 9058.8-9085.7 Limestone, dark brown, micro-crystalline, argillaceous.
26.9 Matrix to massive and fragmented stromatoporidea,
oncolites and coralline algae. Band of solitary
corals at 9064 feet. Scattered brachiopods. Tight.
Calcite filled veins and fractures.
- 9085.7-9086.7 Limestone, brown, micritic, tight, slightly
1.0 argillaceous.
- 9086.7-9088 Core not recovered.
1.3

Core #4 9090 - 9150 Recovered 58.8 feet

Coring Times:

9	9	10	8	12	10	12	11	6	7
8	6	7	7	9	6	7	7	7	6
8	7	7	6	6	8	7	7	8	6
7	6	7	5	7	7	6	5	6	5
7	6	6	7	5	6	5	7	6	7
5	7	7	8	5	10	5	6	9	6

Core Description:

- 9090-9110.7 Limestone, brown, micritic, dense, faintly argillaceous.
20.7 Scattered calcite "eyes" - algal? Calcite veining
 and infilled fractures. Horizontal stress - relief
 fractures. Scattered stromatoporoid heads and
 fragments; corals and brachiopods - about 30% of
 rock volume. A large brachiopod, almost completely
 infilled with calcite, with trace of oil fluorescence,
 occurs at 9104.5 feet.
- 9110.7-9116.9 Limestone, dark medium brown, micro-crystalline,
6.2 slightly argillaceous, dense. Scattered calcite
 "eyes", calcite veining.
- Abundant massive stromatoporoids; scattered corals,
 brachiopods. Lower 3 feet interbedded with brown,
 micritic, dense, horizontally fractured limestone.
- 9116.9-9138.6 Limestone, brown, micritic to micro-crystalline,
22.7 slightly argillaceous - matrix to stromatoporoid
 heads and fragments, scattered brachiopods and
 corals, indeterminate fossil fragments - comprising
 about 30% of rock volume. Horizontally fractured.
 Rubble 9130 - 9131.
- 9138.6-9140.2 Limestone, brown-grey, faintly argillaceous, micritic -
1.6 birdseye algal texture. Calcite veining.
- 9140.2-9148.8 Limestone, dark brown, micro-crystalline, slightly
8.8 argillaceous. Massive, patchy stromatoporoids,
 scattered corals and brachiopods, fossil fragments.
 Thin coral beds at 9143 and 9145. Horizontal
 fractures.
- 9148.8-9150 Core not recovered.
1.2

(d) Sample Description

Sample description starts at 600 feet.

- 600-610 Sandstone, grey, S & P, fine grained, (.12 mm), sub-angular to sub-rounded, fairly well sorted. Trace of glauconite, kaolinite. Minor black chert grains. Traces of black plant fragments. Fair porosity, no stain, questionable fluorescence. Much argillaceous, silty sand, minor grey, silty shale, traces of plant remains, traces of coal fragments.
- 610-640 As above. Trace of well rounded chert "grit". Faint cut and fluorescence.
- 640-660 Shale, silty, and argillaceous siltstone, light brown-grey, laminated in part, micro-micaceous. Interbedded grey, fine grained argillaceous, S & P, sandstone, glauconitic, kaolinitic in part, bitumen-flecked, traces of plant remains.
- Trace of brown and dark grey chert. Pyrite.
- Thin porosity streaks in sandstone, fair, intergranular, faint cut, fluorescence.
- 660-670 Shale, grey, laminated, silty, micro-micaceous, non-calcareous.
- Minor light grey S & P, fine grained, kaolinitic, glauconitic sandstone, sub-angular, argillaceous. Streaks of vitreous quartz sand, fair porosity. No stain, cut or fluorescence.
- 670-680 N.S.
- 680-700 Shale, brown and dark grey, as above. Minor interbedded sandstone, grey, S & P, fine grained, grading in part to grey siltstone. Trace of fair porosity, no stain, cut or fluorescence.
- 700-710 Sandstone, light grey, quartzose, fine grained, trace glauconitic, non-calcareous. Trace of fair porosity, no stain, cut or fluorescence.
- Minor grey and dark grey shale, chert pebbles, pyrite.

- 710-720 Siltstone, grey, argillaceous, grading to very fine grained sandstone. Minor brown grey and grey shale. Much light-grey cement? Contamination. Trace of light grey, coarse, quartz-chert sandstone.
- 720-760 Siltstone, brown-grey, argillaceous laminated in part, grading to silty shale and very fine grained sandstone. Much light brown silty shale. Trace of chert pebbles. Trace of light grey "fragmental" limestone, trace of grey, argillaceous, cryptocrystalline limestone. Pyrite.
- Traces to minor pale grey, fine grained quartz sand. Good inter-granular porosity, no stain, cut or fluorescence.
- 760-770 Siltstone, as above.
- Much light brown silty, micaceous shale, traces of dark grey shale. Trace of grey and brown, dense, argillaceous limestone.
- Much pale grey, fine grained, well sorted, sub-angular quartz sand, trace glauconitic. Traces chert, pyrite.
- 770-810 Siltstone, light grey-brown, argillaceous, non-calcareous grading in part to very fine grained argillaceous sandstone. Pyrite.
- 810-860 Shale, grey-brown, silty in part, micaceous, non-calcareous, blocky. Trace of silty lamination and interbedded argillaceous siltstone. Traces of chert, pyrite.
- 860-880 Shale and silty shale, as above. Trace of brittle, blocky green shale. Minor dark grey, sub-fissile shale.
- 880-910 Shale, dark grey, sub-fissile, micro-micaceous, non-calcareous.
- Much grey-brown, silty, micaceous shale and argillaceous siltstone.
- 910-990 Shale and silty shale, as above.

Trace of sandstone, fine grained, glauconitic, sub-angular, well sorted quartz. Good porosity, no stain, cut or fluorescence.

Trace of medium grained sandstone, grey, S & P, plant remains.

- 990-1000 Shale, dark grey, sub-fissile, non-calcareous. Siltstone, grey, argillaceous, micaceous, grading to very fine grained brown-grey sandstone. Trace of coaly fragments.
- 1000-1010 Shale, dark grey, sub-fissile, non-calcareous.
- 1010-1020 Shale, as above.
- Interbedded brown-grey argillaceous siltstone and very fine grained grey, quartz sandstone.
- 1020-1050 Shale, dark grey, sub-fissile, non-calcareous. Minor siltstone, as above.
- 1050-1060 Shale, as above. Trace of rusty red shale, pyrite.
- 1060-1100 Shale, dark grey, sub-fissile, non-calcareous.
- 1100-1180 Shale, as above. Minor light brown silt streaks. Trace of rusty red shale, pyrite, ironstone. Trace of grey limestone.
- 1180-1190 Shale, interbedded minor siltstone streaks, traces of grey, dense limestone.
- Traces of grey, S & P, glauconitic, fine grained quartz sandstone. Trace of pyrite.
- 1190-1200 As above.
- Minor ferruginous blocky shale, ironstone; traces of chert. Trace of grey fossiliferous limestone.
- 1200-1240 N.S.
- 1240-1250 Shale, dark grey, soft, sub-fissile, non-calcareous. Trace micaceous. Interbedded siltstone, grey, argillaceous, non-calcareous. Trace micaceous. Pyrite.

- 1250-1320 N.S.
- 1320-1330 Siltstone, grey, argillaceous, micro-micaceous.
Minor light grey calcareous siltstone.
- 1330-1350 Siltstone, as above. Minor inter-bedded grey and
dark grey micaceous shale. Trace of very fine grained
glauconitic, light grey sandstone, faintly calcareous.
- 1350-1360 Shale, dark grey, soft, sub-fissile, micro-micaceous.
Much very fine brown sandy streaks.
- 1360-1370 N.S.
- 1370-1460 Sandstone, light medium grey, very fine grained,
grading to siltstone, glauconitic, calcareous.
Minor interbedded dark grey shale. Trace of pyrite,
fossil fragments.
- 1460-1480 Sandstone, light grey, very fine grained, calcareous
in part, micaceous, glauconitic. Streaks and partings
of grey and dark grey shale, interbedded dark grey,
silty, micaceous, non-calcareous shale.
- 1480-1540 Shale, dark grey, micaceous, silty, non-calcareous.

Much interbedded light grey siltstone and very fine
grained glauconitic sandstone, calcareous in part.
Trace of fossil fragments, pyrite.
- 1540-1630 Shale, grey and dark grey, silty, micaceous, non-
calcareous. Few grey silty streaks, pyrite. Trace
of brown silty limestone.
- 1630-1660 Shale, dark grey, fissile, micro-micaceous, non-
calcareous. Trace of pyrite. Trace of fossil shell
fragments. Trace of calcareous silty streaks.
- 1660-1720 Shale, dark medium grey, hard, silty, blocky,
calcareous in part, micro-micaceous. Trace of grey,
silty streaks. Trace of pyrite.
- 1720-1820 Shale, dark grey and dark medium grey, micro-
micaceous, soft, non-calcareous, sub-fissile. Few
silty streaks. Trace of pyrite.

- 1820-1850 No returns.
- Stopped drilling with foam, re-rigged to drill with mud at 1853 feet.
- 1850-1930 Shale, dark grey, non-calcareous, micro-micaceous, sub-fissile. Trace of chert. Trace of brittle, green shale. Trace of glauconite. Minor white, siliceous, slightly calcareous hard mudstone, cement and matrix to coarse chert-quartz sandstone, felspathic in part - contamination? Chert - green, brown, dark grey fragments and pebbles. Pyrite.
- 1930-1970 Shale, dark grey, sub-fissile, micaceous, non-calcareous. Much glauconitic shale. Traces dark grey and amber chert, brown chert.
- 1970-2010 Shale, dark grey, sub-fissile, non-calcareous micaceous. Trace to minor glauconite. Much chert - dark brown grey, grey, amber. Trace of light grey silt streaks.
- 2010-2090 Shale, grey and dark grey, silt streaks, chert, as above. Trace of coarse grained quartz-chert sandstone streaks, free quartz and chert grains.
- 2090-2130 Shale, medium grey, sub-fissile to blocky, non-calcareous. Trace silty streaks. Trace pyrite. Trace of brown, dense, argillaceous limestone. Scattered "floating" chert grains, glauconite streaks.
- 2130-2180 Shale, medium grey, sub-fissile, non-calcareous. Trace of silty streaks.
- 2180-2230 Shale, dark medium grey, sub-fissile, non-calcareous, trace micro-micaceous. Few light grey silty streaks. Traces of chert splinters and pebbles. Pyrite. Much interbedded light and medium grey shale.
- 2230-2240 Shale, dark medium grey and grey, as above. Trace glauconite and brown, glauconitic silty shale. Trace of very fine grained, light grey sandstone, calcareous in part.
- 2240-2270 Shale, grey, sub-fissile, non-calcareous, silty in part. Trace of chert pebbles and fragments. Streaks of light grey argillaceous siltstone. Trace pyrite.

- 2270-2310 Shale, grey, blocky, non-calcareous, much silty shale, minor micaceous shale. Siltstone, and very fine grained sandstone, grey and light grey, trace calcareous, argillaceous, trace of glauconite. Few chert pebbles and splinters.
- 2310-2380 Shale and silty shale, as above. 60%. Sandstone 40%, fine grained, siliceous, pale grey vitreous, calcareous in part, silty. Trace of pyrite, glauconite. Trace of medium to coarse quartz-chert sandstone streaks.
- 2380-2400 Shale, 80% grey and dark grey, silty in part, non-calcareous, silky texture to silty in the dark grey shale. Sandstone, grey, very fine grained, siliceous, non-calcareous, tight, streaks. Trace of pyrite, chert grains.
- 2400-2420 Shale, as above, 60%. Siltstone and very fine sandstone, light grey, siliceous, non-calcareous, trace micaceous, as streaks and thin beds. 40%. Traces of coarse "grit" chert and quartz grains.
- 2420-2450 Shale, grey, sub-fissile, micro-micaceous, silky sheen to silty in part, non-calcareous. Few silty streaks. Trace of pyrite, chert grains. Sandstone, 20%, grey, S & P, medium grained (0.50 mm) poorly sorted, rounded to sub-angular quartz and chert grains, siliceous cement, faintly calcareous, tight. Trace of glauconite.
- 2450-2470 Sandstone, 50% light grey, S & P, medium grained to fine grained, quartz and chert grains, sub-rounded to sub-angular, in siliceous matrix. Trace of glauconite, mica. Traces of coarse "grit" sandstone. Shale, grey, micro-micaceous, non-calcareous, as above.
- 2470-2510 Shale, 70% grey and dark medium grey, micro-micaceous, non-calcareous, silty in part, silty streaks. Sandstone, fine to medium grained, siliceous, non-calcareous, poorly sorted, sub-angular to rounded grains of quartz and vari-colored chert. Occurring as pockets and lenses in the coarser grades, streaks and laminae and thin beds in the finer sizes. Traces of carbonized plant remains, pyrite.

- 2510-2540 Shale, as above. 40%. Siltstone 20%, pale grey and grey, non-calcareous, argillaceous partings, grading to very fine sandstone. Sandstone, 40%, pale grey, S & P, fine to medium grained, quartz-chert sandstone, siliceous matrix. Minor coarse sandstone, chert pebbles.
- 2540-2610 Siltstone as above. 20%. Sandstone, as above. 40%. Shale, as above, 30%. Trace of chert "grit", pyrite. Trace of fractures, calcite lined and infilled. Trace of dark brown, hard shale, siliceous, faintly calcareous.
- 2610-2640 Shale, 50% grey, sub-fissile, micro-micaceous, non-calcareous. Siltstone, 30%, grey, argillaceous, siliceous. Minor brown siltstone. Sandstone 20%, grey, S & P, fine to medium grained, trace of coarse quartz-chert sandstone, non-calcareous, siliceous, hard. Pyrite.
- 2640-2700 Shale 60% grey, micro-micaceous, sub-fissile, non-calcareous, interbedded dark medium grey shale. Siltstone, 30% grey, argillaceous, streaks in shale beds. Sandstone, 10% grey, fine to medium grained, hard, siliceous. Pyrite. Trace of fractures. Trace of glauconite.
- 2700-2820 Shale, 70%, grey and dark medium grey, micro-micaceous, sub-fissile to blocky, as above. Sandstone, siltstone, very fine grained to fine grained, light grey, siliceous, argillaceous, non-calcareous.
- Trace of coarse sandstone. Pyrite.
- 2820-2840 Shale, interbedded, siltstone and very fine grained grey sandstone, as above. Trace of coarse chert sandstone in brown, siliceous, faintly calcareous matrix.
- 2840-2860 Shale, 60%, grey, interbedded dark medium grey shale, sub-fissile to blocky, non-calcareous, micro-micaceous, silty in part. Sandstone, 40%, grey and light grey, very fine to fine grained, siliceous, non-calcareous, hard. Trace of hard, brown siliceous shale. Trace of chert "grit" in brown, siliceous matrix.

- 2860-2920 Shale, 80%, grey, as above. Siltstone, fine grained sandstone, as above. 20%. Trace of brown siliceous shale, trace of chert grit.
- 2920-2950 Shale, as above, 50%. Sandstone, 50% grey and light grey, S & P, fine to medium grained, siliceous, hard, silty. Poorly sorted quartz and chert grains, sub-rounded to sub-angular, traces of carbonized flecks.
- 2950-2970 Shale, 80% grey, micro-micaceous, sub-fissile to blocky, non-calcareous. Trace brown siliceous shale. Pyrite. Siltstone and fine grained sandstone 20%, siliceous, grey and light grey, S & P.
- 2970-3040 Shale, 50% grey, micro-micaceous, sub-fissile to blocky, non-calcareous. Trace of brown, slightly calcareous silty shale. Siltstone and very fine to fine grained grey S & P, sandstone, 50% - hard, siliceous, tight. Trace of coarse sandstone streaks. Pyrite.
- 3040-3050 Shale, 70% grey and darker grey, micro-micaceous, sub-fissile to blocky, non-calcareous. Silty in part. Siltstone and very fine grained sandstone, 20% light grey, siliceous, pyritic. Sandstone, 10% medium grained, grey, S & P, poorly sorted, sub-angular to rounded chert and quartz grains in hard, siliceous matrix. Trace of chert "grit".
- 3050-3080 Sandstone, 60% grey, S & P medium to coarse grained, much fine grained sandstone. Sub-angular to sub-rounded chert and quartz grains, poorly sorted, in silty, siliceous matrix. Pyrite. Shale, as above 40%.
- 3080-3110 Shale, 60%, grey, darker grey, sub-fissile to blocky, micro-micaceous, silty in part. Sandstone and siltstone, 40% grey, grading from very fine grained to coarse grained, poorly sorted chert and quartz grains. Pyrite. Trace of fractures.
- 3110-3120 Sandstone, 60% grey, S & P, fine grained, siliceous, hard, silty. Size range from silt size to coarse, chert sandstone and grit. Shale, as above. 40%.

- 2860-2920 Shale, 80%, grey, as above. Siltstone, fine grained sandstone, as above. 20%. Trace of brown siliceous shale, trace of chert grit.
- 2920-2950 Shale, as above, 50%. Sandstone, 50% grey and light grey, S & P, fine to medium grained, siliceous, hard, silty. Poorly sorted quartz and chert grains, sub-rounded to sub-angular, traces of carbonized flecks.
- 2950-2970 Shale, 80% grey, micro-micaceous, sub-fissile to blocky, non-calcareous. Trace brown siliceous shale. Pyrite. Siltstone and fine grained sandstone 20%, siliceous, grey and light grey, S & P.
- 2970-3040 Shale, 50% grey, micro-micaceous, sub-fissile to blocky, non-calcareous. Trace of brown, slightly calcareous silty shale. Siltstone and very fine to fine grained grey S & P, sandstone, 50% - hard, siliceous, tight. Trace of coarse sandstone streaks. Pyrite.
- 3040-3050 Shale, 70% grey and darker grey, micro-micaceous, sub-fissile to blocky, non-calcareous. Silty in part. Siltstone and very fine grained sandstone, 20% light grey, siliceous, pyritic. Sandstone, 10% medium grained, grey, S & P, poorly sorted, sub-angular to rounded chert and quartz grains in hard, siliceous matrix. Trace of chert "grit".
- 3050-3080 Sandstone, 60% grey, S & P medium to coarse grained, much fine grained sandstone. Sub-angular to sub-rounded chert and quartz grains, poorly sorted, in silty, siliceous matrix. Pyrite. Shale, as above 40%.
- 3080-3110 Shale, 60%, grey, darker grey, sub-fissile to blocky, micro-micaceous, silty in part. Sandstone and siltstone, 40% grey, grading from very fine grained to coarse grained, poorly sorted chert and quartz grains. Pyrite. Trace of fractures.
- 3110-3120 Sandstone, 60% grey, S & P, fine grained, siliceous, hard, silty. Size range from silt size to coarse, chert sandstone and grit. Shale, as above. 40%.

- 3500-3590 Shale, 70% grey and darker grey, inter-laminated, trace silty streaks, micro-micaceous, non-calcareous, sub-fissile to blocky. Trace of pyrite globules. Sandstone - 30%, very fine to coarse-grained, siliceous, faintly calcareous, hard, tight. Trace of brown hard, blocky shale, chert pebbles. Trace of glauconitic shale.
- 3590-3610 Shale, as above, 50%. Sandstone 50% grey, very fine grained, argillaceous, silty, non-calcareous. Trace of chert pebbles, pyrite.
- 3610-3810 Shale, 70%, grey and dark grey, micro-micaceous, sub-fissile to blocky, non-calcareous, trace pyrite. Few silty streaks. Trace of brown, siliceous shale. Minor grey, S & P, fine grained, siliceous sandstone, faintly calcareous.
- 3810-3870 Shale, grey and dark grey, micro-micaceous, sub-fissile to blocky, non-calcareous. Trace pyrite. Trace of grey, silty and fine sandy streaks.
- 3870-3890 Shale, as above, 60%. Sandstone, fine grained, grey, non-calcareous, silty siliceous, micro-micaceous - sub-angular, poorly sorted quartz and chert grains. Trace of plant remains.
- 3890-3950 Shale, grey and dark grey, micro-micaceous, non-calcareous, sub-fissile, as above. Trace of brown-grey shale, Trace of pyrite. Traces interbedded silty and fine sandy streaks.
- 3950-3970 Shale, as above, 60%. Sandstone, 40% fine grained, grey, silty, argillaceous, siliceous, non-calcareous to faintly calcareous. Poorly sorted sub-angular quartz and chert grains, trace of pyrite. Trace of chert pebbles. Trace of glauconite. Fractures.
- 3970-4020 Sandstone, 60% fine to medium grained, grey, S & P, siliceous, hard, faintly calcareous, subrounded to sub-angular quartz and chert grains in silty, argillaceous matrix. Trace of green chert grains. Shale, as above, 40%. Trace of chert "grit". Trace of calcite-filled fractures. Trace of brown, siliceous, faintly calcareous sandstone.

- 4020-4070 Sandstone, 70% fine to medium grained, trace coarse grained, light grey, minor brown sandstone, tight, siliceous, silty and argillaceous matrix, faintly calcareous. Poorly sorted sub-angular quartz and chert grains. Trace of fracturing. Shale, as above, 30%, trace glauconite.
- 4070-4090 Shale, grey and dark grey, fissile, micro-micaceous, non-calcareous. Trace of pyrite. Much (30%) interbedded grey, argillaceous siltstone and very fine grained sandstone.
- 4090-4110 Sandstone, 50%, light grey, S & P, fine to medium grained, sub-angular to sub-round quartz and chert grains, siliceous, silty matrix, faintly calcareous. Trace of drusy fracture - lining. Shale, as above 50%. Pyrite. Trace of chert "grit".
- 4110-4150 Sandstone, pale grey, minor brown sandstone, medium to coarse grained, siliceous, hard, very faintly calcareous. Poorly sorted very fine to coarse chert and quartz grains, minor "grit", sub-angular to rounded. Minor interbedded grey and dark grey shale, as above.
- 4150-4170 Shale, 60% grey and dark grey, micro-micaceous, fissile to sub-fissile, non-calcareous, trace pyritic. Much sandstone, 40%, as above.
- 4170-4200 Sandstone, 80% light grey, hard, siliceous, as above. Shale, 20% grey and dark grey, as above. Trace of fractures.
- 4200-4240 Sandstone, medium to coarse grained, light grey, siliceous hard. Poorly sorted - "grit" chert grains in medium grained quartz-chert sand matrix, rounded to sub-angular. Tight. Trace of pyrite, glauconite.
- 4240-4310 Shale, grey and dark grey, micro-micaceous, sub-fissile to fissile, non-calcareous. Silty streaks. Minor sandstone as above - cavings.
- 4310-4330 Siltstone, grey, argillaceous, non-calcareous, grading in part to very fine grained sandstone. Shale, as above, trace pyrite. Traces medium and coarse grained quartz-chert sandstone - cavings.

- 4330-4360 Sandstone, 70% light grey, fine to medium grained, quartz, chert grains, sub-angular, siliceous, matrix to scattered chert "grit" grains. Shale, 30%, as above, - caving. Trace of fractures.
- 4360-4400 Shale, 50% grey and dark grey, micro-micaceous, sub-fissile, non-calcareous, silty streaks. Sandstone, 50% very fine grained to medium grained, grey, argillaceous, siliceous, silty, hard, tight.
- 4400-4450 Sandstone, 60% grey, very fine to fine grained, silty, argillaceous, siliceous. Trace of coarse chert "grit". Shale, as above, 40%.
- 4450-4470 Shale, 70% grey and dark grey, micro-micaceous, sub-fissile, non-calcareous, trace pyrite, few silty streaks.
- Sandstone, 30%, grey S & P, fine grained to medium grained, quartz-chert grains, trace of glauconite, in a silty, argillaceous, siliceous matrix. Trace of fractures.
- 4470-4500 Sandstone, 70% light grey, fine to medium grained, trace of chert "grit" in sandstone matrix, siliceous, silty, hard, tight.
- Trace of fractures - staining, cut fluorescence reported from fracture - no primary porosity noted.
- 4500-4530 Shale, 40% grey and dark grey, micro-micaceous, sub-fissile, non-calcareous, silty streaks. Sandstone, 60%, light grey, siliceous, as above. Trace of plant remains, trace of brown sandstone. Trace of pyrite.
- 4530-4580 Shale, 60%, as above. Sandstone, 40%, as above - grey and light grey, fine to medium grained, siliceous, hard, tight.
- 4580-4600 Shale, 70% grey and dark grey, micro-micaceous, silty streaks, fissile to sub-fissile, trace of plant remains, pyrite. Sandstone, as above, 30%, trace pyritic.
- 4600-4660 Shale, as above, 80% silty streaks, pyrite. Sandstone, as above, 20%. Trace of fractures.

- 4660-4700 Sandstone, 60% light grey and grey, S & P, fine to medium grained, trace chert pebbles. Sub-angular to sub-round quartz and chert grains, poor to fair sorting, in siliceous matrix. Minor interbedded grey siltstone. Shale, as above. 40%.
- 4700-4710 N.S. Depth Correction.
- 4710-4730 Shale, 50% dark grey and grey, micro-micaceous, non-calcareous, sub-fissile, few silty streaks. Sandstone, 50%, very fine to medium grained, light grey, siliceous, hard. Scattered chert grit in sandstone matrix. Trace pyrite, fractures.
- 4730-4740 Shale, 60%, dark grey and grey, as above. Sandstone, 40%, grey S & P, fine to medium grained, argillaceous, silty, siliceous. Scattered coarse chert grains in sandstone matrix. Trace of fractures, pyrite.
- 4740-4770 Shale, 80%, dark grey and grey, micro-micaceous, sub-fissile, non-calcareous, grey silty streaks. Sandstone 20% grey, S & P, very fine to fine grained, argillaceous, micro-micaceous, silty, and light grey, fine to medium grained quartz-chert sandstone, siliceous, hard, tight, pyrite.
- 4770-4830 Shale, as above, 50%. Sandstone, fine to medium grained, grey and brown, S & P slightly calcareous, siliceous, hard, tight. Sub-round to sub-angular quartz and chert grains, poorly sorted, siliceous, silty matrix. Micaceous in part. Trace of coarse sandstone, chert grit. Pyrite. Trace of fractures.
- 4830-4890 Sandstone, 60% grey, S & P, fine to medium grained, minor interbedded grey siltstone. Coarser sands are slightly calcareous. Sub-angular quartz and chert grains, silty, siliceous matrix. Trace of coarse chert "grit" in sandstone matrix. Shale, 40%, grey and dark grey, micro-micaceous, sub-fissile, non-calcareous. Trace of pyrite. Fractures.
- 4890-4910 Sandstone, grey, S & P, medium grained, size range from fine to coarse grained, non-calcareous, siliceous, silty, hard, tight. Sub-angular to sub-rounded chert and quartz grains, poor to fair sorting. Trace of bituminous ? flecks.

- 4910-4930 Sandstone, as above, 80%. Much sandstone, pale grey, S & P, medium grained, slightly to fairly calcareous. Shale 20% dark grey and grey, blocky, silty streaks, micro-micaceous, non-calcareous. Pyrite, trace of carbonized flecks, plant remains. Fractures.
- 4930-4960 Sandstone, 70% grey, S & P, argillaceous, silty, siliceous, trace micaceous, fine to medium grained, trace of coarse streaks. Sub-angular quartz and chert grains in a silty, siliceous matrix, poor to fair sorting. Pyrite, fractures. Shale 30%, grey and dark grey, micro-micaceous, sub-fissile to blocky. Trace of glauconite.
- 4960-4990 Shale, as above, traces brown, blocky siliceous shale. 60%. Sandstone, minor interbedded grey siltstone, as above 40%. Sandstone, cherty, interbedded siltstone. Some coarser sandstone with angular crystals up to 0.5 mm. Fractures with pyrite. Some glauconite and green unidentified glassy crystals.
- 4990-5020 Sandstone and shale interbedded as above with trace of glauconite and black chert. Sorting of sub-angular grains is fair to poor.
- 5020-5050 Sandstone and shale as above. Ratio is now 40% - 60% (sandstone/shale). Trace of pyrite and mica, slightly calcareous.
- 5050-5080 Sandstone, siltstone and shale. Ratio (sandstone/siltstone, shale = 60%-40%). Trace of glauconite, and green quartz ? crystals. Sorting is fair to poor and grains are sub-angular to angular.
- 5080-5110 Sandstone and shale as above, slightly calcareous (sandstone/shale = 50% - 50%). Shale dark grey pyritic (80% of rock). Some plant remains. Some interbedded micaceous. Sandstones with chert.
- 5110-5140 Shale pyritic as above. Some plant remains and chert associated with interbedded sandstones (sandstone/shale = 30% - 70%). Trace of pyrite in the sandstone.

- 5140-5170 Shale and sandstone as above (sandstone/shale = 30% - 70%). Some coarser sandstones, associated with chert, with sub-angular poor to fair sorted grains, shales are dark grey, sandstones are fine to medium grained and brown to grey. No porosity.
- 5170-5200 Shale dark grey and siltstone and sandstone (siltstone/ sandstone, shale - 30% - 70%). Sandstone fine to medium grained, grey with trace of pyrite, mica, glauconite, and chert. Sorting is fair to poor. Sub-rounded. No porosity. Increase in percentage of sandstone (50% - 50% with shales).
- 5200-5230 Sandstones interbedded with shales and siltstones (sandstone/ siltstone, shale = 60% - 40%). Sandstones as above, cherty, grey, sub-rounded and poor to fair sorting. Shales, dark grey.
- 5230-5260 Sandstone, grey to brown, fine to medium grained, angular, medium sorted, cherty and micaceous. Interbedded with shale, dark grey, sub-fissile, and siltstone (sandstone/ siltstone, shale = 50% - 50%).
- 5260-5290 Sandstone as above interbedded with shales.
- 5290-5320 Sandstone and shale interbedded as above. Some isolated quartz crystals. Sandstone is fine grained to silty. Shale is dark grey and sub-fissile.
- 5320-5360 Sandstone, fine to medium grained, interbedded with shales, dark grey (sandstone/shale = 60% - 40%).
- 5360-5390 Sandstone as above, sub-angular and medium sorted interbedded with dark grey shales. Trace of glauconite.
- 5390-5470 Sandstone and siltstone, fine grained micaceous, interbedded with shales, sub-fissile, dark grey silty.
- 5470-5530 Sandstone fine to medium grained, slightly micaceous, cherty, sub-rounded, poor to medium sorted, grey, interbedded with siltstone and shales (sandstone/ siltstone, shale = 60% - 40%). Shales, dark grey, sub-fissile interbedded with siltstones (siltstones/ shale = 40% - 60%).

- 5530-5610 Sandstone as above, trace of glauconite, and some isolated quartz crystals. Interbedded with dark grey shales (sandstone/shale = 60% - 40%).
- 5610-5670 Shale, grey and dark grey, micro-micaceous, sub-fissile, non-calcareous. Much brown-grey silty streaks, trace pyrite, glauconite. Trace of coal, 5660-5670.
- 5670-5740 Siltstone, very fine grained sandstone, grey and brown-grey, siliceous, argillaceous. 60%. Much shale, as above 40%. Trace of glauconitic sandstone.
- 5740-5760 Shale, as above, 40%. Siltstone, and fine grained sandstone, brown and grey, siliceous, hard, trace glauconitic, as above. Much brown ironstone. Trace pyrite. Trace of coarse siliceous quartz-chert sandstone.
- 5760-5780 Sandstone, 50% as above. Much coarse chert "grit". Shale and interbedded siltstone, as above. 50%.
- 5780-5830 Chert-quartz "grit" pale grey, siliceous, hard. 60%. Siltstone and very fine sandstone, grey and brown-grey, minor interbedded shale, 40%. Siltstone and sandstone matrix to chert grit.
- 5830-5880 Shale, grey and dark grey, sub-fissile, micro-micaceous, non-calcareous. Interbedded brown-grey siltstone and very fine grained siliceous sandstone, minor chert grit.
- 5880-5950 Shale, as above. Siltstone, and very fine grained sandstone, as above. Trace only, of chert grit. Trace of pyrite.
- 5950-5990 Shale, grey and dark grey, micro-micaceous, sub-fissile, non-calcareous.
- 5990-6000 Shale, as above. Increase in content of very fine grained, grey-brown argillaceous sandstone, scattered chert "grit". Trace of pyrite.
- 6000-6010 Shale, grey and dark grey, micro-micaceous, blocky, hard. Siltstone, very fine sandstone, grey, argillaceous, siliceous, hard, slightly calcareous. Trace of pyrite.

- 6010-6050 Sandstone, grey, fine grained to medium grained, poorly sorted, silty, argillaceous, quartz and chert grains, sub-angular to sub-rounded, siliceous matrix. Trace coarse chert grains. Minor shale, as above. Trace of pyrite.
- 6050-6080 Sandstone, minor coarse sandstone, as above 50%. Interbedded shale, grey and dark grey, micro-micaceous, as above. 50%.
- 6080-6090 Shale, grey and dark grey, micro-micaceous, sub-fissile 70%. Sandstone, as above, 30%. Trace of glauconite. Pyrite.
- 6090-6130 Sandstone, grey S & P, medium grained, poorly sorted sub-angular to sub-rounded quartz and chert grains, silty, argillaceous matrix, micaceous in part. Trace of chert grit. 70%. Shale as above. 30%.
- 6130-6170 Sandstone, as above. 60%. Shale, as above, 40%.
- 6170-6180 Sandstone, fine-grained, grey, S & P, silty, siliceous, very faintly calcareous, matrix to scattered grey and green-grey chert "grit". Shale, grey and dark grey, silty streaks, sub-fissile to blocky, micro-micaceous, fissile shale. Trace of anhydrite.
- 6180-6210 Sandstone, as above, 80%. Much "grit". Shale, as above, 20%. Traces of fractures. Pyrite.
- 6210-6340 Sandstone, grey, S & P, minor brown-grey sandstone, fine to medium grained, siliceous, hard; matrix to chert "grit" grains. 60%. Shale, grey and dark grey, silty streaks, blocky, micro-micaceous, fissile in part. Trace of fractures.
- 6340-6390 Shale, grey and dark grey, micro-micaceous, sub-fissile to fissile. 60%. Silty streaks. Sandstone, grey, S & P, fine to medium grained, quartz and chert grains, sub-angular, siliceous, silty, matrix to scattered coarse chert grit. Trace of pyrite. Trace of fractures.
- 6390-6420 Sandstone, as above, 50%. Shale, as above, 50%. Much grey argillaceous siltstone. Trace of pyrite.

- 6420-6490 Shale, grey and dark grey, micro-micaceous, few silty streaks, as above. 70%. Sandstone as above, traces to minor grit 30%. Trace of pyrite. Fractures.
- 6490-6520 Sandstone, grey, S & P, fine to medium grained, poorly sorted, sub-angular quartz and chert in a silty, siliceous, argillaceous matrix. Scattered streaks of grit and coarse chert grains. 70%. Shale, as above, 30%. Trace of fractures.
- 6520-6580 Shale, grey and dark grey, sub-fissile, micro-micaceous, few silty streaks. Minor sandstone, as above - interbedded grey siltstone. Trace of fractures.
- 6580-6620 Shale, as above, 60%. Sandstone 40% grey, medium grained, argillaceous, silty, siliceous, poorly sorted, sub-round to sub-angular, matrix to abundant (30%) coarse grey and green-grey chert grit. Much grey very fine grained sandstone. Trace of fractures - quartz infilled. Trace of pyrite.
- 6620-6680 Shale, as above, silty streaks, 80%. Sandstone, as above, 20%. Trace of anhydrite - fracture infilling - 6630-6640. Trace of glauconitic, sandy shale, 6640-6650. Pyrite.
- 6680-6730 Shale, 70% grey and dark grey, sub-fissile to blocky, non-calcareous, micro-micaceous, few silty streaks. Siltstone 30%, grading to very fine sandstone, grey and light grey, argillaceous, siliceous, hard, faintly laminated. Trace of pyrite, trace of chert grit - cavings? Trace of fractures.
- 6730-6830 Shale, 80% dark grey, fissile to sub-fissile, non-calcareous. Siltstone and fine grained grey sandstone, faintly calcareous, interbedded with shale. Minor brown blocky shale or ironstone 6730-6740.
- 6830-6990 Shale, as above, 60%. Trace of plant remains. Siltstone, fine grained, grey sandstone, argillaceous, faintly calcareous, siliceous, scattered coarse chert grains, 40%. Trace of ironstone, 6870-6890. Trace fractures, anhydrite infilled. Pyrite.

- 6990-7050 Shale, grey and dark grey, micro-micaceous, sub-fissile, non-calcareous. 80%. Siltstone, fine grained sandstone, grey, argillaceous, silty, siliceous matrix, faintly calcareous. Scattered coarse chert grains, 20%. Trace of fractures, pyrite, plant remains. Trace of ironstone.
- 7050-7080 Shale, as above. 50%. Siltstone, sandstone, as above, 40%.
- 7080-7100 Shale, as above. 70%. Sandstone, grey, medium grained, sub-angular to sub-round quartz and chert grains in argillaceous, siliceous matrix. Scattered coarse chert grains. Much dark grey - grey argillaceous, very fine grained sandstone 30%. Trace of fractures. Trace of pyrite, ironstone.
- 7100-7130 Shale, grey and dark grey, micro-micaceous, sub-fissile. Much interbedded grey and dark grey argillaceous siltstone and very fine grained sandstone, trace of glauconite. Trace of pyrite.
- 7130-7180 Shale, as above, 60%. Siltstone, grey, argillaceous siliceous, grading in part to very fine grained sandstone, minor medium grained sandstone. 40%. Trace of fractures, pyrite.
- 7180-7220 Shale, 80%, grey and dark grey, micro-micaceous, fissile to sub-fissile, minor grey silty shale. Sandstone and siltstone, grey, very fine to fine grained, argillaceous, siliceous. Trace of medium to coarse chert grains. Trace of pyrite, fractures.
- 7220-7280 Sandstone, 50%, grey, very fine to fine grained, argillaceous, silty, siliceous, poorly sorted, tight, - gradation from siltstone to fine grained sandstone, traces scattered coarse chert. Shale, 50%, as above. Trace of pyrite, fractures.
- 7280-7290 Shale, grey and dark grey, micro-micaceous, fissile; much grey, blocky, silty shale. Minor sandstone - silt size to fine grained, as above. Traces of "grit".
- 7290-7400 Shale, as above. Trace pyrite. Sandstone, grey, vitreous, medium grained, siliceous, faintly calcareous, sub-round to sub-angular, poorly sorted quartz and chert grains, silty, argillaceous matrix. Much medium to coarse chert grains.

- 7400-7420 Shale, 60%, grey and dark grey, micaceous, sub-fissile to blocky, silty. Sandstone, grey, fine to medium grained, argillaceous, silty, siliceous, poorly sorted, sub-round to sub-angular quartz and chert grains. Much grey and darker grey argillaceous siltstone, trace brown shale.
- 7420-7450 Sandstone, 40%, grey, S & P, fine grained, very argillaceous, non-calcareous. Poorly sorted sub-round to sub-angular chert and quartz grains in a silty, siliceous matrix. Trace of chert grit. Trace of fractures, calcite, and quartz infilled. Shale, as above, 60%. Trace of pyrite.
- 7450-7520 Sandstone, 40% as above. Trace of medium grained, S & P, slightly calcareous quartz-chert sandstone. Shale, as above, 60%. Trace of fractures, quartz, calcite infilled.
- 7520-7570 Shale, grey and dark grey, micro-micaceous, sub-fissile to blocky, non-calcareous, silty streaks. Minor (less than 20%) sandstone, as above. Trace of pyrite.
- 7570-7580 N.S.
- 7580-7680 Shale, grey and dark grey, micro-micaceous, fissile to sub-fissile, non-calcareous. Minor grey, argillaceous siltstone, very fine grained sandstone, trace of coarse sandstone. Trace of pyrite, ironstone. Trace of fractures. Trace of chert pebbles, 7630-7640.
- 7680-7700 Shale, as above, 60%. Siltstone, minor very fine grained sandstone, 40%, grey, argillaceous. Trace of medium to coarse sandstone.
- 7700-7760 Shale, as above. Minor (less than 30%) siltstone, as above. Trace of fine to medium grained argillaceous, quartz-chert sandstone. Much ironstone 7710-7730.
- 7760-7850 Shale, as above, grey and dark grey, sub-fissile to fissile, micro-micaceous. 60%. Siltstone and fine grained grey sandstone, 40%, argillaceous, siliceous, tight. Traces of ironstone, pyrite, fractures. Trace of black bituminous shale, 7790-7800.

- 7850-7890 Shale, as above, 80%. Siltstone, very fine grained sandstone, as above. 20%. Trace of pyrite, ironstone.
- 7890-7930 Shale, as above. 60%. Siltstone, fine grained sandstone, 40% - grey, vitreous, siliceous, tight.
- 7930-8160 Shale, as above, grey and dark grey, micro-micaceous, sub-fissile to fissile, silty streaks. 80%. Siltstone, very fine grained sandstone, grey, vitreous, siliceous. 20%. Trace of pyrite, ironstone. Fractures.
- 8160-8170 N.S.
- 8170-8230 Shale, grey and dark grey, sub-fissile, non-calcareous, micro-micaceous. Few light grey silty streaks. Traces of dark grey, argillaceous sandstone. Traces of fractures, pyrite.
- 8230-8290 Shale, as above. Trace of brown shale. Minor sandstone, grey, very fine to fine grained, siliceous, hard. Trace of coarse chert "grit". Trace of fractures.
- 8290-8330 Shale, grey and dark grey, sub-fissile, micro-micaceous, non-calcareous. Minor brown siliceous shale, few silty streaks. Trace of pyrite, fractures.
- 8330-8400 Limestone, sub-chalky, pale grey, argillaceous, veining and matrix. Traces to minor pale grey medium to coarsely crystalline limestone. Trace of stromatoporoids, corals. Interbedded dark brown argillaceous, dense limestone. Trace of black, slightly bituminous shale.
- 8400-8490 Limestone, micritic, brown and dark brown, argillaceous, splintery. Minor brown sub-chalky limestone, interbedded very argillaceous dark brown-grey limestone, grading to calcereous shale. Fossiliferous. Traces of ostracods, 8400-8410, 8430-8440. Traces of corals, stromatoporoids.
- 8490-8500 Limestone, dark brown grey and brown, as above. Minor pale grey sub-chalky limestone - coarse fossil fragments. Traces of pale brown, coarsely crystalline compact limestone.

- 8500-8520 Limestone, dark brown, micritic to micro-crystalline, argillaceous. Scattered fossil remains. Traces of coarse, crystalline to chalky limestone. Trace of fractures.
- 8520-8550 Limestone, dark brown micritic, argillaceous, as above. Much light brown and pale grey chalky to coarsely crystalline limestone, indistinct fossil fragments. Trace of stromatoporoids. Trace crinoids - 8540-8550. Trace oolites, bryozoa, brachiopods? Tight.
- 8550-8590 Limestone, brown and dark brown, micritic to micro-crystalline, argillaceous. Matrix to scattered fossil fragments - bryozoa, oolites, pellets. Much pale brown, compact, coarse, crystalline limestone, tight. Minor grey and pale grey chalky limestone. Trace of stylolites. Calcite - fracture infilling. Trace of stromatoporoids.
- 8590-8660 Limestone, brown and dark brown, micritic - dense, matrix to scattered fossil fragments. Stromatoporoids, bryozoa, indistinct fossils, crinoids? Minor light brown coarsely crystalline limestone, calcite, infilling. Trace of oolites, pellets.
- 8660-8680 Limestone, brown and dark brown, as above. Much pale brown and pale grey coarsely crystalline, compact limestone - fossil fragments. Traces of pelletoid limestone, stromatoporoids, crinoids.
- 8680-8800 Limestone, coarsely crystalline, fossil fragments, light brown and pale grey, minor chalky limestone. Trace of corals, crinoids, pellets, stromatoporoids? Minor grey, argillaceous partly chalky limestone. Much grey and dark brown-grey argillaceous micrite.
- 8800-8830 Limestone, pale grey, sub-chalky, to light tan, pelletoid, intraclastic, compact. Trace of bryozoa. Traces to minor coarse fossil fragments. Much cavings.
- 8830-8850 Limestone, as above - earthy, fine intraclastic, pelletoid. Minor light tan dense, pelletoid limestone, bryozoa.

- 8850-8910 Limestone, pale grey, sub-chalky, trace of light tan pelletoid limestone. Traces of stromatoporoids. Tight.
- 8910-8970 Core #1. Recovered 60 feet.
- 8970-8971 Drilled.
- 8971-9031 Core #2. Recovered 56.8 feet.
- 9031-9033 Drilled.
- 9033-9088 Core #3. Recovered 53.7 feet.
- 9088-9090 Drilled.
- 9090-9150 Core #4. Recovered 58.8 feet.
- 9150-9170 Limestone, brown, dense, micritic, faintly argillaceous. Traces of fracturing and calcite veining. Scattered medium to coarse fossil fragments. Tight. Minor pale grey chalky limestone.
- 9170-9210 Limestone, brown and dark medium brown, faintly argillaceous, micritic. Algal. Scattered fossil remains - usually more coarsely crystalline. Traces of fractures and calcite veining. Minor light grey-brown earthy limestone - bit fractured.
- 9210-9270 Limestone, light brown, earthy and chalky-crystalline, in part due to bit damage. Much brown, slightly argillaceous, micritic algal limestone, scattered medium crystalline calcite eyes. Traces of fossil fragments - stromatoporoids? corals? brachiopods, as patches of crystalline, brown and pale grey limestone. Trace ostracods.
- 9270-9310 Limestone, brown and dark brown, micritic, algal, faintly argillaceous. Matrix to fine to medium crystalline limestone, light brown and light grey, fossil fragments. Stromatoporoids, brachiopods, corals. Trace of ostracods.
- 9310-9350 Limestone, pale brown and light grey, fine to medium crystalline, compact - trace of stromatoporoid and coral, brachiopod remains. Minor light brown and white chalky limestone, coarse calcite crystals - fracture filling. Minor brown and dark brown slightly argillaceous micritic to micro-crystalline limestone.

- 9350-9430 Limestone, brown and dark brown, micritic, faintly argillaceous, to micro-crystalline, argillaceous - matrix to abundant stromatoporoids, corals? traces of brachiopods, as light brown, fine to medium crystalline limestone, compact, tight. Minor light brown earthy limestone.
- 9430-9710 Limestone, brown, micritic, faintly argillaceous, and dark brown, micritic to micro-crystalline, argillaceous. Minor (30%) light brown and brown, compact fine to medium crystalline limestone, fossil remains - stromatoporoids, brachiopods, corals? Traces of ostracods. Tight.
- 9710-9720 Limestone, brown and dark brown, micritic, earthy in part, slightly argillaceous. Much pale grey fossil fragments. Trace crinoids? Trace of spicules.
- 9720-9730 Limestone, as above. Scattered two-holed crinoid ossicles. Trace of shell fragments.
- 9730-9790 Limestone, grey and light brownish grey, argillaceous, earthy, matrix to abundant crinoid plates and ossicles. Scattered two-holed crinoid ossicles. Much compact, fine fragmental limestone.
- 9790-9840 Limestone, dark brown, micritic, argillaceous. Scattered recrystallized fossil fragments. Trace of ostracods. Trace of pellets. Much earthy, fragmental limestone - cavings in part.
- 9840-9860 Limestone, brown, micro-crystalline, scattered fossil fragments, slightly argillaceous. Much pale brown finely pelletoid and fine fragmental limestone, sub-chalky in part. Trace of crinoid and coarse fossil fragments. Minor interbeds of grey-brown micritic limestone.
- 9860-9890 Limestone, brown and dark brown, micritic, slightly argillaceous. Trace of mollusc shells. Minor interbedded? light grey earthy "fragmental" limestone, as above.
- 9890-9920 Limestone, as above, brown, micritic, argillaceous. Much white, earthy to coarsely crystalline calcite - fracture filling?

- 9920-9930 Shale, dark grey, non-calcareous, sub-fissile. Much brown, micritic limestone and white, chalky to crystalline calcite, as above - cavings.
- 9930-10,000 Limestone, brown, micritic, argillaceous, matrix to scattered fossil fragments, pelletoid. Trace of stromatoporoids - cavings? Trace of ostracods.
- 10,000-10,080 Limestone, brown and dark brown, micritic, argillaceous to very argillaceous. Scattered beds of lumps (oolites?) pellets, micro-breccia? Scattered fossil fragments, ostracods.
- 10,080-10,190 Limestone, brown and dark brown, micritic, argillaceous, dense. Minor brown, fine fragmental limestone, traces brown, algal limestone, pelletoid limestone.
- 10,190-10,200 Limestone, brown, micritic, argillaceous, as above. Trace of pyrite. Trace of grey-green silty dolomitic limestone.
- 10,200-10,220 Dolomite, brown, micro-crystalline, dense, slightly argillaceous. Trace of grey-green argillaceous, silty dolomite. Pyrite. Much brown, micritic limestone, as above - cavings?
- 10,220-10,240 Limestone, brown and dark brown, argillaceous, micritic, trace algal limestone, pelletoid beds. Minor dolomite, as above - cavings?
- 10,240-10,250 Dolomite, calcareous, brown, micro-crystalline, dense, argillaceous. Trace of grey-green hard, argillaceous dolomite. Much micritic and pelletoid limestone, as above.
- 10,250-10,300 Limestone, brown, argillaceous, micritic, beds of pelletoid limestone, trace algal limestone. Interbedded brown, micro-crystalline dolomitic limestone and dolomite.
- 10,300-10,330 Dolomite, brown, calcareous, argillaceous, micro-crystalline, dense. Minor interbedded brown micritic argillaceous limestone, pelletoid in part.
- 10,330-10,373 Dolomite, calcareous, brown and light brown, micro-crystalline, slightly argillaceous. Interbedded dolomitic limestone and micritic limestone, brown and light brown. Traces of pelletoid limestone. Tight.

Total Depth - 10,373.

SECTION III - ENGINEERING SUMMARY

(a) Report of Drill Stem Tests (Field Pressures are reported)

DST #1: 9004 - 9068

Zone: Middle Devonian Reef

Times: Preflow 10 mins.
ISI 60 mins.
VO 120 mins.
FSI 120 mins.

Pressures: IHP 5266 psi FHP 5004 psi
ISIP 2107 psi FSIP 987 psi
IFP 564 psi FFP 604 psi
Preflow 564 psi

Recovery: Strong air blow on preflow
Gas to surface immediately on VO at 10 Mcf/Day
1030 feet of gassy water cushion
150 feet of gassy drilling mud

Remarks: Test satisfactory

DST #2: 8314 - 8417

Zone: Middle Devonian Reef

Times: Preflow 5 mins.
ISI 60 mins.
VO 120 mins.
FSI 120 mins.

Pressures: IHP 4900 psi
ISIP 738 psi
IFP 517 psi FFP 665 psi
Preflow 197 psi

Reset tool

IHP #2 4900 psi FSIP 788 psi
IFP #2 566 psi FHP 4775 psi
FFP #2 665 psi

Recovery: Very weak blow on preflow
No blow on VO
65 feet drilling mud recovered

Remarks: Test a misrun

DST #3: 8314 - 8420

Zone: Middle Devonian Reef

Times: Preflow 10 mins.
ISI 60 mins.
VO 180 mins.
FSI 180 mins.

Pressures: IHP 4914 psi FHP 4813 psi
ISIP 1067 psi FSIP 2190 psi
IFP 49 psi FFP 74 psi
Prewlow 74 psi

Recovery: Gas to surface in 4 mins. on VO too small to measure
120 feet of drilling mud recovered

Remarks: Test satisfactory

DST #4: 504 - 512 (Perforated Interval)

Zone: Blackie Sand

Remarks: Test a misrun. Bridge plug slipped.

DST #5: 504 - 512 (Perforated Interval)

Zone: Blackie Sand

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

Pressures: IHP 256 psi FHP 256 psi
ISIP 218 psi FSIP 152 psi
IFP 180 psi FFP 161 psi
Prewlow 133 psi

Recovery: Good air blow on preflow
Good air blow on VO. Dead in 2 minutes.
325 feet of drilling mud recovered

Remarks: Test a misrun as packer unseated upon taking ISI
and FSI.

DST #6: 504 - 512 (Perforated Interval)

Zone: Blackie Sand

Times: Preflow Not taken
ISI Not taken
VO 360 mins.
FSI 180 mins.

Pressures: IHP 237 psi FFP 161 psi
FHP 228 psi FSIP 161 psi
IFP 28 psi

Recovery: Good air blow to weak in 6 minutes
Dead in 180 minutes
281 feet of drilling mud recovered on test

Remarks: Test satisfactory

(b) Casing Record

22 feet of 23" O.D. 3/16" insulated conductor pipe complete with 3/4" O.D. cooling coils.
41 feet of 19" O.D. 3/16" conductor pipe set 63 feet below ground or 78 feet K.B.
Conductor pipe cemented with 182 sax of permafrost cement.
Ran 38 joints (1184.70) of 13-3/8" 54.5#, J-55, 8-round, new seamless casing landed at 1200.66 feet K.B. Cemented casing with 1200 sax construction cement plus 3% CaCl₂. Recemented through a 1" pipe to 350 feet K.B. with 108 sax permafrost cement and 90 sax construction cement and 3% CaCl₂. Cement in place on first job at 0800 hours January 21, 1971. Cement in place on recement job at 2330 hours January 22, 1971.

(c) Bit Record

See attached sheets for bit record.

(d) Mud Report

Surface Hole - The 17-1/2" surface hole was drilled from 78 feet K.B. to 699 feet using stable foam as the drilling fluid. From 699 feet to 1205 feet a gel water drilling mud was used. The following materials were used on surface:

Sulfotex Sal	3 drums
Gel	207 Sax
Sawdust	71 Sax
Caustic	7 Sax
Aluminum Stearate	1 Box
Fiber Seal	3 Sax

Main Hole - The main hole was drilled with foam to a depth of 1853 feet, at which time the hole was displaced to a gel water system. From 1853 to 2424 the hole was drilled with the gel water system, and at 2424 feet the hole was displaced to an XC polymer system and was continued throughout the remainder of the hole. The following materials were used on the main hole:

Gel	1086 Sax
Weight Material	2218 Sax
Plaster	23 Sax
Bicarbonate of Soda	6 Sax
CMC	28 Sax
Caustic	115 Sax
Spersene	71 Sax
Kelzan "AL"	191 Sax
Dowicide "B"	7 Drums
Sawdust	1280 Sax
Aluminum Stearate	3 Boxes
Chrome Alum	7 Sax

(e) Deviation Record

60	-	1-1/8°	1390	-	1-1/4°	2970	-	2°
110	-	3/4	1450	-	1	3100	-	1-1/2
230	-	1/4	1578	-	1	3190	-	2-1/8
320	-	7/8	1580	-	1-1/8	3225	-	2
390	-	1/2	1670	-	3/4	3280	-	2
480	-	1/4	1770	-	1/2	3380	-	2
570	-	1/4	1852	-	7/8	3475	-	2-3/4
620	-	1/2	1917	-	7/8	3505	-	2-1/4
695	-	7/8	2043	-	1/2	3543	-	2-3/4
729	-	3/4	2170	-	1	3575	-	2
790	-	1	2233	-	1-1/4	3695	-	2-1/8
856	-	7/8	2295	-	1	3795	-	2-1/8
915	-	1-1/4	2360	-	1	3891	-	2
950	-	1	2443	-	1-3/4	4049	-	2-1/4
1040	-	1	2530	-	1-1/4	4112	-	2
1105	-	1-1/4	2625	-	2-1/8	4207	-	1-3/4
1165	-	1-1/8	2655	-	2-1/8	4239	-	1-1/2
1200	-	1-1/4	2685	-	2	4295	-	2-1/2
1280	-	1-3/4	2786	-	2	4365	-	1-7/8
1350	-	2	2880	-	1-7/8	4428	-	2

4523	-	2-1/4 ^o	5917	-	2 ^o	7640	-	1-3/4 ^o
4587	-	2-1/2	5942	-	1-3/4	7713	-	1
4614	-	2-1/4	6032	-	1-1/2	7800	-	1/2
4681	-	2-1/4	6078	-	1-1/4	7920	-	3/4
4705	-	2-1/2	6155	-	1-1/4	8015	-	3/4
4765	-	2	6255	-	1-1/8	8110	-	1-1/2
4840	-	2	6345	-	1-1/2	8170	-	1
4904	-	1-7/8	6440	-	1-3/4	8238	-	1-1/4
4985	-	2	6528	-	3/4	8399	-	2
5060	-	2	6605	-	1	8545	-	1-1/2
5150	-	1-7/8	6730	-	1	8800	-	1-1/4
5250	-	2-1/8	6880	-	1-1/2	8965	-	1-1/4
5270	-	1-1/2	6898	-	1-1/4	9025	-	2
5365	-	1-1/2	6980	-	1-1/8	9090	-	1-1/2
5470	-	1-7/8	7070	-	7/8	9275	-	2-1/2
5512	-	2-1/8	7170	-	1-1/2	9550	-	2
5598	-	2-1/8	7280	-	3/4	9680	-	2
5629	-	2-1/8	7398	-	1-7/8	9890	-	1-7/8
5673	-	2	7460	-	1-1/8	10,118	-	1-7/8
5790	-	1-7/8	7540	-	1-1/4	10,373	-	1

(f) Abandonment Plugs

Felt

Plug #1	(10,300 - 10,150)	90 Sax Construction Cement + 0.4% R5	
Plug #2	(8450 - 8300)	90 Sax Construction Cement + 0.2% R5	8285'
Plug #3	(4250 - 4150)	50 Sax Construction Cement + 2% CaCl ₂	4155'
Plug #4	(3300 - 3200)	50 Sax Construction Cement + 2% CaCl ₂	3170'
Plug #5	(1250 - 1150)	140 Sax Construction Cement + 2-1/2% CaCl ₂	1155'
Plug #6	(580 - 470)	100 Sax Construction Cement + 3% CaCl ₂	448'
Surface Plug - 5 Sax Construction Cement			

(g) Lost Circulation Zones

After mudding up at 699 feet on the 17-1/2" surface hole, circulation was lost. Approximately 160 barrels of mud was lost in the Blackie Sand. Circulation was regained by mixing a pill of sawdust, mud and fiber seal. No other zones of lost circulation were encountered throughout the remainder of the hole.

(h) Report of Blowouts

At a depth of 699 feet (Blackie Sand) and while drilling 17-1/2" hole with foam, gas was observed at the end of the Blooie Line. The gas was flared until sufficient mud was mixed to pump down the hole and kill the well. No measurement of the gas blow was made. The gas was flared for approximately 2-1/2 hours before being killed.

SECTION IV - LOGS

The following Schlumberger logs were run on surface hole on January 19, 1971:

I - ES	(1197' - 50')
Caliper	(1198' - Surface)
Microlog Caliper	(1195' - 50')
FDC/CR	(1195' - 50')

The following logs were run on April 28, 1971:

Dual Induction Laterolog	(10,368' - 1200')
BHC/Gamma Ray/Caliper	(10,372' - 1200')
S.N.P.	(10,373' - 8300')
FDC	(10,373' - 8300')
Completion Record	(480' - 76')

Total depth loggers at 10,374 feet

Ran a velocity survey on April 29, 1971

Ran Schlumberger Gamma Ray/Neutron Correlation Log (697' - 250') on May 7, 1971.

The following sidewall cores were recovered:

1441	4370
1684	4549
1758	5076
1808	5165
1847	5651
1948	5744
2253	6427
2326	6647
2432	6724
2545	6802
2733	7223
2828	7318
2952	7389
3106	7564
3156	7637
3289	7822
3366	7901
3590	7973
3705	8202
3906	8284
4091	8313
4246	

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 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

Perforated through 13-3/8" J-55 casing at interval 504'-512' with 17 3-5/8" Schlumberger Uni-gun 20.5 gram charges. Perforations were shot on May 7, 1971 with a spacing of 2 shots per foot.

(c) Cementation Record

Abandonment Plug #1: (10,300' - 10,150')

Cemented with 90 sax construction cement plus 0.4% R-5 retarder. Cement in place at 2205 hours May 4, 1971. No feel on Plug #1.

Abandonment Plug #2: (8450' - 8300')

Cemented with 90 sax construction cement plus 0.2% R-5 retarder. Cement in place at 0050 hours May 5, 1971. Felt Plug #2 after 8 hours W.O.C. at 8285 feet.

Abandonment Plug #3: (4250' - 4150')

Cemented with 50 sax construction cement plus 2% CaCl₂. Cement in place at 1100 hours May 5, 1971. Felt Plug #3 after 8 hours W.O.C. at 4155 feet.

Abandonment Plug #4: (3300' - 3200')

Cemented with 50 sax construction cement plus 2% CaCl₂. Cement in place at 1955 hours May 5, 1971. Felt Plug #4 after 8 hours W.O.C. at 3170 feet.

Abandonment Plug #5: (1250' - 1150') Cretaceous and Surface Casing

Cemented with 140 sax construction cement plus 2-1/2% CaCl₂. Cement in place at 0625 hours May 6, 1971. Felt Plug #5 after 8 hours W.O.C. at 1155 feet.

Abandonment Plug #6: (580' - 470') Across perforations in the surface casing, Blackie Formation.

Cemented with 100 sax construction cement plus 3% CaCl₂. Cement in place at 2030 hours May 8, 1971. Felt Plug #6 after 8 hours W.O.C. at 448 feet.

Surface Plug: Cut off casing bowl below ground level and cemented top of casing with 5 sax of cement. Welded on casing plate and installed well name and location 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 S.C.P.C. V.M. SHAFFER C.K. CONTRACTOR GENERAL PETROLEUMS RIG No. 15 PUMP No 1 6-700
 SPUD DATE JANUARY 18, 1971 RIG RELEASED MAY 9, 1971 DRILLING DAYS 118 PUMP No 2

BIT No	MAKE	SIZE	TYPE	DEPTH		FOOTAGE	TIME	DRG RATE	NOZZLE SIZES	JET VEL	WEIGHT M#	RPM	No 1 PUMP		No 2 PUMP		PUMP PSI	HHP AT BIT	DP ANN.	DC ANN.	MUD		DULL COND			DEV				
				FROM	TO								SPM	LINER	SPM	LINER					WT	VIS	T	B	G					
1	HW	1 1/2	CSC3	0	571	571	14 3/4	30	3-16		15	120	FORM	DRILLING																
2	HW	1 7/8	CSC16	571	924	353	2.1	17	3-18		12	100	FORM	DRILLING								9.4	46	2	1	1				
3	HW	1 7/8	CSC3	924	1802	278	18 1/4	15	3-18		5	100	6 1/4	47	500								9.9	47	2	1	1			
RR2	HW	1 7/8	CSC16	1802	1058	164	23 3/4	7	3-18		8	100	6 1/4	47	500								10.1	85	2	1	1			
	SEC	1 7/8	CSC16	1058	1058	0	13 1/2	9	OPEN		10	100	6 1/4	60	500															
4	HW	1 3/4	CSC16	DRILL COLL	DRILL COLL	0	ELCMT	SHLE	RND																					
5	HW	2 3/4	X10	1205	1580	375	18 1/2	22	3-18		10	100	FORM	DRILLING																
6	HW	"	X10	1580	2232	652	24 1/4	27	3-10		8 1/10	100	5 1/2	58	1300							8.5	34	6	1	1				
7	SMITH	"	SVH	2232	2424	191	18 3/4	10.2	3-9		12 1/20	110	"	59	1700							8.2	35	6	1	0				
8	SEC	"	S-EE	2424	2995	571	25 3/4	10.5	3-10		12 1/20	55	"	64	1250							8.5	34	1	2	1				
9	SEC	"	S-EE	2995	3964	969	8.1	11.5	3-10		15	55	"	64	1300							9.1	32	1	2	1				
10	HW	"	J-44	3964	4722	758	11.2	6.6	3-10		15	55	"	65	1300							9.2	33	6	8	0				
11	HW	"	XVRE	4722	4776	54	11	5	1-9		12 1/10	63	"	64	1700							9.2	33	2	1	1				
12	SEC	"	S-EE	4776	5280	504	7 1/4	7.2	"		20	55	"	64	1650							9.4	35	4	5	1				
13	SEC	"	S-EE	5280	5629	349	5.1	7	"		20 1/10	55	"	64	1700							9.3	33	2	6	1				
14	SEC	"	S-EE	5629	5946	317	5 1/4	5.1	"		20	55	"	63	1700							9.4	25	3	7	0				
15	SEC	"	S-EE	5942	6032	90	20 1/4	4.5	1-10		30	55	"	64	1300							9.3	44	6	5	1				
16	HW	"	XSSR	6032	6075	40	13 1/2	2.4	1-9		40	35	"	64	1300							9.3	42	6	2	1				
17	SEC	"	M-EE	6075	6155	77	8.3	3.7	1-10		45 1/2	35	"	64	1550							9.3	47	5	1	1				
18	REED	"	S-SS	6155	6266	111	3.5	3.5	3-9		40	35	"	62	1700							9.2	50	6	2	1				
19	SEC	"	H-EE	6266	6522	256	5 3/4	5.3	3-9		35	48	"	53	1600							9.3	45	3	1	1				
20	SEC	"	H-EE	6522	6532	9	3	3.5	2-10		35	48	"	62	1500							9.4	40							
21	HW	"	XSSR	6532	6605	68	16	4.2	1-9		45	36	"	62	1850							9.4	36	3	1	1				

CHEVRON STANDARD LIMITED
BIT RECORD

WELL NAME SHAFFER C.K.

CONTRACTOR GENERAL PETROLEUMS

RIG No. 1/S

PUMP No 1

SPUD DATE _____

RIG RELEASED _____

DRILLING DAYS _____

PUMP No 2

BIT No	MAKE	SIZE	TYPE	DEPTH		FOOTAGE	TIME	DRLG RATE	NOZZLE SIZES	JET VEL	WEIGHT M #	RPM	No 1 PUMP		No 2 PUMP		PUMP PSI	HHP AT BI	DP ANN	DC ANN	MUD		DULL COND			DEV
				FROM	TO								LINER	SPM	LINER	SPM					WT	VIS	T	B	G	
21	SOC	5/8	H-10	605	605	293	7 1/4	3.1	2-10 1-9	45	36	62	5 1/2	62	1750		9.3	45				9.3	45	2	5	1
22	HVW	"	K57X	696	7295	397	7 1/4	5.5	"	45	36	62	"	62	1500		9.4	44				9.4	44	2	3	1
24	HVW	"	X55R	7295	7713	418	7 1/2	5.3	"	35	36	64	"	64	2000		9.5	54				9.5	54	3	3	1
25	SMITH	"	A55	7713	8170	457	6 3/4	6.3	2-10 1-11	45	26	64	"	64	1000		9.5	47				9.5	47	4	4	1
26	YEO	"	S65	8170	8170	-	-	-	"	WASH	40	36	NOZZLE SOCKET													
27	Agon	"	S61C	8170	8235	65	13 3/4	5.1	2-10 1-9	40	36	63	"	63	1400		9.6	108				9.6	108	2	7	1
28	HVW	"	CDV	8235	8299	161	24 1/2	6.7	1-9	40	60	62	"	62	1950		10.1	106				10.1	106	4	4	1
29	SOC	"	S65	8299	8809	410	50 3/4	8.0	"	35	62	62	"	62	2000		10.2	114				10.2	114	4	8	1
30	HVW	"	XV	8809	-	-	21	-	2-10 1-10	REGM	40	60	FROM 5189 TO 6280				10.3	220				10.3	220	2	1	1
31	HVW	"	XV	8809	-	-	-	-	3-13	REGM	35	60	FROM 5181				-	-				-	-			
32	HVW	"	XDV	8809	8910	101	18	6.0	3-1	35	60	5 1/2	5 1/2	1300		11.0	240				11.0	240	3	1	1	
33	SMITH	5/8	Ø	8910	8970	60	11 1/2	5.1	-	10	65	65	5 1/2	65	1100		10.9	215				10.9	215	6	0	0
34	SOC	5/8	Ø	8970	8971	1	1/4	4	2-12 1-15	10	60	62	"	62	1100		11.1	220				11.1	220	2	1	1
35	SMITH	5/8	Ø	8971	9091	60	7 3/4	7 3/4	-	12	65	65	"	45/60	1500		11.2	235				11.2	235	6	0	0
36	SMITH	5/8	SYH	9091	9093	2	10 3/4	-	REGMED	REGM	40	60	FROM 8911 TO 9031													
37	HVW	5/8	XVDR	9093	9093	-	-	-	REGM IN WITH	REGM	40	60	FROM 8911 TO 9031													
38	SMITH	5/8	Ø	9093	9095	55	8 1/2	7	2-14	12	65	50	5 1/2	50	1200		10.7	195				10.7	195	F	A	R
39	SMITH	5/8	Ø	9095	9090	2	7	-	1-16	15	60	64	"	64	1550		11.2	195				11.2	195	4	4	1
40	SOC	5/8	Ø	9090	9150	60	7 1/4	6.2	2-14	10	60	52	"	52	1200		11.0	195				11.0	195	F	A	R
41	SOC	5/8	Ø	9150	9220	130	12 1/2	7.3	1-15	20	60	64	"	64	1600		11.2	247				11.2	247	5	4	1
42	SOC	5/8	Ø	9220	9684	404	52 1/2	7.7	3-14	35	60	60	"	60	1700		11.2	240				11.2	240	5	1	1
43	SOC	5/8	Ø	9684	10118	434	57	7.6	3-14	35	60	62	"	62	1650		11.1	240				11.1	240	3	4	1
44	HVW	5/8	X55R	10118	10373	255	45 3/4	5.5	3-14	40	60	62	"	62	1500		11.2	245				11.2	245	2	3	1 (T.D)

T.G. EASTLAND — testers Ltd.

R.R. No. 6, NORTH EDMONTON, ALBERTA

Test No. one

Date Apr. 30/71

Ticket No. 1898

SERVICE REPORT

WELL NAME SOBC WM Shaeffer Ck YT 0-22 ADDRESS 400 - 5 Avenue S.W. - Calgary
 AREA Eagle Plains L.S.D. 139° 19' 40" W INVOICE TO Chevron Standard Limited
 CONTR. & RIG No. G.P. #15 T/PUSH J. Fraser CUSTOMER'S REPRESENTATIVE L. Grumbly

Date & Time Requested <u>on lease</u>		DESCRIPTION OF BLOW DURING TEST				TOOL SEQUENCE & EQUIP. USED			
		Tools	Length	O.D.					
Call <u>8:10 pm</u>	Arr. <u>(May 1) 12:55 pm</u>	Good initial air blow on preflow. Gas to surface during initial shut-in.				Critical Flow Prover			
Start in <u>6:20 am</u>	On Bott. <u>12:45 pm</u>	Small gas flow throughout flow period. Gas sample taken at flareline				Floor Manifold			
TESTING DATA						Meter Run			
Zone Tested		Blow Measured with: Pitot Tube <input checked="" type="checkbox"/> _____				Remote Control Head	<u>yes</u>		
Interval <u>9004 to 9068</u>	T.D. <u>10374</u>	Fluid Used: Water <input checked="" type="checkbox"/> Mercury <input type="checkbox"/> Side Static <input type="checkbox"/>				Pump Out Sub	<u>1.00</u>	<u>4-3/4</u>	
Int. Casing: Size <u>13-5/8</u>	wgt. <u>at 1200</u>	Flow Prover <input type="checkbox"/> Gauge <input type="checkbox"/> Size Gauge _____ lbs.				Cross Over Subs	<u>1.80</u>	<u>6-1/2</u>	
Feet of Main Hole <u>10374</u>	Diam <u>8-3/4</u>	Time	Choke	Reading	MCF/Day	Tight Hole Tool			
Feet of Rat Hole _____	Diam _____					Dry Collar Valve			
Type of Test <u>4</u>	By pass <u>straddle</u>					Cross Over Sub	<u>.85</u>	<u>6-1/2</u>	
Packers: No. _____	O.D. <u>8"</u>					Test Assembly	<u>11.39</u>	<u>4-3/4</u>	
Type of Packers <u>Conventional</u>		<u>2:30am</u>	<u>1"</u>	<u>1"</u>	<u>10.97</u>	Sampler	<u>4.91</u>	<u>4-3/4</u>	
Drill Pipe: Size - Thread <u>4-1/2" FH</u>		<u>4:10am</u>	<u>1"</u>	<u>1"</u>	<u>10.97</u>	Jars BC	<u>9.13</u>	<u>5-3/4</u>	
Drill Collars: I.D. <u>2-7/8</u>	O.D. <u>6-7/8</u>					Straddle By-pass	<u>10.85</u>	<u>4-3/4</u>	
No. Ft. Collars <u>274</u>	D.P. <u>8713.62</u>					Safety Joint	<u>1.74</u>		
No. Feet Drill Pipe Above Table <u>35</u>						Packer	<u>5.70</u>	<u>8</u>	
Ft. & Type Cushion <u>1030' water</u>						Packer	<u>3.45</u>	<u>8</u>	
Was Tool Chased <u>no</u>	No. Ft. _____					TOTAL	<u>50.93</u>		
Weight Set on Packers <u>20M</u>		Pipe <u>906</u>	Collars <u>274</u>	Total <u>1180</u>		Perfs	<u>18.00</u>	<u>4-3/4</u>	
Did Fluid Drop <u>no</u>	No. Ft. _____	Mud <u>150</u>	Oil _____	Water <u>1030</u>		By-pass	<u>1.00</u>	<u>4-3/4</u>	
Describe _____		Describe Fluids: <u>Recovered 1030' gassy water cushion and 150' gassy drilling mud.</u>				Subs	<u>1.83</u>	<u>6-1/2</u>	
						D.C.	<u>31.56</u>	<u>7</u>	
Preset <u>15</u> min. Time Tool Opened <u>1:10 am</u>		Sampler Drained: On Location <input checked="" type="checkbox"/> Laboratory <input type="checkbox"/>				IC & BC	<u>11.23</u>	<u>4-3/4</u>	
Preflow <u>10</u> min. Init. Shut-in <u>60</u> min.		Sampler Press. _____ lbs.				Packers	<u>8.50</u>		
Flowed <u>120</u> min. Final Shut-in <u>120</u> min.		Bottom Hole Temp. <u>161</u> °F				Perfs. & subs	<u>10.89</u>		
Pull Loose <u>40M</u> lbs. Swabbing? <u>no</u>		Salinity of Recovery _____ P.P.M.				Drill pipe	<u>1287.44</u>		
Drilling Fluid Type <u>Gel-Chem</u>		Salinity of Mud Filtrate _____ P.P.M.				TOTAL	<u>1370.45</u>		
Visc. <u>225</u> Wgt. <u>11.0</u> WL <u>4.8</u> FC <u>2/32</u>							<u>1421.38</u>		

FIELD PRESSURE DATA				
Pressure Element No.	<u>3805</u>	<u>3806</u>	<u>12349</u>	
Element Capacity (psig)	<u>8000</u>	<u>8000</u>	<u>8600</u>	
Clock Speed (Hrs.)	<u>24</u>	<u>24</u>	<u>12</u>	
Depth of Bellows	<u>8983</u>	<u>8988</u>	<u>9065</u>	
Position (Inside - Outside)	<u>Inside</u>	<u>Inside</u>	<u>Below interval</u>	
Initial Hydrostatic	<u>5252</u>	<u>5255</u>	<u>5381</u>	<u>Rec.</u>
Preflow Pressure	<u>565</u>	<u>568</u>		
Initial Shut-In	<u>2105</u>	<u>2107</u>	<u>Held</u>	
First Flow—Choke Size <u>7/8"</u>	<u>565</u>	<u>568</u>	<u>OK</u>	
Second Shut-In				
Second Flow—Choke Size <u>7/8"</u>	<u>600</u>	<u>605</u>		
Final Shut-In	<u>984</u>	<u>986</u>		
Final Hydrostatic	<u>5050</u>	<u>5052</u>	<u>5173</u>	

TOTAL PICKED UP	
1. Cross-over sub to bottom of top rubbers	<u>50.93</u>
2. Bottom of top rubbers to top of lower	<u>63.62</u>
3. Top of lower to bottom of lower rubbers	
4. Bottom of lower rubbers to Total Depth	<u>1306.83</u>
5. Bottom of top rubbers to Total Depth	
(Delete measurement No. 5 if Straddle)	
(Delete No. 2 - 3 - 4 if Std. bottom hole)	
Total amount of customer's anchor	<u>1319.00</u>
No. of Damaged Rubbers and Sizes	<u>2-8"</u>
No. Samplers Retained	
No. of Reports Required	<u>10</u>
Mileage: Highway _____ Bush _____	Total _____
Waiting Time <u>Apr. 27, 28, 29</u>	<u>= 3 days</u>

REMARKS: _____

APPROVED BY L. Grumbly TEST WAS: Successful OUR OPERATOR K. Larson

Ticket no. 1898
DST # one
April 30, 1971
Element #3806

ATTACHMENT NO. 1

I. INITIAL SHUT-IN

<u>Time</u>	<u>Pressure</u>
0 mins.	568
3	1090
6	1259
9	1396
12	1504
15	1597
18	1662
21	1732
24	1784
27	1830
30	1871
33	1907
36	1940
39	1971
42	1996
45	2019
48	2040
51	2060
54	2078
57	2094
60	2107

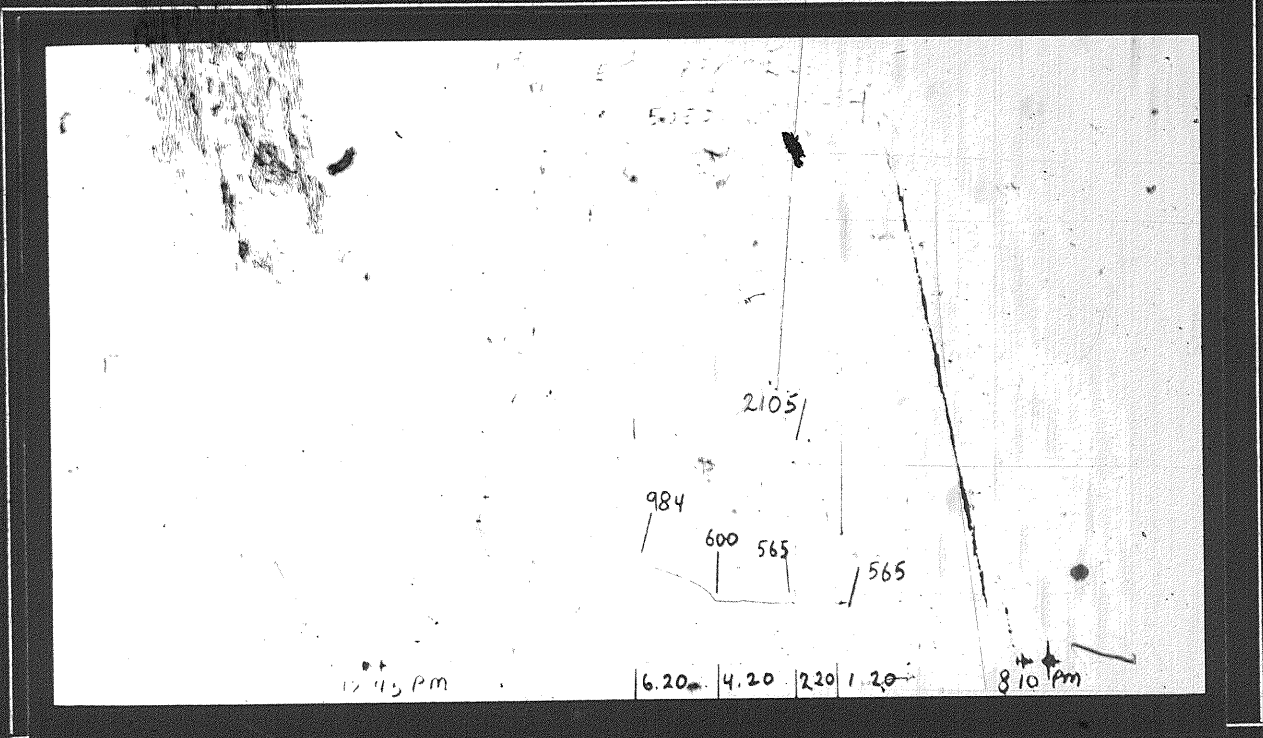
II. FINAL SHUT-IN

<u>Time</u>	<u>Pressure</u>
0 mins.	605
3	644
6	677
9	689
12	708
15	726
18	741
21	751
24	762
27	774
30	784
33	794
36	803
39	803
42	812
45	821
48	829
51	838
54	846
57	853
60	860
63	868
66	875
69	881
72	887
75	894
78	901
81	908
84	915
87	921
90	927
93	933
96	938
99	944
102	950
105	956
108	962
111	968
114	974
117	980
120	986

T.G. EASTLAND — testers ltd.

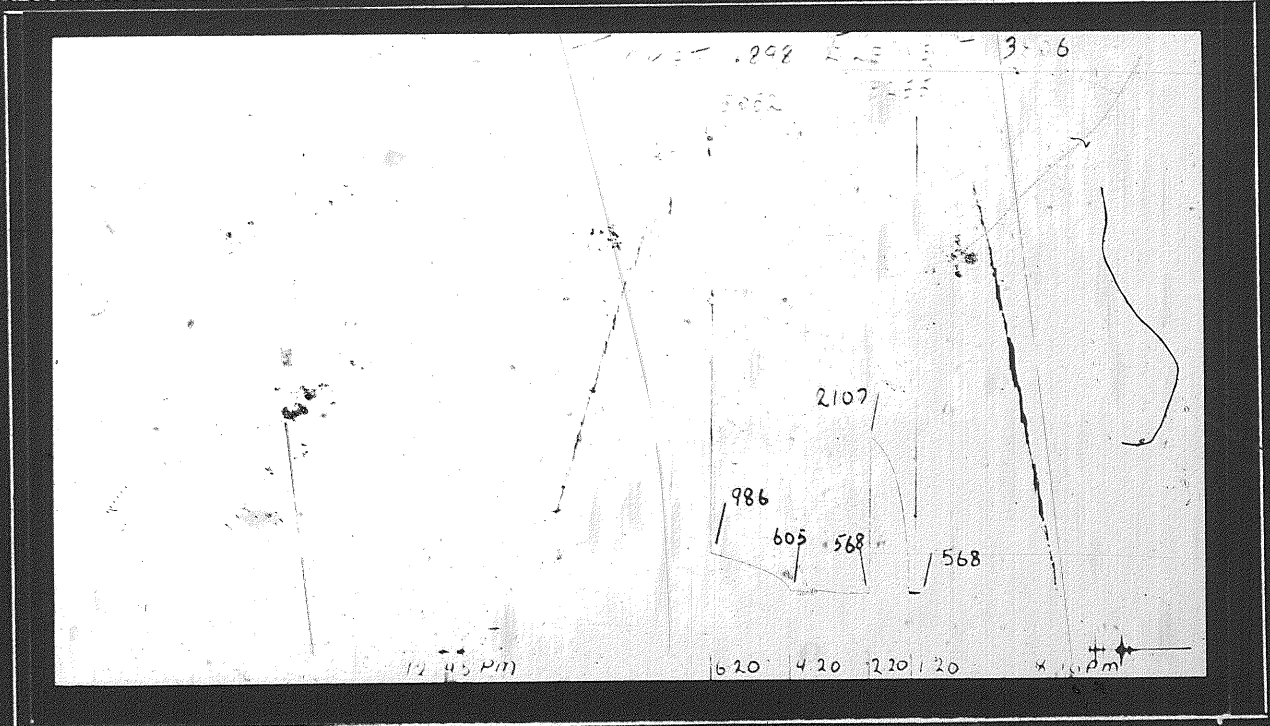
TEST No. one
Date Apr. 30/71
Ticket No. 1898

WELL NAME SOBC WM Shaeffer Ck YTO-22
RECORDER No. 3805 ELEMENT RANGE 8000 P.S.I. CHART SPEED 24 HRS. RECORDER DEPTH 8983



TIME

RECORDER No. 3806 ELEMENT RANGE 8000 P.S.I. CHART SPEED 24 HRS. RECORDER DEPTH 8988

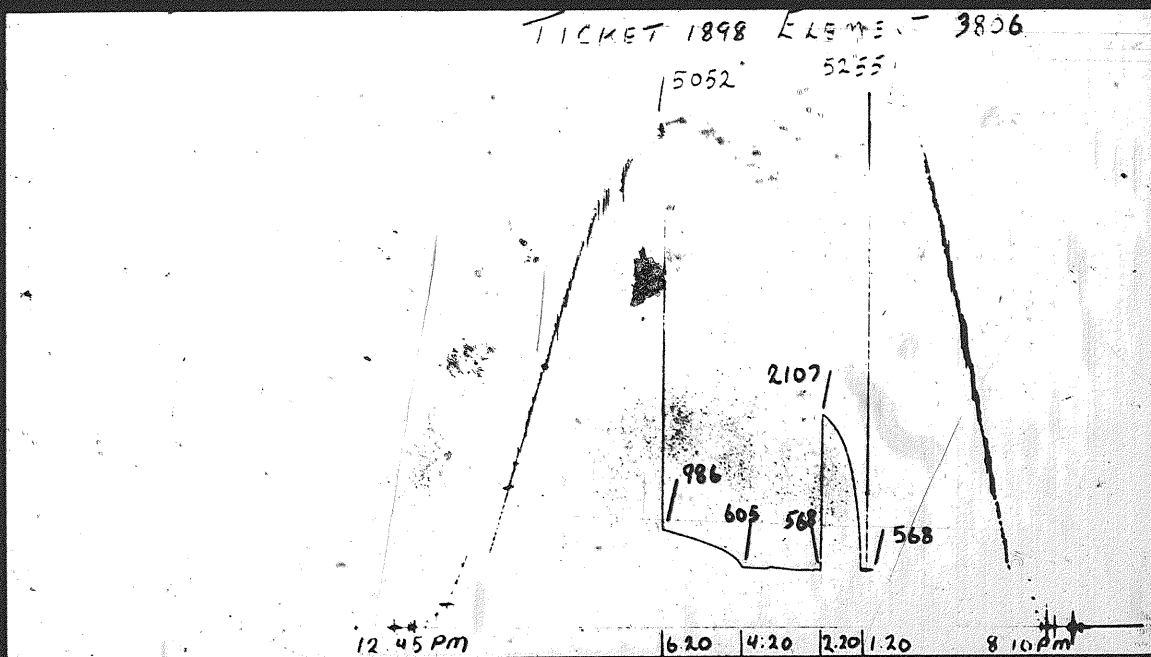
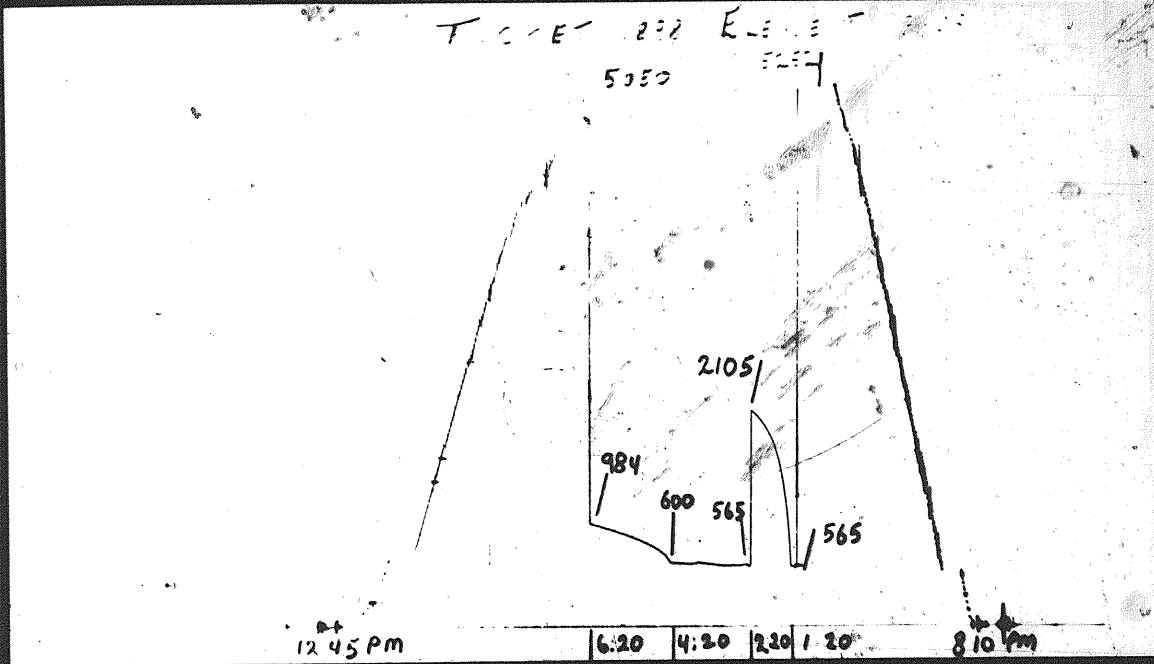


TIME

PRESSURE

PRESSURE

T.G. EASTLAND *testers Ltd.*



T.G. EASTLAND — testers Ltd.

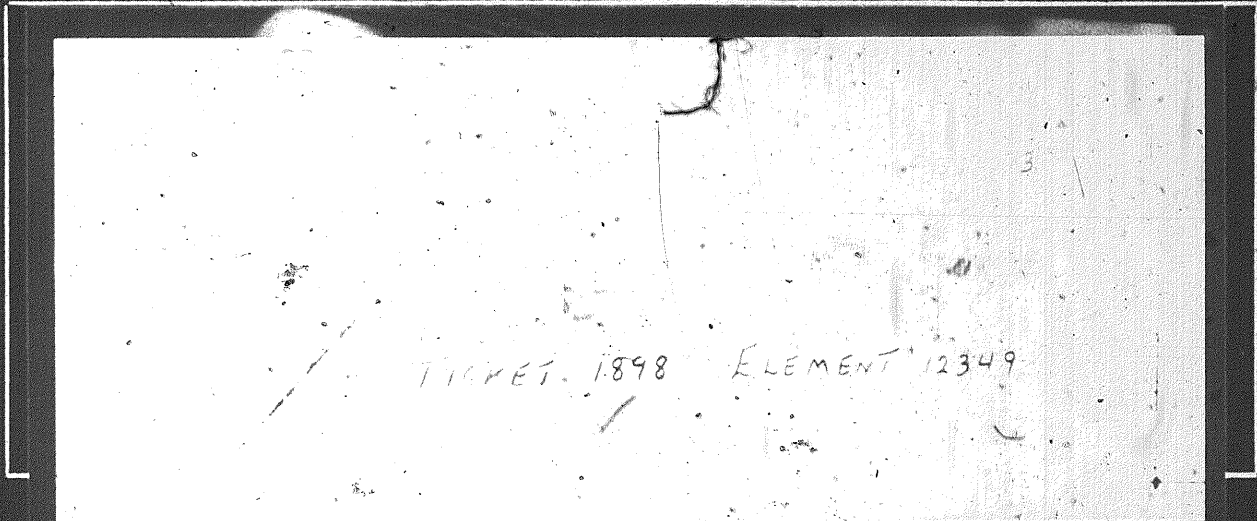
TEST No. one

Date Apr. 30/71

Ticket No. 1898

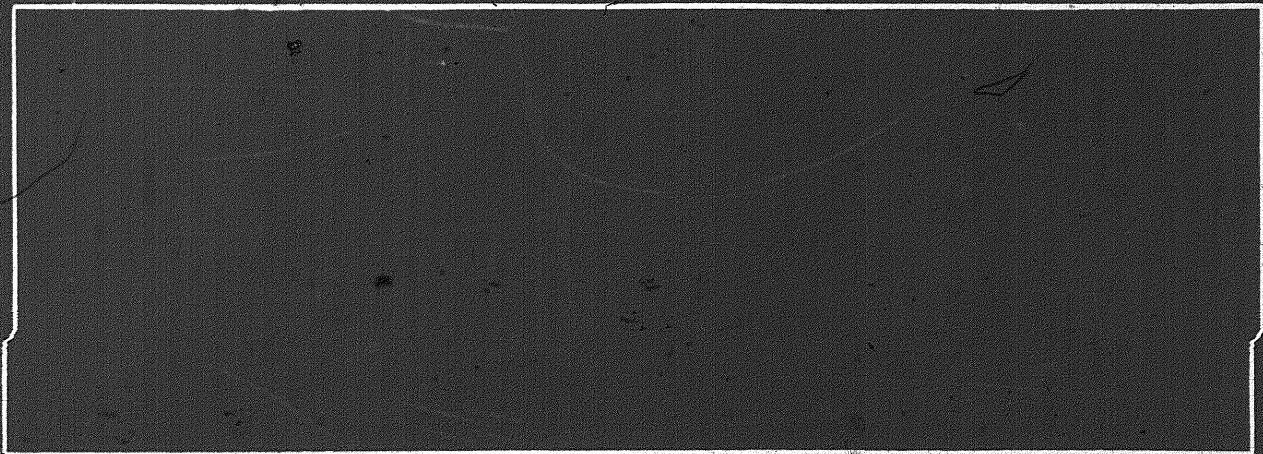
WELL NAME SOBC-WM Shaeffer Ck YTO-22

RECORDER No. 12349 ELEMENT RANGE 8600 P.S.I. CHART SPEED 12 HRS. RECORDER DEPTH 9065



PRESSURE

RI



PRESSURE

TIME

RECORDER No. ELEMENT RANGE P.S.I. CHART SPEED HRS. RECORDER DEPTH



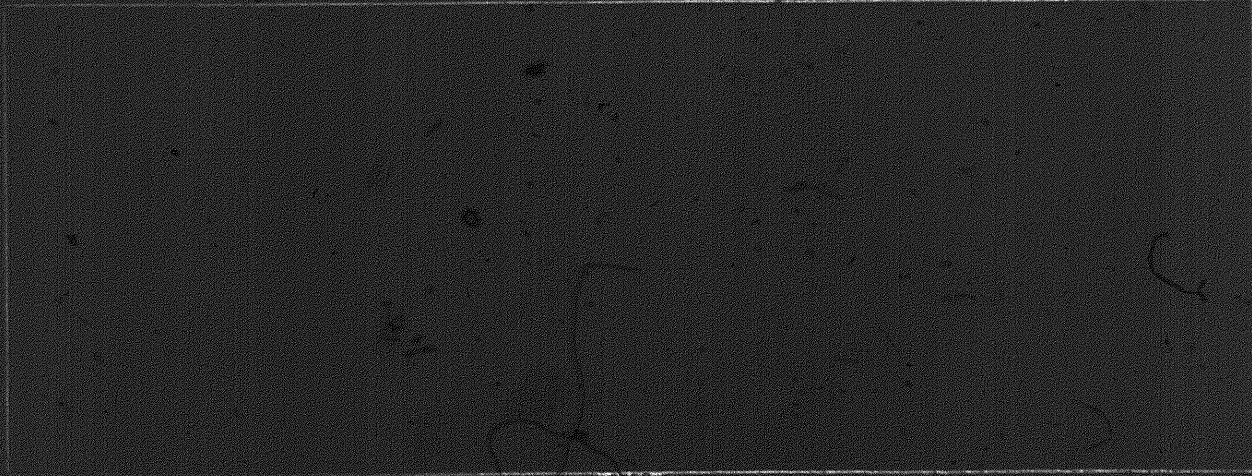
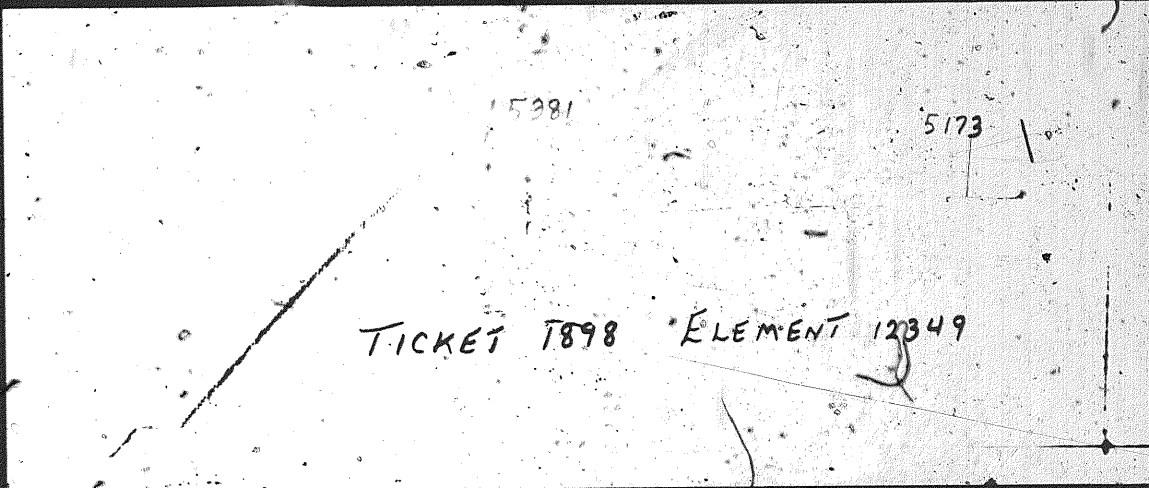
PRESSURE

TIME

A.G. EASTLAND *testers Ltd.*

TEST No.
Date
TICKET No.

RECORDER No. ELEMENT RANGE PSI CHART SPEED HRS RECORDER DEPTH



RECORDER No. ELEMENT RANGE PSI CHART SPEED HRS RECORDER DEPTH

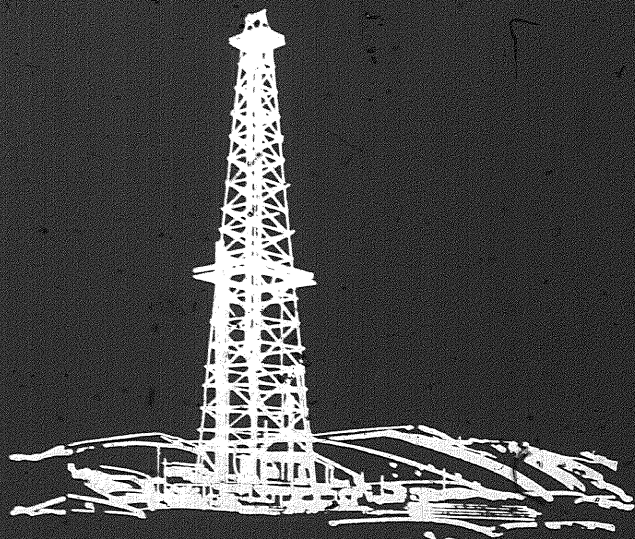




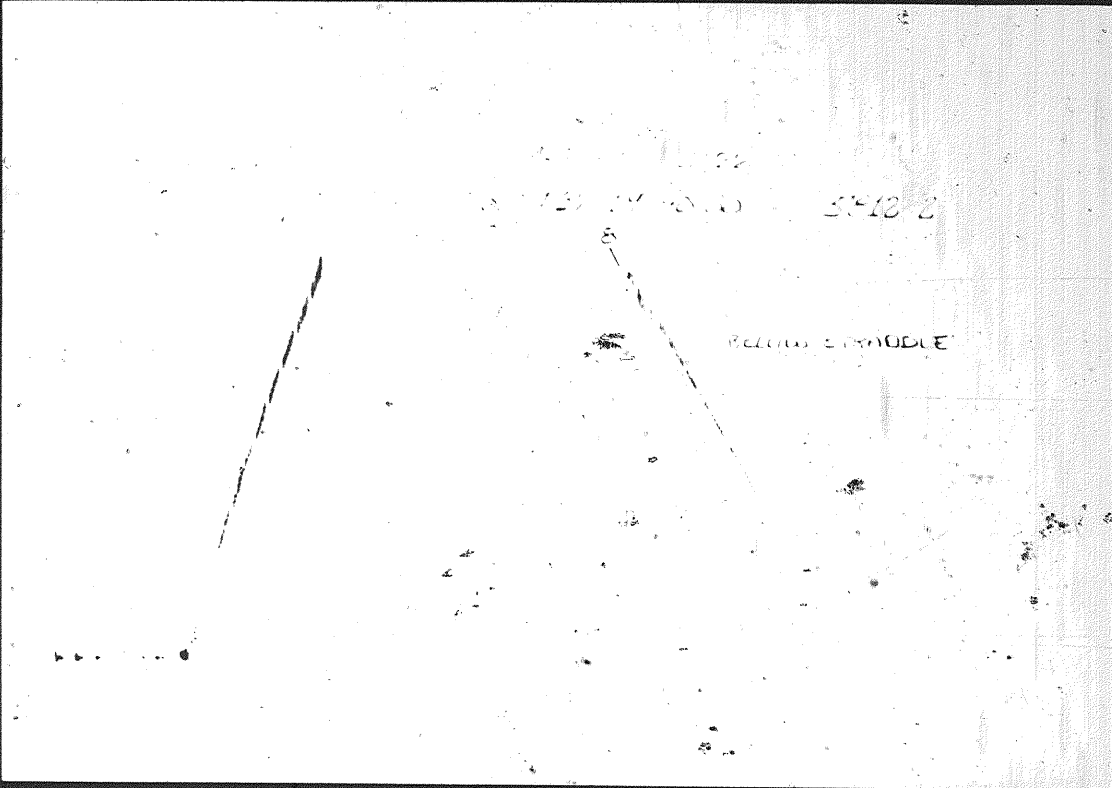
LYNES

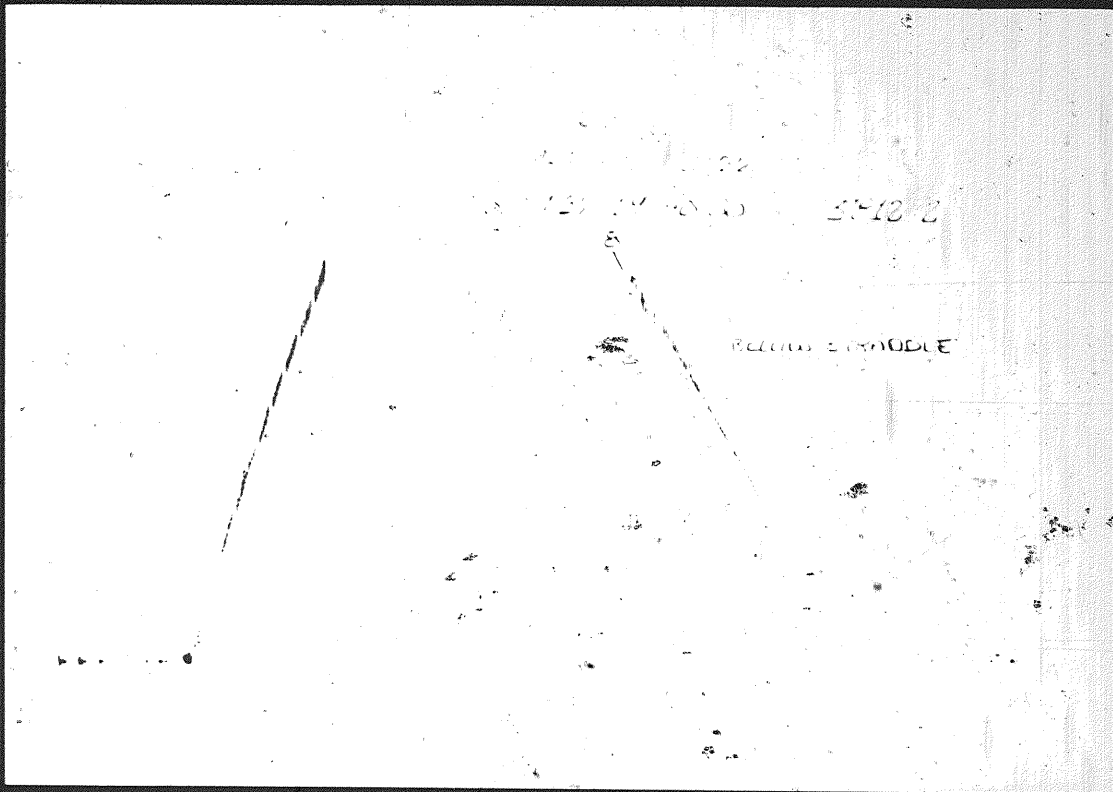
BRIGHT NAME IN THE OIL PATCH

Inflatable and Conventional Packer Tools



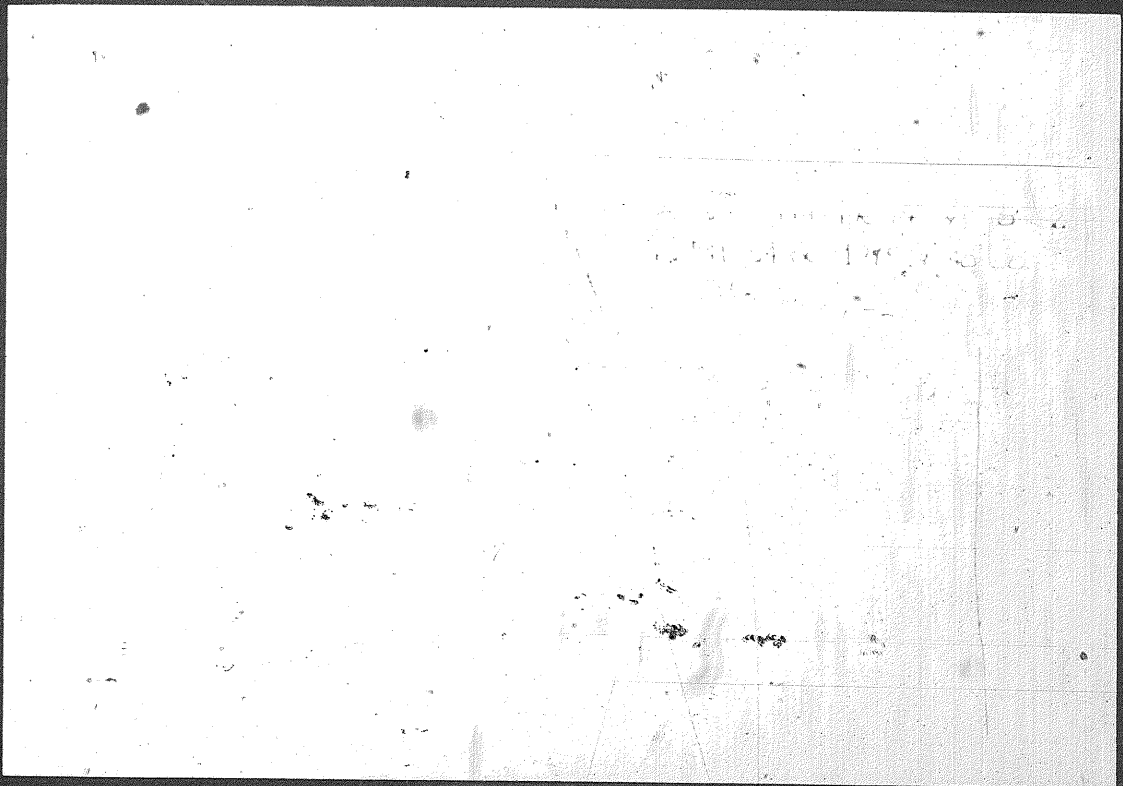
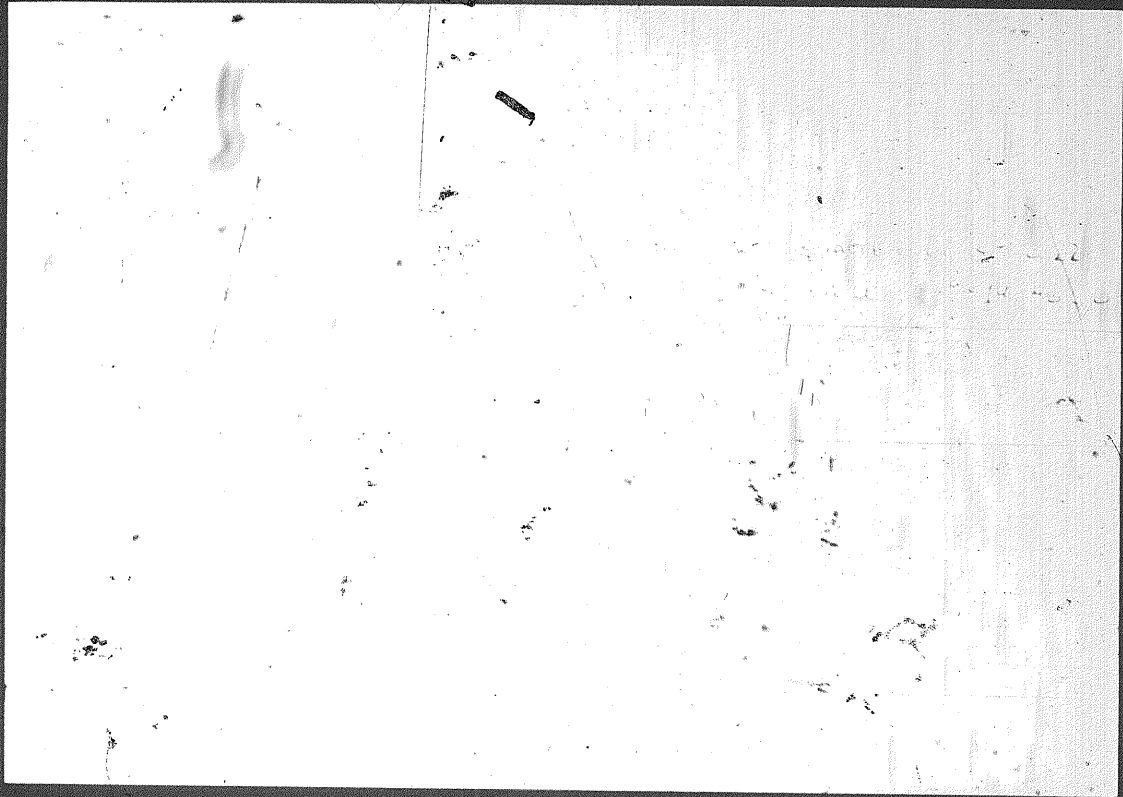
DRILL STEM TEST
TECHNICAL SERVICE REPORT

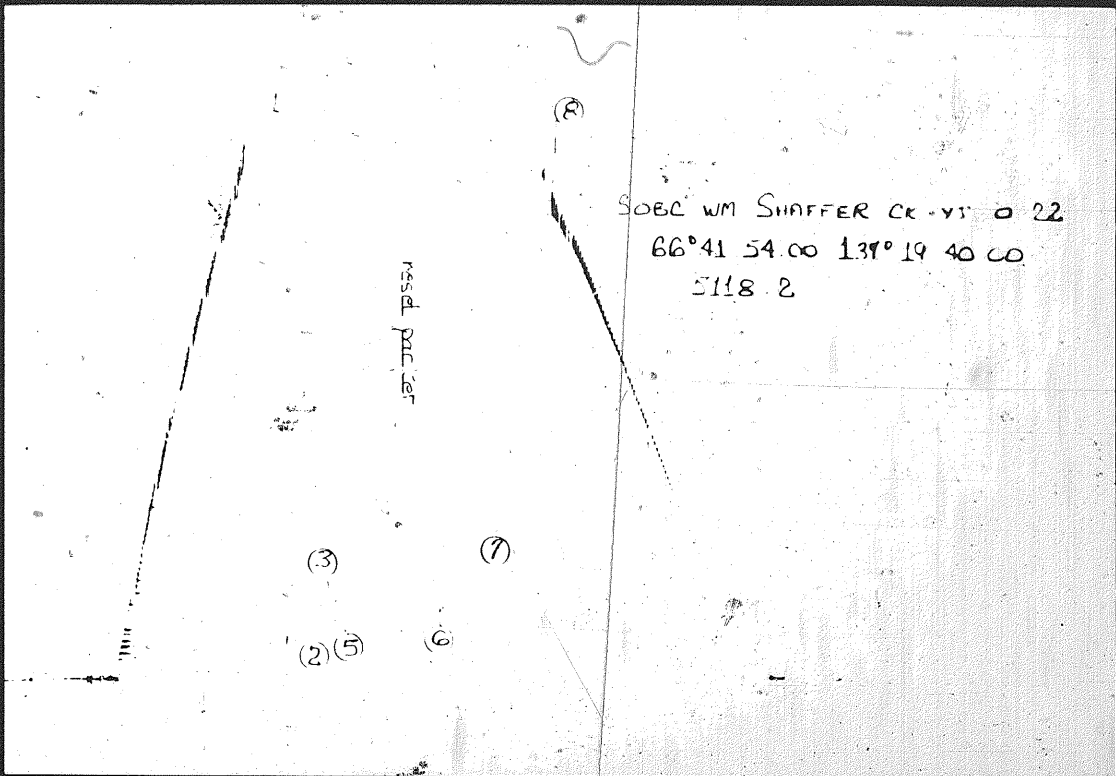
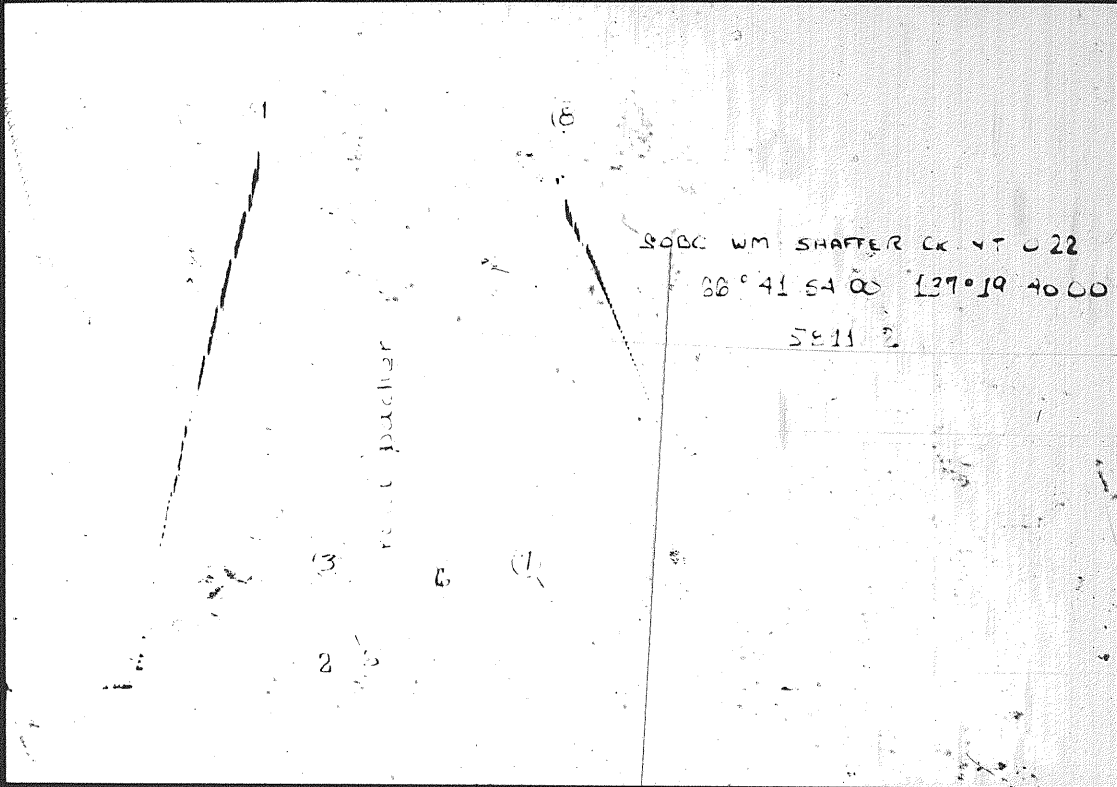




1912

BELOW SMOODLE





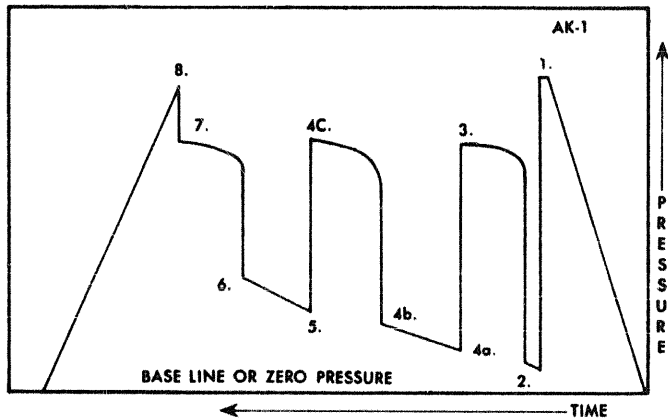
LYNES UNITED SERVICES LTD.

TEST DATA		Lynes Test		GENERAL INFORMATION	
Test No. 2		T.D. 10,370 Ft.		Company Chevron Standard Ltd.	
Interval Tested	8314 Ft. to	8417 Ft.	Address 400 - Fifth Avenue S.W.		
Feet of Net Pay Tested		103 Ft.	Calgary, Alberta		
Type of Test Inflatable Straddle					
Cushion	nil	Amount	Ft.	Well Name SOBC WM Shaeffer CK-YT-0-22	
Started in Hole at	6:45 Hrs.	Tool Open at	11:09 Hrs.	Well Number 660 41' 54.00 1370 19' 40.00	
Pre-Flow	5 Mins.	Initial Shut-in	60 Mins.	K.B. Elevation 1155 Sub-Sea Elevation	
2nd Flow	Mins.	Second Shut-in	Mins.	Area Eagle Plains Province Yukon	
Final Flow	120 Mins.	Final Shut-in	120 Mins.	Company Rep. Mr. L. Grumbly	
Remarks: Mud was so thick and gel strength - high tool partially plugged with shale suspended in mud.			Tester Pat McDonnell		
Blow: Weak initial puff on preflow. No puff on main flow. Open one hour and deflated, then pumped up again to try and unplug tool.			Contractor GP Ria No. 15		
			Ticket No. 2931 Date May 18/71		
			Service Reports To: 10 - above address		
GAS BLOW MEASUREMENTS			MUD AND HOLE DATA		
Measured with			Mud Type Gel Chem		
			Weight 11.0 Viscosity 225 Water Loss 4.8		
			Filter Cake 2/32" Bottom Hole Temperature		
Time	Surface Choke	Reading Inches	Cubic Feet/Day		
			Drill Pipe Size 4 1/2" FH' Weight		
			Drill Collars 5"H90 I.D. 2 3/4" Feet Run 245		
			Main Hole or Casing Size 8 3/4"		
			Rathole or Liner Size No. of Feet		
			Bottom Hole Choke Size 3/4"		
			Surface Choke Size adjustable		
			Packer Rubber Size 7 5/8x 66"		
			REMARKS		
			Test was run without cleaning out after test #1. Misrun. Although the tool plugged slightly, the shut-in pressures suggest very low permeability within the interval tested. This was confirmed on DST # 3.		
RECOVERY					
TOTAL FLUID RECOVERED		65 Ft. Consisting of:			
65 Ft. of		thick shaley mud			
Ft. of					
Ft. of					
Ft. of					
Test was/was not Reverse Circulated was not					
Oil Recovery A.P.I. Water Specific Gravity					
Salinity					
PRESSURE READINGS					
NUMBER KEY: 1 - INITIAL HYDROSTATIC 2 - PRE-FLOW 3 - INITIAL SHUT-IN 4a - 2nd INITIAL FLOW 4b - 2nd FINAL FLOW 4c - 2nd SHUT-IN 5 - 3rd INITIAL FLOW 6 - FINAL FLOW 7 - FINAL SHUT-IN 8 - FINAL HYDROSTATIC	Inside _____ Outside <u>X</u>	Inside _____ Outside <u>X</u>	Inside _____ Outside <u>X</u>	Inside _____ Outside _____	
	Recorder No. 5811	Recorder No. 5118	Recorder No. 5812	Recorder No. _____	
	Capacity 6000	Capacity 6000	Capacity 8200	Capacity _____	
	Depth 8322	Depth 8322	Depth 8433	Depth _____	
	<u>4854</u>	<u>4853</u>	<u>4914</u>	_____	
	<u>206</u>	<u>212</u>	_____	_____	
	<u>734</u>	<u>739</u>	_____	_____	
	_____	_____	_____	_____	
	<u>548</u>	<u>547</u>	_____	_____	
	<u>717</u>	<u>726</u>	_____	_____	
<u>804</u>	<u>796</u>	_____	_____		
<u>4765</u>	<u>4748</u>	<u>4818</u>	_____		

Chevron Standard Ltd. Company SOBC WM Shaeffer CK-YT-022 660 41' 1370 19' #2 May 18/71 Date of Test

**GUIDE TO INTERPRETATION AND IDENTIFICATION OF
LYNES DRILL STEM TEST PRESSURE CHARTS**

AK-1 recorders. Read from right to left.

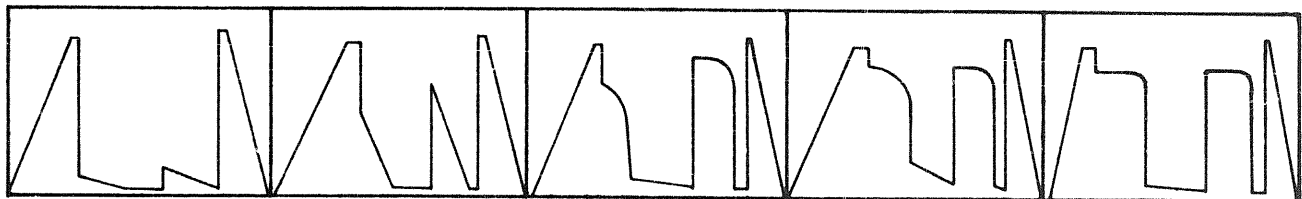


- 1. INITIAL HYDROSTATIC MUD PRESSURE
- 2. PRE-FLOW
- 3. INITIAL SHUT-IN
- 4a. 2nd INITIAL FLOW
- 4b. 2nd FINAL FLOW
- 4c. 2nd SHUT-IN
- 5. 3rd INITIAL FLOW
- 6. FINAL FLOW
- 7. FINAL SHUT-IN
- 8. FINAL HYDROSTATIC MUD PRESSURE

N.B. When only two shut-in and flow periods are run, 4a, 4b and 4c are omitted.

K-3 recorders. Read from left to right.

Typical charts for visual field analysis ranging from very low to high permeability.



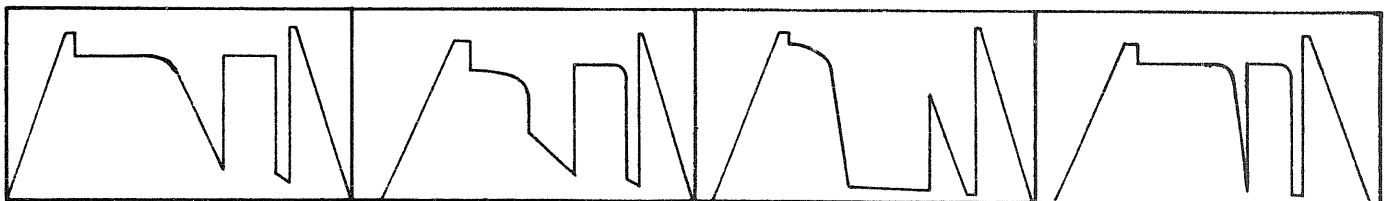
Very low permeability. Usually only mud recovered from interval tested. Virtually no permeability.

Slightly higher permeability. Again usually mud recovered.

Slightly higher permeability. Small recovery, less than 200' ft).

Average permeability. Final and initial shut-ins differ by 50 psi.

Average permeability. Strong damage effect. High shut-in pressure, low flow pressure.

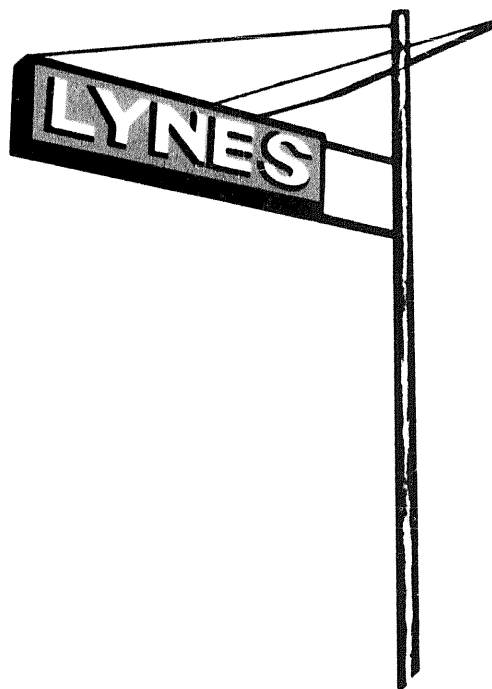


Excellent permeability where final flow final shut-in pressure.

High permeability where ISIP and FSIP are within 10 psi.

Deep well bore invasion or damage. Final shut-in higher than the initial shut-in.

Tight hole chamber tester. Permeability very difficult to interpret unless the recovery is less than chamber length. Flow pressure builds up rapidly if recovery is large, similar to a shut-in.



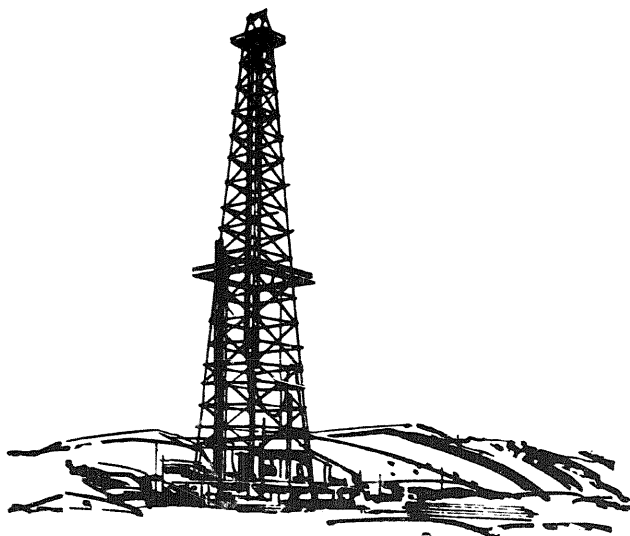
LYNES UNITED SERVICES LTD. 262-4501 CALGARY, ALBERTA



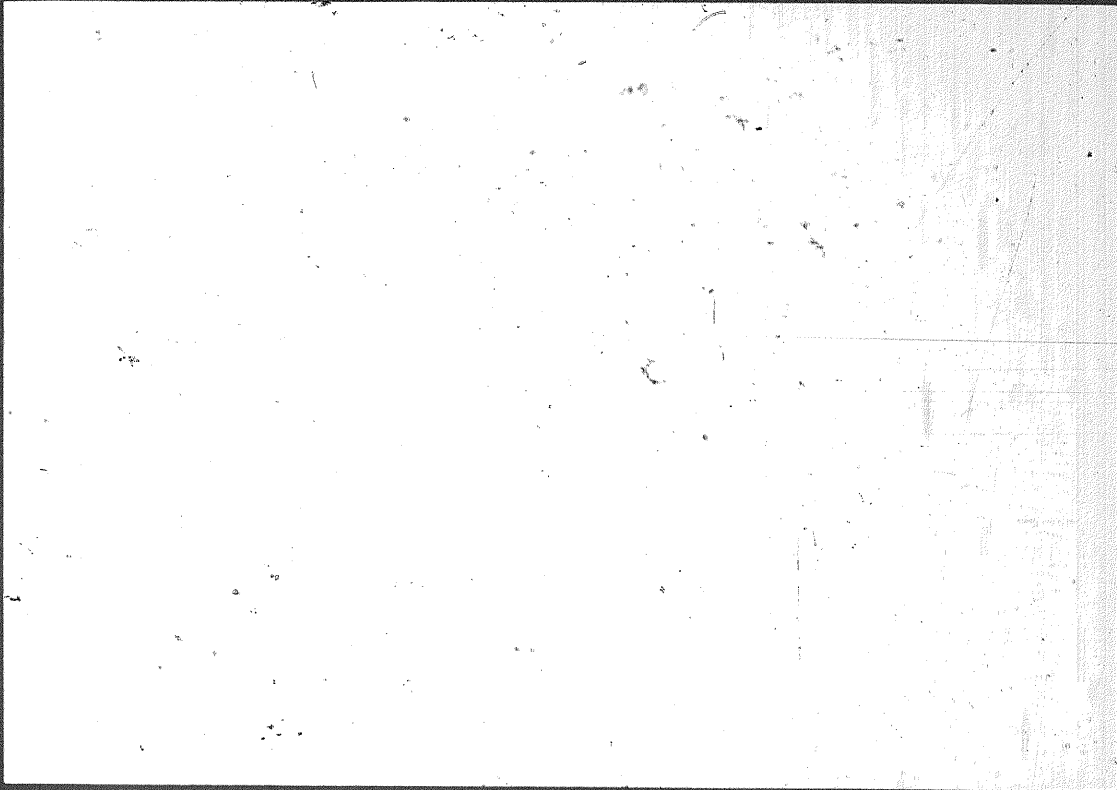
LYNES

BRIGHT NAME IN THE OIL PATCH

Inflatable and Conventional Packer Tools

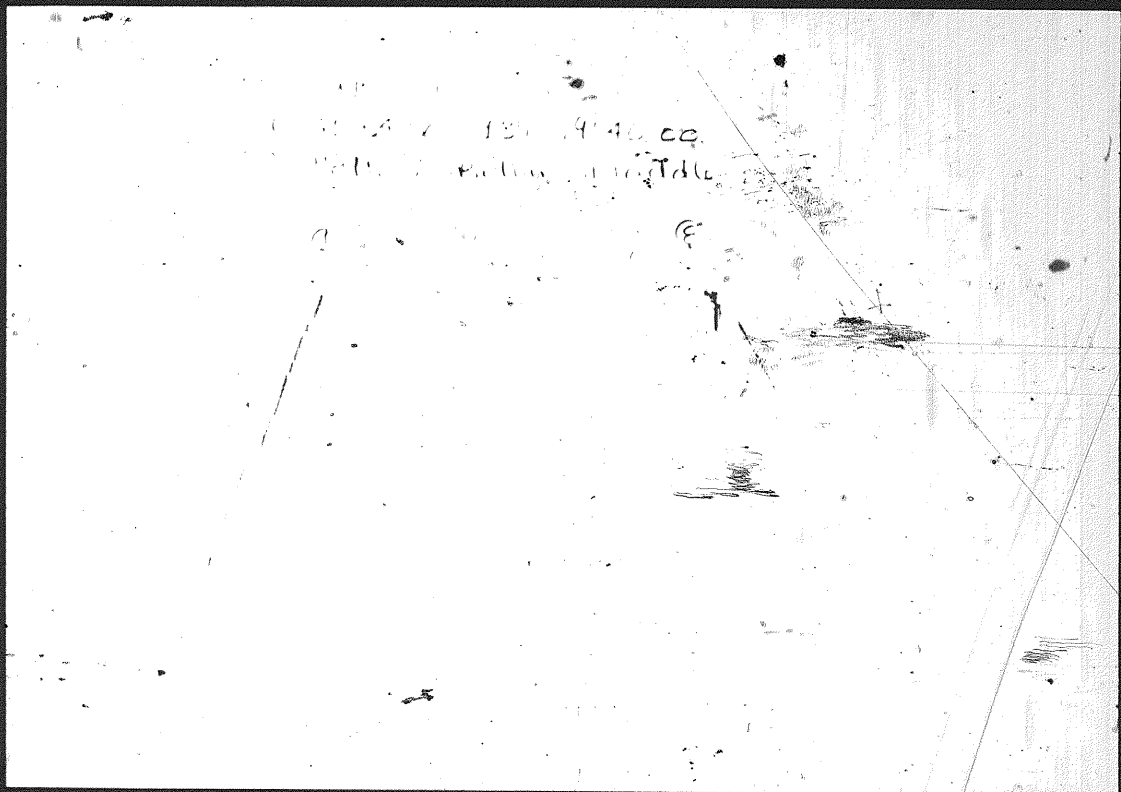


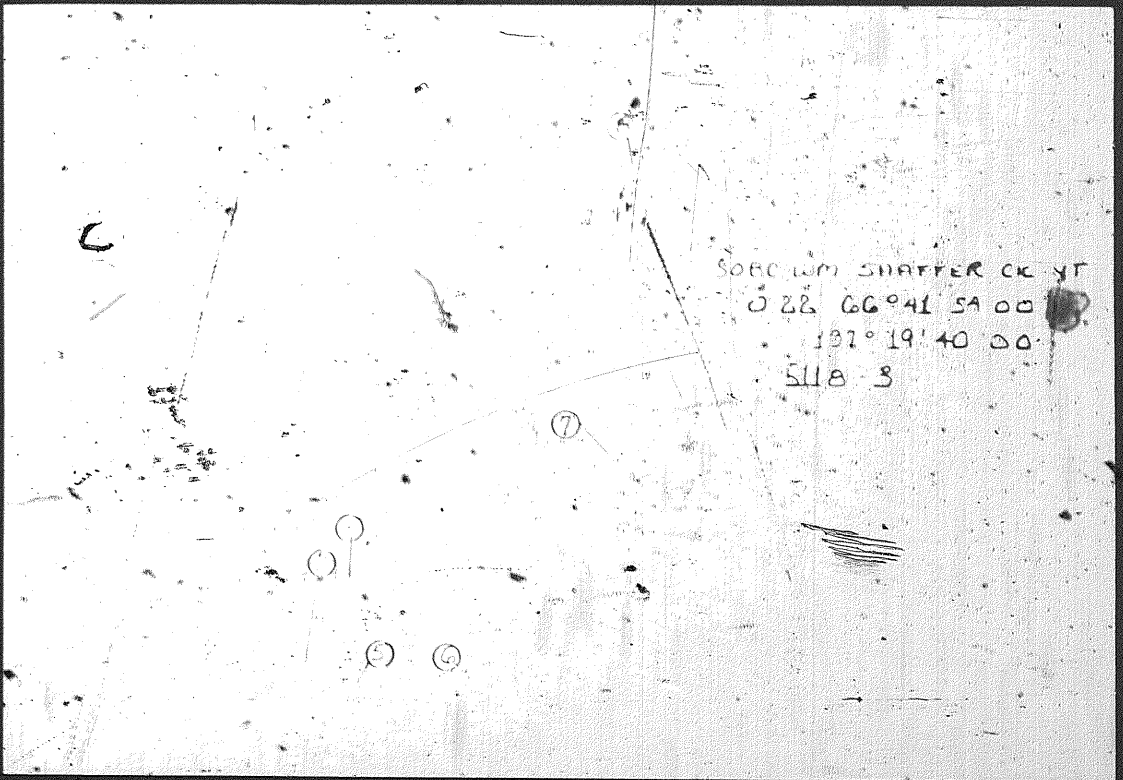
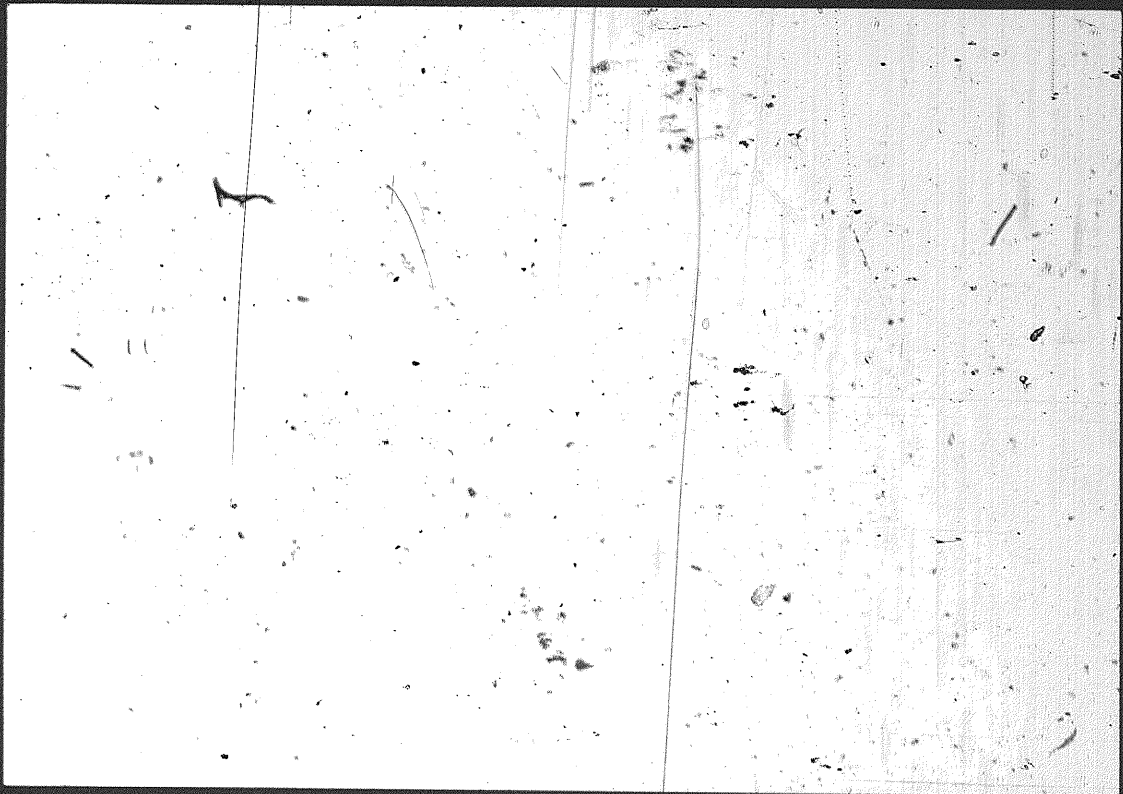
DRILL STEM TEST
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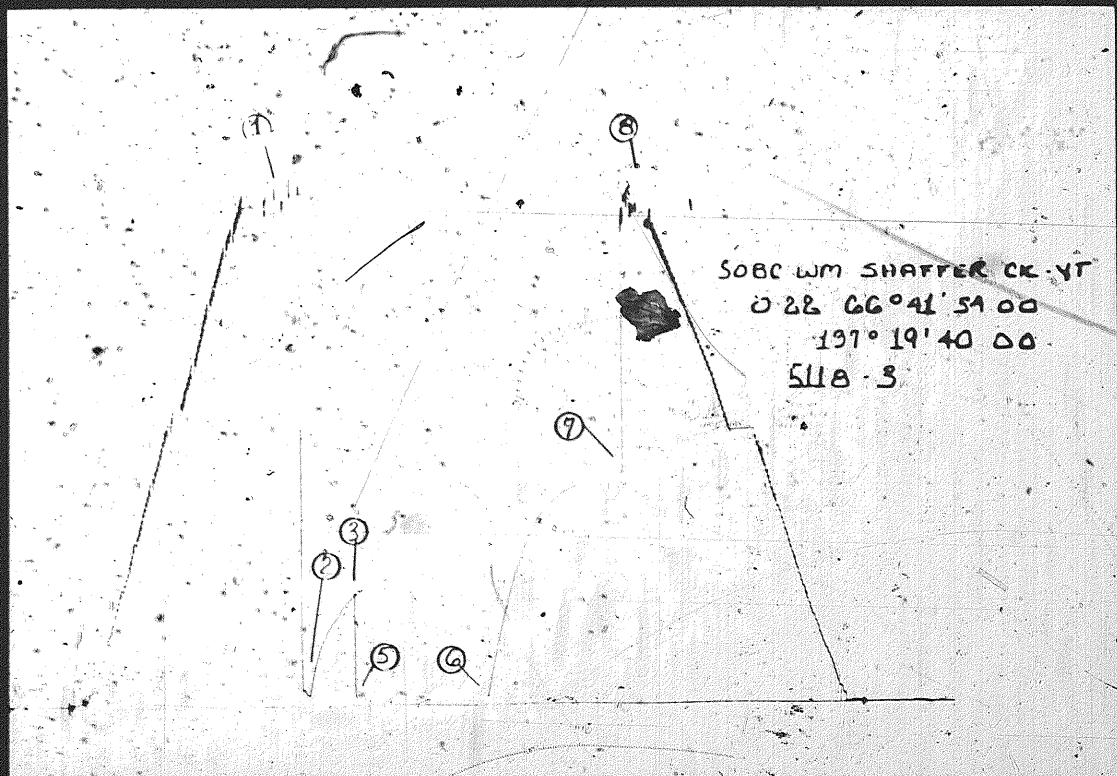
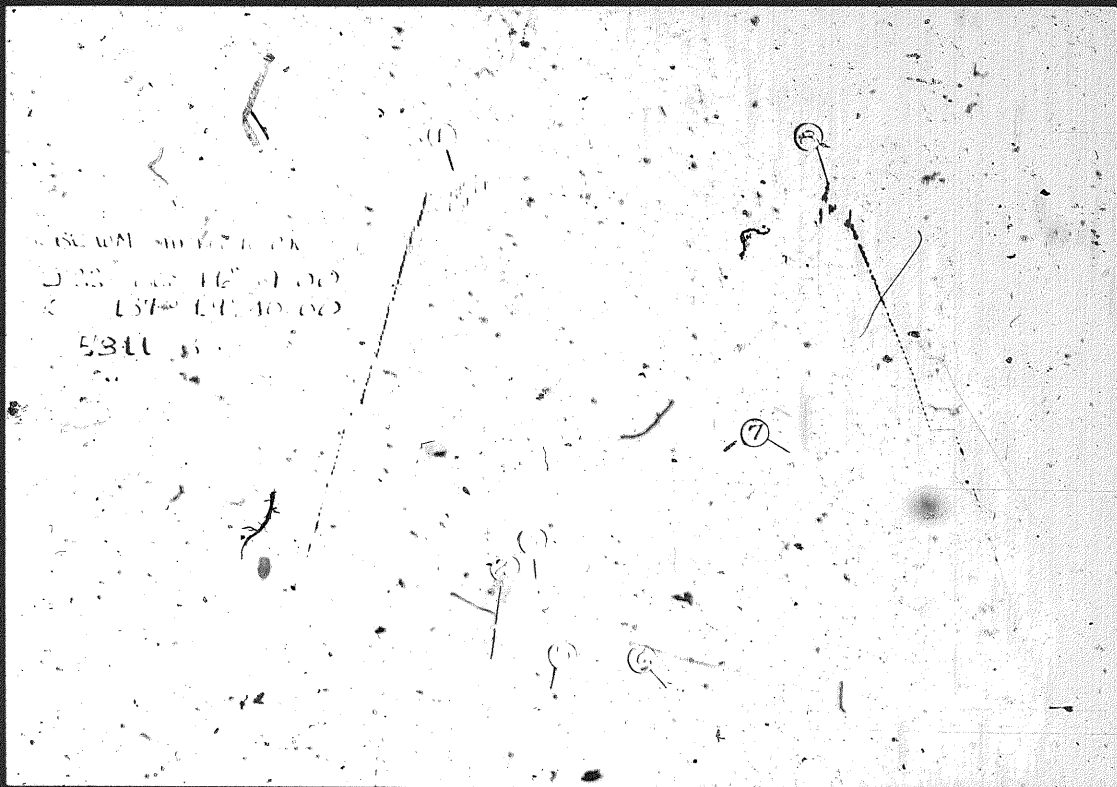


137 440 cc.
137 440 cc.

137 440 cc.







Chevron Standard Ltd.
SOBC WM Shaeffer CK - YT - 0-22 660 41' 1370 19'
DST # 3

NOMENCLATURE (Definition of Symbols)

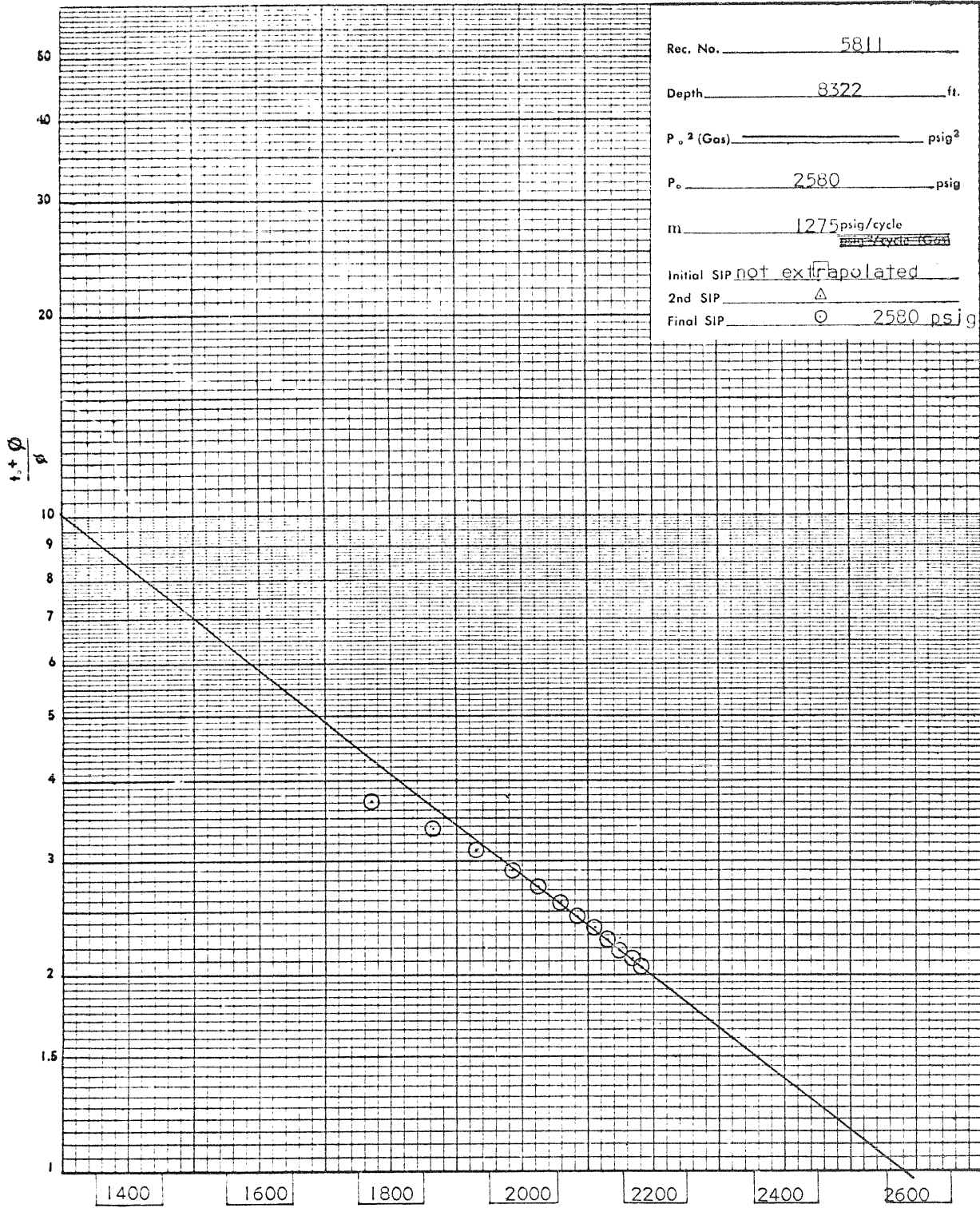
Q	= average production rate during test, bbls./day
Q_g	= measured gas production rate during test, MCF/day
k	= permeability, md
h	= net pay thickness, ft. (when unknown, test interval is chosen)
μ	= fluid viscosity, centipoise
Z	= compressibility factor
T_r	= reservoir temperature, ° Rankine
m	= slope of final SIP buildup plot, psig/cycle (psig ² /cycle for gas)
b	= approximate radius of investigation, feet
r_w	= wellbore radius, feet
t_o	= total flowing time, minutes
P_o	= Extrapolated maximum reservoir pressure, psig
P_f	= final flowing pressure, psig
$P.I.$	= productivity index, bbls./day/psi
$P.I._t$	= theoretical productivity index with damage removed, bbl./day/psi
$D.R.$	= damage ratio
$E.D.R.$	= estimated damage ratio
AOF	= absolute open flow potential, MCF/D
AOF_t	= theoretical absolute open flow if damage were removed
Z	= subsea depth
W	= water gradient based on salinity
H_w	= potentiometric surface

In making any interpretation, our employees will give Customer the benefit of their best judgment as to the correct interpretation. Nevertheless, since all interpretations are opinions based on inferences from electrical, mechanical or other measurements, we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not be liable or responsible, except in the case of gross or wilful negligence on our part, for any loss, costs, damages or expenses incurred or sustained by Customer resulting from any interpretation made by any of our agents or employees.

DEFINITION OF SYMBOLS

Recorder Depth <u>8322</u> ft. Subsea depth ft. Ticket No. <u>2932</u> Hour Recorder No. <u>5811</u>									
$t_o = 10$ Mins. Initial Shut-In Pressure				Second Flow Pressure		$t_o = 190$ Mins. Final Shut-In Pressure			
Time, Min. \emptyset	$\frac{t_o + \emptyset}{\emptyset}$	PSIG	PSIG ² +10 ⁶ (Gas)	Time Defl. .000"	PSIG	Time, Min. \emptyset	$\frac{t_o + \emptyset}{\emptyset}$	PSIG	PSIG ² +10 ⁶ (Gas)
0	-----	89				0	-----	72	
5	3.000	236				10	20.000	476	
10	2.000	371				20	10.500	794	
15	1.667	538				30	7.333	1067	
20	1.500	633				40	5.750	1287	
25	1.400	715				50	4.800	1489	
30	1.333	767				60	4.167	1648	
35	1.285	816				70	3.714	1773	
40	1.250	871				80	3.375	1865	
45	1.222	921				90	3.111	1930	
50	1.200	965				100	2.900	1985	
55	1.181	998				110	2.727	2025	
60	1.167	1042				120	2.583	2058	
Initial shut-in pressure not extrapolated						130	2.461	2085	
						140	2.357	2111	
						150	2.267	2131	
						160	2.187	2148	
						170	2.117	2168	
						180	2.056	2181	
Recorder Depth ft. Subsea depth ft. Ticket No. Hour Recorder No.									
$t_o =$ Mins. Initial Shut-In Pressure				Second Flow Pressure		$t_o =$ Mins. Final Shut-In Pressure			
Time, Min. \emptyset	$\frac{t_o + \emptyset}{\emptyset}$	PSIG	PSIG ² +10 ⁶ \emptyset	Time Defl. .000"	PSIG	Time, Min. \emptyset	$\frac{t_o + \emptyset}{\emptyset}$	PSIG	PSIG ² +10 ⁶ (Gas)
Interval of Pressure Readings (Mins.)		ISIP	5	2nd Flow Press.		FSIP	10		
Remarks: DST # 3									

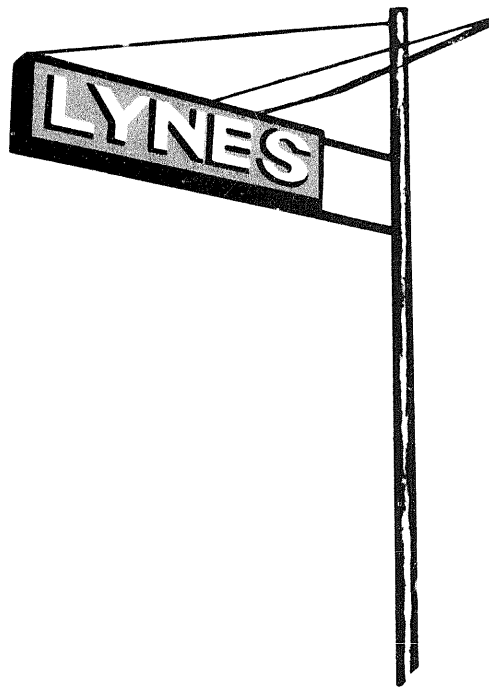
PRESSURE DATA



PSIG (OIL OR WATER)

DST # 3

PRESSURE EXTRAPOLATION PLOT



LYNES UNITED SERVICES LTD. 262-4501 CALGARY, ALBERTA

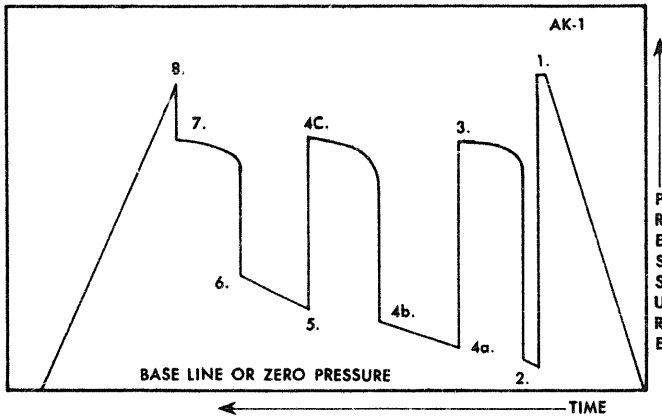
LYNES UNITED SERVICES LTD.

TEST DATA				GENERAL INFORMATION			
Formation	Test No.	3	Lynes Test	Company	Chevron Standard Ltd.		
Interval Tested	8314	Ft. to	8420	Address	400 - Fifth Avenue S.W.		
Feet of Net Pay Tested	106	Ft.		Calgary, Alberta			
Type of Test	Inflatable Straddle						
Cushion	nil	Amount		Well Name	SOBC - WM Shaeffer Ck - YT-0-22		
Started in Hole at	1:30	Hrs.	Tool Open at	6:49	Hrs.	Well Number	660 41' 54.00 1370 19' 40.00
Pre-Flow	10	Mins.	Initial Shut-in	60	Mins.	K.B. Elevation	1155 Sub-Sea Elevation
2nd Flow		Mins.	Second Shut-in		Mins.	Area	Eagle Plains Province Yukon
Final Flow	180	Mins.	Final Shut-in	180	Mins.	Company Rep.	Mr. Larry Grumbly
Remarks:	Tester Pat McDonnell						
	Contractor GP Ria No. 15						
	Ticket No. 2932 Date May 3/71						
Blow:	Service Reports To:						
Good initial puff. Strong blow,	10 - above address						
Gas to surface in 4 minutes on							
main flow							
GAS BLOW MEASUREMENTS				MUD AND HOLE DATA			
Measured with too small to measure. Caught 2 samples but had to shut flare line off 35 minutes for 20 psi.				Mud Type Gel Chem			
				Weight 10.4 Viscosity 210 Water Loss 5.5			
				Filter Cake 2/32" Bottom Hole Temperature			
Time	Surface Choke	Reading Inches	Cubic Feet/Day	Drill Pipe Size 4 1/2" FH Weight			
				Drill Collars 5"H90 I.D. 2 7/8 Feet Run 214.78			
				Main Hole or Casing Size 8 3/4"			
				Rathole or Liner Size No. of Feet			
				Bottom Hole Choke Size 3/4"			
				Surface Choke Size adjustable			
				Packer Rubber Size 7 x 72"			
				REMARKS Shut-in pressures suggest low permeability within the interval tested.			
RECOVERY							
TOTAL FLUID RECOVERED 120 Ft. Consisting of:							
120 Ft. of drilling mud							
Ft. of							
Ft. of							
Ft. of							
Ft. of							
Test was/was not Reverse Circulated was not							
Oil Recovery A.P.I. Water Specific Gravity							
Salinity							
PRESSURE READINGS							
NUMBER KEY: 1 - INITIAL HYDROSTATIC 2 - PRE-FLOW 3 - INITIAL SHUT-IN 4a - 2nd INITIAL FLOW 4b - 2nd FINAL FLOW 4c - 2nd SHUT-IN 5 - 3rd INITIAL FLOW 6 - FINAL FLOW 7 - FINAL SHUT-IN 8 - FINAL HYDROSTATIC	Inside _____ Outside _____ X	Inside _____ Outside _____ X	Inside _____ Outside _____ X	Inside _____ Outside _____			
	Recorder No. 5811	Recorder No. 5118	Recorder No. 5812	Recorder No.			
	Capacity 6000	Capacity 6000	Capacity 8200	Capacity			
	Depth 8322	Depth 8322	Depth 8435	Depth			
	_____	_____	_____	_____			
	_____	_____	_____	_____			
	_____	_____	_____	_____			
	_____	_____	_____	_____			
	_____	_____	_____	_____			
	_____	_____	_____	_____			

Chevron Standard Ltd. Company
 SOBC WM Shaeffer CK - YT - 0-22
 660 41' 1370 19'
 Well Name and Description
 DST # 3
 Test No.
 May 3/71
 Date of Test

**GUIDE TO INTERPRETATION AND IDENTIFICATION OF
LYNES DRILL STEM TEST PRESSURE CHARTS**

AK-1 recorders. Read from right to left.

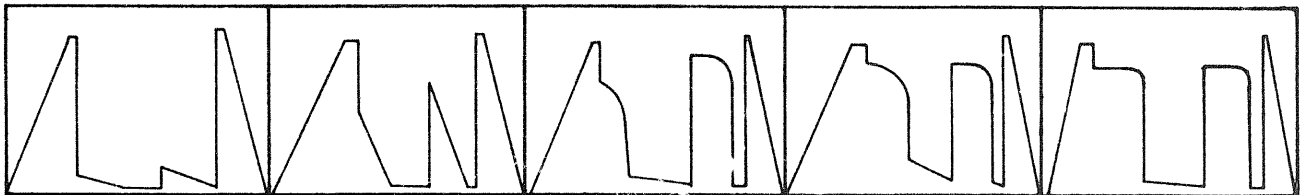


- 1. INITIAL HYDROSTATIC MUD PRESSURE
- 2. PRE-FLOW
- 3. INITIAL SHUT-IN
- 4a. 2nd INITIAL FLOW
- 4b. 2nd FINAL FLOW
- 4c. 2nd SHUT-IN
- 5. 3rd INITIAL FLOW
- 6. FINAL FLOW
- 7. FINAL SHUT-IN
- 8. FINAL HYDROSTATIC MUD PRESSURE

N.B. When only two shut-in and flow periods are run, 4a, 4b and 4c are omitted.

K-3 recorders. Read from left to right.

Typical charts for visual field analysis ranging from very low to high permeability.



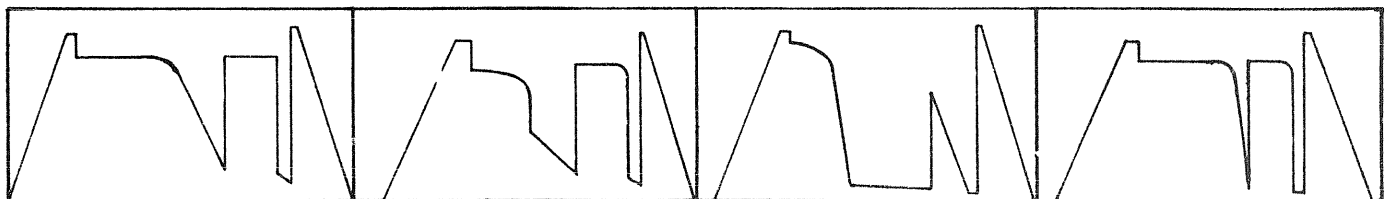
Very low permeability. Usually only mud recovered from interval tested. Virtually no permeability.

Slightly higher permeability. Again usually mud recovered.

Slightly higher permeability. Small recovery, less than 200' ft).

Average permeability. Final and initial shut-ins differ by 50 psi.

Average permeability. Strong damage effect. High shut-in pressure, low flow pressure.



Excellent permeability where final flow final shut-in pressure.

High permeability where ISIP and FSIP are within 10 psi.

Deep well bore invasion or damage. Final shut-in higher than the initial shut-in.

Tight hole chamber tester. Permeability very difficult to interpret unless the recovery is less than chamber length. Flow pressure builds up rapidly if recovery is large, similar to a shut-in.

T.G. EASTLAND — testers Ltd.

R.R. No. 6, NORTH EDMONTON, ALBERTA

Test No. 4
 Date May 7/71
 Ticket No. 1899

SERVICE REPORT

WELL NAME SOBC WM Shaeffer Ck YTO-22 ADDRESS 400 - 5 Avenue S.W. - Calgary
 AREA Eagle plains L.S.D. 66° -50'N-137° -15'W INVOICE TO Chevron Standard Limited
 CONTR. & RIG No. G.P. #15 T/PUSH J. Fraser CUSTOMER'S REPRESENTATIVE L. Grumbly

Date & Time Requested	DESCRIPTION OF BLOW DURING TEST				TOOL SEQUENCE & EQUIP. USED		
	Tools	Length	O.D.				
Call <u>Arr.</u>	MIS-RUN				Critical Flow Prover		
Start in <u>12:30pm</u> On Bott. <u>1:45 pm</u>					Floor Manifold		
Pull Loose <u>Out Hole 2:45 pm</u>					Meter Run		
TESTING DATA					Remote Control Head	<u>YES</u>	
Zone Tested <u>Perfs. at 504' - 512'</u>					Pump Out Sub		
Interval <u>495 to 697 T.D. Plug at 697'</u>					Cross Over Subs		
Int. Casing: Size <u>13-3/8 wgt. 54.5 at 1200'</u>	Blow Measured with: Pitot Tube <input type="checkbox"/>				Tight Hole Tool		
Feet of Main Hole <u>Plugged</u>	Fluid Used: Water <input type="checkbox"/> Mercury <input type="checkbox"/> Side Static <input type="checkbox"/>				Dry Collar Valve		
Feet of Rat Hole <u>Diam.</u>	Flow Prover <input type="checkbox"/> Gauge <input type="checkbox"/> Size Gauge <u>lbs.</u>				Cross Over Sub	<u>88</u>	
Type of Test <u>Casing test on plug</u>	Time	Choke	Reading	MCF/Day	Test Assembly	<u>11.39</u>	
Packers: No. <u>1</u> O.D. <u>1 1/2"</u>					Sampler	<u>4.91</u>	
Type of Packers <u>Conventional</u>					Jars		
Drill Pipe: Size - Thread <u>4 1/2 FH</u>	FLUID RECOVERY (In Feet)				Straddle By-pass		
Drill Collars: I.D. <u>2-7/8</u> O.D. <u>6-7/8</u>					Pipe	Collars	Total
No. Ft: Collars <u>306</u> D.P. <u>189</u>	Mud	Oil	Water	Packer	<u>3.45</u>		
No. Feet Drill Pipe Above Table <u>25'</u>					Packer		
Ft. & Type Cushion					TOTAL	<u>22.37</u>	
Was Tool Chased <u>No. Ft.</u>	Describe Fluids:				T.C.	<u>2.23</u>	
Weight Set on Packers <u>22M</u>					Perfs.	<u>31.00</u>	
Did Fluid Drop <u>No. Ft.</u>					B.C.	<u>11.41</u>	
Describe					Subs	<u>2.00</u>	
					D.C.	<u>153.24</u>	
					BN & perf	<u>3.00</u>	
Preset <u>min.</u> Time Tool Opened	Sampler Drained: On Location <input type="checkbox"/> Laboratory <input type="checkbox"/>				TOTAL	<u>202.88</u>	
Preflow <u>min.</u> Init Shut-in <u>min.</u>	Sampler Press. <u>lbs.</u>				TOTAL PICKED UP	<u>225.25</u>	
Flowed <u>min.</u> Final Shut-in <u>min.</u>	Bottom Hole Temp. <u>°F</u>				1. Cross-over sub to bottom of top rubbers	<u>22.37</u>	
Pull Loose <u>lbs.</u> Swabbing?	Salinity of Recovery <u>P.P.M.</u>				2. Bottom of top rubbers to top of lower		
Drilling Fluid Type <u>Gel chem</u>	Salinity of Mud Filtrate <u>P.P.M.</u>				3. Top of lower to bottom of lower rubbers		
Visc. <u>32</u> Wgt. <u>8.9</u> W.L. <u>F.C.</u>					4. Bottom of lower rubbers to Total Depth		
					5. Bottom of top rubbers to Total Depth	<u>202.88</u>	

Pressure Element No.	3805	5711		
Element Capacity (psig)	8000	1900		
Clock Speed (Hrs.)	24	24		
Depth of Bellows	523	528		
Position (Inside - Outside)	Outside	Inside		
Initial Hydrostatic				
Preflow Pressure				
Initial Shut-In				
First Flow—Choke Size				
Second Shut-In				
Second Flow—Choke Size				
Final Shut-In				
Final Hydrostatic				

1. Cross-over sub to bottom of top rubbers 22.37
 2. Bottom of top rubbers to top of lower
 3. Top of lower to bottom of lower rubbers
 4. Bottom of lower rubbers to Total Depth
 5. Bottom of top rubbers to Total Depth 202.88
- (Delete measurement No. 5 if Straddle)
 (Delete No. 2 - 3 - 4 if Std. bottom hole)
- Total amount of customer's anchor 153.24
 No. of Damaged Rubbers and Sizes
- No. Samplers Retained No. of Reports Required 10
 Mileage: Highway Bush Total
 Waiting Time May 1, 2, 3, 4, 5, 6 = 6 days

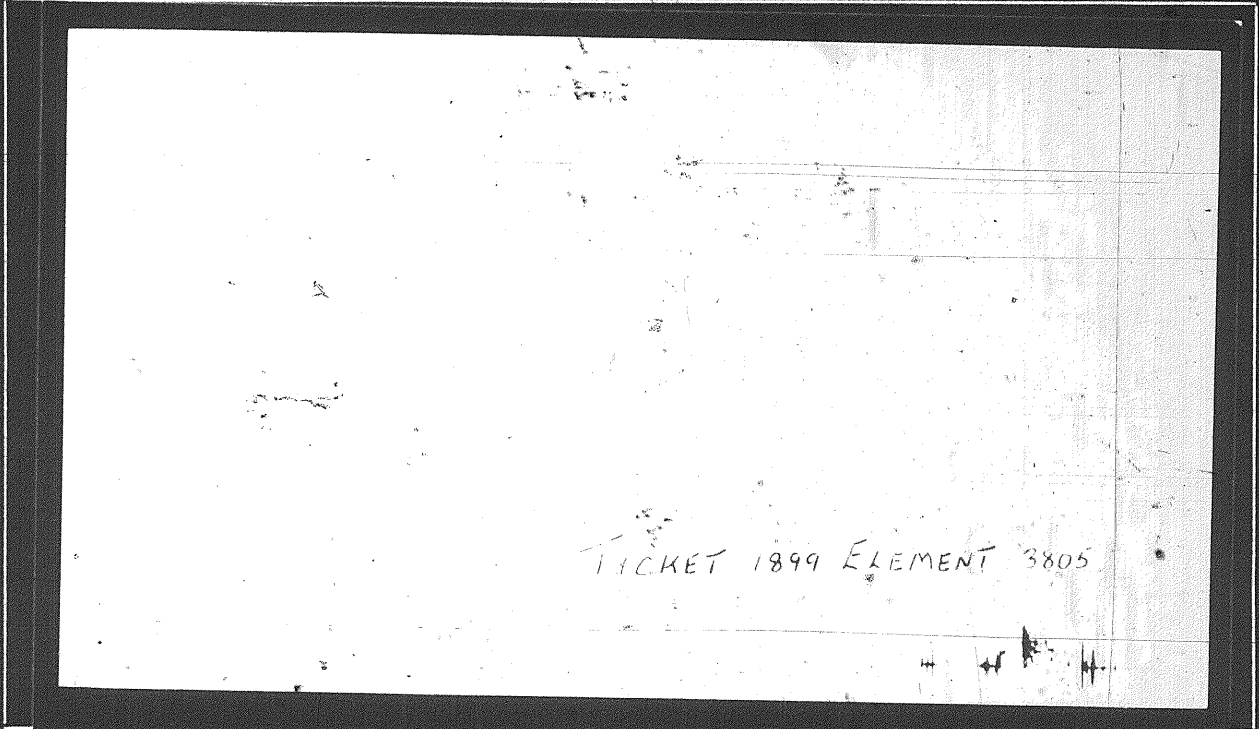
REMARKS: Set weight on packer. Bridge plug gave way. Pulled out.

APPROVED BY L. Grumbly TEST WAS: Mis-Run OUR OPERATOR K. Larson

T.G. EASTLAND—testers ltd.

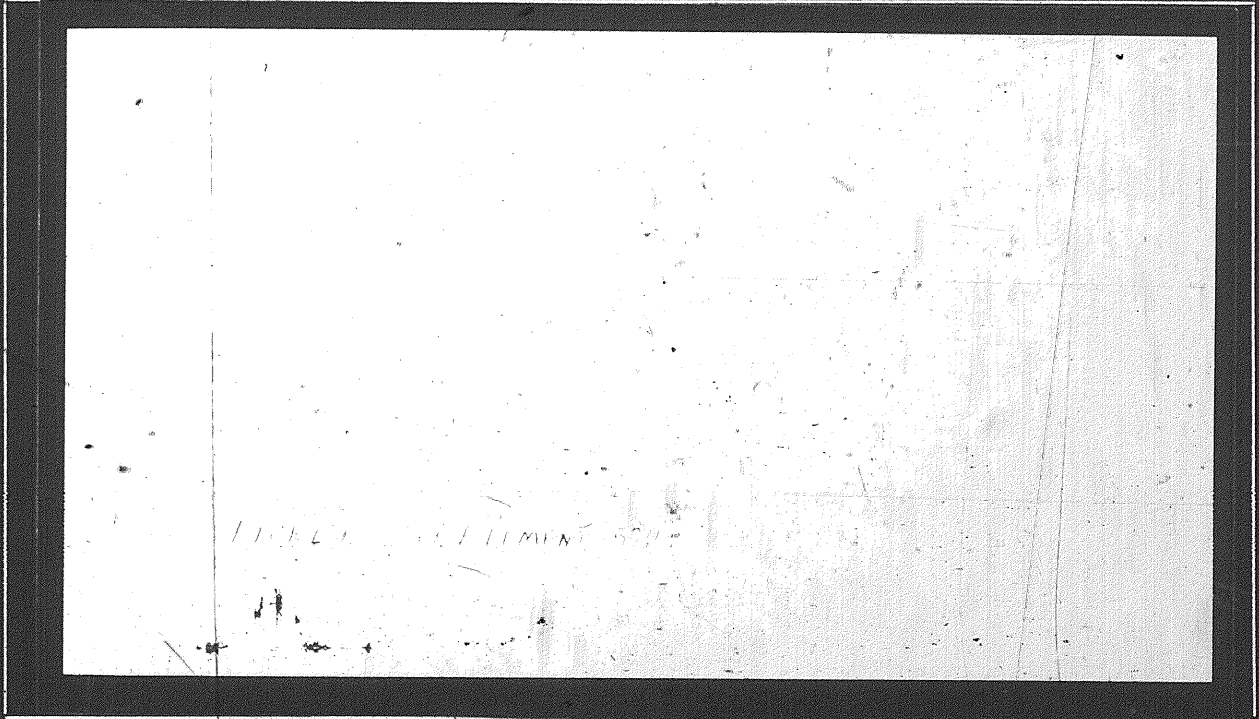
TEST No. 4
Date May 7, 1971
Ticket No. 1899

WELL NAME SOBC. WM. Shaeffer Ck YTO-22
RECORDER No. 3805 ELEMENT RANGE 8000 P.S.I. CHART SPEED 24 HRS. RECORDER DEPTH 523



TIME

RECORDER No. 5711 ELEMENT RANGE 1900 P.S.I. CHART SPEED 24 HRS. RECORDER DEPTH 528

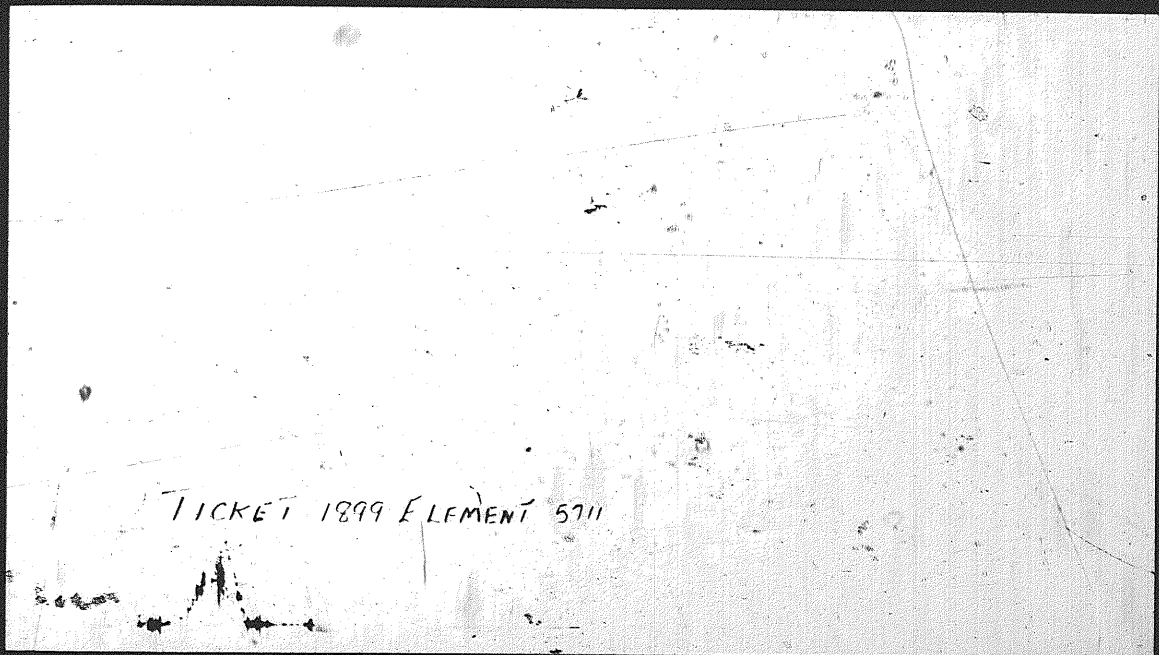
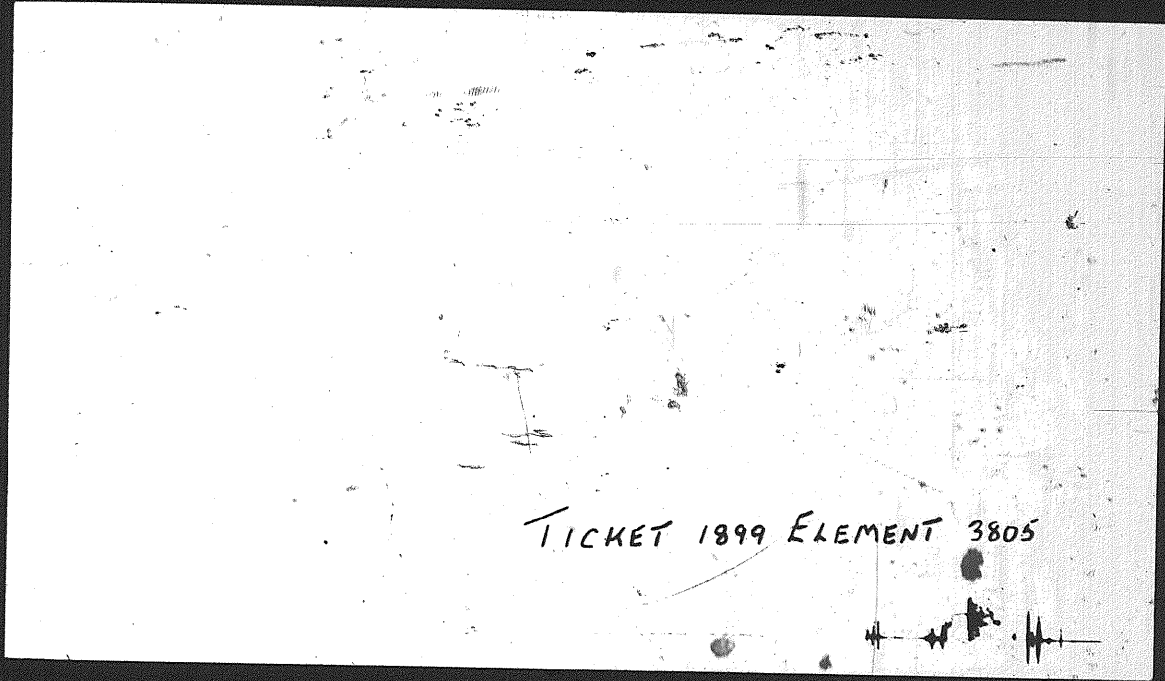


TIME

PRESSURE

PRESSURE

T.G. EASTLAND *testers ltd.*



TIME

T.G. EASTLAND — testers Ltd.

R.R. No. 6, NORTH EDMONTON, ALBERTA

Test No. 5

Date May 7, 1971

Ticket No. 1900

SERVICE REPORT

WELL NAME SOBC Wm Shaeffer Ck. YTO-22 ADDRESS 400 - 5 Avenue S.W. - Calgary
 AREA Eagle plains L.S.D. 66°-50'N-137°-15'W INVOICE TO Chevron Standard Limited
 CONTR. & RIG No. GP #15 T/PUSH J. Fraser CUSTOMER'S REPRESENTATIVE L. Grumbly

Date & Time Requested		DESCRIPTION OF BLOW DURING TEST				TOOL SEQUENCE & EQUIP. USED			
Call	Arr.					Tools	Length	O.D.	
Start in <u>6:30 pm</u>	On Bott. <u>7:40 pm</u>	Good initial air blow on preflow. Died when tool closed for ISI. Small air blow on main flow opening. Dying in 1 min. no further blow.				Critical Flow Prover			
Pull Loose <u>12:25</u>	Out Hole <u>1:20am</u>					Floor Manifold			
TESTING DATA						Meter Run			
Zone Tested <u>Bridge plug at 1109'</u>					Remote Control Head	<u>yes</u>			
Interval <u>449 to 1109</u>	T.D. <u>Perfs 504'</u>					Pump Out Sub			
Int. Casing: Size <u>13-3/8</u>	Wgt <u>54</u>	Blow Measured with: Pitot Tube <input type="checkbox"/>				Cross Over Subs			
Feet of Main Hole <u>plugged</u>	Diam <u></u>	Fluid Used: Water <input type="checkbox"/> Mercury <input type="checkbox"/> Side Static <input type="checkbox"/>				Tight Hole Tool			
Feet of Rat Hole <u></u>	Diam <u></u>	Flow Prover <input type="checkbox"/> Gauge <input type="checkbox"/> Size Gauge <u></u> lbs.				Dry Collar Valve			
Type of Test <u>Casing perf. at 504'</u>					Time	Choke	Reading	MCF/Day	
Packers: No. <u>1</u>	O.D. <u>1 1/2"</u>								
Type of Packers <u>Conventional</u>									
Drill Pipe: Size - Thread <u>4 1/2 FH</u>									
Drill Collars: I.D. <u>2-7/8</u>	O.D. <u>6-7/8</u>								
No. Ft: Collars <u>366</u>	D.P. <u>95</u>								
No. Feet Drill Pipe Above Table <u>38</u>					FLUID RECOVERY (In Feet)				
Ft. & Type Cushion <u></u>					Pipe <u>325</u>	Collars <u>325</u>	Total <u>325</u>		
Was Tool Chased <u>no</u>	No. Ft. <u></u>					Mud <u>325</u>	Oil <u></u>	Water <u></u>	
Weight Set on Packers <u>30M</u>					Describe Fluids: <u>Recovered 325'</u>				
Did Fluid Drop <u>yes</u>	No. Ft. <u>10-15'</u>					of drilling mud.			
Describe <u>Lost mud on initial opening. Increased wt. on packer to 30M. Mud held.</u>									
Preset <u>10</u> min. Time Tool Opened <u>7:50pm</u>					Sampler Drained: On Location <input type="checkbox"/> Laboratory <input type="checkbox"/>				
Preflow <u>5</u> min. Init Shut-in <u>30</u> min.					Sampler Press. <u></u> lbs.				
Flowed <u>120</u> min. Final Shut-in <u>120</u> min.					Bottom Hole Temp. <u>63</u> °F				
Pull Loose <u>0</u> lbs. Swabbing? <u>no</u>					Salinity of Recovery <u></u> P.P.M.				
Drilling Fluid Type <u>Gel chem - water</u>					Salinity of Mud Filtrate <u></u> P.P.M.				
Visc. <u>32</u> Wgt <u>8.9</u> W.L. <u></u> F.C. <u></u>									
						TOTAL	<u>660.84</u>		
						TOTAL PICKED UP	<u>683.21</u>		

Pressure Element No.	FIELD PRESSURE DATA		
	3805	5711	
Element Capacity (psig)	8000	1900	
Clock Speed (Hrs.)	24	24	
Depth of Bellows	462	467	
Position (Inside - Outside)	Outside	Inside	
Initial Hydrostatic	216	225	
Preflow Pressure	129	136	M
Initial Shut-In	210	220	I
First Flow—Choke Size	185	198	S
Second Shut-In			R
Second Flow—Choke Size	162	168	U
Final Shut-In	148	151	N
Final Hydrostatic	184	188	

REMARKS: Did not have sufficient weight above packer to keep packer set while opening tool - 5000 lb. wt. used in slips allowed packer to leak by.

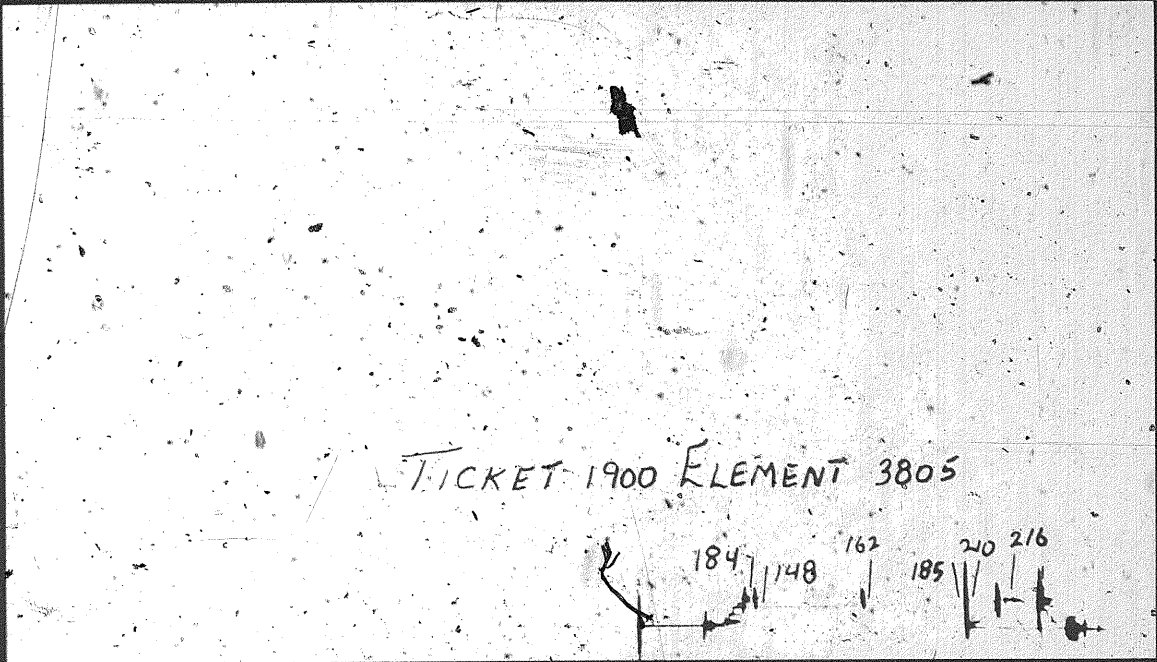
APPROVED BY L. Grumbly TEST WAS: / Mis-Run OUR OPERATOR K. Larson

1. Cross-over sub to bottom of top rubbers	<u>22.37</u>
2. Bottom of top rubbers to top of lower	
3. Top of lower to bottom of lower rubbers	
4. Bottom of lower rubbers to Total Depth	
5. Bottom of top rubbers to Total Depth	
(Delete measurement No. 5 if Straddle)	
(Delete No. 2 - 3 - 4 if St. bottom hole)	
Total amount of customer's anchor	<u>632.31</u>
No. of Damaged Rubbers and Sizes	
No. Samplers Retained	<u>1.0</u>
Mileage: Highway	
Bush	
Total	
Waiting Time	

T.G. EASTLAND — testers ltd.

TEST No. 5
Date May 7, 1971
Ticket No. 1900

WELL NAME SOBC WM Shaeffer Ck YTO-22
RECORDER No. 3805 ELEMENT RANGE 8000 P.S.I. CHART SPEED 24 HRS. RECORDER DEPTH 462



TIME

RECORDER No. 5711 ELEMENT RANGE 1900 P.S.I. CHART SPEED 24 HRS. RECORDER DEPTH 467



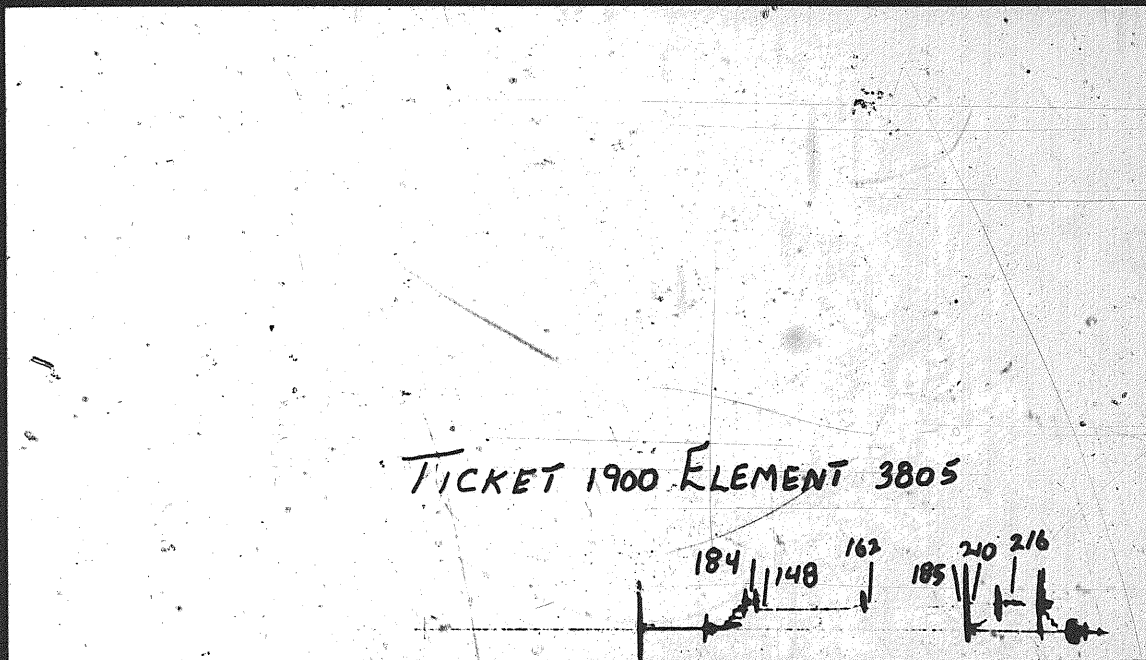
TIME

PRESSURE

PRESSURE

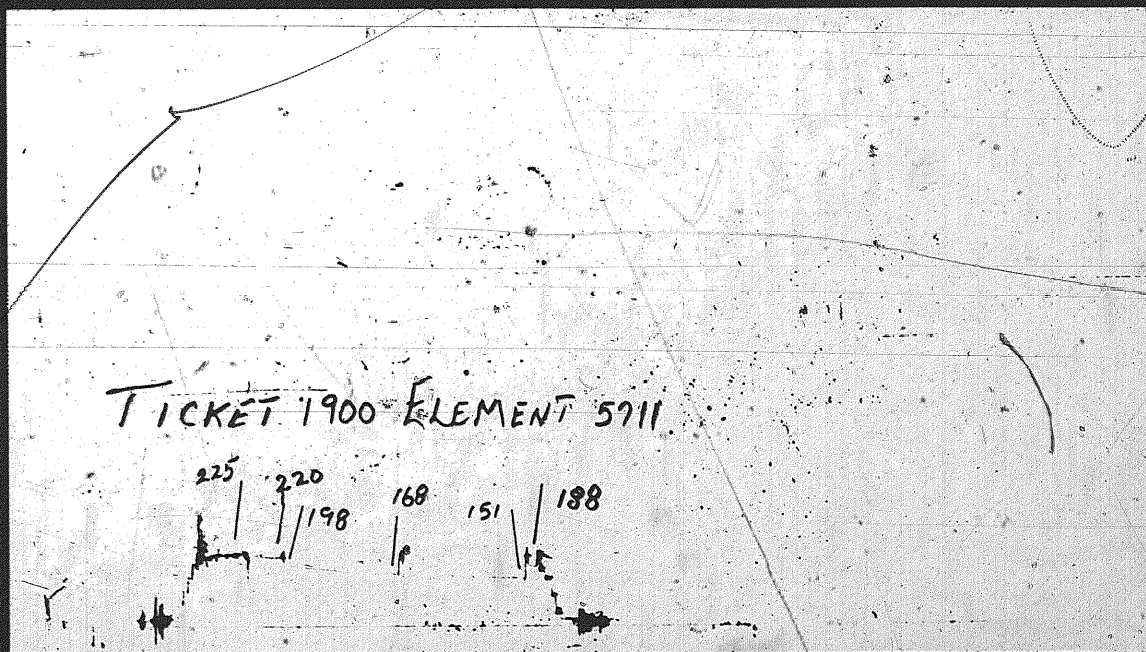
T.G. EASTLAND testers Ltd.

ELEMENT RANGE PSE CHART SPEED HRS. RECORDER DEPTH



TIME

ELEMENT RANGE PSE CHART SPEED HRS. RECORDER DEPTH



TIME

T.G. EASTLAND — testers Ltd.

R.R. No. 6, NORTH EDMONTON, ALBERTA

Test No. 6
Date May 8, 197
Ticket No. 1679

SERVICE REPORT

WELL NAME SOBC WM Shaeffer CK YTO-22 ADDRESS 400 - 5 Avenue S.W. - Calgary
AREA Eagle Plains L.S.D. 66°-60'N-137°-15'W INVOICE TO Chevron Standard Limited
CONTR. & RIG No. GP #15 T/PUSH J. Fraser CUSTOMER'S REPRESENTATIVE L. Grumbly

Date & Time Requested		DESCRIPTION OF BLOW DURING TEST				TOOL SEQUENCE & EQUIP. USED		
Call	Arr.	Good initial air blow				Tools	Length	O.D.
Start in <u>3:25 am</u>	On Bott. <u>4:25 am</u>	slowly decreasing, Dead in				Critical Flow Prover		
Pull Loose <u>1:30 pm</u>	Out Hole <u>2:35 pm</u>	3 hours.				Floor Manifold		
TESTING DATA						Meter Run		
Zone Tested <u>Casing perf. 504'-12'</u>						Remote Control Head	<u>yes</u>	
Interval <u>499</u> to <u>1109</u> T.D. <u>Plug 1109'</u>						Pump Out Sub		
Int. Casing: Size <u>13-3/8</u> wgt. <u>54.5</u> grade		Blow Measured with: Pitot Tube <input type="checkbox"/>				Cross Over Subs		
Feet of Main Hole <u>Plugs</u> Diam		Fluid Used: Water <input type="checkbox"/> Mercury <input type="checkbox"/> Side Static <input type="checkbox"/>				Tight Hole Tool		
Feet of Rat Hole		Flow Prover <input type="checkbox"/> Gauge <input type="checkbox"/> Size Gauge				Dry Collar Valve		
Type of Test <u>Casing</u>						Cross Over Sub	<u>88</u>	
Packers: No. <u>1</u> O.D. <u>11 1/4"</u>						Test Assembly	<u>11.39</u>	
Type of Packers <u>Conventional</u>						Sampler	<u>4.91</u>	
Drill Pipe: Size - Thread <u>4 1/2 FH</u>						Jars		
Drill Collars: I.D. <u>2-7/8</u> O.D. <u>6-7/8</u>						Straddle By-pass		
No. Ft. Collars <u>459</u> D.P. <u>31.50</u>						Safety Joint	<u>1.74</u>	
No. Feet Drill Pipe Above Table <u>16</u>						Packer	<u>3.45</u>	
Ft. & Type Cushion						Packer		
Was Tool Chased <u>no</u> No. Ft.		Pipe				TOTAL <u>22.37</u>		
Weight Set on Packers <u>35M</u>		Collars <u>281</u> Total <u>281</u>				T.C.	<u>2.23</u>	
Did Fluid Drop <u>no</u> No. Ft.		Mud <u>281</u> Oil				Perfs.	<u>15.00</u>	
Describe		Water				BC	<u>11.41</u>	
		Describe Fluids: <u>Recovered 281' of</u>				Perfs.	<u>10.00</u>	
		<u>drilling mud.</u>				Sub.	<u>.85</u>	
Preset <u>5</u> min. Time Tool Opened <u>4:30 am</u>		Sampler Drained: On Location <input checked="" type="checkbox"/> Laboratory <input type="checkbox"/>				DP	<u>569.59</u>	
Pretlow		Sampler Press.				Bullnose	<u>1.04</u>	
Flowed <u>360</u> min. Final Shut-in <u>180</u> min.		Bottom Hole Temp. <u>67</u> °F				TOTAL <u>610.12</u>		
Pull Loose <u>5M</u> lbs. Swabbing? <u>no</u>		Salinity of Recovery				TOTAL <u>632.49</u>		
Drilling Fluid Type <u>Gel chem water</u>		Salinity of Mud Filtrate				TOTAL PICKED UP		
Visc. <u>32</u> Wgt. <u>8.9</u> W.L. F.C.						1. Cross-over sub to bottom of top rubbers <u>22.37</u>		

FIELD PRESSURE DATA		
Pressure Element No.	<u>3805</u>	<u>5711</u>
Element Capacity (psig)	<u>8000</u>	<u>1900</u>
Clock Speed (Hrs.)	<u>24</u>	<u>24</u>
Depth of Bellows	<u>517</u>	<u>522</u>
Position (Inside - Outside)	<u>Outside</u>	<u>Inside</u>
Initial Hydrostatic	<u>226</u>	<u>230</u>
Pretlow Pressure		
Initial Shut-In		
First Flow—Choke Size <u>7/8"</u>	<u>38</u>	<u>36</u>
Second Shut-In		
Second Flow—Choke Size <u>7/8"</u>	<u>158</u>	<u>158</u>
Final Shut-In	<u>158</u>	<u>157</u>
Final Hydrostatic	<u>218</u>	<u>221</u>

2. Bottom of top rubbers to top of lower

3. Top of lower to bottom of lower rubbers

4. Bottom of lower rubbers to Total Depth

5. Bottom of top rubbers to Total Depth 610.12

(Delete measurement No. 5 if Straddle)

(Delete No. 2 - 3 - 4 if Std. bottom hole)

Total amount of customer's anchor 569.59

No. of Damaged Rubbers and Sizes

No. Samplers Retained No. of Reports Required 10

Mileage: Highway Bush Total

Waiting Time

REMARKS: Did not take initial shut-in

APPROVED BY L. Grumbly TEST WAS: Successful OUR OPERATOR K. Larson

ATTACHMENT NO. 1

Ticket no. 1679
DST #six
May 8, 1971
Element #3805

I. INITIAL SHUT-IN

Initial shut-in was not taken on this test.

II. FINAL SHUT-IN

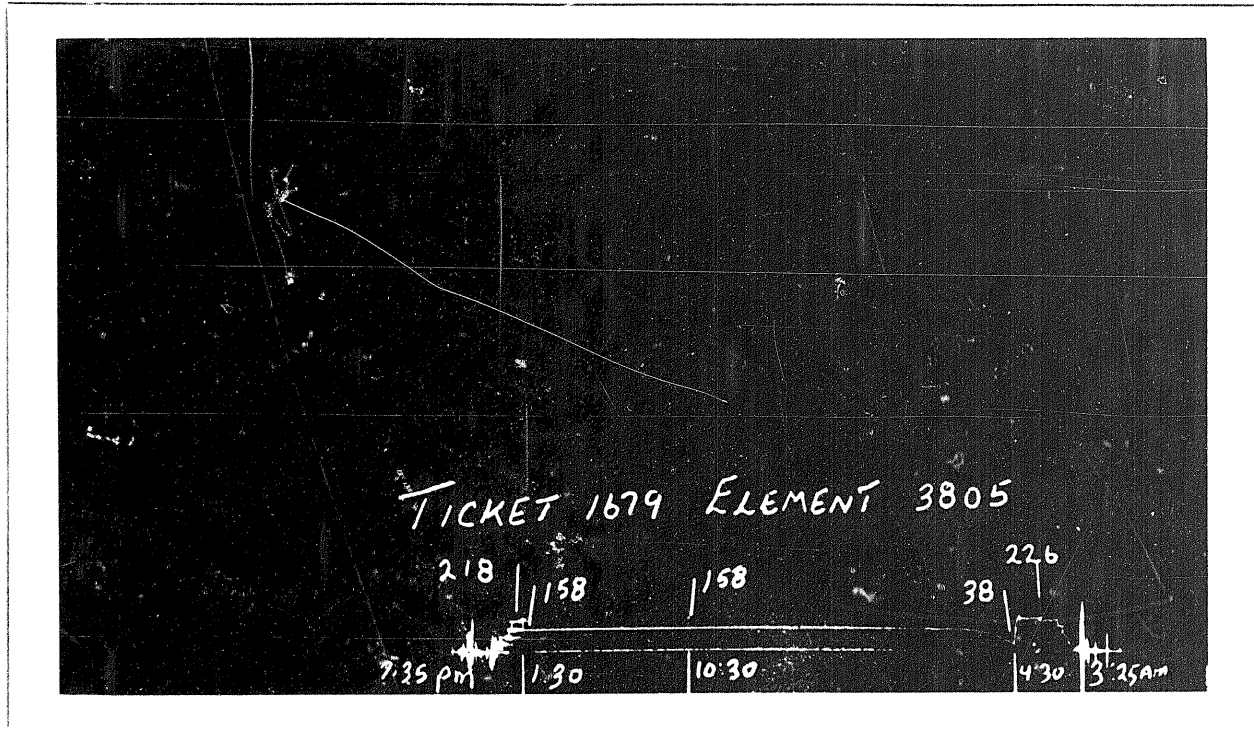
A breakdown (time vs. pressure) of the build-up curve has not been performed for this test as the final shut-in is stable. Pressure at beginning of shut-in is 158 psig. Pressure at end of shut-in is 158 psig.

T.G. EASTLAND—testers ltd.

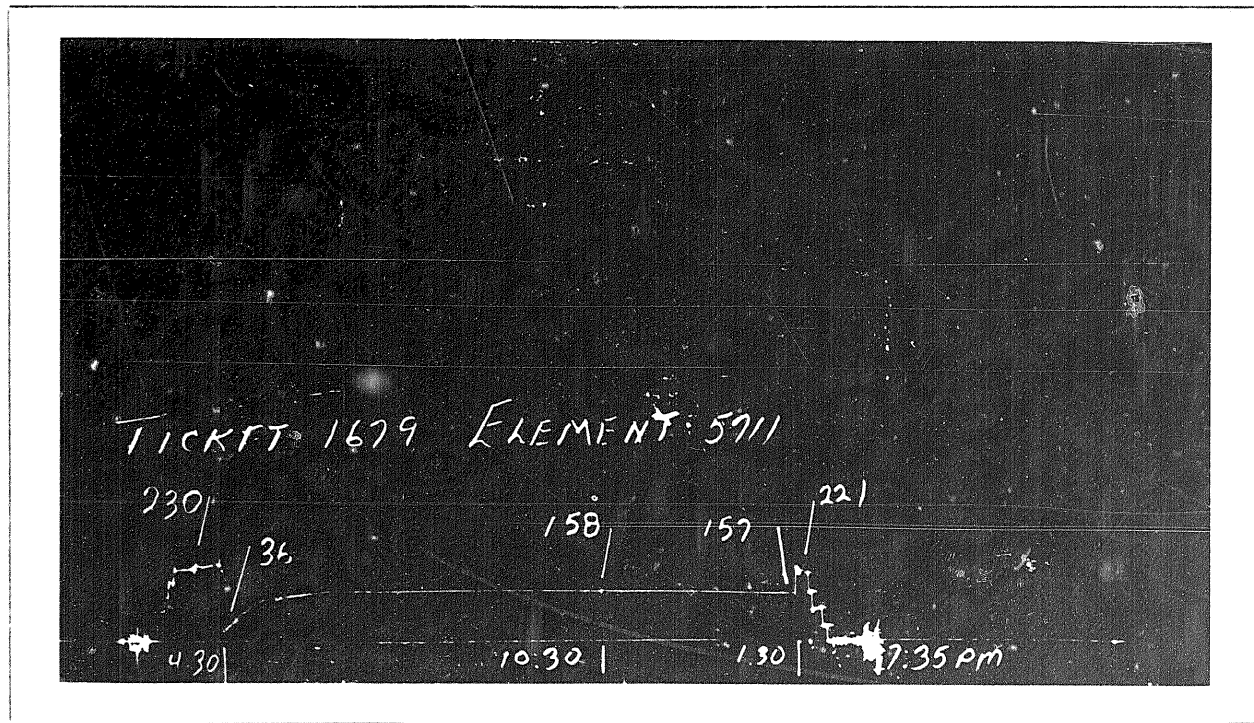
TEST No. 1679
Date May 5, 1971
Ticket No. 1679

WELL NAME SOBC WM. Shaeffer Ck YTO-22

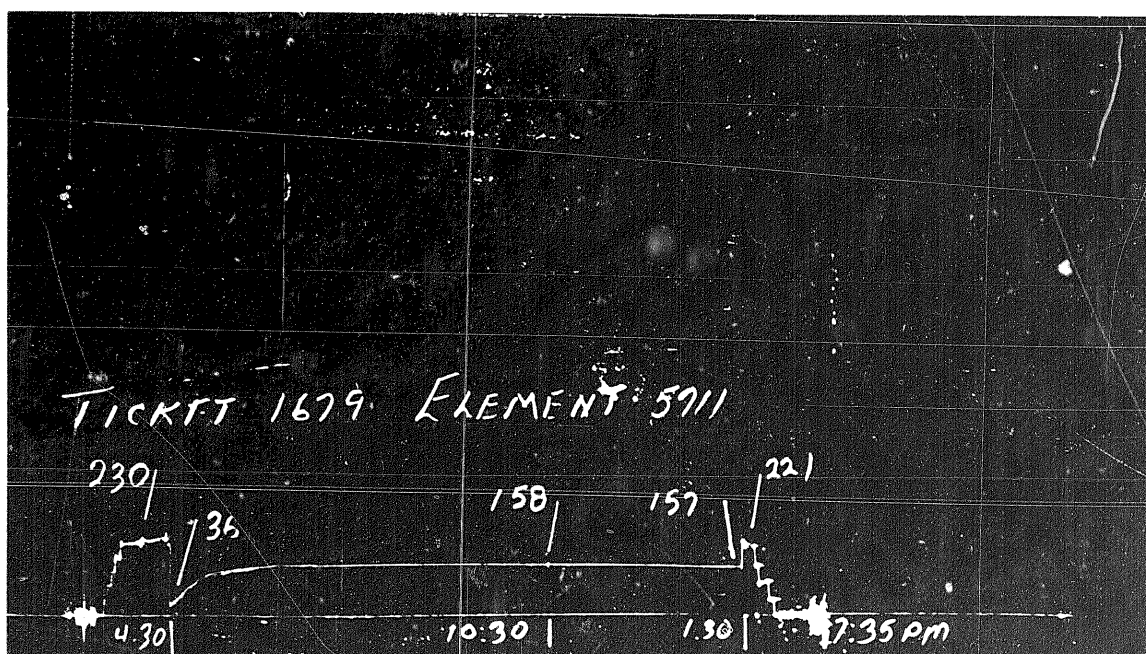
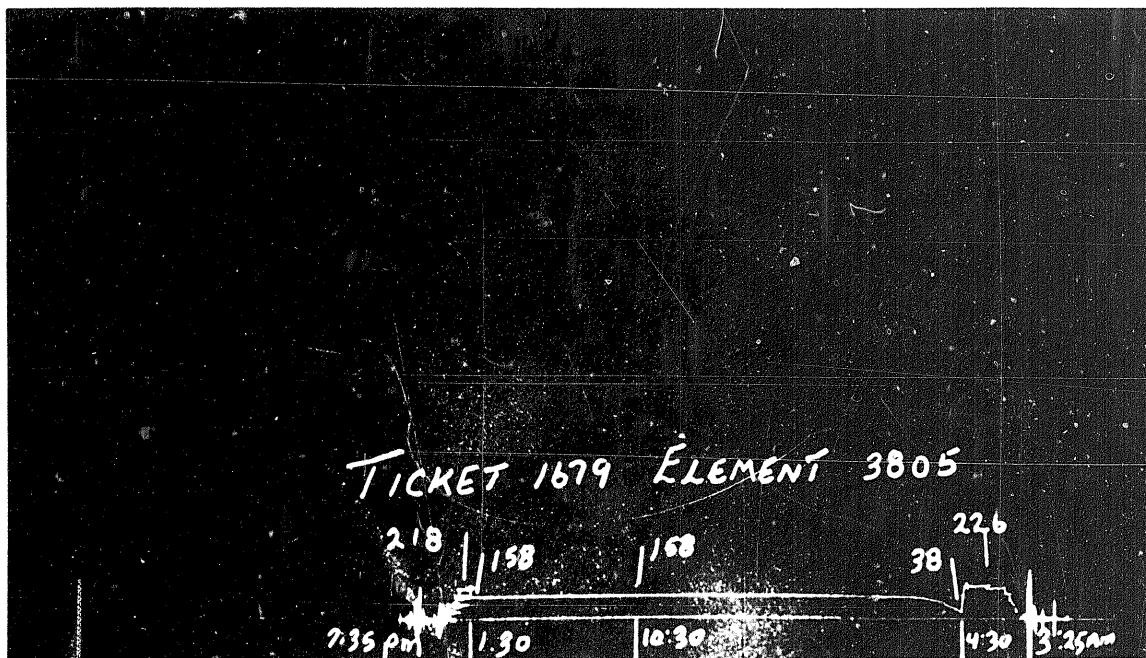
RECORDER No. 3805 ELEMENT RANGE 3000 P.S.I. CHART SPEED 24 HRS. RECORDER DEPTH 517



RECORDER No. 5711 ELEMENT RANGE 1900 P.S.I. CHART SPEED 24 HRS. RECORDER DEPTH 522



V.G. EASTLAND Testers Ltd.



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

Company Formation Page 1 of 1
Well Sabre 200 SAGOFFER C2 Date Report File 913-114

Field, Province D. Fluid Analysts
Location Analysis COG 42 Remarks IN 42046 8970-9031

CORE ANALYSIS RESULTS
(figures in parentheses refer to footnote remarks)

Depth Feet	Ft. Req.	Permeability, M.D.		Pore Ft.	Porosity Percent	Forosity Feet	Density		Residue, Saturat'n		Visual Examination
		K.M.D.	K.V.				Bulk	Gas	Oil %	Pore Temp	
15	285	0.16	(0.31)	117	0.8	1.20	2.69	271			None
12	287	0.05	(0.01)		0.5	0.80	2.70	271			None
12	287	0.07	(0.01)	0.07	0.8	0.80	2.70	272			"
13	498	4.60	7.97	59.4	15.9	15.72	2.57	270			1.54
13	430	5.86	13.10	11.04	12.9	10.82	2.37	272			1.54
13	700	6.00	91.00	57.04	9.0	7.20	2.84	270			1.54
13	700	4.67	(2.01)	7.04	5.3	3.50	2.67	271			1.54
13	700	6.07	0.00	9.02	2.9	3.00	2.60	272			1.54
13	239	0.09	(0.00)	0.08	0.7	0.83	2.70	272			1.54
13	239	13.60	(0.00)	17.00	2.0	2.30	2.00	270			1.54
13	239	3.30	0.02	3.87	0.8	0.70	2.68	272			1.54
13	239	1.10	0.00	2.00	0.1	0.20	2.68	272			1.54
13	239	2.00	0.00	3.82	0.7	0.70	2.68	272			1.54
13	239	5.00	0.00	1.00	0.1	0.10	2.00	271			1.54
13	239	2.00	0.00	2.00	0.1	0.20	2.00	270			1.54
13	239	2.00	0.00	2.00	0.1	0.20	2.00	271			1.54

These laboratory expressions are based on calculations and in the absence of other data, are the best estimates available. The petroleum engineers and other persons named herein represent the best judgment of Core Laboratories Canada Ltd. full errors and omissions are assumed by the client to whom and for whose exclusive use and benefit these results are furnished. Core Laboratories Canada Ltd. and its officers and employees assume no responsibility and make no warranty or representation as to the accuracy, completeness, or profitability of any oil, gas or other mineral well or sand in connection with which such report is used.

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

Company Formation Page 1 of 1
 Well Date Report File 913-1114
 Field, Province D. Fluid Analysts
 Location Analysis Remarks

CORE ANALYSIS RESULTS
 (Figures in parentheses refer to footnote remarks)

Depth feet	Permeability mD	Permeability K 600	KV	Perm. ft.	Porosity Percent	Porosity Feet	Density		Residual Saturation		Visual Examination
							Bulk	Grain	O. % Pore	CO ₂ Water Pore	
15	785	0.06	(0.01)	1170	0.8	1.20	2.69	2.71			DRUSE F
12	207	0.05	(0.01)	0.08	0.5	0.60	2.70	2.71			DRUSE STY
10	0.04	0.02	(0.01)	0.04	0.8	0.80	2.70	2.72			" STY
11	416	0.06	7.97	39.04	15.9	12.72	2.27	2.70			1 SV
10	1430	5.86	13.10	11.44	12.9	10.32	2.37	2.72			1 STY
18	740	1.46	91.20	59.84	9.0	7.80	2.46	2.70			1 STY VE
10	700	4.07	(0.01)	7.04	3.3	3.30	2.62	2.71			1 STY F
11	200	4.11	0.02	10.52	2.9	2.40	2.34	2.72			1 F
17	0.09	0.00	(0.01)	0.08	0.7	0.68	2.70	2.72			DRUSE STY
19	136.0	156.00	0.90	170.00	2.0	2.00	2.60	2.70			1 F
17	1.50	0.38	0.02	0.17	0.1	0.10	2.68	2.72			DRUSE STY
17	2.00	2.00	0.10	2.03	0.1	0.10	2.68	2.72			DRUSE STY
17	3.10	1.10	0.10	2.02	0.7	0.70	2.51	2.70			DRUSE STY
17	2.00	3.0	0.01	0.01	0.5	0.50	2.40	2.71			DRUSE STY
17	1.00	1.1	(0.00)	0.10	0.1	0.10	2.00	2.71			DRUSE STY
10	2.00	2.70	(0.01)	5.00	2.4	3.60	2.05	2.71			DRUSE STY

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

Company Formation Page 1 of
 Well CHERRYBON SUBC W.M. STAGER 2 R File 913-1117
 Date Report

Field, Province D. Fluid Analysts

Location Analysis CORE #3 Remarks

CORE ANALYSIS RESULTS
 (Figures in parentheses refer to footnote remarks)

Core No.	Depth Feet	Th. Pap.	Permeability, Millidarcys		Perm. Ft.	Porosity Percent	Porosity Feet	Bulk Density	Residual Saturation		Visual Examination	
			K _{Max}	K _{70%}					Oil %	Water %		
			<u>CORE #</u>									
1	3.0	0.49	0.42	0.06	1.47	3.5	10.50	2.62	2.71		1.5Ty	
2	1.7	0.58	0.43	0.14	0.99	6.0	10.20	2.55	2.71		1.5Ty	
3	6.6	2.18	0.82	0.03	3.49	5.1	8.16	2.57	2.71		1	
4	17	0.16	0.11	0.01	0.27	1.7	2.89	2.66	2.71		1	
	46.0										DENSE	

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

Company Formation Page 1 of
 Well CHEVRON Date Report File 913-1117
 Field, Province D. Fluid Analysts
 Location Analysis Remarks

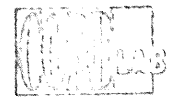
CORE ANALYSIS RESULTS
 (Figures in parentheses refer to footnote remarks)

Core No.	Depth Feet	Ft. Rep.	Permeability Millidarcys		Firm. Ft.	Porosity Percent	Porosity Feet	Bulk Density	Grain Density	Residual Saturation		Visual Examination
			K Max	K 100						Oil %	Water %	
			CORE #									
1		3.0	0.49	0.42	1.47	3.5	10.50	2.62	2.71			1 STY
		1.7	0.58	0.43	0.99	6.0	10.20	2.55	2.71			1 STY
2		1.6	2.18	0.82	3.49	5.1	8.16	2.57	2.71			1
4		1.7	0.16	0.11	0.27	1.7	2.89	2.66	2.71			1
		46.0										DENSE

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CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



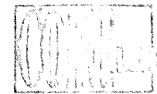
GAS ANALYSIS

Company Chevron Standard Limited Page 1 of 1
 Well SOBC WM Shaeffer Ck YT 0-22 File 921-1340
 Field Shaeffer Creek, Yukon Analyst MJM
66° 41' 54.00" N.L.
 Location 137° 19' 40.00" W.L. Elevation: K.B. _____ Grd. 1136'
 Formation _____ Depth _____
 Sampled from DST #1 (Flareline) by Eastland Testers
 Sampling pressure 10 psig Sampling temp. _____ °F Ambient temp. _____ °F
 Date sampled May 1/71 Date received May 5/71 Date analysed May 5/71
 Container pressure _____ Mud _____ Water cushion _____
 Recovery or flowrate: _____

<u>COMPONENT</u>	<u>MOLE %</u>	<u>IMP. GPM @ 14.65 psia and 60°F</u>	<u>SPECIFIC GRAVITY</u>
Hydrogen	_____	_____	Calculated <u>.614</u> measured _____
Helium	_____	_____	
Nitrogen	<u>.49</u>	_____	<u>GROSS B.T.U. per SCF 1041.8</u>
Carbon Dioxide	<u>3.43</u>	_____	Calculated @ 14.65 psia, 60°F, moisture and acid - gas free.
Hydrogen Sulphide	<u>.00</u>	_____	
Methane	<u>92.79</u>	_____	<u>VAPOR PRESSURE of PENTANES PLUS</u>
Ethane	<u>2.31</u>	_____	(calculated) <u>11.8</u> psia @ 100°F
Propane	<u>.47</u>	<u>.107</u>	
Iso Butane	<u>.15</u>	<u>.041</u>	Pseudo Critical Pressure <u>685.6</u> psia
Normal Butane	<u>.13</u>	<u>.034</u>	Pseudo Critical Temperature <u>359.2</u> °R
Iso Pentane	<u>.07</u>	<u>.021</u>	
Normal Pentane	<u>.05</u>	<u>.015</u>	Remarks _____
Hexanes	<u>.10</u>	<u>.034</u>	_____
Heptanes Plus	<u>.01</u>	<u>.004</u>	_____
Total	<u>100.00</u>	<u>.256</u>	_____
Pentanes Plus	_____	<u>.074</u>	_____



CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



GAS ANALYSIS

Company Chevron Standard Limited Page 1 of 1
 Well SOBC WM Shaeffer Ck YT 0-22 File 921-1351
 Field Shaeffer Creek, Yukon Analyst RT
66° 41' 54.00 N.L.
 Location 137° 19' 40.00 W.L. Elevation: K.B. _____ Grid _____
 Formation _____ Depth _____
 Sampled from DST #3 by _____
 Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
 Date sampled _____ Date received May 10/71 Date analysed May 11/71
 Container pressure 3 psig Mud _____ Water cushion _____
 Recovery or flowrate: _____

COMPONENT	MOLE %	IMP. GPM @ 14.65 psia and 60°F	SPECIFIC GRAVITY
Hydrogen	_____	_____	Calculated <u>.582</u> Measured _____
Helium	_____	_____	
Nitrogen	<u>1.32</u>	_____	GROSS D.T.M. per SCF <u>1022.4</u>
Carbon Dioxide	<u>.43</u>	_____	Calculated @ 14.65 psia, 60°F, moisture and acid - gas free.
Hydrogen Sulphide	<u>.00</u>	_____	
Methane	<u>95.39</u>	_____	VAPOR PRESSURE of PENTANES PLUS
Ethane	<u>2.23</u>	_____	(calculated) <u>18.4 psia @ 100°F</u>
Propane	<u>.39</u>	<u>.089</u>	
Iso Butane	<u>.10</u>	<u>.027</u>	Pseudo Critical Pressure <u>672.7</u> psia
Normal Butane	<u>.07</u>	<u>.018</u>	Pseudo Critical Temperature <u>350.4</u> °R
Iso Pentane	<u>.04</u>	<u>.012</u>	
Normal Pentane	<u>.03</u>	<u>.009</u>	Remarks <u>Cylinder #C-149</u>
Hexanes	<u>.00</u>	<u>.000</u>	
Heptanes Plus	<u>.00</u>	<u>.000</u>	
Total	<u>100.00</u>	<u>.155</u>	
Pentanes Plus		<u>.021</u>	



CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Chevron Standard Limited Page 1 of 1
Well SOBC WM Shaeffer CK YT 0-22 File 933-1600
Field Shaeffer Creek Area, Yukon Analyst LK
66° 41' 54.00 N.L.
Location 137° 19' 40.00 W.L. Elevation: K.B. _____ Grd. 1136'
Formation _____ Depth _____
Sampled from DST #3 by _____
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled _____ Date received May 20/71 Date analysed May 25/71
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: _____

Mud Filtrate Analysis

Resistivity = 1.73 Ohm-meters @ 65°F

Chloride = 140 mg/liter

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%
CaCl₂. 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

WELL NAME E. T. S. W. 10 CONTRACTOR CONTRACTOR PUMP NO. 10 PUMP NO. 10
 SPUD DATE FEB 10 1971 MID RELEASE NO RELEASE DRILLING DAYS 10

BIT NO.	SIZE	TIME	DEPTH	REMARKS	DRILLING RATE	DRILLING TIME	DRILLING DAYS	DRILLING HOURS	DRILLING MINUTES	DRILLING SECONDS	DRILLING FEET	DRILLING FEET PER HOUR	DRILLING FEET PER MINUTE	DRILLING FEET PER SECOND
1	HW	8 1/2	100	200	200	200	10	00	00	00	200	200	200	200
2	HW	8 1/2	200	400	400	400	10	00	00	00	400	400	400	400
3	HW	8 1/2	300	600	600	600	10	00	00	00	600	600	600	600
4	HW	8 1/2	400	800	800	800	10	00	00	00	800	800	800	800
5	HW	8 1/2	500	1000	1000	1000	10	00	00	00	1000	1000	1000	1000
6	HW	8 1/2	600	1200	1200	1200	10	00	00	00	1200	1200	1200	1200
7	HW	8 1/2	700	1400	1400	1400	10	00	00	00	1400	1400	1400	1400
8	HW	8 1/2	800	1600	1600	1600	10	00	00	00	1600	1600	1600	1600
9	HW	8 1/2	900	1800	1800	1800	10	00	00	00	1800	1800	1800	1800
10	HW	8 1/2	1000	2000	2000	2000	10	00	00	00	2000	2000	2000	2000
11	HW	8 1/2	1100	2200	2200	2200	10	00	00	00	2200	2200	2200	2200
12	HW	8 1/2	1200	2400	2400	2400	10	00	00	00	2400	2400	2400	2400
13	HW	8 1/2	1300	2600	2600	2600	10	00	00	00	2600	2600	2600	2600
14	HW	8 1/2	1400	2800	2800	2800	10	00	00	00	2800	2800	2800	2800
15	HW	8 1/2	1500	3000	3000	3000	10	00	00	00	3000	3000	3000	3000
16	HW	8 1/2	1600	3200	3200	3200	10	00	00	00	3200	3200	3200	3200
17	HW	8 1/2	1700	3400	3400	3400	10	00	00	00	3400	3400	3400	3400
18	HW	8 1/2	1800	3600	3600	3600	10	00	00	00	3600	3600	3600	3600
19	HW	8 1/2	1900	3800	3800	3800	10	00	00	00	3800	3800	3800	3800
20	HW	8 1/2	2000	4000	4000	4000	10	00	00	00	4000	4000	4000	4000

CHEVRON STANDARD LIMITED
BIT RECORD

WELL NAME: E. TORQUAY CONTRACTOR: GENERAL PATROLERS PUMP NO: 14 PUMP NO 1: 2200000
 SPUD DATE: FEB 10 1971 RIG RELEASED: _____ DRILLING DAYS: _____ PUMP NO 2: 2200000

BIT NO.	MAKE	SIZE	TYPE	DEPTH (FEET)	FOOTAGE	TIME	DRILL RATE (FEET PER HOUR)	NOZZLE SIZE (INCHES)	JET VEL. (FEET PER SECOND)	WGT. (LBS)	RPM	NO. PUMP (1000 GAL PER MIN)	NO. PUMP (1000 GAL PER MIN)	PUMP (GAL PER MIN)	NO. OF STROKES	NO. OF STROKES	NO. OF STROKES	NO. OF STROKES	
1	HW	1 1/2	OSG	64	331	2.07	160	1-16	6.5										2.71
2	"	1 1/2	OSG	331	600	3.20	187	2-16	10										2.31
3	"	1 1/2	OSG	600	604	4.40	138	3-16	16										2.21
4	"	1 1/4	OSG	604	825	2.1	249	3-16	16										2.11
5	Smith	3/4	SDT	825	1057	2.12	493	3-5	10.8										2.11
6	HW	"	XIG	1037	1221	1.84	663	"	8-10										2.11
7	HW	"	XIG	1221	1557	3.6	428	"	32										2.11
8	Smith	"	SVH	1557	2058	3.51	588	"	60										2.11
9	SEC	"	SEC	2058	2540	2.02	1257	"	52										2.31
10	SEC	"	S-EE	2540	3028	3.12	974	"	24/40										2.11
11	Smith	2 1/2	OSG	3028	3717	5.9	628	"	19										2.11
12	HW	2 1/4	AY	3717	3754	3.7	1011	"	32										2.11
13	SEC	"	S-EE	3754	3754	5.5	680	"	36										2.40
13b	SEC	"	S-EE	3813	4052	1.92	2107	"	30										2.11
14	Smith	"	335	4052	4719	7.56	623	"	35										2.11
15	SEC	"	S-EE	4719	4725	6.6	715	"	32										2.31
16	HW	"	XSSK	4725	5701	2.92	1949	"	38										2.31
17	SEC	"	MSE	5701	6000	3.01	1994	"	39										2.31
18	OSG	2 1/2	OSG	6000	6020	1.6	3762	"	15										2.11
18b	OSG	2 1/2	OSG	6020	6040	2.0	3020	"	12										2.11
19	HW	2 1/4	XDY	6040	6056	6	1008	"	30										2.40
20	SEC	"	MTRC	6056	6064	1.8	3374	"	35										2.11
21	HW	"	SLIX	6064	6170	6.6	917	"	40										2.11

CHEVRON STANDARD LIMITED
BIT RECORD

WELL NAME: E. TORQUAY CONTRACTOR: GENERAL PATROLERS PUMP NO: 14 PUMP NO 1: 14
 SPUD DATE: FEB 10 1971 RIG RELEASED: _____ DRILLING DAYS: _____ PUMP NO 2: 24

BIT NO.	MAKE	SIZE	TYPE	DEPTH (FEET)	FOOTAGE	TIME	DRILL RATE (FEET PER HOUR)	NOZZLE SIZE (INCHES)	JET VEL. (FEET PER SECOND)	RPM	NO. PUMP (1000 GALS PER MIN)	NO. PUMP (1000 GALS PER MIN)	PUMP PRESS. (PSI)	W.P. (FEET)	W.P. (FEET)	W.P. (FEET)	W.P. (FEET)
1	HWC	1 1/2	OSCAR	64	331	2:07	25	100	1-16	650	5	50	1400	2.7			
2	"	1 1/2	OSCAR	331	600	3:20	29	137	2-16	10							
3	"	1 1/2	OSCAR	600	604	4:00	30	142	1-16								
4	"	1 1/4	OSCAR	604	825	2:10	26	260	3-16	1400	5	50	1400	2.7			
5	Smith	3/4	SPT	825	1057	2:12	124	173	3-5	1000	20		1400	2.7			
6	HWC	"	XIG	1037	1221	1:24	164	110	"	8-10	50	50	1400	2.7			
7	HWC	"	XIG	1221	1557	3:56	39	176	"	30	50	50	1400	2.7			
8	Smith	"	SVH	1557	2058	3:51	27	132	"	60	50	50	1400	2.7			
9	SEC	"	SEC	2058	2490	2:02	119	121	"	52	50	50	1400	2.7			
10	SEC	"	S-EE	2490	3026	3:12	55	143	"	24/40	40	50	1400	2.7			
11	Smith	2 1/2	OSCAR	3026	3717	5:09	10	26	"	19	50	50	1400	2.7			
12	HWC	2 1/4	AY	3717	3754	3:11	4.6	130	"	38	50	50	1400	2.7			
13	SEC	"	S-EE	3754	3758	5:11	6.0	"	"	36	50	50	1400	2.7			
13b	SEC	"	S-EE	3758	4052	1:21	7.2	"	"	30	50	50	1400	2.7			
14	Smith	"	335	4052	4719	7:50	17.7	"	"	35	50	50	1400	2.7			
15	SEC	"	S-EE	4719	4723	6:16	12.3	37	2-16	30	50	50	1400	2.7			
16	HWC	"	XSSK	4723	5701	3:01	34.9	66	3-10	38	60	50	1400	2.7			
17	SEC	"	MSE	5701	6000	3:01	34.9	2-16	2-16	30	50	50	1400	2.7			
18	OSCAR	2 1/2	OSCAR	6000	6020	1:5	21	"	"	15	50	50	1400	2.7			
18b	OSCAR	2 1/2	OSCAR	6020	6040	2:0	11.7	"	"	12	50	50	1400	2.7			
19	HWC	2 1/4	XDY	6040	6056	6	2.4	2.4	2-16	30	40	50	1400	2.7			
20	SEC	"	MTRC	6056	6064	1:5	3.4	2-16	2-16	35	50	50	1400	2.7			
21	HWC	"	SLIX	6064	6170	6:6	17	3.9	"	40	50	50	1400	2.7			

T.G. EASTLAND — testers Ltd.

R.R. No. 6, NORTH EDMONTON, ALBERTA

Test No. 1
Date Mar. 1/71
Ticket No. 1570

SERVICE REPORT

WELL NAME SORC Wm, E. Porcupine Y11-13 ADDRESS 400 - 5 Avenue S.W. - Calgary.
AREA Eagle Plains LSD 06° 02'N 137° 4'W INVOICE TO Chevron Standard Limited
CONTR & RIG No. C.P. #14 T. PUSH D. Tegukaiti CUSTOMER'S REPRESENTATIVE Ralph Hansen

Date & Time Requested On lease		DESCRIPTION OF BLOW DURING TEST	TOOL SEQUENCE & EQUIP USED		
Call	Arr		Tools	Length	O.D.
Start in 8:30 am On Bott 4:00 pm Pull Loose 7:43 pm Out Hole 12 pm.		Good air blow on preflow. Dead in 10 mins. on ISI. Weak blow throughout flow period, decreasing throughout. Dead in 10 mins. on FSI	Critical Flow Prover		
TESTING DATA			Floor Manifold		
Zone Tested Blackie			Meter Run		
Interval 3020 to 3058 T.D. 3058			Remote Control Head		
Int Coating Size 12-3/4 Wgt 545 grade J-55		Blow Measured with Pitot Tube ()	Bar-droppers	sub	yes
Feet of Main Hole 3058 Diam 8-3/4		Fluid Used Water () Mercury () Side Static ()	Pump Out Sub	1.00	1-3/4
Feet of Rat Hole Diam		Flow Prover () Gauge () Size Gauge	Cross Over Subs	1.70	5-3/4
Type of Test Dual bottom hole			Tight Hole Tool		
Packers No. 2 OD 7-3/4			Dry Collar Valve		
Type of Packers Conventional			Cross Over Sub	.45	5-3/4
Drill Pipe Size - Thread 4 1/2 H90			Test Assembly	12.15	4-3/4
Drill Collars I.D. 4-7/8 OD 7"			Sampler	4.20	4-3/4
No. Ft Collars 465.65 D.P. 3193			Jars	8.38	6-1/8
No. Feet Drill Pipe Above Table 15'			Straddle By pass		
Ft & Type Cushion			Safety Joint	1.74	4-3/4
Was Tool Chased YES No. Ft. 25'			Packer 2	9.10	70 3/4
Weight Set on Packers 25M			Packer		
Did Fluid Drop YES No. Ft. 15'			TOTAL	39.42	
Describe While tool was being chased, mud held good after packer seat attained		FLUID RECOVERY (In Feet)	Packer end	2.20	4-3/4
		Pipe Collars 465 Total 465	perfs.	5.00	4-3/4
		Mud Oil Water	B.C. out	4.50	4-3/4
		Describe Fluids Top - water cut mud	perfs.	5.00	4-3/4
		Middle - Water cut mud.	B.C. in	4.50	4-3/4
		Bottom - Mud.	Perfs & BN	17.50	4-3/4
		Sampler Drained On Location <input checked="" type="checkbox"/> Laboratory <input type="checkbox"/>			
		Sampler Press _____ lbs			
		Bottom Hole Temp _____ °F			
		Salinity of Recovery _____ PPM			
		Salinity of Mud Filtrate _____ PPM			
Preset 30 min. Time Tool Opened 4:55 pm					
Preflow 8 min. Init Shut-in 30 min					
Flowed 65 min. Final Shut-in 65 min					
Pull Loose 20M lbs. Swabbing? no					
Drilling Fluid Type Gel chem					
Visc. 58 Wgt. 9.5 WL 8.2 FC 2/32					
			TOTAL	38.70	
				78.12	

FIELD PRESSURE DATA	
Pressure Element No.	3408 3409
Element Capacity (paig)	5450 5400
Clock Speed (Hrs)	24 24
Depth of Bellows	3627 3637
Position (Inside - Outside)	Outside Inside
Initial Hydrostatic	1801 1845
Preflow Pressure	281 287
Initial Shut-In	446 448
First Flow—Choke Size	2.79 283
Second Shut-In	
Second Flow—Choke Size	2.83 285
Final Shut-In	409 414
Final Hydrostatic	1803 1863

- TOTAL PICKED UP
- 1 Cross-over sub to bottom of top rubbers 39.42
 - 2 Bottom of top rubbers to top of lower
 - 3 Top of lower to bottom of lower rubbers
 - 4 Bottom of lower rubbers to Total Depth
 - 5 Bottom of top rubbers to Total Depth 38.70
- (Delete measurement No 5 if Straddle)
(Delete No 2 - 3 - 4 if Std bottom hole)
- Total amount of customer's anchor
- No. of Damaged Rubbers and Sizes 1 - 7 3/4"
- No. Samplers Retained _____ No. of Reports Required 5
- Mileage: Highway _____ Bush _____ Total _____
- Waiting Time 17 days - Feb. 16 to Mar. 3, 1971

REMARKS: _____

APPROVED BY _____ TEST WAS: Successful / OUR OPERATOR R. Larson

Ticket No. 1676
DST # one
March 4, 1971
Element # 3468

ATTACHMENT NO. 1

I. Initial Shut-In

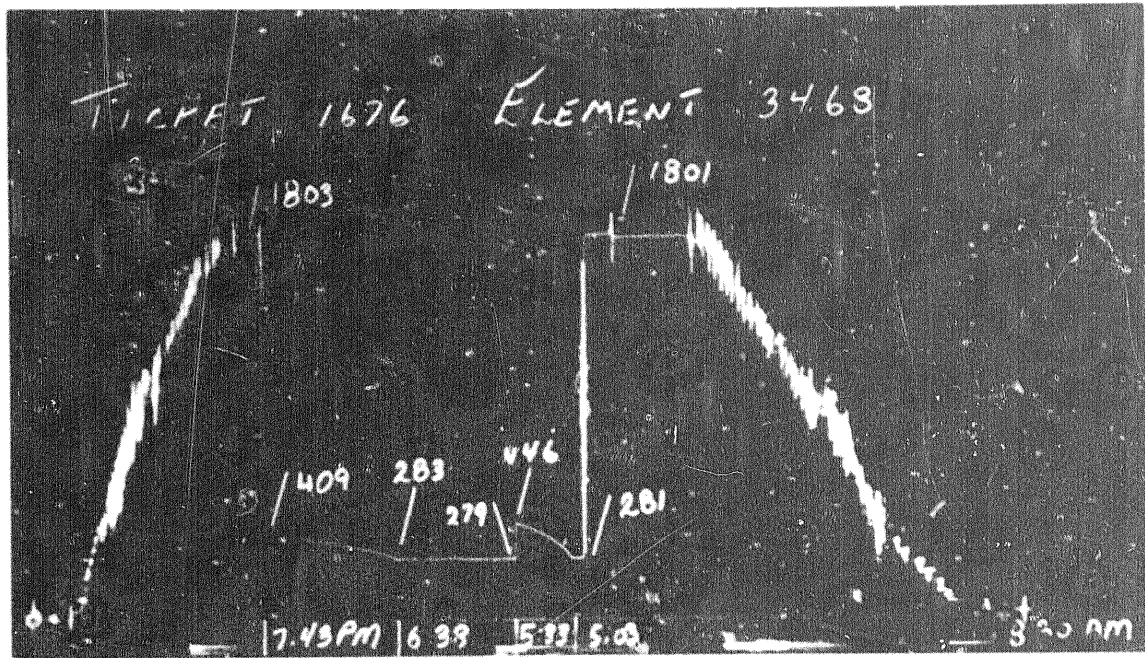
<u>Time</u>	<u>Pressure</u>
0 mins.	281
5	334
10	368
15	392
20	413
25	430
30	446

II. Final Shut-in

<u>Time</u>	<u>Pressure</u>
0 mins.	283
5	302
10	317
15	328
20	339
25	349
30	357
40	371
50	388
60	403
65	409

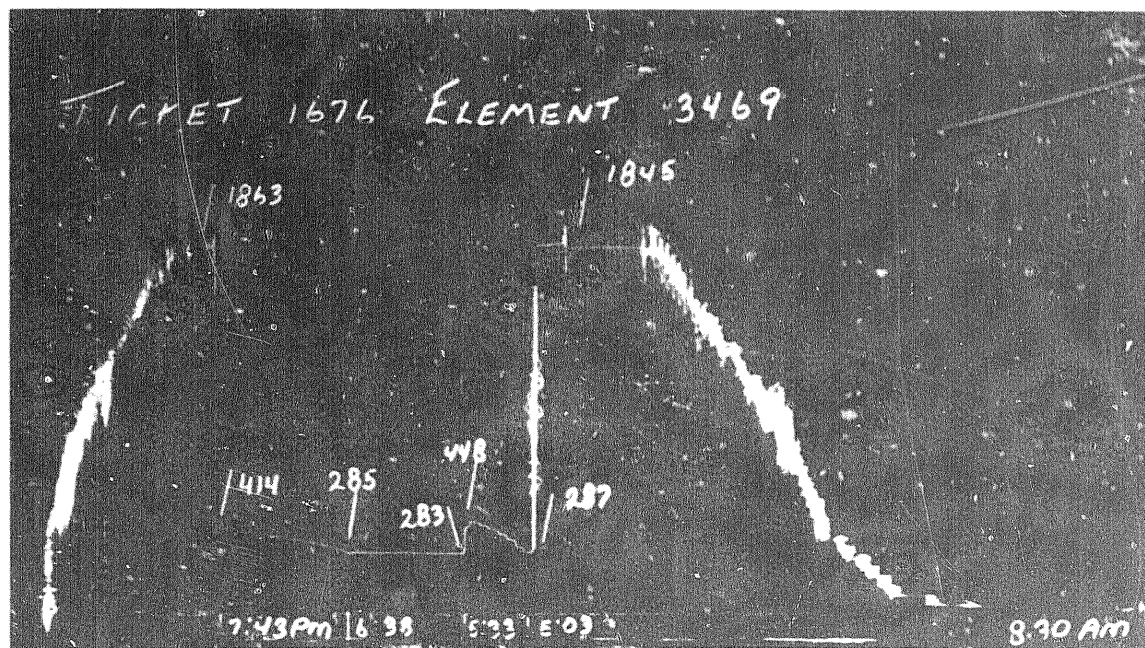
T.G. EASTLAND Testers Ltd.

SOLE WHOLESALE EXPORTERS OF TESTERS LTD. INSTRUMENTS
 115, SOUTH BRIDGE STREET, LONDON, E.C. 4



TIME

3400 ELEMENT RANGE 2100 IS. (DO NOT SET 21) (DO NOT SET 21) (DO NOT SET 21)



TIME

