



Geophysical / Geological  
Consulting and Services

2103 Orchard Lane  
Lawrence, Kansas 66044  
(913) 841-5366

Lease: Modreïn

Well: Modreïn #1 API# 15-087-20,113

Location: 330' N and 3000' W of SE corner  
c, SE, SE, SW, Sec. 18, T9S, R20E  
Jefferson County, Kansas

Surface Elevation 1108' ASL (topo), 1112' (Kelly bushing)  
(all depths from ground level)

Date Spudded: October 23, 1984

Date Completed: October 26, 1984

Total Depth: 1815', Mississippian limestone

Initial Production: Temporarily abandoned

Operator: Jerry Lutz  
Route 131 South  
Reed City, Michigan 49677 616-832-2347

Drilling Company: Caney Valley Drilling  
Box 350  
Caney, Kansas 67333 316-673-9091

Geology: Tom W. Stander  
Orion, Inc.  
2103 Orchard Lane  
Lawrence, Kansas 66044 913-841-5366

Mud Logger: Dave Giuseffi  
N.L. Baroid Logging Service  
P.O. Box 19376  
Oklahoma City, Oklahoma 73144

Engineering: Rex Keith  
Karma, Inc.  
Route 1, Box 76  
Oskaloosa, Kansas 66066 913-863-2294

Drilling Mud: Trotter International  
Box 1462  
Topeka, Kansas 66601 913-862-0702

Logging: Glen Schmeidler  
Great Guns  
Box 8196  
Topeka, Kansas 66608 913-233-0521

MODREIN 1

18-9-20E

Surface: Bit size 12 $\frac{1}{4}$ " , set 119' of 8 5/8" O.D. 19.5 lb. pipe, use 30 sacks of portland cement, 3% cal., pump by Consolidated Well Service from Ottawa, Kansas, set up time 8 hours

Production: Bit size 6 $\frac{1}{2}$ " O.D. using four drill collars, each drilling joint length 30 feet

Drilling Unit: 1984 Speedstar

Mud Pump: 6 x 10

Drilling Fluids: Surface mud up to drill through glacial till sand, 119-1300 native mud and pond water, 1300-T.D. chemical mud, visc. 30-35, wt. 9.0-9.2, f.l. 8-12 cc at T.D. mud, visc. 45-50, wt. 9.1, f.l. 8-10 cc

Logs: Compensated Neutron, Compensated Density, Dual Induction, Gamma Ray, Spontaneous Potential, Caliper

Cores: None

## Summary

MODRCIN #1

c, SE,SE,SW Sec. 18, T9S, R20E, Jefferson County, Kansas  
 Surface elevation: 1108' ASL (topo), 1112' (Kelly bushing)  
 All depths from ground level.

### Electric Log Picks

| <u>Geologic Section</u>                            | <u>Depth</u><br>(feet) | <u>Datum</u><br>(ft. ASL) | <u>Remarks</u>                  |
|--|------------------------|---------------------------|---------------------------------|
| T. Oread limestone                                 | 196                    | +912                      |                                 |
| T. Douglas Group (T. Lawrence Fm.)                 | 256                    | +852                      |                                 |
| T. Stranger Formation                              | 394                    | +714                      |                                 |
| T. Lansing Group (T. Stanton lm.)                  | 510                    | +598                      |                                 |
| T. Vilas shale                                     | 533                    | +575                      |                                 |
| T. Plattsburg limestone                            | 562                    | +546                      |                                 |
| T. Kansas City (T. Bonner Springs)                 | 579                    | +529                      |                                 |
| T. Wyandotte limestone                             | 603                    | +505                      |                                 |
| T. Lane shale                                      | 782                    | +426                      |                                 |
| T. Iola limestone                                  | 692                    | +416                      |                                 |
| T. Chanute shale                                   | 729                    | +379                      |                                 |
| T. Drum limestone                                  |                        |                           | not present                     |
| T. Cherryvale shale                                | 760                    | +348                      |                                 |
| T. Dennis limestone                                | 767                    | +341                      |                                 |
| T. Galesburg shale                                 | 795                    | +131                      |                                 |
| T. Swope limestone                                 | 797                    | +129                      |                                 |
| T. Ladore shale                                    | 827                    | +281                      |                                 |
| T. Hertha limestone                                | 829                    | +279                      |                                 |
| E. Kansas City (B. Hertha/<br>T. Pleasanton Group) | 858                    | +250                      |                                 |
| T. Marmaton Gp.(T. Lenapah lm.)                    | 980                    | +128                      |                                 |
| T. Nowata shale                                    | 995                    | +113                      |                                 |
| T. Altamont limestone                              | 1001                   | +107                      |                                 |
| T. Bandera shale                                   | 1028                   | +80                       |                                 |
| T. Pawnee limestone                                | 1033                   | +75                       |                                 |
| T. Labette shale                                   | 1058                   | +50                       |                                 |
| T. Fort Scott limestone                            | 1065                   | +43                       |                                 |
| T. Cherokee Group                                  | 1077                   | +31                       |                                 |
| T. Squirrel sandstone (Lower)                      | 1150                   | -42                       | 6' clean water sand, R=6 ohms   |
| T. Bevier coal bed                                 | 1164                   | -56                       |                                 |
| T. Ardmore limestone                               |                        |                           | not present                     |
| T. Croweburg coal bed                              | 1198                   | -90                       |                                 |
| T. Upper Cattleman sandstone                       | 1209                   | -101                      | 19' shaly water sand,           |
| T. Fleming coal bed                                | 1248                   | -140                      | R=6-7 ohms                      |
| T. Middle Cattleman ss.                            | 1288                   | -180                      | 11' clean water sand, very      |
| T. Mineral coal bed                                | not present            |                           | slight gas show, R=10 ohms      |
| T. Sammon coal bed                                 | 1326                   | -218                      |                                 |
| T. Lower Cattleman sandstone                       | 1330                   | -222                      | 16' shaly water sand, R=10 ohms |
| T. Upper Bartlesville sandstone                    | 1364                   | -256                      | 16' shaly water sand, R=6-10    |
| T. Tebo coal bed                                   |                        |                           | not present                     |
| T. Weir-Pittsburg coal bed                         | 1408                   | -300                      |                                 |
| Middle Bartlesville ss.                            | 1421                   | -313                      | 7' shaly water sand, R=5 ohms   |

Summary Continued

| <u>Geologic Section</u>      | <u>Depth</u> | <u>Datum</u> | <u>Remarks</u>                      |
|------------------------------|--------------|--------------|-------------------------------------|
| T. Dry Wood coal bed         | 1474         | -366         |                                     |
| T. Rowe coal bed             | 1490         | -382         |                                     |
| T. Neutral coal bed          | 1498         | -390         |                                     |
| T. Upper McLouth sandstone   | 1532         | -424         | 8' clean water sand<br>R=7-8 ohms   |
| T. Middle McLouth sandstone  |              |              | not present                         |
| T. Lower McLouth sandstone   | 1564         | -456         | 10' shaly water sand<br>R=9-11 ohms |
| T. Burgess sandstone         | 1586         | -478         | 4' clean water sand<br>R=9-10 ohms  |
| T. Mississippian limestone   | 1594         | -486         |                                     |
| T. 40 foot dolomite zone     | 1629         | -521         | 5' water zone<br>R=3-4 ohms         |
| B. Warsaw (T. Keokuk)        | 1650         | -542         |                                     |
| T. Osage (Burlington/Keokuk) | 1702         | -594         | cherty water zone<br>R=3-5 ohms     |
| T.D.                         | 1815         |              |                                     |

Recommendation

Only the Middle Cattleman sandstone had a very slight gas show based on the electric logs. This is not sufficient to recommend testing and completion of this 11 foot sand.

All the other Cherokee sandstones had high water saturations based on the electric logs. Drilling samples were generally shaly and showed poor quality sandstones.

The Osage (Burlington/Keokuk) interval and the Forty Foot zone in the Mississippian limestone were water saturated.

Based on the lack of any hydrocarbon shows in the samples or evidence of them on the electric logs, I recommend plugging this well.




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Tom W. Stander  
Geologist/Geophysicist  
President, Orion, Inc.

Modrcin #1  
Jefferson County, Ks.

API# 15-087-20,113

Geologist Sample Report

Geologist: Tom W. Stander, Orion, Inc.

On site: Oct. 24, 8:00 PM-Oct. 26, at T.D.

Samples described: 200'-T.D. by Geologist (Samples caught, bagged and saved)

Drilling times recorded: 800'-T.D. by Driller

| <u>Depth</u> | <u>Thickness</u> | <u>Lithology and Remarks</u>   |
|--------------|------------------|--|
| 200-210      | 10               | Gray shale, silty; 20% fluorescence, 10% white limestone, fossiliferous, some gas bubbles, low fossil porosity, poor permeability, light lime green fluorescence, fossils possibly coral, very little pyrite, most of the limestone is crystalline |
| 210-220      | 10               | Limestone, gray to white, crystalline, 2% fluorescence   |
| 220-230      | 10               | 80% Limestone, white to gray, 20% gray shale   |
| 230-240      | 10               | Limestone, white to tan, crystalline; shale, gray; some quartz grains, rounded and clear   |
| 240-250      | 10               | Shale, gray to green, 10% sandstone, clear grains, low porosity, no fluorescence   |
| 250-260      | 10               | Limestone, white, crystalline, light green mineral fluorescence  |
| 260-270      | 10               | Shale, green, soft   |
| 270-280      | 10               | Shale, green   |
| 280-290      | 10               | Shale, green   |
| 290-300      | 10               | Shale, green   |
| 300-370      | 70               | Shale, gray, soft, Stranger Formation, Lawrence-Robbins shale  |
| 370-520      | 150              | Shale, same as above   |
| 520-550      | 30               | Limestone, white, tan, crystalline, mineral fluorescence; T. Lansing at 516', Stranton limestone   |
| 550-580      | 30               | Shale and limestone; white and tan limestone, green and gray shale   |
| 580-610      | 30               | Shale, gray and green, Bilas shale   |
| 610-640      | 30               | Limestone, clear to white, crystalline   |
| 640-670      | 30               | Limestone, white to tan, crystalline, some gray shale  |
| 670-700      | 30               | Limestone and shale, white and tan crystalline limestone, gray to black shale, some coal   |
| 700-730      | 30               | Limestone, white, crystalline, some green shale  |
| 730-760      | 30               | Shale, black to green; Chanute shale   |
| 760-790      | 30               | Limestone, white crystalline with some tan limestone with interparticle fabric; Drum limestone, Top 760'   |
| 790-820      | 30               | Limestone, white and tan, crystalline; 30% shale, black, gray, some nearby coal  |
| 820-850      | 30               | 50% Shale, gray and black, coal; 50% limestone, white to tan   |
| 850-880      | 30               | Sandstone, green, shaly, no oil show, fine grained, no fluorescence, low porosity, subangular to rounded, well sorted, some gilsonite; minor gray shale and black shale; sandstone in Ladora shale formation                                       |

| <u>Depth</u> | <u>Thickness</u> | <u>Lithology and Remarks</u>   |
|--------------|------------------|--|
| 880-900      | 20               | Shale, gray, silty; top of Pleasanton shale 886', Bottom of Kansas City and Hertha at 886'   |
| 900-950      | 50               | Shale, gray  |
| 950-960      | 10               | 80% shale, gray; 20% siltstone, light green, very soft, no oil, no fluorescence; some clear crystalline limestone                  |
| 960-970      | 10               | Shale, gray, green; some soft siltstone; minor red, dark green and purple shale; pyrite, glauconite                                |
| 970-980      | 10               | Shale, same as above; 10% clear crystalline limestone  |
| 980-990      | 10               | Shale, same as above, with 10% gray sandstone, minor fluorescence 10%; no oil show   |
| 990-1000     | 10               | 50% limestone, white, crystalline; 50% green shale   |
| 1000-1010    | 10               | 75% limestone, white, crystalline; 25% shale, gray, green, soft, fed, black, mineral fluorescence; gilsonite stain on some samples |
| 1010-1020    | 10               | Limestone and shale, same as above   |
| 1020-1030    | 10               | Limestone and shale, same as above   |
| 1030-1040    | 10               | Shale, gray, black, green, silty; some limestone   |
| 1040-1050    | 10               | 80% limestone, dark tan, crystalline; 20% shale, gray, green, red  |
| 1050-1060    | 10               | Limestone, dark tan, crystalline, white; shale, gray black   |
| 1060-1070    | 10               | Limestone, tan and gray; shale, gray and green   |
| 1070-1080    | 10               | Shale, gray, black; some gray siltstone and limestone  |
| 1080-1090    | 10               | Shale, gray, green; limestone, tan, buff   |
| 1090-1100    | 10               | Shale, gray, green, some black; limestone, tan, gray, brown  |
| 1100-1130    | 30               | Shale, gray, green; sandstone, fine grained, green, low porosity and permeability, no oil or fluorescence                          |
| 1130-1160    | 30               | Shale, gray to dark gray, limey, some black shale and pyrite   |
| 1160-1190    | 30               | 70% shale, dark gray, gray, green; 15% sandstone, fine grained, no oil or fluorescence, 10% black shale, pyrite                    |
| 1190-1220    | 30               | 50% shale, black, carbon; 40% shale, gray and tan  |
| 1220-1250    | 30               | 50% shale, gray; 50% sandstone, fine grained, rounded, well sorted, no oil or fluorescence   |
| 1250-1280    | 30               | Shale, gray, some green; minor amount of black shale   |
| 1280-1300    | 20               | Shale, gray, tan, green, 40% dark gray; some sandstone, no oil or fluorescence   |
| 1300-1310    | 10               | Shale, green and gray, soft, black; some siltstone   |
| 1310-1320    | 10               | Shale and siltstone, same as above   |
| 1320-1330    | 10               | Shale, black to dark gray, silty, some gray shale and siltstone  |
| 1330-1340    | 10               | Shale, gray, black shale   |
| 1340-1350    | 10               | Shale, gray, green, red, soft  |
| 1350-1360    | 10               | 50% Shale, gray, green, black shale; 50% sandstone   |
| 1360-1370    | 10               | Shale, green and gray, black silty shale   |
| 1370-1380    | 10               | Shale, gray, green; some sandstone   |

| <u>Depth</u> | <u>Thickness</u> | <u>Lithology and Remarks</u>   |
|--------------|------------------|--|
| 1380-1387    | 7                | Sandstone, clear, very fine grained, rounded, well sorted, medium porosity and permeability, gilsonite stained, no fluorescence, no oil show, Bartlesville sandstone   |
| 1387         | 15 min. circ.    | Sandstone, same as above   |
| 1380-1390    | 10               | Sandstone, clear, no oil or fluorescence   |
| 1390-1400    | 10               | Shale, gray with some gilsonite sandstone  |
| 1400-1410    | 10               | Shale, gray  |
| 1410-1420    | 10               | Shale, gray, green, black  |
| 1420-1430    | 10               | Shale, same as above   |
| 1430-1440    | 10               | Sandstone, clear and green, shaly, low porosity, gilsonite, no oil or fluorescence; some shale   |
| 1440-1450    | 10               | Sandstone, shaly, gray, dirty gilsonite; shale   |
| 1450-1460    | 10               | Shale, black, with some sandstone as above, one sandstone has gas bubbles, but no fluorescence   |
| 1460-1470    | 10               | Shale, black, green  |
| 1470-1480    | 10               | Shale, black   |
| 1480-1490    | 10               | Shale, black   |
| 1490-1500    | 10               | Sandstone, gray, dirty, shaly, gilsonite, no oil show  |
| 1500-1510    | 10               | Shale, black and gray; some sandstone  |
| 1510-1520    | 10               | Shale, black   |
| 1520-1530    | 10               | Shale, black   |
| 1530-1540    | 10               | Shale, gray and green, black; some siltstone   |
| 1544         | 10 min. circ.    | Sandstone, clear, fine grained, rounded, well sorted, no show of oil or gas, gilsonite on sample; 40% shale Upper McLouth sandstone, poor sand development with no hydrocarbons                                  |
| 1540-1550    | 10               | Shale, gray and black; some clay; some sandstone, no oil or gas shows  |
| 1550         | 10 min. circ.    | Shale, black with dirty shaly sandstone, no oil show   |
| 1550-1560    | 10               | Shale, gray and black  |
| 1563         | 10 min. circ.    | Shale  |
| 1563         | 15 min. circ.    | Shale  |
| 1560-1570    | 10               | Shale, gray and black  |
| 1572         | 10 min. circ.    | Shale, gray  |
| 1572         | 10 min. circ.    | Shale, black   |
| 1570-1580    | 10               | 50% shale, black, gray, sandy; 50% sandstone, clear, fine grained, angular to rounded, well sorted, medium porosity; some sand shaly; brown oil stains, no gas bubbles, no fluorescence, Lower McLouth sandstone |
| 1580-1590    | 10               | 60% shale, black, 40% sandstone, as above, dirty, shaly, gilsonite sand  |
| 1590-1600    | 10               | 10% Shale, black, green; 40% sandstone, white to clear angular, well sorted, no show, no fluorescence, water sand, Burgess sandstone, very minor brown stain   |
| 1602         |                  | 30% sandstone, Burgess, no show; 30% shale, black; 40% limestone, white, crystalline with some mineral fluorescence, T. Mississippian limestone 1601' (-493)   |
| 1600-1610    | 10               | 70% limestone, white to clear, crystalline; 20% "sugar" sandstone, sucrosic, granular, good porosity, some gilsonite; 30% shale, black, limey; 20% of samples have light fluorescence                            |

Modrcin #1  
Jefferson County, Kansas

API# 15-087-20,113

| <u>Depth</u> | <u>Thickness</u> | <u>Lithology and Remarks</u>   |
|--------------|------------------|--|
| 1610-1630    | 20               | Limestone, white to light gray, crystalline; 20% sucrosic "sugar sand"; 20% of sample fluorescent, lime green, possible mineral fluorescence   |
| 1630-1650    | 20               | Limestone / Dolomite; 50% white to tan limestone, crystalline, no porosity; 50% white to tan to clear dolomite, very fine grained, sugar texture, small vuggy porosity, some with light brown stain, some clear without stains, gas bubbles out of a few samples; light blue cut with chlorothene on one sample; 70% of sample fluorescent with lime green color. This zone may have either gas or light color oil |
| 1650-1670    | 20               | Limestone and Dolomite; limestone white to tan, crystalline; dolomite, brown, sugar texture, medium porosity; 50% of sample fluorescent  |
| 1670-1690    | 20               | Limestone and Dolomite, same as above, 75% of samples fluorescent  |
| 1690-1710    | 20               | Limestone and Dolomite, same as above, 20% of samples fluorescent  |
| 1710-1720    | 20 min. circ.    | Limestone, white, chaly, tan, crystalline, 20% fluorescence  |
| 1710-1730    | 20               | Limestone, white, cherty, crystalline; 40% dolomite, brown sugar textured; 50% of sample fluorescent   |
| 1730-1750    | 20               | Limestone and Dolomite, same as above, 60% of sample fluorescent   |
| 1750-1760    | 10               | Limestone, gray, tan, cherty, shaly  |
| 1760-1770    | 10               | 40% Limestone, gray and tan; 30% cherty; 30% dolomite, brown sugar textured, good porosity   |
| 1770-1780    | 10               | 40% Cherty; 60% dolomite, brown, angular, crystalline, excellent porosity, no fluorescence; some limestone   |
| 1780-1790    | 10               | 80% Chert, 20% limestone and dolomite, no fluorescence   |
| 1790-1800    | 10               | 80% Chert; 20% limestone, some brown dolomite; 5% fluorescence   |
| 1800-1810    | 10               | 60% Chert; 40% limestone and dolomite; 5% fluorescence   |
| 1810         | 30 min. circ.    | 40% Chert; 60% limestone and dolomite, no fluorescence   |

T.D. at 1815', October 26, 2984

1½ hour circulated mud, visc. 49, wt. 9.3  
Trip out of hole

WELL: MODRON NO. 1  
COMPANY: JERRY LUTZ  
LOCATION: JEFFERSON CO., KS

**LEGEND**

|                       |                            |           |          |
|-----------------------|----------------------------|-----------|----------|
| TRIP RETURN           | NR - NO RETURNS            |           |          |
| NR - NEW AIR          | EL - ELECTRIC LOG          |           |          |
| NCB - NEW CORE BIT    | CC - CIRCULATE OUT RETURNS |           |          |
| DST - DRILL STEM TEST | CFE - CHECK FOR FLOW       |           |          |
| IG - TRIP GAS         |                            |           |          |
| SAND                  | SHALE                      | LEWISTONE | DOLOMITE |

**BAROID**  
**LOGGING**  
**SYSTEMS**

**MUD**  
**LOG**

| DRILLING RATE   |              | GAS LOG      |                  | HYDROCARBONS IN MUD (M=1000)   |                |                |                 |                 | REMARKS  |
|---|--------------|--------------|------------------|--|----------------|----------------|-----------------|-----------------|--|
| FEET PER MIN  | MIN PER FOOT | % GAS IN MUD | AIR/GAS ANALYSIS | C <sub>1</sub>   | C <sub>2</sub> | C <sub>3</sub> | iC <sub>4</sub> | nC <sub>4</sub> |  |
| 125   | 25           | 375          |                  | 25   | 5              | 25             | 25              | 25              |  |
| <p>5" CASING TO 118'<br/>DRILLING WITH BIT NO 3<br/>DTC F3, 6 1/2"<br/>DTC AT 799'<br/>BEGIN LOGGING 10-24-84</p> |              |              |                  |  |                |                |                 |                 |  |
| 2000  |              | 30 SAMPLES   |                  | <p>CARBIDE TEST AT TRAP AT 890'<br/>CARBIDE DROP AT 893' - 7 MINUTES<br/>TOTAL RETURN</p> <p>GAS DETECTOR MST - 2% = 55 UNITS<br/>CHROMATOGRAPH CALIBRATION<br/>ATTN: x250<br/>C<sub>1</sub> 6 C<sub>2</sub> 9 C<sub>3</sub> 9 iC<sub>4</sub> 7.5 nC<sub>4</sub> 7</p> |                |                |                 |                 | <p>COAL - BLK, VIT, SFT<br/>SH - LTGY - GY, BLKY -<br/>PLTY IP, V SLTY -<br/>V SDY IP, SL MIC,<br/>CAL, SFT<br/>SLTS - LTGY, BLKY, MIC<br/>VARGIL, CAL, SFT<br/>SS - LTGY, VF-FGR,<br/>SBANG, V SHLY,<br/>MIC, PSRTD,<br/>PCM TD, CAL, FRI<br/>LS - LTGY, TNGY, VFX,<br/>SHLY, DNS, BRIT</p> |
| 1300  |              | 10 SAMPLES   |                  | <p>CARBIDE DROP AT 1295' -<br/>10 MINUTES TOTAL RETURN</p>   |                |                |                 |                 | <p>SH - LTGY, DK GY, BLKY -<br/>PLTY, CARB IP,<br/>SL SLTY IP, MIC<br/>IP, CAL, SFT, TR<br/>PYR<br/>LS - LTGY, VFXL,<br/>SHLY, DNS, BRIT<br/>SS - LTGY, F-VFGR,<br/>SBANG, CAL,<br/>WCMTD, FRI - SHLD<br/>CLAYEY IP</p>  |



# Baroid Petroleum Services

WELL MODRIEN NO. 1  
 COMPANY JERRY LUTZ  
 LOCATION JEFFERSON CO., KS.

## LEGEND

10% TRIP CHLORIDES  
 NB NEW BIT  
 NCB NEW CORE BIT  
 DST DRILL STEM TEST  
 TG TRIP GAS  
 SAND  
 SHALE  
 LIMESTONE  
 DOLOMITE  
 NR NO RETURNS  
 EL ELECTRIC LOG  
 CO CIRCULATE OUT RETURNS  
 CKF CHECK FOR FLOW

**BAROID LOGGING SYSTEMS**

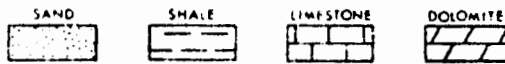
**MUD LOG**

| DRILLING RATE |            |          | LITHOLOGY | DEPTH | GAS LOG - UNITS OF GAS IN AIR |                |                |                 |                  |  | REMARKS   |
|---------------|------------|----------|-----------|-------|-------------------------------|----------------|----------------|-----------------|------------------|--|---|
| FT PER MIN    | MIN PER FT | PER HOUR |           |       | C <sub>1</sub>                | C <sub>2</sub> | C <sub>3</sub> | iC <sub>4</sub> | nC <sub>4+</sub> |  |   |
| 125           | 25         | 375      |           |       |                               |                |                |                 |                  |  |   |
|               |            |          |           | 1500  |                               |                |                |                 |                  |  | COAL - BLK, VIT, SFT  |
|               |            |          |           |       |                               |                |                |                 |                  |  | LS - TN BRN, VFXL, DNS BRIT   |
|               |            |          |           |       |                               |                |                |                 |                  |  | SH - GY, DKGY, GNGY, BLKY-PLTY, CARB IP, SFT-VSFT, CAL                                  |
|               |            |          |           |       |                               |                |                |                 |                  |  | SS - CLR, FGR, SBANG, WCMTD, CAL, GIL, LT TN STN IP, FAINT OUT, GD FOR, FRI, NO FLOR    |
|               |            |          |           |       |                               |                |                |                 |                  |  | SH - GY, DKGY, BLKY, CARB IP, PYR IP, CAL, SFT  |
|               |            |          |           |       |                               |                |                |                 |                  |  | SH - GN GY, BRICK RD, OCHRE, BLKY, VS, CAL, TR LAM, SFT                                 |
|               |            |          |           |       |                               |                |                |                 |                  |  | SS - GY WH, FGR, SBANG, WCMTD, CAL, GIL, TR STN, NO FLOR/FRI                            |
|               |            |          |           |       |                               |                |                |                 |                  |  | SS - CLR, MGR, SBANG, WCMTD, CAL, TR, LT TN STN, CARB IP, GIL, FRI, POR, NO FLOR OR CUT |
|               |            |          |           | 1600  |                               |                |                |                 |                  |  | LS - BEIGE, GY TN, FXL MXL IP, FOS, FRM BRIT  |
|               |            |          |           |       |                               |                |                |                 |                  |  | LS - GY BEIGE - BEIGE, VFXL, SL, SUC IP, SL DOL, SHLY IP, CHKY, FLOR IP, NSCOF, P-P FOR |

WELL MCCRICK, NO. 1  
 COMPANY JERRY LUTZ  
 LOCATION JEFFERSON CO., KS

**LEGEND**

TCL TRIP CHLORIDES  
 NR NO RETURNS  
 NB NEW PIT  
 EL ELECTRIC LOG  
 NCB NEW CORE BIT  
 CO CIRCULATE OUT RETURNS  
 DST DRILL STEM TEST  
 CKF CHECK FOR FLOW  
 TG TRIP GAS



**BAROID**  
**LOGGING**  
**SYSTEMS**

**MUD**  
**LOG**

**DRILLING RATE**

□ FT PER HR

▣ MIN PER FT

1.25 2.5 4.75

VELOC  
 SURFS

FORMATION

DEPTH

DATE  
 12/27  
 AM

ppm LOG - HYDROCARBONS IN MUD (M=1000)  
 % GAS LOG - % GAS IN MUD AIR/GAS ANALYSIS  
 % GAS LOG - UNITS OF GAS IN AIR

|       | C <sub>1</sub> | C <sub>2</sub> | C <sub>3</sub> | C <sub>4</sub> | C <sub>5+</sub> |
|-------|----------------|----------------|----------------|----------------|-----------------|
| CM    | 10             | 20             | 5              | 25             | 25              |
| UNITS | 25             | 50             |                |                |                 |

REMARKS

10-26-84

20' SAMPLES

LS - BEIGE, TNGY-GY,  
 SUC IP, BRIT IP,  
 TR CHRT, FRM  
 DOL

LS - BEIGE, GY, FXL,  
 VFXL IP, SUC, BRIT  
 FRM, VUGGY POR  
 IP, TR CHRT, DOL

LS - BEIGE GY-TNGY,  
 FXL, FOS IP,  
 V CHTY, FRM-BRIT

LS - BEIGE GY, VFXL,  
 SUC, P-P POR,  
 CHKY-FRM, DOL

SH CAVINGS

10' SAMPLES

LS - BEIGE - GY, GYTN,  
 VSUC IP, FXL, FRM  
 FRI, V CHTY, DOL

LS - GYTN, VSUC, DOL  
 VUGGY POR, FXL  
 FRI - BRIT, VCHTY

0081



S. 18 T. 9 R. 19 E  
W

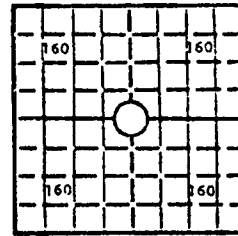
**DRILLERS LOG**

API No. 15 - 087 - 20,113  
County Number

Loc. \_\_\_\_\_

County Jefferson

640 Acres  
N



Elev.: Gr. \_\_\_\_\_

DF \_\_\_\_\_ KB \_\_\_\_\_

Operator  
**Jerry Lutz**

Address  
**Route U.S. 131, South Reed City, Michigan 49677**

Well No. 1 Lease Name Modrcin

Footage Location  
**330** feet from (N) line **2970** feet from (W) line

Principal Contractor **Caney Valley Drilling Company** Geologist **Tom Stander**

Spud Date **10-22-84** Total Depth **1815'** P.B.T.D. \_\_\_\_\_

Date Completed **10-26-84** Oil Purchaser \_\_\_\_\_

**CASING RECORD**

Report of all strings set—surface, intermediate, production, etc.

| Purpose of string | Size hole drilled | Size casing set (in O.D.) | Weight lbs/ft. | Setting depth | Type cement | Sacks | Type and percent additives |
|-------------------|-------------------|---------------------------|----------------|---------------|-------------|-------|----------------------------|
| SURFACE           | 12 1/4"           | 8-5/8"                    | 19.5#          | 119'          | Cond.       | 30    | 3% cal.                    |
| PRODUCTION        | 6-3/4"            | 4 1/2"                    | 9.5#           | 1771.1'       |             |       |                            |

**WELL LOG**

Show all important zones of porosity and contents thereof; cored intervals, and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries.

| Formation   | Top | Btm. | Formation    | Top  | Btm. | Formation   | Top  | Btm.    |
|-------------|-----|------|--------------|------|------|-------------|------|---------|
| Clay        | 0   | 8    | Shale        | 843  | 854  | Shale       | 1200 | 1214    |
| Sand        | 8   | 31   | Lime         | 854  | 862  | Lime        | 1214 | 1236    |
| Muddy shale | 31  | 95   | Shale        | 862  | 874  | Shale       | 1236 | 1376    |
| Lime        | 95  | 119  | Lime         | 874  | 885  | Sandy shale | 1376 | 1414    |
| Shale       | 119 | 194  | Shale        | 885  | 960  | Lime        | 1414 | 1420    |
| Lime        | 194 | 200  | Lime         | 960  | 966  | Sandy shale | 1420 | 1432    |
| Sand        | 200 | 215  | Shale        | 966  | 985  | Lime        | 1432 | 1439    |
| Lime        | 215 | 220  | Lime         | 985  | 990  | Sandy shale | 1439 | 1598    |
| Shale       | 220 | 229  | Shale        | 990  | 931  | Miss. lime  | 1598 | 1815 TD |
| Lime        | 229 | 232  | Lime         | 931  | 934  |             |      |         |
| Shale       | 232 | 251  | Shale        | 934  | 1072 |             |      |         |
| Lime        | 251 | 259  | Lime         | 1072 | 1076 |             |      |         |
| Shale       | 259 | 514  | Shale        | 1076 | 1082 |             |      |         |
| Lime        | 514 | 547  | Lime         | 1082 | 1084 |             |      |         |
| Shale       | 547 | 607  | Shale        | 1084 | 1092 |             |      |         |
| Lime        | 607 | 627  | Lime         | 1092 | 1105 |             |      |         |
| Shale       | 627 | 655  | Shale        | 1105 | 1107 |             |      |         |
| Lime        | 655 | 692  | Lime         | 1107 | 1111 |             |      |         |
| Shale       | 692 | 768  | Shale - sand | 1111 | 1136 |             |      |         |
| Lime        | 768 | 794  | Lime         | 1136 | 1144 |             |      |         |
| Shale       | 794 | 806  | Shale        | 1144 | 1171 |             |      |         |
| Lime        | 806 | 827  | Coal         | 1171 | 1174 |             |      |         |
| Shale       | 827 | 833  | Shale        | 1174 | 1196 |             |      |         |
| Lime        | 833 | 843  | Lime         | 1196 | 1200 |             |      |         |