17-34N-5E Belknap Twp. (Presque Isle Co.) Exploratory (01)
Oil Well
TD 3387 in Niagaran (46)

Michigan Oil Co. - Northern Mich. Exploration Co.

Permit No. 33255

Tosch-Molson #1-17

Location: NE 1/4 SW 1/4 SW 1/4 Section 17, T. 34N, R. 5E

891 feet from South and 1274 feet from West line of quarter section.

This well record assembly is a compilation of well data filed by or on behalf of the operator, as required by Act 61, P.A. 1939, as amended; formation tops and stratigraphic intervals determined or confirmed where possible by Geological Survey Division personnel from mechanical logs and preliminary information collected while drilling was in progress. Records compiled by R. C. Elowski, Geologist.

Elevations: 867 Kelly Bushing (use for datum), 850.4 Ground

Formation tops and stratigraphic intervals determined or confirmed by Geological Survey Division personnel from Schlumberger Compensated Neutron-Formation Density, Gamma Ray logs and records filed by operator.

| PLEISTOCENE-DEVONIAN: | | Salina G Unit | 1587 |
|-----------------------|-------|---------------|------|
| Drift - | | F Evaporites | 1626 |
| Traverse Formation to | 300 | E Unit | 2310 |
| DEVONIAN: | | D Evaporites | 2441 |
| Bell Shale | 300 | C Unit | 2493 |
| Dundee | 361 | B Unit | 2575 |
| Detroit River | 588 ? | B Evaporite | 2588 |
| Amherstburg | 895 | A2 Carbonate | 2835 |
| Bois Blanc | 1006 | A2 Evaporite | 2930 |
| SILURIAN: | | Al Carbonate | 2964 |
| Bass Islands | 1313 | Niagaran | 3006 |

Preliminary or pre-reported formation tops and other well information obtained from Geological Survey Division field reports compiled while drilling was in progress.

| Traverse Limestone | 190 Sa. | D Evaporite | 2441 Sj. |
|-------------------------|----------|----------------|----------|
| Bell | 300 Sj. | C Unit | 2494 Sj. |
| Dundee | 361 Sj. | B Evaporite | 2588 Sj. |
| Detroit River Anhydrite | 673 Sj. | A2 Carbonate | 2835 Sj. |
| Bois Blanc | 1062 Sj. | A2 Evaporite | 2930 Sj. |
| Bass Islands | 1389 Sj. | Al Carbonate | 2964 Sj. |
| Salina G Unit | 1587 Sj. | Brown Niagaran | 2998 Sj. |
| E Unit | 2310 Sj. | Gray Niagaran | 3324 Sj. |

The following documents are reproductions of official records submitted by: Charles C. Stewart, Geologist, on behalf of Michigan Oil Co.-Northern Mich. Exploration Co.

b1f 4-9-81

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
GAS. DISPOSAL OR STORAGE WELL (ACT 61)

| PER | MIT NUMBER |
|-----|-------------|
| 2 | 1-141-33255 |

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| LEASE NAME(S) & WE | | HOWN ON | PERMIT | | | | | | YES | | NO X | _ | | |
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| | | ine and | | • | - | ne of quai | rtar s | ection | | | | | | |
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| 2-6-80 300 | 3-3088 | 7000 (| gals, 2 | 8% HCL | | | - | | | | | | | |
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· Page 3 - 17

FORMATION RECORD
(ATTACH ADDITIONAL SHEETS IF NECESSARY)

Permit No. 33255

| ELEVATION ! | USED: | GEOLOGIST NAME: | TOP5 | TAKEN FRO | M: | | - | • • • • | | <u></u> |
|-------------|----------------|--|------|-----------|--------------|-----|---------------|----------------|----------------|-----------|
| 8671 | KB | Charles C. Stewart III | | DRILLER | RS LOG | | AMPLE LOG | | X ELEC | TRIC' LOG |
| FROM | ro | FORMATION (TYPE, COLOR, HARDNESS) | | FROM | то | | (TYPE | FORM/ COLOS | TION HARDNE | sis) |
| | | DNALLY DRILLED, ADD TRUE VERTICAL WHERE APPROPRIATE. | | | | | 1 | | | |
| 300 | -361 | BELL SHALE 300 Sch. Shale light grey, soft | | | · | - | • | | | |
| 3,61 ‴ | -420 | trace of pyrite. DUNDEE 361 Sch. Limestone light brown finely crystalline, | | ı | | | 12 | £ 15 | | |
| 420 | -1062 | dense. Limestone brown to dark brown finely crystalline | , | | | | <u>-</u> | | ; p | |
| 1062 | -1490 | sucrosic, styolitic. BOIS BLANC 1062 Sch. Dolomite, grey brown- grey, very finely | | | | | | å | | |
| 1 400 | _1507 | crystalline, very dense. Trace of Chert, white to light grey. | | | | | • | | | |
| 1490 | _ -1587 | Dolomite, light brown- brown, very finely crystalline, trace of grey shale. | | | | | | | | |
| 1587 | -1636 | SALINA G 1587 Sch. Shale grey, greyish red. Dolomite grey to dark | - | | | | | | | |
| 1636 | -1662 | grey, finely crystalline dense. F UNIT 1636 Sch. Dolomite light brown to dark brown, very finely | | | | | • | | | |
| | · | crystalline, dense, | - | 15 | WELL WAS COR | 250 | ATTACH COD | E DEC | | <u> </u> |
| 1662 | | shale grey. F SALT 1662 Sch. | | IF | | | TEST DATA | E DESI | JAIPTION | |
| | | See Attached Sample log. | - | | | | LUI UAIA | | | |
| | | FORMATION TOPS | | | | | | | | |
| | | E Zone 2311' (-1444') D Salt 2441' (-1574') C Shale 2497' (-1630') B Salt 2588' (-1721') A2 Carb 2838' (-1971') A2 Salt 2930' (-2063') A2 Anhyd 2945' (-2078') A1 Carb 2965' (-2098') Brown 2986' (-2119') Grey 3326' (-2459') | | | | | | | | |
| | | | | * | | | | | | |

PRODUCERS OF OIL AND GAS

SUBSIDIARY OF SPARTON CORPORATION

TELEPHONE 517 788-9770

P. O. BOX 1328

JACKSON, MICHIGAN 49204

PROGRESS REPORT

TOSCH-MOLSON #1-17

February 11, 1980

SITP 1160#.
Flowed a Ttoal of 153 BBLS
in 5½ hrs. (Well
Shut in.
Total fluid back 631 BBLS
FTP 340#, 25/64 choke making
38 BBLS.

February 12, 1980

SITP 1020#.
Hooking paraffin first two hours, made 45 BBLS, Flowed 64 BBLS in two hours. FIP 660#, 25.64 choke, 32 BBLS per hr.
Flow line partley pluged off, holding 170# back PSI.
Shut down and turn rig loose.
Total fluid flowed back 740 BBLS.

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PROGRESS REPORT

TOSCH-MOLSON #1-17

February 7, 1980

Squeezed 5 BBL of perforating acid. Max. pressure was 1550#. 1 hour and 35 mins. to bleed away, 15 mins. after the job pressure it was 900#. Total fluid of acid water and fluid water equaled 26 BBLS of Total Fluid. The first two hours they got 25 BBLS back, the 3rd hour they got 6 BBLS back, A total of 31 BBLS and 40% oil. SITP 100#. Swabbed 2 hrs., made 11 BBLS of fluid, 7 BBLS of it was oil. Haliburton pulled on location, acidized-7,000 gals, 28% acid. Max. Pressure 1400# Avg. Pressure 1300# Max. Injection pressure 1.25 BBLS, Averaging 1 BB/min. SI Pressure @ 1400# in 45 mins. it was 660#. 1st hour 26/64" choke, flowed 72 BBLS of fluid, running 50% oil, flowing tubing pressure was 720#. 5:00 p.m. 26/64" choke, made 59% BBLS, 80% oil, flowing tubing pressure was 680. 6:00 p.m. 26/64" choke, made 64 BBLS, 90% oil, flowing tubing pressure was 630. SI for night.

February 8, 1980

SITP was 820#.

1st hour 26/64" choke,
made 47 BBLS, 90% oil,
flowing tubing pressure was
602. Total 242 BBLS. Had
188 BBLS of Acid water and
load water to get back.

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JACKSON, MICHIGAN 49204

PROGRESS REPORT

TOSCH-MOLSON #1-17

February 4, 1980

Running tubing back in with packer.
WO orders
Running 2 7/8" tubing back in the hole with the Baker Packer @ 3088'.
Buttoned up well head.

February 5, 1980

Dowell hooking up with clean salt water, spotted 250 gals of perforated acid and well button up well head and perforate.

SJ on location: truck broke

and perforate.

SJ on location; truck broke
down; called for another truck;
truck arrived at 4:00 p.m.
rigged up; perforated with first
gun at 3088', 3085', and 3082';
3065', 3067' and 3069'; 3047',
50', 53', 56', 59'; 3003' and 04'.
Came out of hole and rigged
up with second gun; perforated
3073', 76' 79' switch broke, came
back out of hole; tried to
repair gun. (this happened
3 different times)
S.D. 10:30 p.m. SJ retruned
to Mt. Pleasant and picked up
more guns and returned to location.

February 6, 1980

Rigged up; perforated 3026', 29'
32', 34', 38', and 40'. Came out
of the hole and rigged up
another gun; perforated 3017'
19', and 21'; perforated 3009'.
Total of 27 holes. This
morning SITP was 0, after perforating,
little vaccum. Squeezed away
perforating acid; pressured up to
1200# and shut down. Pressure
dropped back to 600# in 2 or 3 mins.
Pumping back up-3/4 BBL. to be
pumped back in and have 3 to 4 BBLS
to go. Will flow or swab back.
Acidize tommorrow morning with
7000 gals.

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JACKSON, MICHIGAN 49204

PROGRESS REPORT.

TOSCH-MOLSON #1-17

January 28, 1980

SITP 570#, flowed and swabbed 100 BBLS of oil, 8% water. Last 4 hrs. swabbed 7 BBLS per hour.

January 29, 1980

SITP 300#. open well and flowing. Killing well, put on BOPS and coming out of hole with tubing. Put EZSV Squeeze tool on and run back in hole.

January 30, 1980

Round trip tubing.
Ran ESEZ squeeze tool back
in the hole and set @ 2917½'.
Shut down
Squeeze w/200 sxs w/common
cement by Haliburton.

January 31, 1980

Squeeze with 200 sxs, 3% calcium chloride. Injection rate before the squeeze was 600 BBLS/min. @ 600#.
Squeezed away 185 sxs in the formation. Squeezed 2500#.
Reversed out, came out of the hole w/tubing & ran it back in. Shut down for night.
THIS MORNING
Rigged up Power Swivel to drill out cement.

February 1, 1980

Drilled out Squeeze tool @ 3951'. Drilled to 3059', had good cement all the way.

THIS MORNING

Drilled @ 3065', on top of the Bridge plug.

Took bridge plug out @ 3112' good cement all the way.

Pulling tubing bit. SI.

Shut down for the weekend.

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JACKSON, MICHIGAN 49204

PROGRESS REPORT

TOSCH-MOLSON #1-17

January 21, 1980

SITP was 380#. (SI for 6 days) Opened well on 40/64" choke. 1st. Hr. flowed 34 BBL, with 30% water.
2nd Hr. flowed 44 BBL, with 30% water.
3rd Hr. flowed 28 BBL, with 30% water.
Preparing to set bridge plug and perforate upper section.

January 22, 1980

Bridge plug set @ 3065'. Spotted 250 gals of 28% perf. acid. Started in tubing with perf. gun could not get below 1700' due to parafin in tubing. Prep. to come out of hole & steam tubing.

January 24, 1980

SITP 100#. Blew down immediately. Started swabbing. 1st hr. swabbed 27 BBL, 75% muddy salt water. 2nd hr. swabbed 23 BBL, 50% water. Well kicked off. Flowing in open choke. flowed 30 BBL, 50% water, FTP was 50# to 120#. 5th hr. flowed 22 BBL, 40% water, FTP was 50# 120#. 6th hr. flowed 21 BBL, was 25% less muddy salty water. Originally had 22 3/4 BBL of perf. and & load water to recover after 6th hr. had recovered 75 BBL water. Wt. was 10.7#.

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P. O. 80X 1328

JACKSON, MICHIGAN 49204

PROGRESS REPORT

TOSCH-MOLSON #1-17

January 11, 1980

January 12, 1980

Total fluid back 116 BBLS., to recover 188 BBLs original.

SITP 660# 1st Hour 320# FTP, 80% oil, 20% water, 42 BBLS, 30/64" choke. 2nd Hour 380# FTP, 20% water, 35 BBLS, 30/64" choke. 3rd Hour 320# FTP, 28 BBLS. 4th Hour 300# FTP, 20% water, 21BBLS, 30/64" choke 5th Hour 220# FTP, 80% oil, 17 BBLS, 30/64" choke, 6th Hour 200# FTP, 13 BBLS. 7th Hour 160# FTP, 8 BBLS. 8th Hour 120# FTP, 7 BBLS. 9th Hour 100# FTP, 6 BBLS.

January 15, 1980

SITP 290#
Swabbed and flowed 112 BBL
Oil, 1-2% water. Have recovered
total of 103 BBL acid & load
water; 85 BBL to recover. Ran
Schlumberger radioactive Tracer
Survey. Determined that all
treatment acid went into
formation vetween 3070 and 3080.
Prep. to set BP and perforate upper
section. Well will be shut in unitl
Monday, January 21.

PRODUCERS OF OIL AND GAS

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P. O. BOX 1328

JACKSON, MICHIGAN 49204

PROGRESS REPORT

Tosch-Molson #1-17

January 9, 1980

SITP 900 lst. Hr. Flowed 30-1/3 BBLS. and died. 2nd Hr. Pulled swab 3 times and rec. 1-1/2 BBLS. Hole dry. Acidized by Dowell with 2,000 gals. Max. Press. 2000 Max. Inj. Rate 1 BPM Avg. Inj. Rate 1/8th BPM Avg. Press. 1800 ISIP 1500, 30 mins. later 1400, Total flush and acid to get back 67 BBLS. 1st Hr. Rec. 45-1/2 BBLS. fulid FTP 600; 24/64ths choke 2nd Hr. Rec. 44-1/2 BBLS. fluid FTP 510' 24/64ths choke will flow 1 more hour today and shut in overnight:

flow test tomorrow.

January 11, 1980

SITP 310# this a.m. 9:00 - 10:00 lst. Hour Open choke, 28 B.O., FTP 120# 10:00 - 11:00 2nd Hour 16 B.O., FTP 60#. Well almost went dead. arrived at 11:30 a.m. SI, Acid w/7500 gals. @ 28%. Max. Pressure 400 Max. Inj. Rate Avg. Inj. Rate 3 BPM 3 BPM 50 perf. balls (17 hit) Getting ready to swab back Pulled swab 5 times, swabbed 16 BBLS & kicked off. Flowed & made 56 BBLS, 350# FTP 1st Hr. 2nd Hour Flowed 44 BBLS @ 350# TP, 60% oil, 36/64" Choke

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JACKSON, MICHIGAN 49204

PROGRESS REPORT.

Tosch-Molson #1-17

December 29, 1980

1000# on tubing. Flowed BBL water and died, no shows. Swabbed 71 BBL total by 10:00 a.m. an started to show oil & blow of gas & dirty water on swab. Swabbed 5 more, has average 1 BBL/hr. & little blow of gas. 25% dirty acid water. 75% oil.

January 4, 1980

Ran 8 5/8" casing to 1424' to 1498'. Cemented 200 sxs of Common 3% Chloride, 250 sxs of Hyco, 3% Chloride, circulated 13 sxs. Plug down 7:35. F-Salt 1472'.

January 7, 1980

Ran tubing to 3122'; filled hole with carban water; spotted 250 gals. 28% perf. acid; pulled tubing back up to 2970; packer set at 2790'; set packer put on wellhead and S.D.

January 8, 1980

Tubing set @ 2958. Packer set @ 2780'. Pressured up 500# on packer. Perforated 3070-3111' w/ISPF. Squeezed away 3 BBLS of 28% HCL perf. acid. Max squeeze pressure 1900#. Pump up to 1900# pressure would bleed off to 1500# in 3 to 4 mins. to squeeze away 3 BBL acid. Opened up well and well flowed small volume of fluid for 1 hour. Went in 300' and pulled swab one time and well began flowing. Total fluid recovered during first 1 hr. 30 mins. was 28 BBL. At 4 p.m. well was flowing oil on 20/64# ck. tubing pressure 220#.

PRODUCERS OF OIL AND GAS

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JACKSON, MICHIGAN 49204

PROGRESS REPORT.

TOSCH-MOLSON #1-17

December 26, 1979

Ran Baker Packer on tubing w/200' tailpipe below packer. Tubing @ 3163'. Circulated holw w/Corban water. Spotted 250 gals 28% HCL. Pulled 7 jts. of tubing puttting bottom of tubing @ 3958'. Set packer & buttoned up well head. Went in w/Schlumberger & perforated from 3156' to 3163' w/2 SPF. Rigged down Schlumberger & hooked up Dowell to squeeze acid away. Pressured up gradually to 2100# over 3 hrs. Pressure would drop appoz. 200# over 20 mins., increase pressure to 2300#. Pressure broke back to 2000# and formation took acid. Pressure down to 1500# & remained. SI over night.

December 27, 1979

SI Pressure 1300#. Opened well & pressure, blew down to zero. Recovered 4 BBL load & acid water. Swabed 17 BBL of load & acid water with small amount of gas, no oil. 3 BBL to recover, Swabed dry.

December 28, 1979

SI tubing pressure @ 150#, opened well pressure, blew down immediately. Pulled swab, recovered 4 BBL of oil. Prepared to acidize w/2000 gals., 28% HCL.

PRODUCERS OF OIL AND GAS

TELEPHONE 517 463-1144

BOX 147

1080 BRIDGE STREET

ALMA, MICHIGAN 48801

PROGRESS REPORT

TOSCH-MOLSON # 1-17

| | TOSCH-MOLSON # 1-17 |
|------------------|---|
| October 12, 1979 | Present Depth: 3387' Circ. & conditioning mud & prep. to run logs mud: wt. 17.1 VISC 74 W.L. 10 |
| October 15, 1979 | 10-13-79 Logging 10-14-79 Ran 102 jts. (3213') 5½" at 3209' w/ 200 sxs. 18% slt. & 1% CFR-2. P.D. at 1:15 p.m. 10-14-79, total depth 3387 |
| October 16, 1979 | Total Depth 3387', waiting on cement to run bond log |
| October 23, 1979 | LOG TOPS Bell Shale 300 Dundee 361 DRA 673 Ist Salt Bois Blanc 1062 Bass Is Salina G 1587 F. Unit 1626 F. Salt 1662 E. Unit 2310 D. Unit 2441 C Shale 2494 B. Unit 2538 B. Salt 2587 A-2 Carb 2835 A-2 Salt 2930 A-1 C 2964 A-1 E Niagara 2998 Grey 3324 TD 3382 Salt 361 TD 3382 TD 3382 TD TO 3382 TD TO TO TO TO TO TO TO |

WOCU

WICR

December 26, 1979

PRODUCERS OF OIL AND GAS

TELEPHONE 517 463-1144

BOX 147

1080 BRIDGE STREET

ALMA, MICHIGAN 48801

PROGRESS REPORT

TOSCH-MOLSON #1-17, Michigan Oil
Co. & Northern Michigan Exploration
Company
NE SW SW, Section 17, T34N, R5E
Belknap Township, Presque Isle County
Michigan

Rigging up, should spud tomorrow

October 4, 1979

Spud at 2:30 p.m., set 16" at 64' cemented with 75 sxs. Class + 3% CaCl., circ. 10 bbls., P.D. at 7:00 a.m.

October 5, 1979

Set 11-3/4" at 250' w/225 sxs. + 3% CaCl., circ. to surface, P.D. at 7:00 p.m., dev. ½ deg. at 100' & 3/4 deg. at 250', nippling up & drlg. plug

October 8, 1979

Drilling at 1669', dev. at 1669' 3/4 deg., set 53 jts. 8-5/8" (32# K-55) at 1669' cemented w/275 sxs. Halco Lite + 3% CaCl. & 200 sxs. Class A.,circ. 30 bbls., P.D. at 5:30 p.m. 10-7-79, Bass Islands 1385' Salina 1569' F Unit 1635'

October 9, 1979

Tripping for double check at 2707', B Salt 2590' (-1723), dev. at 2200' deg.

October 10, 1979

Drilling at 3050', B Salt 2594' (-1727)
A-2 Carb. 2841' (-1974), A-2 Salt 2935'
(-2068), Anhy. 2946' (-2079), A-1 Carb.
2971' (-2104), 360 units gas at 2926'
(70% methane, 25% ethane, trace propane),
dolomitic limestone, sucrosic, partly
salt plugged

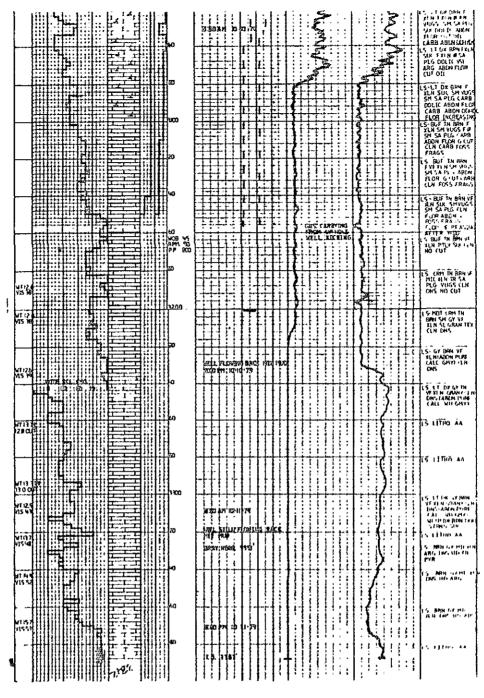
October 11, 1979

Present depth: 3310'
Mud: weight 13.3
VISC 44
W.L. 10
Limestone dolomitic,
200 units on mud logs

F Salt 1665'

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