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Pioneer Oil Company
Leroy Shaw #1
2228' FSL & 2099' FWL
Section 33-8s-28w
Sheridan County, Kansas

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5 1/2" Production Casing Set

Contractor: Murfin Drilling Co. (rig #16)
Commenced: November 10, 2014
Completed: November 20, 2014
Elevation: 2703' K.B., 2701' D.F., 2698' G.L.
Casing program: Surface; 8 5/8" @ 220'
Production, 5 1/2" @ 4119'
Sample: Samples saved and examined 3200' the Rotary Total Depth.
Drilling time: One (1) foot drilling time recorded and kept 3200' to the Rotary Total Depth.
Measurements: All depths measured from the Kelly Bushing.
Drill Stem Tests: There were eleven (11) Drill Stem Tests ran by TrilobiteTesting Co.
Electric Log: By Pioneer Energy Services Dual Induction, Dual Compensated Porosity Log, Micro Resistivity and Sonic.

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	2339	+364
Base Anhydrite	2373	+330
Elmont	3483	-780
Howard	3519	-816
Topeka	3570	-867
Heebner	3582	-879
Toronto	3804	-1101
Lansing	3820	-1117
Base Kansas City	4053	-1350
Rotary Total Depth	3700	-1843
Log Total Depth	3700	-1843

All tops and zones corrected to Electric Log Measurement.

SAMPLE ANALYSIS, SHOWS OF OIL, TESTING DATA, ETC.

ELMONT SECTION

3483-3493' Limestone, tan, gray, fossiliferous, fair vuggy porosity, black and dark brown stain, trace of free oil and questionable odor in fresh samples.

Drill Stem Test #1 3488-3496
--misrun—plugged tool and anchor

3503-3511' Limestone, white, gray, finely crystalline, slightly chalky, scattered pinpoint porosity, trace dark brown stain, no show of free oil and no odor.

HOWARD SECTION

3519-3530' Limestone, white, gray, finely crystalline, fossiliferous in part, fair porosity, dark brown to brown stain, trace free oil (heavy –black-) trace of free oil and no odor.

HOWARD 'B' SECTION

3536-3550' Limestone, gray, finely crystalline, chalky, few medium crystalline, black and brown stain, no show of free oil; plus iron pyrite.

HOWARD 'C' SECTION

3551-3560' Limestone, white, gray, oolitic, chalky, black stain, trace of free oil (black) and no odor in fresh samples.

Drill Stem Test #2 3527-3567

Times: 10-30-60-90

Blow: Weak

**Recovery: 10' gas in pipe
10' muddy oil
(92% oil; 8% mud)
40' oil and gas cut mud
(2% gas; 12% oil; 86% mud)**

**Pressures: ISIP 1094 psi
FSIP 1070 psi
IFP 15-24 psi
FFP 27-33 psi
HSH 1712-1689 psi**

TOPEKA SECTION

3570-3580' Limestone, white, gray, slightly fossiliferous, chalky, black stain, no free oil and no odor in samples.

3580-3590' Limestone, white, gray, fossiliferous, sparry calcite cement, no shows.

- 3601-3610' Limestone, tan, gray, finely crystalline, granular, chalky in part; brown and gray stain, show of free oil and no odor in fresh samples.
- 3626-3631' Limestone, gray, white, fossiliferous, fair porosity, dark brown/brown stain, fair to good show of free oil and no odor in fresh samples.
- 3643-3660' Limestone, white, cream, finely crystalline, few medium crystalline, dolomitic in part, no shows.
- 3706-3716' Limestone, white, gray, finely crystalline, chalky, trace black stain, trace of free oil and no odor in fresh samples.

PLATTSMOUTH SECTION

- 3741-3747' Limestone, gray, white, oolitic, chalky in part; fair stain and saturation, show of free oil and good odor in fresh samples.

Drill Stem Test #3

3734-3754

Times: 10-30-60-90

Blow: Strong

**Recovery: 565' gas in pipe
210' clean oil
415' slightly mud cut gassy oil
(22% gas; 76% oil; 2% mud)
90' very slightly oil and gas cut muddy water
(3% gas; 3% oil; 45% water; 49% mud)**

**Pressures: ISIP 1163 psi
FSIP 1174 psi
IFP 36-68 psi
FFP 76-241 psi
HSH 1864-1835 psi**

- 3758-3770' Limestone, gray, tan, fossiliferous/oolitic, fair porosity, fair stain and saturation, fair show of free oil and fair to good odor in fresh samples.

TORONTO SECTION

- 3804-3810' Limestone, tan, oolitic/fossiliferous, fair porosity, light brown to golden brown stain, show of free oil and fair odor in fresh samples.

Drill Stem Test #4 **3780-3813**

Times: 10-30-15-60

Blow: Strong

**Recovery: 1170' gas in pipe
25' slightly mud cut gassy oil
(17% gas; 81% oil; 2% mud)
955' slightly mud cut gassy oil
(33% gas; 63% oil; 4% mud)
120' oil and gas cut mud
(13% gas; 22% oil; 65% mud)**

**Pressures: ISIP 654 psi
FSIP 652 psi
IFP 169-266 psi
FFP 290-415 psi
HSH 1892-1839 psi**

LANSING SECTION

3820-3829' Limestone, tan, gray highly oolitic, chalky, brown and golden brown stain, show of free oil and faint odor in fresh samples.

Drill Stem Test #5 **3813-3823**

Times: 10-30-60-90

Blow: Weak building

**Recovery: 65' gas in pipe
35' slightly mud cut gassy oil
(2% gas; 95% oil; 3% mud)
80' oil and gas cut mud
(9% gas; 16% oil; 75% mud)
15' oil and gas cut muddy water
(5% gas; 13% oil; 27% water; 55% mud)
45' slightly oil and gas cut muddy water
(12% gas; 5% oil; 50% water; 33% mud)**

**Pressures: ISIP 668 psi
FSIP 667 psi
IFP 57-81 psi
FFP 64-93 psi
HSH 1895-1862 psi**

3853-3860' Limestone, white, gray, finely crystalline, finely oolitic, fossiliferous, scattered porosity, brown and gray stain, show of free oil and fair to good odor in fresh samples.

Drill Stem Test #6 **3840-3861**

Times: 10-30-45-90

Blow: Fair to good

Recovery: 250' gas in pipe
120' gassy oil
10' slightly mud cut oil
(2% gas; 95% oil; 3% mud)
110' gassy oil cut mud
(14% gas; 11% oil; 75% mud)

Pressures: ISIP 911 psi
FSIP 863 psi
IFP 52-58 psi
FFP 61-108 psi
HSH 1923-1906 psi

3863-3872' Limestone, white, gray, finely crystalline, oolitic/fossiliferous, fair vuggy and inter-crystalline porosity, fair golden brown stain, show of free oil and faint and fair odor in fresh samples..

Drill Stem Test #7 **3861-3873**

--misrun—packer failure

3900-3906' Limestone, cream, white, fine and medium crystalline, chalky, brown stain, show of free oil and faint odor in fresh samples.

Drill Stem Test # 8 **3880-3906**

Times: 10-30-60-90

Blow: Weak

Recovery: 40' slightly oil and gas cut mud
(3% gas;3% oil; 94% mud)

Pressures: ISIP 1166 psi
FSIP 1134 psi
IFP 15-19 psi
FFP 21-34 psi
HSH 1941-1909 psi

3953-3958' Limestone, gray, oolitic, slightly chalky, scattered porosity, fair brown stain and saturation, show of free oil and questionable odor in fresh samples.

Drill Stem Test #9 **3926-3966**

Times: 10-30-60-90

Blow: Fair

**Recovery: 135' gas in pipe
50' slightly mud cut oil
(12% gas; 86% oil; 2% mud)
31' oil cut muddy water
(8% gas; 22% oil; 30% water; 40% mud)
31' very slightly oil cut muddy water
(6% gas; 2% oil; 59% water; 33% mud)
120' muddy water, oil spots
(1% oil; 84% water; 15% mud)**

**Pressures: ISIP 1199 psi
FSIP 1194 psi
IFP 17-38 psi
FFP 43-122 psi
HSH 1971-1919 psi**

3984-3988' Limestone, white, gray, chalky; poor visible porosity, poor black tarry stain, no free oil and no odor in fresh samples.

3997-4000' Limestone, white, gray, oolitic, chalky, trace brown and gray stain, no free oil and faint odor in fresh samples.

Drill Stem Test #10 **3981-4010**

--misrun—packer failure

4018-4026' Limestone, white, gray, oolitic/fossiliferous, fair porosity, fair stain and saturation, fair show of free oil and questionable odor in fresh samples.

4041-4050' Limestone, gray, white, highly oolitic, brown stain, trace of free oil and no odor in fresh samples.

Drill Stem Test #11 **3926-3966**

Times: 10-30-60-90

Blow: Good

**Recovery: 1145' gas in pipe
115' clean gassy oil
125' oil and gas cut mud
(18% gas; 2% oil; 53% mud)
60' oil and gas cut mud
(40% gas; 20% oil; 40% mud)**

**Pressures: ISIP 1325 psi
FSIP 1316 psi
IFP 21-52 psi
FFP 49-129 psi
HSH 1973-1934 psi**

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BASE KANSAS CITY 4053 -1350

Rotary Total Depth	4120
Log Total Depth	4120

Recommendations:

The 5 ½" production casing set and cemented on the Pioneer Oil Company Inc., Leroy Shaw #1;
Section 33-8s-28w, Sheridan County, Kansas.

Respectfully yours,

James C. Musgrove
Petroleum Geologist