

WELL HISTORY REPORT

for

SOCONY MOBIL WESTERN MINERALS
SOUTH TUTTLE YT N-5

WELL HISTORY REPORT

for

SOCIETY MOBIL WESTERN MINERALS

SEWEL TITTLE XT K-5

Latitude N 66° 24' 51.2"

Longitude W 136° 45' 22.7"

Society Mobil Oil of Canada, Ltd.
Dawson Creek District



G. A. Anderson
DISTRICT GEOLOGIST

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WELL HISTORY REPORT

SECTION I - Summary of Well Data

- (a) Well Name and Number: Socony Mobil Western Minerals
South Tuttle XT N-5
- (b) Permittee: Western Minerals Ltd.
- (c) Operator: Socony Mobil Oil of Canada, Ltd.
- (d) Location: Unit II Section 5
Grid N 66° 30'; W 136° 45'
Latitude N 66° 24' 51.2"
Longitude W 136° 46' 22.7"
- (e) Permit: 3346
- (f) Drilling Contractor: Parker Drilling Company of Canada, Ltd.
RIG #1
- (g) Drilling Authority: 143; January 13, 1965
- (h) Classification: New Field Wildcat
- (i) Elevations: Ground 1642
K.B. 1655.75
- (j) Spudded: February 18, 1965
- (k) Completed Drilling: June 26, 1965
- (l) Total Depth: 11,527 feet

- (n) Well Status: Dry and Abandoned
- (o) Rig Released: July 2, 1965
- (p) Hole Size:
 - 24" to 80' K.D.
 - 17 1/4" to 1000' K.D.
 - 8 5/8" to 11,527 K.D. (T.D.)
- (q) Casing:
 - 18" conductor pipe at 82' K.D.
 - 15 3/8" J-55 P.L. at 1000' K.D.

SECTION II - Geological Summary

(a) Formation Tops	E-log Tops	
	Depth	Elevation
Upper Devonian	Surface	4162
Lower Devonian	4724	-3069
Silurian	5324	-3769
Ordovician	9411	-7756

(b) Cored Intervals

Core Number	From	To	Thc.	Formation
1	3977	3981	4'	Upper Devonian
2	4410	4411	1'	Upper Devonian
3	4590	4591	0'	Upper Devonian
4	4711	4720	3'	Upper Devonian
5	4760	4770	10'	Lower Devonian
6	6054	6054	10'	Silurian
7	6948	6956	11.5'	Silurian
8	8321	8341	20'	Silurian
9	8893	8902	8.3'	Silurian
10	9522	9532	10'	Ordovician
11	9825	9834	6.9'	Ordovician
12	10230	10232.6	2.6'	Ordovician
13	10557	10577	9.1'	Ordovician
14	10883	10892	8.8'	Ordovician
15	11173	11182	6'	Ordovician
16	11482	11491	7'	Ordovician
17	11491	11527	33.6'	Ordovician

(c) Core Descriptions

Diamond Core #1

Upper Devonian

3977 - 3981' Recovered 4'

Coring times:

18, 18, 31, 16 minutes per foot.

3977 - 3981'

4'

Shale, grey to dark grey, micromicaceous, abundant carbonaceous plant imprints, very slightly dolomitic, pyritic (finely disseminated and nodules).

Grey silt bands (10% of total core) contain some grains up to very fine sand size; these brittle bands contain numerous hairline fractures filled with white, milky dolomite.

Shale is very hard and plant imprints suggest bedding to be approximately horizontal.

Diamond Core #2

Middle Devonian

4410 - 4411' Recovered 1' (Jammed)

4410 - 4411'

1'

*few pieces of
core.*

Shale, grey to buff, abundant cubic pyrite crystals and hexagonal, buff selenite crystals (less than coarse grained size), minor plant remains, slightly dolomitic, much hairline fracturing with white dolomite infill.

*silty
black plant remains.*

Rock is highly indurated. Core breaks with a platy nature.

Diamond Core 3

Middle Devonian

4590 - 4590.7' Recovery Nil

Up hole water began to run while cutting this core with air so had to pull out of hole.

Diamond Core 4

Middle Devonian

4711 - 4720' Recovered 3'

Coring times:

35, 42, 30, 29, 60, 49, 30, 56, 55 minutes per-foot.

4711 - 4720'

3'

broken pieces of core -
 "Breccia" - Allegedly argill
 chert frags. in black
 silic. matrix - some
 thin sandy layers - much
 white ~~quartzite~~ ~~quartz~~
 breccia enclosed by black
 filled with quartz. later fractures
 spectral analysis *
 50% basalt
 50% quartz

Quartzite, black, very finely crystalline, containing small quartz crystal-lined vugs and black, argillaceous material between the recrystallized quartz crystals.

Quartzite matrix (60% of rock) contains angular fragments of brown chert up to 2" across. Holes in some of the chert may be leached fossil casts (crinoid?). Some chert fragments show dark alteration halo or rim next to recrystallized matrix.

Core contains bands and arcs of white recrystallized gypsum showing some well formed gypsum crystals in the black quartzite.

Core is extremely fractured with fractures containing no infill to completely infilled with milky quartz or white gypsum (near gypsum bands). Partially filled fractures contain drusy veneer of quartz crystals or gypsum crystals.

Not core bubbles from vugs and fractures on freshly broken surfaces indicating some trapped gas in impermeable pockets.

Diamond Core #5

Middle Devonian

4760 - 4770' Recovered 10'

Coring times:

40, 50, 51, 49, 46, 45, 43, 50, 46, 40 minutes per foot.

4760 - 4760.25'

0.25'

Limestone, dark gray to brown, microcrystalline, slightly argillaceous, small quartz crystals, cut by hairline calcite veins (clear calcite), carbonaceous flocks, very minor crinoid fragments. (1 inch diam)

4760.25 - 4765'

4.75'

Limestone, dark brown, partially recrystallized, forms a darker matrix containing 40% fossil fragments (mainly crinoids) with 10 - 15% large angular limestone fragments up to 3", brown, microcrystalline with carbonaceous flocks and very minor crinoid stems. A couple of solitary corals noted in darker matrix.

4765 - 4770'

5'

Limestone, tan, biclastic; 50% recrystallized, clear colourless calcite matrix surrounding fossil fragments from fine to medium grained with a few large crinoid stems.

4769 - 4770'

1'

Fragmental limestone, as above, with angular fragments of lighter brown limestone ranging up to 4" across in the darker brown, slightly argillaceous matrix. Matrix contains many corinoid fragments, a few brachiopods (up to 1" across). One large 4" stromatoporeid noted at 4769'. Also minor solitary corals.

Core contains stylolites filled with white calcite and bituminous masses. Quartz crystals appear along the larger stylolites. Core is cut by 2 or 3 large (1/8" across) fractures running parallel to length of core and are filled with white milky calcite. Freshly broken surfaces give off petreliferous - sulphurous odour. Core bled minor H₂S smelling gas from stylolites and minor hairline fractures when brought to surface.

Alcock
D.C.

Diamond Core 16:

Tentative Middle Devonian Ramparts

John G. Gass

6054 - 6054.4' Recovered 10.4'

Coring times:

19, 15, 10, 14, 14, 19, 16, 13, 25, 21, 12 minutes per foot.

6054 - 6054.6'

0.6'

Limestone, gray to dark grey, microcrystalline, carbonaceous, slightly pyritic with abundant white calcite infilling. Stylolitic at base. Vertical fractures (1/8") infilled with white calcite.

6034.6 - 6034.4'

9.0'

Limestone, tan to grey, microcrystalline, stylolitic, in parts apparently re-crystallized, fragmental.

Extensively fractures vertically (up to $\frac{1}{2}$ " in width) infilled with white calcite both in fractures and throughout. Many hair-line fractures, open, rust-stained.

No obvious dip indications.

Diamond Core #7:

Tentative Middle Devonian Ramparts

6944 - 6956' Recovered 11.5'

Coring times:

42, 25, 10, 15, 16, 22, 19, 26, 25, 22, 15, 23 minutes per foot.

6944 - 6956'

11.5'

Limestone, grey to tan grey, microcrystalline to cryptocrystalline slightly dolomitic. Abundant vertical fracturing, white calcite infilled. Some thin fractures and hair-line fractures are open and rust-stained. A few horizontal stylolites.

Diamond Core #8:

Devonian

8321 - 8341' Recovered 20'

Coring times:

10, 11, 12, 14, 14, 15, 10, 12, 15, 14, 13, 18, 16, 13, 10, 14, 14, 10, 14, 15 minutes per foot.

8321 - 8321.3'

0.3'

Limestone, brecciated, dark brown, very argillaceous, slightly dolomitic, microcrystalline with much pyritic

Sample of ...

recrystallized and brecciated milky calcite. Some vuggy porosity in calcite.

Minor brown dolomite, microcrystalline, porous at very top of core (8321).

8321.3 - 8323.4'

2.1'

Dolomite, black, microcrystalline, very argillaceous, calcareous interbedded with limestone, brown, argillaceous microcrystalline to cryptocrystalline in bands and streaks. Contacts of dolomite and limestone appear to be solution contacts. Stylolitic contacts are bitument coated with some being filled with milky calcite. Fossils in limestone, are random and few including stachyodes and small brachiopods.

8323.4 - 8325'

1.6'

Dolomite, dark grey to brown to black, argillaceous microcrystalline, containing more undolomitized fossils which include small stromatopora, solitary corals and minor brachiopods.

8325 - 8329'

4'

Dolomite becomes darker coloured with few fossils and a few limy bands. Calcite infilled hairline fractures.

8329 - 8331'

2'

Dolomite, grey to brown, microcrystalline, no fossils and very minor limestone bands, argillaceous.

8331 - 8332'

1'

Limestone bands increase in dolomite, as above, and contain stromatoporoidea and other finer fossil debris (amphipora?).

8332 - 8333'

1'

Dolomite, grey to brown, microcrystalline, calcareous, very dense, large calcite infilled fracture - close to vertical.

8333 - 8338.5'

5.5'

Dolomite, grey to brown to black, as above with some limestone bands (stylolitic or solution contacts) and minor stromatoporoidea. Stromatoporoidea become very large (3" across) at 8336' with numerous solitary corals and matrix between large stromatoporoidea.

8338.5 - 8341'

2.5'

Limestone, brown to dark brown, microcrystalline to crypto-crystalline, dense, with small shells at 8339.1. Dolomitic bands are dark (grey to brown to black and argillaceous.

Bitumen coated stylolites between limestone and dolomite bands bleed minor gas after core was recovered.

Calcite infilled fractures had a tendency to the vertical with any horizontal calcite infilled bands being along stylolitic channels.

Diamond Core #9

Devonian - Silurian

8993 - 8998' Recovered 8.3'

see notes

Coring times:

19, 17, 25, 11, 16, 13, 15, 15, 17 minutes per foot.

8993.0 - 8991.3'

8.3'

Shale, black, very calcareous, pyritic, greasy lustre, carbonaceous, glossy slippage planes, minor fossils, fragments of crinoids, brachiopods, trilobites; single calcite infilled vertical fracture.

Diamond Core #10

Silurian - Ordovician

9522 - 9532' Recovered 10'

Coring times:

39, 26, 40, 20, 39, 17, 29, 25, 29, 23 minutes per foot.

9522 - 9532'

10'

part 9522-9532'
10'
see notes

Dolomite, light to medium grey, mottled, calcareous, very finely crystalline, trace pyritic, bituminous material, abundant patches and blebs of grey limestone, up to 3 inches, cryptocrystalline matrix with ghosts of very fine to coarse fragments, scattered dolomite crystals, crinoid stems, solitary corals, stylolitic, carbonaceous partings. Fractures, calcite infilled.

from core of sample 9522-9532' to H. Redden

Diamond Core #11

Silurian - Ordovician

9825 - 9834' Recovered 6.9'

Coring times:

25, 43, 34, 31, 25, 33, 32, 29, 32 minutes per foot.

9825.0 - 9831.9'

6.9'

Handwritten: Out - S. /

Limestone, light brown grey, cryptocrystalline, occasional calcite crystals and stylolites, moderately to very dolomitic, light grey to white, very fine to coarsely crystalline dolomite, generally very fine to finely crystalline.

Diamond Core #12

Silurian - Ordovician

10,230 - 10,232.6' Recovered 2.5'

Coring times:

23, 32, 23 minutes per foot.

10,230 - 10,232.5'

2.5'

Limestone, light brown-grey, slightly dolomitic, cryptocrystalline, recrystallized, ghosts of fragments in top two feet; bottom 0.5 feet with rounded medium to coarse fragments or pellets in matrix of cryptocrystalline limestone and secondary calcite. Scattered stylolites, 20 - 30% dolomitic, light grey to white, very fine to coarsely crystalline.

Diamond Core #13

Ordovician

10,567 - 10,577' Recovered 9.1'

Coring times:

23, 24, 30, 35, 35, 30, 35, 36, 34, 30 minutes per foot.

10,567 - 10,577'

9.1'

Limestone, light brown grey, varying amounts of very fine to coarse, lithographic pellets or pseudo calcites

In matrix of clear calcite and translucent light gray, lithographic limestone. The pellets are generally structureless, occasional examples exhibit faint traces of concentric structure. In general they are rounded, in many cases are flattened. They constitute from 50 - 80% of the rock. In places they can only be distinguished with difficulty owing to recrystallization of the limestone.

Calcite, infilling fractures and vugs is prominent in the following parts of the core. 10,557 - 10,558; 10,559.3 - 10,569.7; 10,573.8 - 10,574.2; 10,574.6 - 10,576.1.

Calcite crystals account for 20 - 30% of these portions of the core. No unfilled fractures can be seen and calcite veins are less common in the other portions of the core.

Dolomitization is restricted to the basal 1.5 feet of the core where it has replaced less than 10% of the limestone.

Diamond Core #34

Ordovician

10,883 - 10,892' Recovered 8.3'

Coring times:

31, 32, 37, 30, 31, 25, 31, 26, 31 minutes per foot.

10,883 - 10,892'

8.3'

Limestone, light grey to medium brownish grey,

cryptocrystalline to lithographic, composed of varying amounts of very fine to coarse pellets in a matrix of clear calcite. In part, the pellets are almost obliterated by compaction and recrystallization of the limestone.

Milky and clear calcite infill fractures and vugs throughout core and no open fractures occur. Calcite accounts for 20 - 30% of the core. There is very little dolomitization; occasional streaks of dolomite crystals occur in the basal portion of the core. Stylolites occur throughout.

Diamond Core #15

Ordovician

11,173 - 11,182' Recovered 6.0'

Coring times:

17, 16, 16, 27, 19, 10, 24, 23, 27 minutes per foot.

11,173 - 11,182'

6.0'

Dolomite, light to medium grey, very fine to coarse crystalline but mainly fine to coarse, very slightly argillaceous, brown organic material found throughout core, slightly pyritic, veins of calcareous white dolomite throughout.

Top 1.0 foot of core badly shattered. Small unconnected fractures occur in this portion of the core. No hydrocarbons shown. Basal 4.2 feet more massive although small fractures occur in the top 1.0 feet.

Diamond Core #16 Ordovician
11,482 - 11,491' Recovered 7.0'

Coring times: 20, 25, 20, 17, 20, 18, 24, 27, 33 minutes per foot.

11,482.0 - 11,482.8'

0.2' Dolomite, medium to dark grey, medium to coarse crystalline, slightly pyritic, tight.

11,482.8 - 11,483.6'

1/8' Dolomite, light to medium grey, very fine to coarse, much free white dolomite replacing light to medium grey dolomite, giving mottled appearance, trace stylolitic, minor cracks and small fractures.

11,483.6 - 11,484.7'

1.1' As in 11,482.0 - 11,482.2', small scattered vugs, maximum 0.05" in diameter.

11,484.7 - 11,485.0'

1.3' As in 11,482.2 - 11,483.6', mottled appearance, free white to light grey dolomite and white calcite, tight.

11,485.0 - 11,487.9'

1.9' As above but highly vuggy - up to 30% vuggy porosity, maximum 1.0 inches in diameter, no shows, core tastes salty, stylolite.

11,487.9 - 11,489.0'

1.1' As above but with scattered vugs and small fractures and cracks.

Diamond Core #17 Ordovician

11,491 - 11,527' Recovered 33.6'

Coring times: 15, 20, 22, 23, 19, 23, 17, 24, 22, 23, 24, 24, 31, 27,
20, 23, 23, 19, 18, 19, 19, 17, 12, 18, 13, 21, 19, 20,
15, 21, 30, 22 minutes per foot.

11,491.0 - 11,493.6'

2.6' Dolomite, light grey, mottled appearance, microcrystalline
to very fine, dolomite and calcite vein, slightly pyritic,
tight.

11,493.6 - 11,501.5'

7.9' Dolomite, light grey, very fine to fine, calcite veins,
slightly pyritic, minor fractures, scattered micro-
vugs to vugs, maximum diameter 0.1".

11,501.5 - 11,502.4'

0.9' Interbedded light grey to white dolomite, very fine to
fine and dark grey very fine dolomite, slightly silty,
pyrite, stylolite, calcite veins and very minor cracks.

11,502.4 - 11,503.2'

0.8' Dolomite, light to medium grey, very fine to medium,
light grey dolomite veins, stylolite, minor cracks,
microvugs.

11,503.2 - 11,509.6'

6.4' Dolomite, light grey to white, medium to coarse, calcite
veins, mottled appearance, stylolite infilled with black
silty material, also disseminated throughout dolomite.

11,509.6 - 11,515.0'

5.4' Dolomite, light medium grey, fine to coarse, stylolite, pyrite, calcite veins, microvugs to very small vugs maximum 0.1".

11,515.0 - 11,524.6'

9.6' Dolomite, white, very fine to coarse, stylolite, pyrite, calcite veins, some dark silty material scattered throughout, minor cracks and fractures, salty taste and faint sulphurous odour, microvugs and very small vugs maximum 0.2".

(c) Sample Description

- 0 - 55' Gravel and detritus.
- 55 - 225' Shale, grey, slightly silty, argillaceous, very minor sandstone, fine carbonaceous flecks.
- 225 - 245' Sandstone, grey, very fine to fine grained, silty, clear quartz and black chert grains, siliceous, argillaceous, very silty, dolomitic, poorly sorted, tight.
- 245 - 360' Shale, grey, silty, interbedded shale, pyritic, slightly dolomitic, grading to siltstone from 260 to 280, minor sandstone at 250'.
- 360 - 427' Siltstone, very fine to medium grained, pyritic, grading to shale from 390 - 400'.
- 427 - 440' Siltstone, grey, sandy, argillaceous, slightly dolomitic.
- 440 - 510' Shale, grey, slightly silty, slightly dolomitic, pyritic.
- 510 - 580' Sandstone, grey to brown, fine grained, grading in part to very siliceous, slightly dolomitic.
- 580 - 610' Sandstone as above.
- 610 - 725' Siltstone and minor shale.
- 725 - 760' Shale, very pyritic, slightly dolomitic, minor silty bands.

- 760 - 850' Sandstone as above, grading to shaly siltstone from
790 - 810'.
- 850 - 880' Shale.
- 880 - 885' Sandstone.
- 885 - 920' Sandstone, siltstone, shale, interbedded.
- 920 - 950' Shale, grey, micromicaceous, slightly silty.
- 950 - 990' Sandstone, grey to brown, fine to medium grained, silty,
slightly pyritic, siliceous and argillaceous content,
slightly dolomitic, carbonaceous plant remains.
- 990 - 1000' Shale, grey to brown, silty, carbonaceous plant remains.
- 1000 - 1290' Shale and siltstone interbedded, with random sandstone
bands. Sandstone and siltstone, slightly dolomitic.
- 1290 - 2390' Shale, grey to brown, silty, with slightly dolomitic
siltstone interbeds.
- 2390 - 2900' Shale, grey to brown, with very minor siltstone inter-
beds.
- 2900 - 3900' Shale, grey to brown, micromicaceous, pyritic, dolomitic,
slightly silty, much dolomite fracture infill.
- 3900 - 3918' Shale as above.

3916
Coal

3916 - 4320' Shale, dark grey, micromicaceous, minor siltstone.

4320 - 4357' Shale, dark grey, highly indurated, very hard.

4357 - 4480' Shale, buff to grey, pyrite crystals, minor plant remains?, hard.

4480 - 4522' Shale as above, becoming siliceous, with quartz veins, calcite veins, and black interbedded chert.

4522 - 4640' Shale, light grey, micromicaceous, interbedded with black, pyritic, chert, trace crinoid fragments.

4640 - 4720' Shale, very siliceous, with interbedded chert, fractures infilled with quartz and gypsum in part.

4720
C.M. 4724
Og. l.

4720 - 4740' Shale as above, grading to limestone, very siliceous.

4740 - 4760' Limestone, tan to brown, microcrystalline to biclastic to fragmental, crinoidal in part, minor brachiopod and coral fragments, minor anhydritic bands.

4760 - 4770' Limestone, tan to brown, microcrystalline, fragmental with abundant crinoids and minor brachiopods, corals and stromatoporoids.

4770 - 4800' Limestone, microcrystalline to fragmental, fossiliferous in part.

- 4800 - 4940' Limestone, as above with minor black matrix, epinoids at 4920'.
- 4940 - 5000' Limestone, as above, tentaculites.
- 5000 - 5030' Limestone, as above with minor interbedded shale, black.
- 5030 - 5190' Limestone, cream to light brown, microcrystalline to finely, partially recrystallized, slightly bioclastic, fracture porosity present.
- 5190 - 5331' Limestone, as above.
- 5331 - 5370' Limestone, cream to brown, micro to medium crystalline.
- 5370 - 5542' Limestone, grey to white, medium crystalline, re-crystallized with dolomite bands and patches, grey to white and fractures calcite infilled.
- 5542 - 5835' Limestone, tan, microcrystalline, slightly dolomitic, minor fractures.
- 5835 - 6031' Limestone, tan to cream, microcrystalline, with occasional dark limestone bands, microcrystalline and re-crystallized in part, fractures infilled with calcite, minor fracture porosity.
- 6031 - 6170' Limestone, tan to grey, microcrystalline, calcite filled fractures.

5066
6035'

- 6470 - 6505' Limestone, as above.
- 6505 - 6590' Limestone, tan to grey, fair to good intercrystalline porosity, no stain.
- 6590 - 6629' Limestone, tan to grey, microcrystalline, tight.
- 6629 - 6693' Limestone, tan to grey, microcrystalline, tight.
- 6693 - 6720' Limestone, tan, medium crystalline with dolomite, medium crystalline, grey.
- 6720 - 6750' Dolomite, coarse crystalline, poor to fair intercrystalline, medium vuggy porosity, no shows.
- 6750 - 6790' Limestone and dolomite medium crystalline.
- 6790 - 6800' Limestone and dolomite, bioclastic and fragmental in part.
- 6800 - 6900' Limestone and dolomite as above.
- 6900 - 6990' Limestone, tight.
- 6990 - 7120' Limestone, slightly dolomitic, tight, minor fractures, calcite infilled.
- 7120 - 7211' Dolomite, limy, very minor intercrystalline vuggy porosity.
- 7211 - 7289' Dolomite, trace porosity.

- 7289 - 7361° Dolomite as above.
- 7361 - 7410° Dolomite as above.
- 7410 - 7451° Dolomite, essentially tight.
- 7451 - 7534° Dolomite, microcrystalline, tight.
- 7534 - 7583° Dolomite, microcrystalline, grey, argillaceous and pyritic in part.
- 7583 - 8056° Dolomite, dark brown, argillaceous, pyritic.
- 8056 - 8106° Dolomite, tan to grey, argillaceous, dark brown dolomite from 8010°.
- 8106 - 8176° Dolomite, brown, tight.
- 8176 - 8200° Dolomite, as above.
- 8200 - 8232° Limestone, brown to dark brown, cryptocrystalline, argillaceous, pyritic, minor erinoidol, dolomitic.
- 8232 - 8260° Limestone, as above.
- 8260 - 8310° Dolomite, dark brown, tight.
- 8310 - 8312° Dolomite, dark brown, tight.
- 8312 - 8321° Dolomite, brown, microcrystalline, good porosity, intercrystalline, pin point and vuggy; slightly argillaceous, abundant white calcite, no shaw.

8321 - 8341° Dolomite, dark grey to brown to black, microcrystalline, argillaceous, calcareous, with limestone, brown to dark brown, cryptocrystalline, fossils.

8341 - 8413° Dolomite, grey brown to dark grey, microcrystalline, argillaceous, calcareous, pyritous with interbedded limestone, brown to dark brown micro to cryptocrystalline, argillaceous, pyritous, minor fossils.

8413 - 8440° Limestone, as above, grading into limestone, grey to dark grey, dolomitic, argillaceous.

8440 - 8500° Limestone, buff, chalky, very soft with abundant milky calcite rhombs and with minor grey limestone, microcrystalline, dolomitic.

8500 - 8540° Limestone, as above.

8540 - 8579° Dolomite, dark grey brown to black, very argillaceous and calcareous.
8584°
Hard P. on

8579 - 8652° Limestone, grey to dark grey to brown, microcrystalline to chalky, slightly argillaceous and dolomitic, pyritic in part, minor fossil debris.

8652 - 8750° Limestone, dolomitic and argillaceous.

8750 - 8863° Limestone, very argillaceous, with shale, black, calcareous, pyritic, fossil fragments, minor erinoids.

- 8863 - 8902' Shale, black, calcareous, pyritic, minor fragments, include erinoids, brachiopods, trilobites.
- 8902 - 9020' Shale, black, calcareous, pyritic, minor fossils.
- 9020 - 9059' Shale, as above, with 50% interbedded limestone, grey, microcrystalline.
- 9059 - 9070' Shale, black, calcareous.
- 9070 - 9190' Shale, as above, and limestone, mottled, dark grey, very argillaceous, pyritic, slightly dolomitic.
- 9190 - 9200' Shale, and limestone, as above.
- 9200 - 9225' Limestone, dark grey to brown to black, very argillaceous, grading to shale, black, calcareous, siliceous, with 10% chert bands, brown, blue-grey.
- 9225 - 9267' Limestone, mottled, gray to black, very argillaceous, cherty to microcrystalline, pyritic, minor fractures, calcite infilled.
- 9267 - 9390' Limestone, grey to black, cherty to microcrystalline, less argillaceous.
- 9390 - 9394' Limestone, buff, cherty, soft.
- 9394 - 9445' Limestone, white to buff, microcrystalline to cherty, very soft, trace dolomite.

- 9445 - 9459^o Dolomite, white to buff, very finely crystalline, minor intercrystalline bitumen.
- 9459 - 9510^o Dolomite, light grey to brown, intercrystalline bituminous material, tight; interbedded limestone, tan brown, calcite infilled.
- 9510 - 9522^o Limestone, light grey to light tan brown, partly fragmental, calcite infill.
- 9522 - 9532^o Dolomite, light to medium grey, mottled, microcrystalline, blebs and patches cryptocrystalline grey limestone, crinoids, corals.
- 9532 - 9553^o Dolomite, as above, basal part with interbedded chert.
- 9553 - 9560^o Dolomite, as above, tight.
- 9560 - 9611^o Limestone, brown to grey, cryptocrystalline, calcite crystals, moderately dolomitic, less dolomitic to bottom of interval.
- 9611 - 9710^o Interbedded limestone and dolomite, as above.
- 9710 - 9777^o *Did* Dolomite, light grey, very fine to finely crystalline with 10% limestone, light brown, grey, lithographic.
- 9777 - 9825^o Dolomite with interbedded limestone, as above.

- 9825 - 9834' Limestone, light brown to grey, cryptocrystalline, stylolitic, moderately to very dolomitic.
- 9834 - 9920' Limestone, as above, locally chalky, slightly dolomitic.
- 9920 - 10,050' Dolomite with 10 - 20% limestone, as above.
- 10,050 - 10,085' Dolomite, white, very fine to coarsely crystalline, tight.
- 10,085 - 10,130' Dolomite, as above, with 10% limestone, as above.
- 10,130 - 10,210' Limestone, light grey, cryptocrystalline to fragmental, some white cryptocrystalline, slightly dolomitic.
- 10,210 - 10,280' Limestone, light brown grey, cryptocrystalline, medium to coarse fragmental, slightly dolomitic, stylolitic.
- 10,280 - 10,390' Limestone, light grey, pelletoidal, as above, not dolomitic.
- 10,390 - 10,460' Limestone, light grey, recrystallized, originally pelletoidal.
- 10,460 - 10,480' Limestone, medium to dark grey, cryptocrystalline, hard, dense.
- 10,480 - 10,490' Dolomite, light to dark grey, medium to coarsely crystalline, intercrystalline bituminous material.

- 10,420 - 10,500' Limestone, dark grey, cryptocrystalline, slightly dolomitic, as above.
- 10,500 - 10,567' Limestone, dark grey, cryptocrystalline, as above.
- 10,567 - 10,600' Limestone, light brown-grey, pelletoidal, cryptocrystalline matrix, secondary calcite, tight.
- 10,600 - 10,690' Limestone, light grey, cryptocrystalline, abundant secondary calcite, occasional trace pelletoidal ghosts.
- 10,690 - 10,740' Limestone, as above, with interbedded dolomite 10 - 20%, light grey-white.
- 10,740 - 10,833' Limestone, as above, trace pelletoidal, slightly dolomitic, cryptocrystalline.
- 10,833 - 11,024' Limestone, brown-grey, cryptocrystalline, tight.
- 11,024 - 11,090' Limestone, brown-grey, cryptocrystalline as above, with interbedded dolomite, light grey, white.
- 11,090 - 11,173' Dolomite, light to dark grey, very fine to coarsely crystalline, tight.
- 11,173 - 11,220' Dolomite, light to medium grey, very fine to coarsely crystalline, white dolomite veins, minor fractures, tight.
- 11,220 - 11,310' Dolomite, as above, very rare pin point porosity.

- 11,310 - 11,374' Dolomite, light to dark grey, very fine to coarsely crystalline, tight.
- 11,374 - 11,447' Dolomite, light to dark grey, very fine to medium crystalline, some bitumen infill, very slightly argillaceous, trace pyrite with white dolomite veins.
- 11,447 - 11,527' Dolomite, light to dark grey, very fine to medium crystalline. Scattered poor to good waxy porosity in basal 45 feet, with only slight trace oil staining.

SECTION III - Engineering Summary

(a) Report of Drill Stem Tests

No.	Date	From	To	Formation
1	23-3-65	4850	5062	Lower Devonian ✓
2	18-4-65	6715	6766	Silurian X
3	18-4-65	6700	6244	Silurian ✓
4	11-5-65	8301	8341	Ordovician*
5	13-5-65	8301	8341	Ordovician X
6	26-6-65	11,482	11,527	Ordovician X
7	27-6-65	11,460	11,527	Ordovician X
8	27-6-65	11,429	11,527	Ordovician ✓
9	2-7-65	11,083	11,132	Ordovician X

(b) Casing Record

Casing Size	Weight	Amount	Set At	Cement
18"	Conductor Pipe	96 feet	82' KB	150 / 3% CaCl ₂
13 1/8"	20.4 #	31 jnts.	1000' KB	900 / 3% CaCl ₂

SOCONY MOBIL OIL OF CANADA, LTD.

BIT RECORD

Well 510147M Section Ta. T110 YT N-5 Date Spudded July 18/65 - 5:30 AM

Area _____ Date Completed July 8/65 - 6:00 PM

DATE	BIT No.	BIT SIZE	TYPE	SERIAL No.	JET SIZE	DEPTH		FOOT AGE	TIME HRS.	ACCUMULATED DRILLING TIME	ACCUMULATED REAMING TIME	CONDITION	REMARKS
						FROM	TO						
	1	8 5/8	DSC	47477	Comm	0	125	125		3 3/4			2-2-1
	2	15	Pilot Reamer	295		0	100	100			3 1/2		1-1-1
	3	2 1/4	Pilot Reamer	62		0	88	88			2 9/16		1-4-1
	4	8 5/8	53	424495	Comm	125	208	75		14 3/4			3-4-1 drill on way
	5	8 5/8	53	433566	Comm	208	238	38		21 1/4			2-4-1
	6	8 5/8	DWC	64360	Comm	238	332	94		30 3/4			3-1-1
	7	8 5/8	DWC	5916	Comm	332	402	70		36 3/4			2-1-1
	8	8 5/8	DSC	47476	Comm	412	440	28		39 1/4			3-1-1
	9	8 5/8	W7	17052	Comm	440	586	146		51 3/4			3-1-1
	10	8 5/8	DWC	61398	Comm	586	770	184		65 3/4			3-2-1
	11	8 5/8	W7	68850	Comm	770	892	122		77 1/2			4-3-1
	12	8 5/8	W7	107182	Comm	892	1070	108		82 1/2			3-2-1
	13	12 1/4	Pilot Reamer			80	540	460			142 1/4		3-2-1
	14	12 1/4	Pilot Reamer	239		540	742	282			49 1/4		3-2-1
	15	12 1/4	Pilot Reamer	428		742	892	150			53 1/2		4-2-1
	16	12 1/4	Pilot Reamer	339		842	1070	208			57 3/4		4-2-1
	17	17 1/4	Pilot Reamer	189		80	515	435			72 1/2		3-2-1
	18	17 1/4	Pilot Reamer	1942		515	686	171			82 1/4		3-3-1
	19	17 1/4	Pilot Reamer	1712		686	825	139			96		3-2-1
	20	17 1/4	Pilot Reamer	189		825	918	93					3-3-1
	21	17 1/4	Pilot Reamer	189		418	1070	652			102 1/4		2-2-1
	22	12 1/4	DWC	713		700	950	250		91 1/2			DRILL C. & WELL DIVISION
	23	9 1/8	DWC	7951		950	1000	50		43 1/2			DRILL CEMENT
	24	8 5/8	W7R	36437		1000	1685	685		117 1/4			4-4-3
	25	8 5/8	W7R	57535		1685	3683	2000		175			3-4-1
	26	8 5/8	W7R	36500		3683	3777	200		188			3-4-1

SOCONY MOBIL OIL OF CANADA, LTD.

BIT RECORD

Well SMWIM South Tuttle YT-N-35 Date Spudded Feb 18/65.

Area _____ Date Completed July 8/65

DATE	BIT No.	BIT SIZE	TYPE	SERIAL No.	JET SIZE	DEPTH		FOOT AGE	TIME HRS.	ACCUMULATED DRILLING TIME	ACCUMULATED REAMING TIME	CONDITION	REMARKS
						FROM	TO						
27	6 1/8	◇		7018		3977	3981	4		23 1/4			
28	8 5/8	BRG7X5		35268	Full OPEN	3981	4410	429		25 1/4			Rulled to core
29	6 1/8	◇		Return 7018		4410	4411	1		27 1/2			
30	8 5/8	RRG7X5		Return 35268	Full OPEN	4411	4590	179		36 1/2			1-3-1
31	6 1/8	◇		Return 7018		4590	4591	1		38 1/2			
32	8 5/8	H9J		705 602	Full OPEN	4591	4874	103		42 1/2			1-1-1
33	8 5/8	W7R		44997	Conn	4694	4725	31		49 3/4			4-2-0
34	8 5/8	YH WG		E74591	Conn	4685	4725	Reamed			5		2-1-1
35	8 5/8	YT1		292504	Conn	Reamed fill					7 1/2		1-1-1
36	8 5/8	YH WG		E74472	Conn	Reamed fill							4-1-0
37	6 1/8	◇		7108		4725	4733	8		56 1/2			1-1-1
38	8 5/8	R 61		76739	Full OPEN	4733	4760	27		68 3/4			2-2-1
39	8 5/8	YH WG		E74482	Conn	4760	4841	81		87			4-4-1
40	8 5/8	YH WG		E74483	Conn	4841	4902	61		102 3/4			4-4-1
41	8 5/8	69872		69872		4902	5054	152		134 1/4			1-4-1
42	8 5/8	95396		95396		5054	5062	8		136			1-1-1
43	8 5/8	RRG7X5		Return 95396		5062	5401	339		191 3/4			1-1-1
44	8 5/8	W7R		44979	Conn	5401	5440	39		198 1/2			1-1-1
45	8 5/8	W7R		45001	Conn	5440	5559	119		217			4-4-1
46	8 5/8	W7R		36484	Conn	5559	5654	95		233 1/4			2-4-1
47	8 5/8	H7		76240	Conn	5654	5770	116		250 3/4			3-4-1
48	8 5/8	DWC		59023	Conn	5770	5885	115		266 1/2			3-3-1
49	8 5/8	YH		E74141	Conn	5885	5947	62		273 3/4			3-4-1
50	8 5/8	YH WG		E15592	Conn	5947	6054	107		291 1/4			3-4-1
51	6 1/8	◇		3979		6054	6064	10		295			1-1-1
52	8 5/8	YH WG		E15595	Conn	6064	6154	90		314 3/4			3-3-1

CONDITION: WHITE - TO CALGARY OFFICE: YELLOW - TO FIELD OFFICE: BLUE - FOR FILE

SOCONY MOBIL OIL OF CANADA, LTD.

BIT RECORD

Well SIA 001m South Tuttle VT N-5 Date Spudded Feb 18/65

Area _____ Date Completed July 8/65.

DATE	BIT No.	BIT SIZE	TYPE	SERIAL No.	JET SIZE	DEPTH		FOOT AGE	TIME HRS.	ACCUMULATED DRILLING TIME	ACCUMULATED REAMING TIME	CONDITION	REMARKS
						FROM	TO						
	53	8 5/8	W7	67369	Conn	6154	6258	104		18 1/2		3-4-1	Remarks
	54	8 5/8	W7	9423	Conn	6258	6347	89		28 3/4			3-4-1
	55	8 5/8	W7R2	95859	Conn	6347	6418	71		4 3/4			3-2-1
	56	8 5/8	W7	96384	Conn	6418	6502	84		68 1/4			3-2-1
	57	8 5/8	W7	9426	Conn	6502	6602	100		89			3-4-1
	58	8 5/8	W7	89532	Conn	6602	6680	78		108			3-3-1
	59	8 5/8	RG7X5	9022	2 7/32	6680	6944	246		168 3/4			1-3-1
	60	8 5/8	OSC	47477	Conn	Clear out trip to case							
	61	6 1/8	◇	EC3512		6944	6956	12		17 1/2			1-1-1
	62	8 5/8	RG7X5	57091	2 7/32	6956	7211	255		237 1/4			2-4-1
	63	8 5/8	RG7X5	57088	2 7/32	7211	7372	161		283 3/4			1-1-1
	64	8 5/8	VHWC	E74404	Conn	7372	7450	78		307 1/2			2-4-1
	65	8 5/8	VCG	E35280	Conn	7450	7534	84		330 1/2			1-4-0
	66	8 5/8	RG7X5	57697	2 7/32	7534	7756	222		399			4-2-1
	67	8 5/8	RG7X5	83457	2 7/32	7756	7951	195		465 1/2			4-3-1
	68	8 5/8	RG7X5	83417	2 7/32	7951	8116	165		521 1/4			4-4-1
	69	8 5/8	VHWC	E84423	Conn	8116	8176	60		539			4-4-1
	70	8 5/8	RG7X5	83434	2 7/32	8176	8312	136		580 3/4			1-2-1
	71	8 5/8	VHWC	E84424	Conn	8312	8324	12		582			1-1-1
	72	6 1/8	◇	3979		8324	8344	20		587			1-1-1
	73	8 5/8	VHWC	E84424	Conn	8324	8344	20		591 1/4			2-2-1
	74	8 5/8	VHWC	ED4508	Conn	8344	8414	70		611			3-4-1
	75	8 5/8	VHWC	ED4312	Conn	8414	8502	88		626 3/4			2-4-1
	76	8 5/8	W7	91144	Conn	8502	8598	96		648 1/2			3-4-1
	77	8 5/8	OWC	59043	Conn	8598	8698	100		670			3-3-1

SOCONY MOBIL OIL OF CANADA, LTD.

BIT RECORD

Well S m w m South Intake 4T N-5 Date Spudded Feb. 18/65
 Area _____ Date Completed July 8/65

DATE	BIT No.	BIT SIZE	TYPE	SERIAL No.	JET SIZE	DEPTH		FOOT AGE	TIME HRS.	ACCUMULATED DRILLING TIME	ACCUMULATED REAMING TIME	CONDITION	REMARKS
						FROM	TO						
	78	8 5/8	OCV	43819	CONV	8698	8802	104		151 1/2			3-4-1
	79	8 5/8	OCV	7465	CONV	8802	8893	91		30			3-4-1
	80	6 1/8	◇	3979		8893	8902	9		32 3/4			1-1-1
	81	8 5/8	OWC	59036	CONV	8902	8981	79		42 1/4			3-4-1
	82	8 5/8	OWC	59044	CONV	8981	9087	106		54 3/4			2-4-1
	83	8 5/8	4T	393859	CONV	9087	9194	107		69 1/4			3-4-1
	84	8 5/8	OWC	59131	CONV	9194	9214	21		74 3/4			4-2-1
	85	8 5/8	RC7X5	Return 83434	2 1/2	9214	9265	50		92 1/4			2-3-1
	86	8 5/8	107	41400	CONV	9265	9348	83		103 1/2			3-4-1
	87	8 5/8	VS1	492330	CONV	9348	9404	56		113 3/4			3-3-1
	88	8 5/8	VS1	92351	CONV	9404	9459	55		122 1/2			4-3-1
	89	8 5/8	H7	796978	CONV	9459	9522	63		137 1/4			3-4-1
	90	6 1/8	◇	3797		9522	9532	10		142			1-1-1
	91	8 5/8	OWC	59033	CONV	9532	9553	21		151 1/2			4-4-1
	92	8 5/8	RC7X5	57098	2 1/2	9553	9825	272		225 3/4			2-3-1
	93	6 1/8	◇	3979		9825	9834	9		230 3/4			1-1-1
	94	8 5/8	RC7X5	57093	2 1/2	9834	10085	250		289			4-4-1
	95	8 5/8	RC7X5	57089	2 1/2	10085	10230	145		340 1/2			1-1-1
	96	6 1/8	◇	3979		10230	10232	2		342			1-1-1
	97	8 5/8	RC7X5	71792	2 1/2	10232	10567	335		413 1/2			1-3-1
	98	6 1/8	◇	3979		10567	10577	10		419			1-1-1
	99	8 5/8	RC7X5	83419	2 1/2	10577	10883	306		490 1/4			1-4-1
	100	6 1/8	◇	3979		10883	10892	9		495			1-1-1
	101	8 5/8	RC7X5	83416	2 1/2	10892	11173	281		566 1/2			1-4-1
	102	6 1/8	◇	3979		11173	11182	9		569 3/4			1-1-1

(0) Mud Report

Bentonite	910 sk.	C-Broxin	250 sk.
Acungel	100 sk.	Salt-Gel	252 sk.
Microgel	1552 sk.	Sylvacoel	32 sk.
Disard	43 sk.	Sawdust	690 sk.
Barites	1544 sk.	Saltex	346 sk.
Borold	539 sk.	Tonnox	60 sk.
Onustic	194 sk.	Tuff Plug Walnut (Medium)	19 sk.
Cellophane Flakes	392 sk.	Tuff Plug Walnut (Fine)	36 sk.
C.H.C.	100 sk.	Tuff Plug Walnut (Coarse)	556 sk.
Carbonox	254 sk.		
Calcium Chloride	40 sk.		
Cement (Cans)	863 sk.		
Cement	2577 sk.		
Collox (Reg.)	68 sk.		
Cellen (Hi-Visc.)	75 sk.		
Driscose	30 sk.		
Dextral	19 sk.		
Elkortox	503 sk.		
Loather Flco	100 sk.		
Mico (Fine)	102 sk.		
Microcel "D"	53 sk.		
Feltox	396 sk.		
Plug Grit	313 sk.		

(c) Deviation Record

DEPTH	DEGREE	DEPTH	DEGREE
82°	3/4°	860°	3/4°
112°	1/2°	890°	3/4°
144°	1/2°	920°	7/8°
238°	7/8°	954°	3/4°
269°	3/4°	990°	1°
290°	3/4°	1240°	7/8°
322°	3/4°	1524°	3/4°
354°	3/4°	1834°	1°
395°	3/4°	2124°	1 1/4°
425°	3/4°	2434°	1 1/8°
458°	3/4°	2745°	3/4°
480°	3/4°	3050°	2°
510°	3/4°	3186°	2 3/4°
544°	7/8°	3259°	3°
535°	7/8°	3375°	2 3/4°
615°	3/4°	3467°	2 7/8°
645°	1/2°	3562°	3°
664°	3/4°	3625°	3°
705°	3/4°	3727°	3°
735°	7/8°	3821°	3°
763°	3/4°	3834°	3°
789°	3/4°	3946°	3°
820°	3/4°	4002°	3 1/4°

DEPTH	DEGREE	DEPTH	DEGREE
4095°	3°	6765°	5 1/2°
4189°	3 1/2°	6860	5°
4315°	3 1/4°	6934°	4 1/2°
4378°	3°	7027°	4 3/4°
4505°	3 1/4°	7200°	4 3/4°
4835°	2 3/4°	7372°	6 1/2°
4942°	3°	7450°	4 3/4°
5050°	NR	7530°	5°
5150°	3 1/4°	7750°	5°
5325°	3 1/2°	7950°	4°
5435°	3 1/2°	8110°	3 3/4°
5550°	3 1/4°	8170°	3°
5650°	3 1/2°	8220°	3°
5760°	4°	8310°	3°
5870°	4°	8410°	3°
5975°	4 3/4°	8500°	3 3/4°
6044°	5°	8590°	3 3/4°
6144°	5°	8600°	3 3/4°
6248°	5°	8890°	3 3/4°
6340°	5 1/2°	9080°	3 1/2°
6408°	5 1/4°	9190°	3 3/4°
6492°	5 1/4°	9260°	3 1/2°
6592°	5 1/8°	9400°	3°
6670°	5 1/4°	9459°	3 1/2°

DEPTH	DEGREE
9520'	3 1/2°
9825'	NR
10095'	3 1/4°
10230'	3°
10567'	NR
10582'	3°
10883'	3 1/4°
11173'	3°
11369'	3 1/4°

(f) Cementing Record

Plug #1 11527 - 11400 with 60 sacks + 30# Peltex, not felt
Plug #2 8400 - 8200 with 80 sacks + 40# Peltex, felt @ 8185 after
8 hours
Plug #3 5100 - 4800 with 120 sacks + 20# Peltex, felt @ 4810 after
8 hours
Plug #4 1050 - 950 S.C. plug, 60 sacks + 2% CaCl₂, felt @ 930
Plug #5 at surface, 5 sacks, weld on plate

(g) Lost Circulation Zones

110	bbls.	mud	lost	@	4694
200	"	"	"	@	4726 - 4759
60	"	"	"	@	5072 - 5142
30	"	"	"	@	5440 - 5491
60	"	"	"	@	5886 - 5947
50	"	"	"	@	7199 - 7216

(h) Report of Blowouts

None

SECTION IV - Logs

Run No.	Type of Log	From	To
1	GRN	11513	50
1	ESQR-C	11512	996
1	DIL	11510	996
1	ML-C	11512	996
1	SRS	11450	1020

SECTION V - Analysis

(a) Core Analysis

None.

(b) Water Analysis

None.

(c) Gas Analysis

None.

(d) Oil Analysis

None.

SECTION VI - Completion Summary

None.