

ORIGINAL

CONFIDENTIAL

WELL HISTORY
BURIED HILLS PRODUCTION COMPANY INC.
MAXX PETROLEUM LTD.
No. 1 HZ WHITLEY
Sec. 13, T20S, R23W
NESS COUNTY, KANSAS

15-135-24003-0100

NOV
SEP 10
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RELEASED
MAY 06 2000
FROM CONFIDENTIAL

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MAY 06 2000

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SYNOPSIS

The Buried Hills Production Company Inc. (MAXX Petroleum Ltd.), No. 1 HZ Whitley, NE NE SW Sec. 13, T20S R23W, Ness County, Kansas was a well drilled horizontally in the Riverside Field. The bottom hole location of the well is NE NE SE Sec. 13, T20S, R23W. The horizontal leg of the well covered a distance of 2699.99 feet. The primary objective of this horizontal well was the Mississippian Osage rocks. The cherts and dolomites of Osage age are the oil productive rocks in the Riverside Field.

The Shell Oil Company, No.1-13 Moranville was used as the drilling correlation well as this well was the closest well to the surface location of the No. 1 HZ Whitley. The two wells were essentially structurally flat. The formation tops sheet gives an account of the structural position at the various formation levels present in both wells.

The quality of the lithologic samples from the start of the lithologic sample examination at 3550 feet to the interval just before the scheduled casing point was poor to very poor. Through most intervals there was a maximum of interpretation used in the description of the lithologic samples. After an attempt to condition the hole with drilling mud near the casing point the quality of the samples became better. The samples after the casing point at 4524 feet were very small in size. The size of the lithologic samples limited the visual examination and interpretation of porosity and oil shows present in the rocks. The drill pipe lays on the bottom of the hole during horizontal drilling. The cuttings would also have a preference to move along the bottom of the hole, a certain amount of pulverizing of the cuttings is expected. This phenomena may also reduce the amount of softer rock lithologies, limestones and dolomites, present in the sample by pulverizing these rock types to a very fine undetectable cutting.

The well accomplished the drilling phase objectives. These objectives included a horizontal bore hole across a quarter section lease near the top of the Mississippian Osagian rocks. These rocks are the productive reservoir in the Riverside Field. Compliance with all drilling and spacing regulations of the Kansas Oil and Gas Commission were met. A completion attempt will be made soon.

MAY 06 2000

GENERAL WELL INFORMATION

FROM CONFIDENTIAL

Operator: Buried Hills Production Company Inc. (MAXX Petroleum Ltd.)

Well Name: No. 1 HZ Whitley API 13-524-00 301

AFE: 5612

Prospect: Riverside Field

Location: NE NE SW Sec. 13, T20S, R23W, 2290' FSL, ^{2250' FSL} ~~2310'~~ FEL - Surface
NE NE SE Sec. 13, T20S, R23W, 2290' FSL, 330' FEL - Bottom Hole

County: Ness

State: Kansas

Elevation: G.L. 2206' K.B. 2219.4'

Spudded: May 16, 1997 @ 1:00 P.M..

Completed Drilling: June 10, 1997 @ 2:45 P.M.

Total Depth: MD 6795', TVD 4325'

Status: Potential Producing Oil Well From Mississippian Osage.

Drill-Stem Tests: None

Logging Program: None

Sample Program: Twenty foot sample interval from 3550 feet - 3900 feet. Ten foot sample interval from 3900 feet to total depth. Samples were examined and described at well site. Lagged samples were caught on depth intervals by rig crews. The quality of the samples was poor for the upper portion of the well and poor after casing point.

Mud Logging: None

Mud Program: Baker Hughes Inteq•, Gary Hawkins, Davis Blanton, Engineers
 Water/Floc Surface - 3803'; Gel-Chem 3803' - 4835';
 Bio-Lose 4835' - 6795'

Lost Circulation: 1836' Cedar Hills

Contractor: Nabors Drilling Company, Rig No. 296, Lew Gentry, Mike Lingren,
 Toolpushers

Casing: 9 5/8" @ 720', 7" @ 4524', Liner 4524' to 4835'.

Bit Record:

Bit No.	1-A	1	2	3	4	1H	2H	3H
Size	12.25"	8.75"	8.75"	8.75"	8.75"	6.125'	6.125"	6.125"
Make			Reed	Reed	Reed	Reed	Reed	Reed
Type	FDTS	L127	HP51X	EHP53A	EHP53A	EHP53A	EHP53A	EHP53A
Ser.No.	LJ9540	126687	ER3615	DU2924	TB6960	LB8544	LB8538	LH8783
Jets	3X20	3X16	3X16	3X20	3X20	Open	Open	Open
Out At	730'	2180'	3730'	4395'	4835'	5511'	6336'	6795'
Feet	730'	1450'	1550'	665'	440'	676'	825'	459'
Hours	12.00	20.00	32.75	43.25	50.50	30.50	36.50	15.00
CumHr	12	32	64.75	108.00	158.50	189.00	225.50	240.50
Wt	20,000	25,000	30,000	30,000	20-25,000	18,000	16-20,000	20,000
RPM	120	130	110	40/120	40/120	50/140	50/140	45/140
PP	450	1000	1500	1700	14/1700	1650	15/1850	17/1950
MudWt	9.8	8.5	8.4	9.1	8.7	8.4	8.5	8.7
Vis	56	29	29	32	36	40	45	39
VerDev	0.5°	0.5°	0.3°	66.3°	92.2°	89°	91°	90.1°
Cond	T B G	T B G	T B G	T B G	T B G	T B G	T B G	T B G
	2-2-I	2-2-I	6-2-I	2-2-I	7-2-I	5-5-I	6-3-I	2-2-I

Total Rotating Hours 240.50. Average 28.25 Ft/Hr

Deviation Record:

0° @ 103'	3/4° @ 833'
1/2° @ 223'	3/4° @ 1104'
1/4° @ 314'	1/2° @ 1344'
1/4° @ 408'	1/2° @ 1568'
3/4° @ 502'	1° @ 1809'
1/2° @ 594'	1/2° @ 2050'
1/2° @ 594'	3/4° @ 2321'
1/2° @ 702'	3/4° @ 2540'

For Further Surveys See Sperry-Sun Data.

MAXX Petroleum Ltd.

Riverside Prospect
 No. 1 HZ Whitley

June 11, 1997

Sperry-Sun Drilling Services Survey Data

Customer : Burried Hills Production Company Inc.
 Platform : Whitley #1
 Slot/Well : #1 /Whitley # 1
 Calculation Method: Minimum Curvature.

Target Data
 Angle Deg: 90° +/- 1.5°
 Direction Deg: 90° East
 TVD 4320' - 4331'

Survey No.	Measured Depth	Angle Deg	Direction Deg	TVD	Sea-Level Datum	Northings Feet	Easting Feet	Vertical Section	Dog Leg
	0.00	0.00	0.00	0.00	2219.40	0.00 N	0.00 E	0.00	0.00
1	825.34	0.60	49.20	825.32	1394.08	2.82 N	3.27 E	3.27	0.07
2	1367.19	0.50	51.80	1367.15	852.25	6.14 N	7.28 E	7.28	0.02
3	1961.33	0.60	356.10	1961.27	258.13	10.85 N	9.10 E	9.10	0.09
4	2451.35	0.40	358.40	2451.27	-231.87	15.12 N	8.88 E	8.88	0.04
5	3064.49	0.50	356.60	3064.39	-844.99	19.93 N	8.66 E	8.66	0.02
6	3519.62	0.60	11.20	3519.50	-1300.10	24.25 N	9.01 E	9.01	0.04
7	3692.78	0.40	109.10	3692.65	-1473.25	24.94 N	9.75 E	9.75	0.44
8	3724.50	0.30	51.20	3724.37	-1504.97	24.95 N	9.92 E	9.92	1.10
9	3756.37	1.70	83.30	3756.24	-1536.84	25.06 N	10.46 E	10.46	4.56
10	3788.08	3.30	86.00	3787.92	-1568.52	25.18 N	11.84 E	11.84	5.06
11	3819.85	4.80	89.60	3819.61	-1600.21	25.25 N	14.08 E	14.08	4.79
12	3851.61	6.90	93.60	3851.20	-1631.80	25.14 N	17.31 E	17.31	6.73
13	3882.71	9.80	95.70	3881.97	-1662.57	24.76 N	21.81 E	21.81	9.37
14	3913.86	12.60	98.30	3912.52	-1693.12	24.01 N	27.81 E	27.81	9.13
15	3945.58	15.00	103.00	3943.32	-1723.92	22.58 N	34.24 E	35.24	8.35
16	3977.30	17.70	103.70	3973.76	-1754.36	20.52 N	43.92 E	43.92	8.53
17	4011.24	21.20	103.30	4005.76	-1786.36	17.88 N	54.91 E	54.91	10.32
18	4042.96	24.40	103.70	4034.99	-1815.59	15.01 N	66.86 E	66.86	10.10
19	4074.63	28.50	104.50	4063.34	-1843.94	11.57 N	80.54 E	80.54	12.99
20	4106.40	32.20	105.20	4090.75	-1871.35	7.45 N	96.05 E	96.05	11.70
21	4138.14	36.70	104.40	4116.92	-1897.52	2.87 N	113.40 E	113.40	14.25
22	4169.84	40.10	102.80	4141.76	-1922.36	1.75 S	132.54 E	132.54	11.17
23	4201.54	43.00	99.10	4165.49	-1946.09	5.72 S	153.18 E	153.18	11.98
24	4233.23	46.10	96.10	4188.07	-1968.67	8.64 S	175.21 E	175.21	11.82
25	4264.78	49.20	93.40	4209.32	-1989.92	10.56 S	198.44 E	198.44	11.68
26	4296.48	52.90	92.30	4229.25	-2009.85	11.78 S	223.06 E	223.06	11.98
27	4328.15	57.20	91.90	4247.39	-2027.99	12.73 S	248.99 E	248.99	13.62
28	4360.63	61.40	91.70	4263.96	-2044.56	13.60 S	276.90 E	276.90	12.94
29	4392.38	64.90	92.40	4278.30	-2058.90	14.62 S	305.20 E	305.20	11.20

Survey No.	Measured Depth	Angle Deg	Direction Deg	TVD	Sea-Level Datum	Northings Feet	Easting Feet	Vertical Section	Dog Leg
30	4424.16	69.00	91.40	4290.74	-2071.34	15.58 S	334.42 E	334.42	13.22
31	4455.83	72.10	90.10	4301.29	-2081.89	15.97 S	364.28 E	364.28	10.53
32	4479.91	74.80	91.20	4308.15	-2088.75	16.24 S	387.36 E	387.26	12.04
33	4511.48	78.50	90.20	4315.43	-2096.03	16.61 S	418.07 E	418.07	12.12
34	4543.23	82.40	89.90	4320.70	-2101.30	16.64 S	449.37 E	449.37	12.32
35	4574.97	86.50	88.30	4323.77	-2104.37	16.14 S	480.95 E	480.95	13.86
36	4606.59	90.70	87.70	4324.54	-2105.14	15.03 S	512.53 E	512.53	13.42
37	4644.71	91.30	86.40	4323.88	-2104.48	13.07 S	550.60 E	550.60	3.76
38	4706.90	90.50	86.30	4322.90	-2103.50	9.11 S	612.65 E	612.65	1.30
39	4802.00	92.20	87.40	4320.66	-2101.26	3.89 S	707.58 E	707.58	2.13
40	4826.16	93.60	86.10	4319.44	-2100.04	2.52 S	731.67 E	761.67	7.90
41	4857.78	91.90	87.20	4317.92	-2098.52	0.68 S	763.20 E	763.2	6.40
42	4889.51	90.40	88.30	4317.28	-2097.88	0.57 N	974.89 E	794.89	5.86
43	4921.16	90.50	89.00	4317.04	-2097.64	1.31 N	826.53 E	826.53	2.23
44	4952.87	90.00	90.00	4316.90	-2097.50	1.59 N	858.24 E	858.24	3.53
45	4984.59	89.00	90.70	4317.17	-2097.77	1.40 N	889.96 E	889.96	3.85
46	5016.57	87.90	91.60	4318.04	-2098.64	0.76 N	921.92 E	921.92	4.44
47	5048.23	87.30	91.80	4319.36	-2099.96	0.18 S	953.54 E	953.54	2.00
48	5079.97	87.80	92.10	4320.72	-2101.32	1.26 S	985.23 E	985.23	1.84
49	5111.75	89.70	92.00	4321.41	-2102.01	2.40 S	1016.98 E	1016.98	5.99
50	5143.57	89.50	92.10	4321.64	-2102.24	3.54 S	1048.78 E	1048.78	0.70
51	5175.37	89.60	92.10	4321.89	-2102.49	4.70 S	1080.56 E	1080.56	0.31
52	5207.10	89.80	91.10	4322.05	-2102.65	5.59 S	1112.27 E	1112.27	3.21
53	5238.84	89.30	90.80	4322.30	-2102.90	6.11 S	1144.01 E	1144.01	1.84
54	5270.63	89.10	89.30	4322.75	-2103.35	6.14 S	1175.79 E	1175.79	4.76
55	5302.38	89.90	89.60	4323.02	-2103.62	5.84 S	1207.54 E	1207.54	2.69
56	5334.16	91.10	89.80	4322.75	-2103.35	5.67 S	1239.32 E	1239.32	3.83
57	5365.89	91.30	89.80	4322.08	-2102.68	5.56 S	1271.04 E	1271.04	0.63
58	5397.62	90.70	89.80	4321.53	-2102.13	5.45 S	1302.77 E	1302.77	1.89
59	5429.28	89.80	89.70	4321.39	-2101.99	5.31 S	1334.43 E	1334.43	2.86
60	5461.05	89.00	89.50	4321.72	-2102.32	5.09 S	1366.19 E	1366.19	2.60
61	5492.90	88.80	89.10	4322.33	-2102.93	4.70 S	1398.04 E	1398.04	1.40
62	5524.60	88.90	88.60	4322.97	-2103.57	4.06 S	1429.72 E	1429.72	1.61
63	5556.30	89.40	89.20	4323.44	-2104.04	3.46 S	1461.41 E	1461.41	2.46
64	5587.93	89.40	89.60	4323.77	-2104.37	3.12 S	1493.04 E	1493.04	1.26
65	5619.73	89.50	89.40	4324.08	-2104.68	2.85 S	1524.84 E	1524.84	0.70
66	5651.49	89.80	89.90	4324.27	-2104.87	2.65 S	1556.60 E	1556.60	1.84
67	5683.21	90.10	89.60	4324.30	-2104.90	2.51 S	1588.31 E	1588.31	1.34
68	5714.84	90.00	89.50	4324.27	-2104.87	2.27 S	1619.94 E	1619.94	0.45
69	5746.51	90.10	89.10	4324.24	-2104.84	1.88 S	1651.61 E	1651.61	1.30

MAXX Petroleum Ltd.

Riverside Prospect

June 11, 1997

No. 1 HZ Whitley

Survey No.	Measured Depth	Angle Deg	Direction Deg	TVD	Sea-Level Datum	Northings Feet	Easting Feet	Vertical Section	Dog Leg
70	5778.31	89.90	89.10	4324.24	-2104.84	1.38 S	1683.41 E	1683.41	0.63
71	5809.95	90.00	89.10	4324.27	-2104.87	0.88 S	1715.04 E	1715.04	0.32
72	5841.72	90.10	88.80	4324.24	-2104.84	0.30 S	1746.81 E	1746.81	1.00
73	5873.49	89.30	90.40	4324.41	-2105.01	0.08 S	1778.58 E	1778.58	5.63
74	5905.17	89.20	90.20	4324.82	-2105.42	0.24 S	1810.25 E	1810.25	0.71
75	5936.88	89.20	90.50	4325.27	-2105.87	0.44 S	1841.96 E	1841.96	0.95
76	5968.64	87.70	90.70	4326.13	-2106.73	0.77 S	1873.70 E	1873.70	4.76
77	6000.37	86.00	90.40	4327.87	-2108.47	1.08 S	1905.38 E	1905.38	5.44
78	6032.09	86.40	90.70	4329.97	-2110.57	1.38 S	1937.03 E	1937.03	1.58
79	6063.83	88.80	90.10	4331.30	-2111.90	1.60 S	1968.74 E	1968.74	7.79
80	6095.60	90.60	89.80	4331.47	-2112.07	1.57 S	2000.51 E	200.51	5.74
81	6127.29	90.70	90.00	4331.11	-2111.71	1.52 S	2032.20 E	2032.20	0.71
82	6159.02	91.00	89.90	4330.64	-2111.24	1.49 S	2063.92 E	2063.92	1.00
83	6190.72	90.90	89.80	4330.11	-2110.71	1.41 S	2095.62 E	2095.62	0.45
84	6222.46	89.60	90.80	4329.97	-2110.57	1.57 S	2127.36 E	2127.36	5.17
85	6254.11	90.80	90.80	4329.86	-2110.46	2.01 S	2159.00 E	2159.00	3.79
86	6285.82	92.00	91.10	4329.09	-2109.69	2.54 S	2190.70 E	2190.70	3.90
87	6317.56	91.00	91.50	4328.26	-2108.86	3.26 S	2222.42 E	2222.42	3.39
88	6349.31	90.10	90.80	4327.95	-2108.55	3.90 S	2254.16 E	2254.16	3.59
89	6381.15	89.70	90.70	4328.01	-2108.61	4.31 S	2286.00 E	2286.00	1.29
90	6412.76	89.80	90.20	4328.15	-2108.75	4.56 S	2317.61 E	2317.61	1.61
91	6444.51	90.10	89.60	4328.17	-2108.77	4.51 S	2349.36 E	2349.36	2.11
92	6476.18	90.60	89.00	4327.98	-2108.58	4.12 S	2381.02 E	2381.02	2.47
93	6507.95	91.10	89.60	4327.51	-2108.11	3.73 S	2412.79 E	2412.79	2.46
94	6359.70	89.90	88.90	4327.23	-2107.83	3.32 S	2444.53 E	2444.53	4.38
95	6571.42	89.80	89.30	4327.31	-2107.91	2.82 S	2476.25 E	2476.25	1.30
96	6603.19	90.00	89.30	4327.37	-2107.97	2.43 S	2508.02 E	2508.02	0.63
97	6634.91	90.50	89.50	4327.23	-2107.83	2.10 S	2539.73 E	2539.73	1.70
98	6666.71	90.30	90.20	4327.01	-2107.61	2.01 S	2571.53 E	2571.53	2.29
99	6698.56	90.90	90.50	4326.67	-2107.27	2.21 S	2603.38 E	2603.38	2.11
100	6730.14	91.20	90.10	4326.10	-2106.70	2.37 S	2634.96 E	2634.96	1.58
101	6749.18	90.20	90.50	4325.86	-2106.46	2.47 S	2653.99 E	2653.99	5.66
102	*6795.18	90.10	90.10	4325.74	-2106.34	2.71 S	2699.99 E	2699.99	0.90

The Dogleg Severity Is In Degrees Per 100.00 Feet.

N/E Coordinate Values Given Relative To Well System Reference Point.

TVD Coordinate Values Given Relative To Well Head.

The Vertical Section Origin Is Well Head.

The Vertical Section Was Computed Along 90.00 (True).

MAXX Petroleum Ltd.

Riverside Prospect

No. 1 HZ Whitley

June 11, 1997

DAILY DRILLING REPORT

Buried Hills Production Company Inc.
MAXX Petroleum Ltd.
No. 1 HZ Whitley
NE NE SW Sec. 13, T20S, R23W
Ness County, Kansas

7:00 A.M. Reports

1	May 17, 1997	640' (640') Rig up rotary tools. Spud @ 1:00 P.M. [10 Hr Ø].
2	Sun 18	730' (90') [2 Hr Ø] Set 9 5/8" @ 720'.
3	Mon 19	786' (56') [2 Hr Ø]
4	Tue 20	1959' (1173') [14 Hr Ø]
5	Wed 21	2697' (738') [17 Hr Ø]
6	Thr 22	3458' (761') [16.3 Hr Ø]
7	Fri 23	3766' (308') [8 Hr Ø]
8	Sat 24	3856' (90') [5 Hr Ø]
9	Sun 25	3942' (86') [6 Hr Ø]
10	Mon 26	4031' (89') [5.5 Hr Ø]
11	Tue 27	4285' (254') [14.5 Hr Ø]
12	Wed 28	4395' (110') [10.3 Hr Ø]
13	Thr 29	4503' (108') [17.3 Hr Ø]
14	Fri 30	4521' (18') [7 Hr Ø]
15	Sat 31	4528' (7') [1.5 Hr Ø]
16	June 1, 1997	4676' (148') [14.5 Hr Ø]
17	Mon 2	4714' (38') [2 Hr Ø]
18	Tue 3	4835' (121') [8.3 Hr Ø]
19	Wed 4	4835' (0') [0 Hr Ø] Set 7" Csg @ 4524'
20	Thr 5	4835' (0') [0 Hr Ø]
21	Fri 6	5125' (290') [15 Hr Ø]
22	Sat 7	5511' (386') [15.5 Hr Ø]
23	Sun 8	5798' (287') [12 Hr Ø]
24	Mon 9	6247' (449') [20 Hr Ø]
25	Tue 10	6617' (370') [15.5 Hr Ø]
26	Wed 11	6795' (178') [7.75 Hr Ø] Total Depth @ 2:45 P.M. Liner Set @ 4835'

MAXX Petroleum Ltd.

Riverside Prospect
No. 1 HZ Whitley

June 11, 1997

FORMATION TOPS

Buried Hills Production Company Inc.
 No. 1 HZ Whitley
 NE NE SW Sec 13, T20S, R23W
 Ness County, Kansas

	G.L. 2204' K.B. 2219.4'	Comparison Well NE SW 13-20S-23W K.B. 2211' Surface +2206'	Drill Time And Samples K.B. 2219' Surface +2206'
Tertiary			
Cretaceous			
Cenomanian			
Greenhorn		NL	ND
Graneros		NL	ND
Albian			
Dakota		NL	ND
Kiowa		NL	ND
Cheyenne		NL	ND
Permian			
Glaudalupian			
White Horse		680' +1426'	684' +1535'
Leonardian			
Nipewalla Gr.			
Blaine		785' +1426'	786' +1432'
Cedar Hills		870' +1341'	876' +1343'
Sumner Gr.			
Stone Corral		1403' +808'	1417' +802'
Ninnescah		1446' +765'	1451' +768'
Hutchinson		1800' +411'	1796' +423'
Wolfcampian			
Chase Gr.			
Herington		2280' -69'	2284' -65'
Gage Shale		2367' -156'	2378' -159'
Council Grove Gr.			
Neva		2790' -579'	2800' -581'
Red Eagle		2870' -659'	2872' -653'
Pennsylvanian			
Virgilian			
Douglas Gr.			
Heebner		3644' -1433'	3652' -1433'
Toronto		3658' -1447'	3662' -1443'
MAXX Petroleum Ltd.		Riverside Prospect No. 1 HZ Whitley	

June 11, 1997

G.L. 2204' K.B. 2219.4'	Comparison Well NE SW 13-20S-23W K.B. 2211'	Drill Time And Samples K.B. 2219'
Missourian		
Lansing Gr.	3693' -1482'	3699' -1480'
Kansas City Gr.		
Bonner Spgs	3764' -1553'	3766' -1547'
Demoinesian		
Marmaton Gr.	4056' -1845'	4069', 4058' -1839'
Pawnee	4116' -1905'	4410', 4118' -1899'
Fort Scott	4210' -1999'	4267', 4211' -1992'
Cherokee Gr.		
Shale	4232' -2021'	4299', 4231' -2011'
Limestone	4241' -2030'	4306', 4235' -2015'
Mississippian		
Osagian		
Warsaw	4302' -2091'	4478', 4308' -2089'
Osage Prod Interval	4316' -2105'	4550', 4321' -2102'
Total Depth	4340' -2129'	6800', 4328' -2109'

Buried Hills Production Company Inc
No. 1 HZ Whitley
NE NE SW Sec. 13, T20S, R23W
Ness County, Kansas

Sample examination commenced at 3550 feet and continued to a total depth at 6795 feet. Samples are lagged. A twenty foot sample interval was used from 3550 feet to 3900 feet. A ten foot sample interval was used from 3900 feet to 6795 feet.

- 3550 - 3570 Limestone (95%), buff, white, wackestone, packstone. Shale (5%), black, gray. Note: Drilling with water, cuttings are very small in size, abundant sandstone cavings from Cedar Hills.
- 3570 - 3590 Limestone (95%), buff, white, wackestone, packstone. Shale (5%), black, gray. Sample 50% cavings from Cedar Hills.
- 3590 - 3610 Limestone (100%), buff, white, wackestone, packstone. Shale (5%), black, gray. Sample 30% cavings from Cedar Hills.
- 3610 - 3630 Limestone (100%), buff, white, wackestone, packstone. Shale (trace), black, dark brown, gray.
- 3630 - 3650 Limestone (100%), buff, white, wackestone, packstone. Shale (trace), black, very dark brown, gray.
- Heebner 3652' -1433'**
- 3650 - 3670 Limestone (90%), buff, white, wackestone, packstone, some mudstone. Shale (10%), black, very dark brown, gray.
- Toronto 3662' -1443'**
- 3670 - 3690 Limestone (95%), buff, tan, white, packstone, wackestone, mudstone. Shale (5%), gray, trace black.
- Lansing 3699' -1480'**
- 3690 - 3710 Limestone (80%), buff, tan, light grayish tan, wackestone, mudstone. Shale (20%), gray, black. Chert (trace), gray. Sample caught before trip for Directional Tools at 3730'.
- 3710 - 3730 No Sample.
- 3730 - 3750 Limestone (95%), buff, white, tan, wackestone, mudstone. Shale (5%), gray, black. Sample 35% red shale and sandstone cavings.
- 3750 - 3770 Limestone (95%), buff, white, tan, wackestone, mudstone. Shale (5%), gray, black. Sample 50% red shale and sandstone cavings.

- 3770 - 3790 Limestone (95%), buff, white, tan, wackestone, mudstone. Shale (5%), gray, black. Sample 60% red shale and sandstone cavings.
- 3790 - 3802 No Sample. Backed off drill pipe at 3802'.
- 3802 - 3820 Limestone (90%), buff, white, tan, wackestone, mudstone. Shale (10%), gray, black. Sample 90% red shale and sandstone cavings. Drilling with water. Sample cuttings are very small in size.
- 3820 - 3840 Limestone (85%), buff, white, tan, wackestone, mudstone. Shale (15%), gray, black. Sample 75% red shale and sandstone cavings.
- 3840 - 3860 Limestone (85%), buff, white, tan, wackestone, mudstone. Shale (20%), gray, black. Sample 80% red shale and sandstone cavings.
- 3860 - 3880 Limestone (90%), buff, white, tan, wackestone, mudstone. Shale (10%), gray, black. Sample 75% red shale and sandstone cavings.
- 3880 - 3900 Limestone (95%), buff, white, tan, wackestone, mudstone. Shale (5%), gray, black. Sample 60% red shale and sandstone cavings.
- 3900 - 3910 Limestone (90%), buff, tan, wackestone, mudstone. Shale (10%), gray, black, greenish gray. Sample is 80% cavings. Drilling with water. Sample quality is very poor. Start 10 foot sample interval.
- 3910 - 3920 Limestone (95%), buff, tan, wackestone, mudstone. Shale (5%), gray, black, greenish gray. Sample is 95% cavings.
- 3920 - 3930 No Sample.
- 3930 - 3940 Limestone (95%), buff, tan, wackestone, mudstone. Shale (5%), gray, black, greenish gray. Sample is 95% cavings.
- 3940 - 3950 Limestone (90%), buff, tan, wackestone, mudstone. Shale (10%), gray, black, greenish gray. Sample is 95% cavings.
- 3950 - 3960 Limestone (90%), buff, tan, wackestone, mudstone. Shale (10%), gray, black, greenish gray. Sample is 90% cavings.
- 3960 - 3970 Limestone (80%), buff, tan, wackestone, mudstone. Shale (20%), gray, black, greenish gray. Sample is 90% cavings.
- 3970 - 3980 Limestone (80%), buff, tan, wackestone, mudstone. Shale (20%), gray, black, greenish gray. Sample is 95% cavings.
- 3980 - 3990 Limestone (80%), buff, tan, wackestone, mudstone. Shale (20%), gray, black, greenish gray. Sample is 95% cavings.
- 3990 - 4000 Limestone (80%), buff, tan, wackestone, mudstone. Shale (20%), gray, black, greenish gray. Sample is 98% cavings. Drilling with water. Sample cuttings are very small in size.
- 4000 - 4010 Limestone (80%), buff, tan, wackestone, mudstone. Shale (20%), gray, black, greenish gray. Sample is 98% cavings.

- 4010 - 4020 Limestone (80%), buff, tan, wackestone, mudstone. Shale (20%), gray, black, greenish gray. Sample is 90% cavings.
- 4020 - 4030 No Sample.
- 4030 - 4040 Limestone (90%), white, buff, wackestone, mudstone, some white dolomitic limestone. Shale (10%), black, gray, greenish gray. Sample is 50% cavings. Attempt is being made to mud up hole.
- 4040 - 4050 Limestone (80%), white, buff, wackestone, mudstone, some white medium grained oolitic packstone with oomoldic porosity. Shale (20%), gray, black, greenish gray. Sample is 75% cavings.
- 4050 - 4060 Limestone (80%), buff, tan, wackestone, mudstone. Shale (20%), gray, black, greenish gray. Poor sample quality.
- 4060 - 4070 Limestone (85%), buff, tan, wackestone, mudstone. Shale (15%), gray, black, greenish gray. Poor sample quality.
- 4070 - 4080 Limestone (70%), buff, light tan, wackestone, mudstone, trace medium grained oolitic packstone with oomoldic porosity.
- 4080 - 4090 Limestone (80%), buff, tan, light gray, wackestone, mudstone, some medium grained oolitic packstone with oomoldic porosity. Shale (20%), gray, greenish gray, black. Chert (trace), light gray, white. Sample is 60% cavings.
- 4090 - 4100 Limestone (70%), buff, tan, light gray, wackestone, mudstone, trace medium grained oolitic packstone with oomoldic porosity. Shale (30%), gray, greenish gray. Sample is 70% cavings.
- 4100 - 4110 Limestone (90%), buff, tan, light gray, wackestone, some mudstone. Shale (10%), gray, greenish gray, black. Chert (trace), white, light gray, tan. Sample is 50% cavings.
- 4110 - 4120 Limestone (95%), buff, tan, light gray, wackestone, mudstone. Shale (5%), black, gray, greenish gray. Sample is 50% cavings.
- 4120 - 4130 Limestone (80%), buff, tan, light gray, wackestone, mudstone. Shale (20%), gray, greenish gray. Chert (trace), white, tan, light gray. Sample is 60% cavings.
- 4130 - 4140 Limestone (90%), buff, tan, white, wackestone, mudstone. Shale (10%), gray, greenish gray. Chert (trace), white, buff, light gray.
- 4140 - 4150 Limestone (80%), buff, tan, white, wackestone, mudstone. Shale (20%), gray, greenish gray, black. Chert (trace), white, tan, buff.
- 4150 - 4160 Limestone (80%), buff, tan, white, wackestone, mudstone. Shale (20%), gray, greenish gray, black. Chert (trace), white, tan, buff.
- 4160 - 4170 Limestone (80%), buff, fine crystalline. Shale (20%), gray, greenish gray, black, trace light red, purple, light green.

- 4170 - 4180 Limestone (80%), buff, light tan, mudstone, trace wackestone, dolomitic. Dolomite (5%), light tan, buff. Shale (15%), gray, purple, red, ochre, light green.
- 4180 - 4190 Limestone (95%), buff, light tan, mudstone, dolomitic. Shale (5%), gray, purple red, red-gray mottled.
- 4190 - 4200 Limestone (90%), buff, light tan, mudstone, dolomitic. Shale (10%), gray, purple, red, light green, red-gray mottled, ochre.
- 4200 - 4210 Limestone (90%), light tan, buff, mudstone, trace hematitic mudstone. Shale (10%), light gray, red, purple, ochre, red-gray mottled.
- 4210 - 4220 Limestone (70%), light tan, buff, mudstone, trace hematitic mudstone. Dolomite (20%), light gray, fine crystalline. Shale (10%), gray, light green, red, purple, ochre, red-gray mottled.
- 4220 - 4230 Limestone (40%), light tan, buff, mudstone, trace wackestone. Dolomite (50%), light gray, fine crystalline. Shale (10%), gray, light green, red, purple ochre.
- 4230 - 4240 Limestone (55%), light tan, buff, mudstone, trace wackestone. Dolomite (40%), light gray, fine crystalline. Shale (5%), gray, light green, red, purple ochre.
- 4240 - 4250 Dolomite (75%), light gray, fine crystalline. Limestone (10%), light tan, buff, mudstone, wackestone. Shale (15%), gray, greenish gray, red, purple, light green.
- 4250 - 4260 Dolomite (20%), light gray, fine crystalline. Limestone (10%), light tan, buff, mudstone, some wackestone. Shale (70%), gray, black, greenish gray, some red, purple, light green, ochre.

Fort Scott 4262', 4211' -1991'

- 4260 - 4270 Shale (65%), black, gray, grayish green, some light red, purple, ochre. Limestone (20%), white, buff, mudstone, wackestone. Dolomite (15%), light gray, fine crystalline. Chert (trace), white.
- 4270 - 4280 Shale (75%), black, gray, grayish green, trace, purple, red, light green. Limestone (25%), buff, white, wackestone, mudstone, trace buff packstone with vuggy porosity, light brown oil stain, yellow fluorescence, fair cut, delayed residual ring. Dolomite (trace), light gray, fine crystalline.
- 4280 - 4290 Limestone (60%), buff, white, light grayish tan, mudstone, wackestone. Shale (40%), black, gray, greenish gray, trace, light red, light green, purple. Dolomite (trace), light gray, fine crystalline.
- 4290 - 4300 Limestone (80%), buff, tan, some white, wackestone, mudstone, some packstone, some packstone has poor vuggy porosity, light brown oil stain, yellow fluorescence, fair cut, delayed residual ring. Shale (20%), black, gray, greenish gray, trace light red, light green, purple, ochre.

Cherokee Shale 4299', 4231' -2011'

4300 - 4310 Limestone (75%), buff, light grayish tan, wackestone, some packstone, mudstone, few pieces of wackestone and packstone have fair-poor vuggy porosity, light brown oil stain, yellow fluorescence, fair cut, delayed residual ring. Shale (25%), black, gray, greenish gray. Sandstone (trace), white, very fine grained, calcareous.

Cherokee Limestone 4306', 4235' -2015'

4310 - 4320 Limestone (95%), buff, tan, wackestone, packstone, some mudstone, some wackestone/packstone have fair vuggy porosity, light brown oil stain, yellow fluorescence, fair cut, delayed residual ring. Shale (5%), black, gray. Chert (trace), gray.

4320 - 4330 Limestone (90%), buff, tan, wackestone, packstone, some mudstone, some wackestone/packstone have fair vuggy porosity, light brown oil stain, yellow fluorescence, fair-poor cut, delayed residual ring. Shale (10%), black, gray, greenish gray. Note: Show may be dribble down from above.

4330 - 4340 Limestone (80%), buff, tan, wackestone, packstone, some mudstone, trace wackestone/packstone have fair vuggy porosity, light brown oil stain, yellow fluorescence, fair-poor cut, delayed residual ring. Shale (10%), black, gray, greenish gray. Chert (trace), white, tan.

4350 - 4360 Limestone (80%), buff, tan, light grayish tan, mudstone, wackestone, some packstone, trace wackestone/packstone have poor-fair vuggy porosity, light brown oil stain, yellow fluorescence, fair cut, good delayed residual ring. Shale (20%), black, gray, greenish gray. Chert (trace), white, gray. Sample 45% red shale cavings.

4360 - 4370 Limestone (90%), buff, tan, light grayish tan, mudstone, wackestone, trace packstone, few pieces wackestone/packstone have poor-fair vuggy porosity, light brown oil stain, yellow fluorescence, fair cut, good delayed residual ring. Shale (10%), black, gray, grayish green.

4370 - 4380 Limestone (70%), buff, light grayish tan, mudstone, wackestone, trace packstone, few pieces of wackestone/packstone have fair vuggy porosity, light brown oil stain, yellow fluorescence, fair cut, good delayed residual ring. Shale (30%), black, gray, greenish gray.

4380 - 4390 Limestone (70%), light grayish tan, mudstone, wackestone, some packstone, few pieces of wackestone, packstone with fair vuggy porosity, light brown oil stain, yellow fluorescence, fair cut, good delayed residual ring. Shale (30%), black, gray, greenish gray. Sample is 30% red shale cavings.

4390 - 4393 Limestone (80%), light grayish tan, mudstone, wackestone, some packstone, few pieces of wackestone/packstone with fair vuggy porosity, light brown oil stain, yellow fluorescence, fair cut, good delayed residual ring. Shale (20%), black, gray, greenish gray. Sample 25% cavings.

Trip for new drill motor assembly at 4395'.

- 4395 - 4400 Shale (70%), gray, greenish gray, black. Limestone (30%), buff, tan, wackestone, mudstone. Trip Sample.
- 4400 - 4410 Shale (65%), gray, greenish gray, black, light green, maroon, maroon-green mottled, red, red-gray mottled. Limestone (35%), tan, buff, wackestone, mudstone. Poor sample quality.
- 4410 - 4420 Shale (85%), gray, greenish gray, maroon, dark red, light green, purple, maroon-green mottled, light green, black. Limestone (15%), buff, tan, mudstone, wackestone. Sandstone (trace), light gray, fine-very fine grained, clay matrix. Poor sample quality.
- 4420 - 4430 Shale (75%), gray, greenish gray, maroon, light green, red, black, purple, purple shale is sandy. Limestone (25%), buff, tan, mudstone, wackestone. Sandstone (trace), light gray, purple, medium-very fine grained, clay matrix.. Chert (trace), white, light gray. Poor sample quality.
- 4430 - 4440 Shale (60%), gray, greenish gray, maroon, light green, bright kelly green, red, black. Limestone (15%), buff, tan, wackestone, mudstone. Dolomite (15%), light gray fine crystalline, trace vuggy porosity, light brown oil stain, yellow fluorescence, good cut good residual ring. Sandstone (10%), white, unconsolidated, coarse-fine grained, some clusters with clay matrix. Chert (trace), white, light yellow.
- 4440 - 4450 Shale (60%), gray, greenish gray, maroon, purple, maroon-green mottled, bright kelly green, red, black. Limestone (10%), buff, tan, mudstone, wackestone. Dolomite (20%), white, tan, fine crystalline, trace dolomite with dark brown oil stain, yellow fluorescence, good cut, good residual ring, some white dolomite with black organic staining. Sandstone (10%), white, tan, fine-very fine grained, some very coarse grained, clay matrix. Chert (trace), white, tan, light gray, light yellow.
- 4450 - 4460 Shale (60%), gray, greenish gray, maroon, purple, black, ochre, ochre-green mottled, red-green mottled, purple shale is sandy. Dolomite (30%), light tan, buff, fine crystalline, trace dolomite with poor vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Limestone (10%), buff, light tan, mudstone, wackestone. Chert (trace), white, light gray, tan.
- 4460 - 4470 Shale (65%), gray, greenish gray, maroon, purple, black, red, ochre, light green, bright kelly green, some shale is sandy. Dolomite (30%), buff, light tan, fine crystalline, trace dolomite with poor vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Limestone (5%), buff, white, wackestone, mudstone. Chert (trace), tan, white, light gray, light yellow, dark red. Sandstone (trace), white, light gray, granule-fine grained, unconsolidated, some clusters. Poor sample quality.

Warsaw 4478', 4308' -2089'

- 4470 - 4480 Shale (80%), gray, greenish gray, maroon, purple, black, red, ochre, light green, bright kelly green, some shale is sandy. Dolomite (20%), buff, light tan, fine crystalline, trace dolomite with poor vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Chert (trace), tan, white, light gray, light yellow, dark red. Sandstone (trace), white, light gray, granule-fine grained, unconsolidated, some clusters. Poor sample quality.
- 4480 - 4490 Shale (55%), gray, greenish gray, maroon, purple, black, red, ochre, light green, bright kelly green, some shale is sandy. Dolomite (45%), buff, light tan, fine crystalline, trace dolomite with poor-fair vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Chert (trace), tan, white, light gray, light yellow, dark red. Sandstone (trace), white, light gray, granule-fine grained, unconsolidated, some clusters. Poor sample quality.
- 4490 - 4500 Dolomite (80%), white, buff, tan, fine crystalline, some dolomite with poor-fair vuggy porosity, brown oil stain, yellow fluorescence, good cut good residual ring. Shale (20%), gray, greenish gray, light green, bright kelly green, red, maroon, ochre, some shale is sandy. Sandstone (trace), white, light gray, coarse-fine grained, unconsolidated. Chert (trace), white, light gray, tan.
- 4500 - 4503 Dolomite (70%), white, buff, tan, fine crystalline, some dolomite with poor-fair vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (30%), gray, greenish gray, light green, bright kelly green, red, black, maroon, ochre, some shale is sandy. Sandstone (trace), white, light gray, coarse-fine grained, unconsolidated. Chert (trace), white, light gray, tan. Circulated Sample.
- Trip for new directional assembly.*
- 4503 - 4510 Shale (90%), gray, greenish gray, light green, green, red, black, maroon, ochre, purple, some sandy shale. Dolomite (10%), white, buff, tan, fine crystalline, some dolomite with fair-poor vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Sandstone (trace), white, light gray, coarse-fine grained. Chert (trace), white, light gray. This is a composite sample made from seven samples taken over a four hour period. Poor sample quality.
- 4510 - 4520 Shale (85%), gray, greenish gray, light green, green, red, black, maroon, ochre, purple, some sandy shale. Dolomite (15%), white, buff, tan, fine crystalline, some dolomite with fair-poor vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Sandstone (trace), white, light gray, coarse-fine grained. Chert (trace), white, light gray. This is a composite sample made from eight samples taken over a four hour period. Poor sample quality.
- Trip for new directional assembly and rig repairs at 4522 feet.*

- 4520 - 4530 Shale (90%), gray, greenish gray, light green, green, bright green, red, black, maroon, ochre, purple, mottled varicolored shales, some sandy shale. Dolomite (10%), white, buff, tan, fine crystalline, trace dolomite with poor-fair vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Chert (trace), white, light gray. Very poor sample quality.
- 4530 - 4540 Shale (80%), gray, greenish gray, light green, green, bright green, red, black, maroon, ochre, purple, mottled varicolored shales, some sandy shale. Dolomite (10%), white, buff, tan, fine crystalline, trace dolomite with poor-fair vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Chert (trace), white, light gray. Sandstone (trace), white, coarse-fine grained. Very poor sample quality.
- 4540 - 4550 Shale (75%), gray, greenish gray, light green, green, bright green, red, black, maroon, ochre, purple, mottled varicolored shales, some sandy shale. Dolomite (25%), white, buff, tan, fine crystalline, trace dolomite with poor-fair vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Chert (trace), white, tan, orange, light gray. Very poor sample quality.
- Osage 4550', 4321.55' -2102.15'**
- 4550 - 4560 Shale (65%), gray, greenish gray, light green, green, bright green, red, black, maroon, ochre, purple, mottled varicolored shales, some sandy shale. Dolomite (35%), white, buff, tan, fine crystalline, trace dolomite with poor-fair vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Chert (trace), white, tan, orange, light gray. Very poor sample quality.
- 4560 - 4570 Shale (60%), gray, greenish gray, light green, green, bright green, red, black, maroon, ochre, purple, mottled varicolored shales, some sandy shale. Dolomite (35%), white, buff, tan, fine crystalline, trace dolomite with poor-fair vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Chert (5%), white, tan, light gray. Very poor sample quality. Beginning to mud up hole.
- 4570 - 4580 Shale (55%), gray, greenish gray, light green, green, bright green, red, black, maroon, ochre, purple, mottled varicolored shales, some sandy shale. Dolomite (35%), white, buff, tan, fine crystalline, trace dolomite with poor-fair vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Chert (10%), white, tan, light gray. Very poor sample quality.
- 4580 - 4590 Shale (35%), gray, greenish gray, light green, green, bright green, red, black, maroon, ochre, purple, mottled varicolored shales, some sandy shale. Dolomite (35%), white, buff, tan, fine crystalline, trace dolomite with poor-fair vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Chert (30%), white, tan, light gray. Sample quality improving.

- 4590 - 4600 Dolomite (40%), white, buff, tan, fine crystalline, sucrosic, some dolomite has fair vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Chert (30%), white, light gray tan. Shale (30%), gray, greenish gray, light green, bright green, red, red-gray mottled, ochre, purple.
- 4600 - 4610 Chert (85%), white, light gray. Dolomite (15%), tan, buff, fine crystalline, sucrosic, most dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring. Note: Mudded up hole, percentage of shale cavings is going down. Sample quality is improving.
- 4610 - 4620 Chert (90%), white, light gray. Dolomite (10%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4620 - 4630 Chert (85%), white, light gray. Dolomite (15%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4630 - 4640 Chert (95%), white, light gray. Dolomite (5%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4640 - 4650 Chert (95%), white, light gray. Dolomite (5%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4650 - 4660 Chert (85%), white, light gray. Dolomite (15%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring. Cavings are increasing in samples.
- 4660 - 4670 Chert (90%), white, light gray. Dolomite (10%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4670 - 4675 Chert (90%), white, light gray. Dolomite (10%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- Stuck drill pipe at 4675 TD. Spot Oil. Pipe popped Free. Trip for new directional drilling assembly.*
- 4675 - 4680 Chert (90%), white, light gray. Dolomite (10%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4680 - 4690 Chert (75%), white, light gray. Dolomite (25%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.

- 4690 - 4700 Chert (70%), white, light gray. Dolomite (30%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4700 - 4710 Chert (85%), white, light gray. Dolomite (15%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4710 - 4720 Chert (85%), white, light gray. Dolomite (15%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4720 - 4730 Chert (90%), white, light gray. Dolomite (10%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4730 - 4740 Chert (90%), white, light gray. Dolomite (10%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4740-4750 Chert (95%), white, light gray. Dolomite (5%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4750-4760 Chert (75%), white, light gray. Dolomite (25%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4760 - 4770 Chert (80%), white, light gray. Dolomite (20%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4770 - 4780 Chert (90%), white, light gray. Dolomite (10%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4780 - 4790 Chert (85%), white, light gray. Dolomite (15%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring.
- 4790 - 4800 Chert (90%), white, light gray. Dolomite (10%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (trace), bright green, some green-white mottled, sandy.
- 4800 - 4810 Chert (95%), white, light gray. Dolomite (5%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (trace), bright green, some green-white mottled, sandy.

- 4810 - 4820 Chert (95%), white, light gray. Dolomite (5%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (trace), bright green, some green-white mottled, some sandy shale.
- 4820 - 4830 Chert (95%), white, light gray. Dolomite (5%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (trace), bright green, some green-white mottled, some sandy shale.
- 4830 - 4835 Chert (95%), white, light gray. Dolomite (5%), tan, buff, fine crystalline, sucrosic, some vuggy porosity, most of crystalline dolomite and all of sucrosic dolomite has brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (trace), bright green, some green-white mottled, some sandy shale.
- Casing Point 4835 Feet.***
- 4835 - 4850 Dolomite (60%), white, buff, fine crystalline, sample has some yellow fluorescence, brown oil stain, good batch cut, good residual ring, cuttings are to small for visual porosity determination. Chert (40%), white, light gray. Shale (trace), light green, sandy. Sample has abundant granule-coarse grained unconsolidated sandstone which is thought to be associated with the green shale.
- 4850 - 4860 Dolomite (75%), white, buff, fine crystalline, sample has some yellow fluorescence, brown oil stain, good batch cut, good residual ring, cuttings are to small for visual porosity determination. Chert (25%), white, light gray. Shale (trace), light green, sandy.
- 4860 - 4870 Dolomite (80%), white, buff, fine crystalline, sample has some yellow fluorescence, brown oil stain, good batch cut, good residual ring, cuttings are to small for visual porosity determination. Chert (20%), white, light gray. Shale (trace), light green, sandy.
- 4870 - 4880 Dolomite (90%), white, buff, fine crystalline, sample has some yellow fluorescence, brown oil stain, good batch cut, good residual ring, cuttings are to small for visual porosity determination. Chert (10%), white, light gray. Shale (trace), light green, sandy.
- 4880 - 4890 Dolomite (90%), white, buff, fine crystalline, sample has some yellow fluorescence, brown oil stain, good batch cut, good residual ring, cuttings are to small for visual porosity determination. Chert (10%), white, light gray. Shale (trace), light green, sandy.
- 4890 - 4900 Dolomite (95%), white, buff, fine crystalline, sample has some yellow fluorescence, brown oil stain, good batch cut, good residual ring, cuttings are to small for visual porosity determination. Chert (5%), white, light gray. Shale (trace), light green, sandy.

- 4900 - 4910 Dolomite (95%), white, buff, fine crystalline, sample has some yellow fluorescence, brown oil stain, good batch cut, good residual ring, cuttings are to small for visual porosity determination. Chert (5%), white, light gray. Shale (trace), light green, sandy.
- 4910 - 4920 Dolomite (95%), white, buff, fine crystalline, sample has some yellow fluorescence, brown oil stain, good batch cut, good residual ring, cuttings are to small for visual porosity determination. Chert (5%), white, light gray. Shale (trace), light green, sandy.
- 4920 - 4930 Dolomite (90%), white, buff, fine crystalline, sample has some yellow fluorescence, brown oil stain, good batch cut, good residual ring, cuttings are to small for visual porosity determination. Chert (10%), white, light gray. Shale (trace), light green, sandy.
- 4930 - 4940 Dolomite (90%), white, buff, fine crystalline, sample has some yellow fluorescence, brown oil stain, good batch cut, good residual ring, cuttings are to small for visual porosity determination. Chert (10%), white, light gray. Shale (trace), light green, sandy.
- 4940 - 4950 Dolomite (90%), white, buff, fine crystalline, sample has some yellow fluorescence, brown oil stain, good batch cut, good residual ring, cuttings are to small for visual porosity determination. Chert (10%), white, light gray. Shale (trace), light green, sandy.
- 4950 - 4960 Dolomite (90%), white, buff, fine crystalline, sample has some yellow fluorescence, brown oil stain, good batch cut, good residual ring, cuttings are to small for visual porosity determination. Chert (10%), white, light gray. Shale (trace), light green, sandy.
- 4960 - 4970 Dolomite (90%), white, buff, fine crystalline, sample has some yellow fluorescence, brown oil stain, good batch cut, good residual ring, cuttings are to small for visual porosity determination. Chert (10%), white, light gray. Shale (trace), light green, sandy.
- 4970 - 4980 Dolomite (80%), white, buff, fine crystalline, sample has some yellow fluorescence, brown oil stain, good batch cut, good residual ring, cuttings are to small for visual porosity determination. Chert (10%), white, light gray. Shale (10%), light to bright green.
- 4980 - 4990 Dolomite (70%), white, buff, fine crystalline, increase from above in yellow fluorescence, increase to 10% of dolomite with brown oil stain, some with fast streaming cut, good residual ring, some micro-sucrosic porosity and earthy appearance to oil stained dolomite. Chert (20%), white, light gray, some with spotty light brown oil stain and fast cut. Shale (10%), light to bright green, sandy.

- 4990 - 5000 Dolomite (70%), white, buff, fine crystalline, increase from above in yellow fluorescence, 10% of dolomite with brown oil stain, some fast streaming cut, good residual ring, some micro-sucrosic porosity and earthy appearance to oil stained dolomite. Chert (20%), white, light gray, some with spotty light brown oil stain and fast cut. Shale (10%), light to bright green, sandy.
- 5000 - 5010 Dolomite (70%), white, buff, fine crystalline, continued increase in above in yellow fluorescence, 20% of dolomite with brown oil stain, some with fast streaming cut, good residual ring, some micro-sucrosic porosity and earthy appearance to oil stained dolomite. Chert (20%), white, light gray, some with spotty light brown oil stain and fast cut. Shale (10%), light to bright green, sandy.
- 5010 - 5020 Dolomite (50%), brown,white, buff, fine crystalline, continued increase in above in yellow fluorescence, 40% of dolomite with light to dark brown oil stain, most with fast streaming cut, good residual ring, increase in micro-sucrosic porosity and earthy appearance to oil stained dolomite. Chert (40%), light brown, white, light gray, some with spotty light brown oil stain and fast cut. Shale (10%), light to bright green, sandy.
- 5020 - 5030 Dolomite (60%), brown,white, buff, fine crystalline, continued increase in above in yellow fluorescence, 40% of dolomite with light to dark brown oil stain, most with fast streaming cut, good residual ring, increase in micro-sucrosic porosity and earthy appearance to oil stained dolomite. Chert (30%), light brown, white, light gray, some with spotty light brown oil stain and fast cut. Shale (10%), light to bright green, sandy.
- 5030 - 5040 Dolomite (50%), brown,white, buff, fine crystalline, continued increase in above in yellow fluorescence, 50% of dolomite with light to dark brown oil stain, most with fast streaming cut, good residual ring, increase in micro-sucrosic porosity and earthy appearance to oil stained dolomite. Chert (40%), light brown, white, light gray, some with spotty light brown oil stain and fast cut. Shale (10%), light to bright green, sandy.
- 5040 - 5050 Dolomite (50%), brown,white, buff, fine crystalline, continued increase in above in yellow fluorescence, 50% of dolomite with light to dark brown oil stain, most with fast streaming cut, good residual ring, increase in micro-sucrosic porosity and earthy appearance to oil stained dolomite. Chert (40%), light brown, white, light gray, some with spotty light brown oil stain and fast cut. Shale (10%), light to bright green,sandy.
- 5050 - 5060 Dolomite (50%), brown,white, buff, fine crystalline, continued increase in above in yellow fluorescence, 50% of dolomite with light to dark brown oil stain, most with fast streaming cut, good residual ring, increase in micro-sucrosic porosity and earthy appearance to oil stained dolomite. Chert (40%), light brown, white, light gray, some with spotty light brown oil stain and fast cut . Shale (10%), light to bright green,sandy.

- 5060 - 5070 Dolomite (45%), brown, white, buff, fine crystalline, continued increase in above in yellow fluorescence, 50% of dolomite with light to dark brown oil stain, most with fast streaming cut, good residual ring, increase in micro-sucrosic porosity and earthy appearance to oil stained dolomite. Chert (45%), light brown, white, light gray, some with spotty light brown oil stain and fast cut. Shale (10%), light to bright green, sandy.
- 5070 - 5080 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (40%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, light to heavy brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%), light to bright green, some slightly dolomitic, sandy.
- 5080 - 5090 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (40%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, light to heavy brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%), light to bright green, some slightly dolomitic, sandy.
- 5080 - 5090 Chert (55%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%), light to bright green, often mottled, some slightly dolomitic, sandy.
- 5090 - 5100 Chert (55%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%) tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%), light to bright green, often mottled, some slightly dolomitic, sandy.
- 5100 - 5110 Chert (55%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%), light to bright green, often mottled, some slightly dolomitic, sandy.
- 5110 - 5120 Chert (55%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%) light to bright green, often mottled, some slightly dolomitic, sandy.

- 5120 - 5130 Chert (55%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%), light to bright green, sandy.
- 5130 - 5140 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (40%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%), light to bright green, sandy.
- 5140 - 5150 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (40%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%) light to bright green.
- 5150 - 5160 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, all porosity with brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5160 - 5170 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (40%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%), light to bright green, sandy.
- 5170 - 5180 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5180 - 5190 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5190 - 5200 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.

- 5200 - 5210 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5210 - 5220 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5220 - 5230 Chert (45%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (50%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5230 - 5240 Chert (40%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (50%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%), light to bright green, sandy.
- 5240 - 5250 Chert (35%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (55%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%), light to bright green, sandy.
- 5250 - 5260 Chert (60%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (35%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5260 - 5270 Chert (65%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (30%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%) light to bright green, sandy.
- 5270 - 5280 Chert (55%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (40%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green.

- 5280 - 5290 Chert (55%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (40%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5290 - 5300 Chert (60%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (35%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5300 - 5310 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5310 - 5320 Chert (40%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (55%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5320 - 5330 Chert (35%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (60%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5330 - 5340 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green sandy.
- 5340 - 5350 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%) light to bright green, sandy.
- 5350 - 5360 Chert (60%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (35%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.

- 5360 - 5370 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (45%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5370 - 5380 Chert (45%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (50%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5380 - 5390 Chert (60%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (35%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5390 - 5400 Chert (65%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (30%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5400 - 5410 Chert (60%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (35%) tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5410 - 5420 Chert (60%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (35%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5420 - 5430 Chert (55%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (40%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.
- 5430 - 5440 Chert (55%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (40%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, sandy.

- 5440 - 5450 Chert (60%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (35%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (5%), light to bright green, often with mottled appearance, some slightly sandy.
- 5450 - 5460 Chert (55%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (35%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%) light to bright green, often with mottled appearance, some slightly sandy
- 5460 - 5470 Chert (55%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (35%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%), light to bright green, often with mottled appearance, some slightly sandy.
- 5470 - 5480 Chert (55%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (35%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%), light to bright green, often with mottled appearance, some slightly sandy.
- 5480 - 5490 Chert (60%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (30%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%), light to bright green, often with mottled appearance, some slightly sandy
- 5490 - 5500 Chert (50%), white, light gray, light brown, some with fluorescence and spotty light brown stain. Dolomite (40%), tan, buff, white, scattered patches of micro-sucrosic porosity, some with pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, most with fast streaming cut, good residual ring. Shale (10%), light to bright green, often with mottled appearance, some slightly sandy
- 5500 - 5510 Chert (50%), white, light gray, tan. Dolomite (45%), tan, buff, white, fine crystalline, fine sucrosic, some dolomite with vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, mottled green and white, dolomitic, sandy. Cuttings are very small in size. Visual porosity is an estimation.

- 5510-5520 Chert (55%), white, light gray, tan. Dolomite (40%), tan, buff, white, fine crystalline, fine sucrosic, some dolomite with vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, mottled green and white, dolomitic, sandy.
- 5520 - 5530 Chert (30%), white, light gray, tan. Dolomite (65%), tan, buff, white, fine crystalline, fine sucrosic, some dolomite with vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, mottled green and white, dolomitic, sandy.
- 5530 - 5540 Chert (30%), white, light gray, tan. Dolomite (65%), tan, buff, white, fine crystalline, fine sucrosic, some dolomite with vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, mottled green and white, dolomitic, sandy.
- 5540 - 5550 Chert (45%), white, light gray, tan. Dolomite (50%), tan, buff, white, fine crystalline, fine sucrosic, some dolomite with vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, mottled green and white, dolomitic, sandy. Cuttings are very small in size. Visual porosity is an estimation.
- 5550 - 5560 Chert (40%), white, light gray, tan. Dolomite (55%), tan, buff, white, fine crystalline, fine sucrosic, some dolomite with vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, mottled green and white, dolomitic, sandy.
- 5560 - 5570 Chert (40%), white, light gray, tan. Dolomite (55%), tan, buff, white, fine crystalline, fine sucrosic, some dolomite with vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, mottled green and white, dolomitic, sandy.
- 5570 - 5580 Chert (45%), white, light gray, tan. Dolomite (50%), tan, buff, white, fine crystalline, fine sucrosic, some dolomite with vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, mottled green and white, dolomitic, sandy.
- 5580 - 5590 Chert (45%), white, light gray, tan. Dolomite (50%), tan, buff, white, fine crystalline, fine sucrosic, some dolomite with vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, mottled green and white, dolomitic, sandy.
- 5590 - 5600 Chert (45%), white, light gray, tan. Dolomite (50%), tan, buff, white, fine crystalline, fine sucrosic, some dolomite with vuggy porosity, brown oil stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, mottled green and white, dolomitic, sandy. Cuttings are very small in size. Visual porosity is an estimation.

- 5600 - 5610 Chert (45%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, patches of micro-sucrosic porosity, scattered pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, sandy. Cuttings are very small in size.
- 5610 - 5620 Chert (45%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, patches of micro-sucrosic porosity, scattered pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, sandy. Cuttings are very small in size.
- 5620 - 5630 Chert (50%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, patches of micro-sucrosic porosity, scattered pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, mottled green and white, dolomitic, sandy. Cuttings are very small in size.
- 5630 - 5640 Chert (50%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, patches of micro-sucrosic porosity, scattered pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, mottled green and white, dolomitic, sandy. Cuttings are very small in size.
- 5640 - 5650 Chert (45%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, patches of micro-sucrosic porosity, scattered pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, sandy. Cuttings are very small in size.
- 5650 - 5660 Chert (45%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, patches of micro-sucrosic porosity, scattered pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, sandy. Cuttings are very small in size.
- 5660 - 5670 Chert (45%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, patches of micro-sucrosic porosity, scattered pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, sandy. Cuttings are very small in size.
- 5670 - 5680 Chert (50%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, sandy. Cuttings are very small in size.

- 5700 - 5710 Chert (45%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, sandy. Cuttings are very small in size.
- 5710 - 5720 Chert (45%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, some very slightly sandy. Cuttings are very small in size.
- 5720 - 5730 Chert (45%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, less common patches of micro-sucrosic porosity from previous samples, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, some very slightly sandy. Cuttings are very small in size.
- 5730 - 5740 Chert (50%), white, light gray, tan. Dolomite (40%), tan, buff, white, very fine crystalline, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, some very slightly sandy. Cuttings are very small in size.
- 5740 - 5750 Chert (45%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, some very slightly sandy. Cuttings are very small in size.
- 5750 - 5760 Chert (50%), white, light gray, tan. Dolomite (40%), tan, buff, white, very fine crystalline, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, some very slightly sandy. Cuttings are very small in size.
- 5760 - 5770 Chert (55%), white, light gray, tan. Dolomite (35%), tan, buff, white, very fine crystalline, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, some very slightly sandy. Cuttings are very small in size.
- 5770 - 5780 Chert (55%), white, light gray, tan. Dolomite (35%), tan, buff, white, very fine crystalline, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, some very slightly sandy. Cuttings are very small in size.

- 5780 - 5790 Chert (55%), white, light gray, tan. Dolomite (35%), tan, buff, white, very fine crystalline, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, some very slightly sandy. Cuttings are very small in size.
- 5790 - 5800 Chert (50%), white, light gray, tan. Dolomite (40%), tan, buff, white, very fine crystalline, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, some very slightly sandy. Cuttings are very small in size.
- 5800 - 5810 Chert (50%), white, light gray, tan. Dolomite (40%), tan, buff, white, very fine crystalline, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, some very slightly sandy. Cuttings are very small in size.
- 5800 - 5810 Chert (45%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, increase in light gray sandy and argillaceous earthy dolomite with black carbonaceous inclusions, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, some very slightly sandy.
- 5810 - 5820 Chert (45%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, mottled green and white, dolomitic, some very slightly sandy.
- 5820 - 5830 Chert (50%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, increase in scattered patches of micro-sucrosic porosity from previous sample, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, often mottled green and white, dolomitic, some very slightly sandy.
- 5830 - 5840 Chert (45%), white, light gray, tan. Dolomite (40%), tan, buff, white, very fine crystalline, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, often mottled green and white, dolomitic, some very slightly sandy.
- 5840 - 5850 Chert (50%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, often mottled green and white, dolomitic, some very slightly sandy.

- 5850 - 5860 Chert (50%), white, light gray, tan. Dolomite (45%), tan, buff, white, very fine crystalline, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, often mottled green and white, dolomitic, some very slightly sandy.
- 5860 - 5870 Chert (50%), white, light gray, tan. Dolomite (40%), tan, buff, white, very fine crystalline, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, often mottled green and white, dolomitic, some very slightly sandy.
- 5870 - 5880 Chert (50%), white, light gray, tan, some with black dead oil stain. Dolomite (40%), tan, buff, white, very fine crystalline, scattered patches of micro-sucrosic porosity, rare pin-point vuggy porosity, variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, light gray, often mottled green and white, dolomitic, some very slightly sandy.
- 5880 - 5890 Chert (65%), white, buff, tan, some with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, some fine sucrosic, some dolomite with vuggy porosity, light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, light gray, some green and white mottled, sandy.
- 5890 - 5900 Chert (50%), white, buff, tan, some with black bitumen staining, no fluorescence but good cut. Dolomite (45%), tan, buff, white, very fine crystalline, some fine sucrosic, some dolomite with vuggy porosity, light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, light gray, some green-white and green-gray mottled, sandy.
- 5900 - 5910 Chert (65%), white, buff, tan, trace orange, some with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, some fine sucrosic, some dolomite with vuggy porosity, light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, light gray, some green-white and green-gray mottled, sandy, sand grains are unconsolidated coarse grained-granule, rounded, subrounded, some are etched.

- 5910 - 5920 Chert (70%), white, buff, tan, some with black bitumen staining, no fluorescence but good cut. Dolomite (25%), tan, buff, white, very fine crystalline, some fine sucrosic, some dolomite with vuggy porosity, light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, light gray, some green-white and green-gray mottled, sandy.
- 5920 - 5930 Chert (70%), white, buff, tan, trace red, some with black bitumen staining, no fluorescence but good cut. Dolomite (25%), tan, buff, white, very fine crystalline, some fine sucrosic, some dolomite with vuggy porosity, light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, light gray, some green-white and green-gray mottled, sandy.
- 5930 - 5940 Chert (70%), white, buff, tan, some with black bitumen staining, no fluorescence but good cut. Dolomite (20%), tan, buff, white, very fine crystalline, some fine sucrosic, some dolomite with vuggy porosity, slight increase in dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (10%), light green, light gray, some green-white and green-gray mottled, sandy.
- 5940 - 5950 Chert (75%), white, buff, tan, some with black bitumen staining, no fluorescence but good cut. Dolomite (15%), tan, buff, white, very fine crystalline, some fine sucrosic, some dolomite with vuggy porosity, some dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (10%), light green, light gray, some green-white and green-gray mottled, sandy.
- 5950 - 5960 Chert (75%), white, buff, tan, some with black bitumen staining, no fluorescence but good cut. Dolomite (25%), tan, buff, white, very fine crystalline, some fine sucrosic, some dolomite with vuggy porosity, some dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (trace), light green, light gray, some green-white and green-gray mottled, sandy.
- 5960 - 5970 Chert (80%), white, buff, tan, some with black bitumen staining, no fluorescence but good cut. Dolomite (20%), tan, buff, white, very fine crystalline, some fine sucrosic, some dolomite with vuggy porosity, some dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (trace), light green, light gray, some green-white and green-gray mottled, sandy.

- 5970 - 5980 Chert (70%), white, buff, tan, trace orange, some with black bitumen staining, no fluorescence but good cut. Dolomite (25%), tan, buff, white, very fine crystalline, trace fine sucrosic, some dolomite with vuggy porosity, some dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, light gray, some green-white and green-gray mottled, sandy.
- 5980-5990 Chert (80%), white, buff, tan, some with black bitumen staining, no fluorescence but good cut. Dolomite (15%), tan, buff, white, very fine crystalline, trace fine sucrosic, some dolomite with vuggy porosity, some dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (5%), light green, light gray, some green-white and green-gray mottled, sandy.
- 5990 - 6000 Chert (75%), white, buff, tan, trace orange, some with black bitumen staining, no fluorescence but good cut. Dolomite (15%), tan, buff, white, very fine crystalline, trace fine sucrosic, some dolomite with vuggy porosity, some dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (10%), light green, light gray, some green-white and green-gray mottled, sandy.
- 6000 - 6010 Chert (75%), white, buff, tan, trace orange, some with black bitumen staining, no fluorescence but good cut. Dolomite (15%), tan, buff, white, very fine crystalline, trace fine sucrosic, some dolomite with vuggy porosity, some dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (10%), light green, light gray, some green-white and green-gray mottled, sandy.
- 6010 - 6020 Chert (75%), white, buff, tan, trace orange, some with black bitumen staining, no fluorescence but good cut. Dolomite (15%), tan, buff, white, very fine crystalline, trace fine sucrosic, some dolomite with vuggy porosity, some dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (10%), light green, light gray, some green-white and green-gray mottled, sandy. Shale (trace) dark red, karst ?.
- 6020 - 6030 Chert (70%), white, buff, tan, some with black bitumen staining, no fluorescence but good cut. Dolomite (20%), tan, buff, white, very fine crystalline, trace fine sucrosic, some dolomite with vuggy porosity, some dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (10%), light green, light gray, some green-white and green-gray mottled, sandy, trace dark red shale.

- 6030 - 6040 Chert (70%), white, buff, tan, trace red, some with black bitumen staining, no fluorescence but good cut. Dolomite (20%), tan, buff, white, very fine crystalline, trace fine sucrosic, some dolomite with vuggy porosity, some dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (10%), light green, light gray, some green-white and green-gray mottled, sandy.
- 6040 - 6050 Chert (65%), white, buff, tan, trace red, some with black bitumen staining, no fluorescence but good cut. Dolomite (25%), tan, buff, white, very fine crystalline, trace fine sucrosic, some dolomite with vuggy porosity, some dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (10%), light green, light gray, some green-white and green-gray mottled, sandy.
- 6050 - 6060 Chert (60%), white, buff, tan, trace red, some with black bitumen staining, no fluorescence but good cut. Dolomite (25%), tan, buff, white, very fine crystalline, trace fine sucrosic, some dolomite with vuggy porosity, some dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (15%), light green, light gray, some green-white and green-gray mottled, sandy.
- 6060 - 6070 Chert (65%), white, buff, tan, trace red, some with black bitumen staining, no fluorescence but good cut. Dolomite (25%), tan, buff, white, very fine crystalline, trace fine sucrosic, some dolomite with vuggy porosity, some dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (10%), light green, light gray, some green-white and green-gray mottled, sandy.
- 6070 - 6080 Chert (60%), white, buff, tan, trace red, some with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, trace fine sucrosic, some dolomite with vuggy porosity, some dolomite with light-dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (10%), light green, light gray, some green-white and green-gray mottled, sandy.
- 6080 - 6090 Chert (60%), white, buff, tan, trace red, some with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, trace fine sucrosic, some dolomite with vuggy porosity, some dolomite with light to dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (10%), light green, light gray, some green-white and green-gray mottled, sandy.

- 6090 - 6100 Chert (60%), white, buff, tan, trace red, some with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, trace fine sucrosic, some dolomite with vuggy porosity, some dolomite with light to dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (10%), light green, light gray, some green-white and green-gray mottled, sandy.
- 6100 - 6110 Chert (55%), white, buff, tan, trace red and orange, some with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, trace fine sucrosic, rare dolomite with vuggy porosity, some dolomite with light to dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (15%), light green, light gray, light tan, some green-white and green-gray mottled, some sandy.
- 6110 - 6120 Chert (55%), white, buff, tan, trace red and orange, some with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with light to dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (15%), light green, light gray, light tan, some green-white and green-gray mottled, some sandy.
- 6120 - 6130 Chert (55%), white, buff, tan, trace red and orange, some with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with light to dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (15%), light green, light gray, light tan, some green-white and green-gray mottled, some sandy.
- 6130 - 6140 Chert (55%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, increase in dolomite with light to dark brown oil stain, yellow fluorescence, good cut good residual ring, sucrosic dolomite has even brown stain, yellow fluorescence, good cut, good residual ring. Shale (10%), light green, light gray, light tan, some green-white and green-gray mottled, some sandy.
- 6140 - 6150 Chert (60%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (30%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (10%), light green, light gray, light tan, some green-white and green-gray mottled, some sandy.

- 6150 - 6160 Chert (60%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (25%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (15%), light green, light gray, light tan, some green-white and green-gray mottled, some sandy.
- 6160 - 6170 Chert (60%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (25%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (15%), light green, light gray, light tan, some green-white and green-gray mottled, some sandy.
- 6170 - 6180 Chert (65%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (25%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (10%), light green, light gray, light tan, some green-white and green-gray mottled, some sandy.
- 6180 - 6190 Chert (65%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (25%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (10%), light green, light gray, light tan, some green-white and green-gray mottled, some sandy.
- 6190 - 6200 Chert (60%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (30%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (10%), light green, light gray, light tan, some green-white and green-gray mottled, some sandy.
- 6200 - 6210 Chert (60%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (30%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (10%), light green, light gray, light tan, some green-white and green-gray mottled, some sandy.

- 6210 - 6220 Chert (60%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (25%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (15%), light green, light gray, light tan, rare pink and red, some green-white and green-gray mottled, some sandy.
- 6220 - 6230 Chert (60%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (30%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (10%), light green, light gray, light tan, rare pink and red, some green-white and green-gray mottled, some sandy.
- 6230 - 6240 Chert (60%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (25%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (15%), light green, light gray, light tan, rare pink and red, some green-white and green-gray mottled, some sandy.
- 6240 - 6250 Chert (60%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (25%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (15%), light green, light gray, light tan, rare pink and red, some green-white and green-gray mottled, some sandy.
- 6250 - 6260 Chert (60%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (30%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (10%), light green, light gray, light tan, rare pink and red, some green-white and green-gray mottled, some sandy.
- 6260 - 6270 Chert (60%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (30%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (10%), light green, light gray, light tan, rare pink and red, some green-white and green-gray mottled, some sandy.

- 6270 - 6280 Chert (65%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (25%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (10%), light green, light gray, light tan, rare pink and red, some green-white and green-gray mottled, some sandy.
- 6280 - 6290 Chert (60%), white, buff, tan, trace red and orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (30%), tan, buff, white, very fine crystalline, trace very fine to micro-sucrosic, rare dolomite with vuggy porosity, most dolomite with variable light to dark brown oil stain, yellow fluorescence, good cut good residual ring. Shale (10%), light green, light gray, light tan, rare pink and red, some green-white and green-gray mottled, some sandy.
- 6280 - 6290 Chert (65%), white, buff, tan, rare orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (25%), tan, buff, white, very fine crystalline, dense with some patches of micro-sucrosic porosity, rare pin-point vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), predominately light green, varicolored, most with mottled appearance, some sandy.
- 6290 - 6300 Chert (65%), white, buff, tan, rare orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (25%), tan, buff, white, very fine crystalline, dense with some patches of micro-sucrosic porosity, rare pin-point vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), predominately light green, varicolored, most with mottled appearance, some sandy.
- 6300 - 6310 Chert (65%), white, buff, tan, rare orange, trace with black bitumen staining, no fluorescence but good cut, trace with spotty light brown stain. Dolomite (25%), tan, buff, white, very fine crystalline, dense with some patches of micro-sucrosic porosity, rare pin-point vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), predominately light green, varicolored, most with mottled appearance, some sandy.
- 6310 - 6320 Chert (70%), white, buff, tan, trace with black bitumen staining, no fluorescence but good cut. Dolomite (25%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray some green-gray mottled, some sandy, coarse grained-granules, unconsolidated, rounded-subrounded, some grains are etched.

- 6320 - 6330 Chert (75%), white, buff, tan, trace with black bitumen staining, no fluorescence but good cut. Dolomite (20%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray some green-gray mottled, some sandy.
- 6330 - 6340 Chert (75%), white, buff, tan, trace orange and red, trace with black bitumen staining, no fluorescence but good cut. Dolomite (20%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray some green-gray mottled, some sandy.
- 6340 - 6350 Chert (70%), white, buff, tan, trace orange and red, trace with black bitumen staining, no fluorescence but good cut. Dolomite (20%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring, increase in dolomite with oil staining from last sample. Shale (5%), light green, light gray, some green-gray mottled, trace red shale, some sandy.
- 6350 - 6360 Chert (65%), white, buff, tan, trace orange and red, trace with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, trace red shale, some sandy.
- 6360 - 6370 Chert (75%), white, buff, tan, trace yellow, trace with black bitumen staining, no fluorescence but good cut. Dolomite (20%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6370 - 6380 Chert (70%), white, buff, tan, trace yellow, trace with black bitumen staining, no fluorescence but good cut. Dolomite (20%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, light gray, some green-gray mottled, some sandy.
6380. - 6390 Chert (75%), white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (20%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.

- 6390 - 6400 Chert (65%), white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6400 - 6410 Chert (65%), white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6410 - 6420 Chert (65%), white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6420 - 6430 Chert (60%), white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6430 - 6440 Chert (60%), white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, light gray, some green-gray mottled, some sandy.
- 6440 - 6450 Chert (60%), white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, light gray, some green-gray mottled, some sandy.
- 6450 - 6460 Chert (60%), white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, light gray, some green-gray mottled, some sandy.
- 6460 - 6470 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, light gray, some green-gray mottled, some sandy.

- 6470 - 6480 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, light gray, some green-gray mottled, some sandy.
- 6480 - 6490 Chert (60%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6490 - 6500 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6500 - 6510 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6510 - 6520 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6520 - 6530 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6530 - 6540 Chert (60%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6540 - 6550 Chert (60%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.

- 6550 - 6560 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, light gray, some green-gray mottled, some sandy.
- 6560 - 6570 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6570 - 6580 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6580 - 6590 Chert (50%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, light gray, some green-gray mottled, some sandy.
- 6590 - 6600 Chert (50%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (10%), light green, light gray, some green-gray mottled, some sandy.
- 6600 - 6610 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6610 - 6620 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6620 - 6630 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.

- 6630 - 6640 Chert (60%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6640 - 6650 Chert (60%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6650 - 6660 Chert (60%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6660 - 6670 Chert (60%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6670 - 6680 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6670 - 6680 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6680 - 6690 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6690 - 6700 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.

- 6700 - 6710 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-
- 6710 - 6720 Chert (55%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6720 - 6730 Chert (60%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6730 - 6740 Chert (60%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.
- 6740 - 6750 Chert (65%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (trace), light green, light gray, some green-gray mottled, some sandy.
- 6750 - 6760 Chert (60%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (trace), light green, light gray, some green-gray mottled, some sandy. Flood of cement.
- 6760 - 6770 Chert (60%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (40%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (trace), light green, light gray, some green-gray mottled, some sandy. Flood of cement.
- 6770 - 6780 Chert (65%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (30%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy. Flood of cement.

6780 - 6790 Chert (60%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.

6790 - 6795 Chert (60%) white, buff, tan, trace orange, trace with black bitumen staining, no fluorescence but good cut. Dolomite (35%), tan, buff, white, very fine crystalline, sucrosic, trace vuggy porosity, all porosity with variable light to dark brown oil stain, yellow fluorescence, fast streaming cut, good residual ring. Shale (5%), light green, light gray, some green-gray mottled, some sandy.

Total Depth 6795', True Vertical Depth 4326' -2107'

SUMMARY

WELL SUMMARY BY KATE CONNOLLY

MAXX WHITLEY #1 HZ
S13, T20S, R23W
Riverside, Ness County, Kansas

The above well was spudded on May 16, 1997 at 1300 hours by Nabors USA Rig No. 296. Surface hole of 12.25 inches was drilled to 720 feet where 16 joints of 9.625 inch, 36 pound per square foot, grade J55, ST&C casing were landed.

Below surface casing, 8.75 inch hole was drilled vertically to 3730 feet, at which point Sperry-Sun's directional assembly was run in to drill the build section. Lost circulation and flowing salt water were encountered at 1836 feet in the Cedar Hills sandstone. At 3802 feet the drilling pipe backed off. They managed to screw back on, but then stuck the fish which came free after jarring. The mud motor and MWD unit were changed out in the ensuing trip. The well was mudded up with Gel-Chem at this time; however, sporadic mud quality occurred due to unscheduled dumping and/or watering back the mud.

The Sperry Sun assembly was again changed at 4031 feet (worked tight hole at 3803 feet), 4395 feet and 4503 feet. At 4522 feet the shaker fell apart and a trip was made to wait on rig repairs. The pipe stuck at 4276 feet but came free after spotting oil and mud additive.

At 4710 feet the pipe again stuck while switching to slide from rotate after a short survey. This took much longer to break free (spotting oil & mud additive) and it was decided to rotate to proposed intermediate casing point of 4835 feet md (4319.39 feet tvd, -2099.99 feet ss) without sliding or surveying due to the danger of getting stuck again. A reamer trip was run to condition the hole prior to running intermediate casing and surveys were taken over the missing interval during this run.

The intermediate casing would not go beyond 4524 feet md (4320.7 feet tvd, -2101.3 feet ss). It was decided to cement casing there and, after the hole was T.D.'d, go back and run an unslotted liner up to the original casing point of 4835 feet md (4319.39 feet tvd, -2099.99 feet ss).

Three bits were required to drill the horizontal portion of the well, necessitating bit trips at 5511 feet and at 6336 feet. The horizontal leg was drilled in the Osage Formation, a detailed description of which is available elsewhere in this report.

The well was T.D.'d on June 6th, 1997 at 1445 hours at a depth of 6795 feet md (4325.74 feet tvd, -2106.34 feet ss). It is a potential Osage oil producer.

SUMMARY

WELL SUMMARY BY KATE CONNOLLY

MAXX WHITLEY #1 HZ
S13, T20S, R23W
Riverside, Ness County, Kansas

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Three bits were required to drill the horizontal portion of the well, necessitating bit trips at 5511 feet and at 6336 feet. The horizontal leg was drilled in the Osage Formation, a detailed description of which is available elsewhere in this report.

The well was T.D.'d on June 6th, 1997 at 1445 hours at a depth of 6795 feet md (4325.74 feet tvd, -2106.34 feet ss). It is a potential Osage oil producer.

KANSAS RIVERSIDE LITHOLOGY SUMMARY

Guidelines only

CEDAR HILLS

Siltstone to very fine grained aeolian sand. Excellent porosity, no shows. Occasional lost circulation. This is a water disposal zone in some areas and may flow. Tends to be a fast drilling break.

ANHYDRITE (STONE CORRAL FORMATION)

Approximately 20 foot bed of interbedded anhydrite and minor red shale. Tends to be a slow drilling break.

HEEBNER

Black to very dark brown shale. Radioactive response on logs. Good regional marker bed. Fast drill break.

TORONTO

Limestone - predominantly wackestone with pellets or fossil fragments. Generally tight but has occasional porous streak. No shows. Thin interbedded dark grey to grey green shales. Slow drill break usually.

LANSING

Limestone - tan to grey tan wackestone to occasional oolitic packstone with some oolitic porosity. Some chert. Oil productive in some areas. Some grey green to black interbedded shales. Some dark to black radioactive shale markers within this formation. Drill breaks depend upon porosity.

KANSAS CITY

Interbedded limestones and grey to green to black, occasionally radioactive, shales. Some chert. Has some oolitic and oolitic porosity, but generally non productive.

MARMATON

Limestone - tan, light grey, grey tan, wackestone and pelletoidal and fossiliferous fragmental packstone. Porosity varies from tight to good. Productive in Riverside field. Consists in this field of two benches separated by thin grey to black shale (8-10 feet thick). Drill break depends upon porosity. Below these two benches, the Basal Marmaton consists of interbedded generally tight limestones and grey green to black shales. Also contains some radioactive log marker beds.

PAWNEE

Usually massive lime mudstone (ca. 50-60 feet thick), generally buff to light tan, occasionally dolomitic. Non productive - no porosity or shows in this area. Slow drill break.

FORT SCOTT

Sandwiched between two radioactive black shale markers. The top marker is called the Labette, the lower marker is an unnamed Cherokee shale. The Fort Scott is a tan to grey tan limestone, usually wackestone, some packstone with pellets and fragments. Local development of porosity. Productive in this area. Drill breaks determined by porosity.

CHEROKEE

Interbedded shales and limestones. Top marked by radioactive shale marker mentioned above. Other shales are multicoloured and include purples, light greens, ochres, mottled red and green and ochre, and tomato red (as opposed to brick red). The limestones are generally light grey to buff mudstone. Some dolomites present. Occasional very fine through granular sands. These sands can be porous, oil stained and productive. In this area, the only Cherokee sands present are the basal sands that sometimes are found on the unconformity. This sand shows up in the Pickrell Stairrett 1A well.

PENN CONGLOMERITE/TERRA ROSA

May or may not be present. Lag deposit on the unconformity (our detrital). Marked by the first abundant chert (5 to 10%). Consists of hodgepodge of multicoloured shales, silts, sands, limestones (generally mudstones, few wackestones), dolomites and cherts. Can have isolated shows in pinpoints and vugs in limes and dolomites and spotty to good shows in sands. DSTs tend to infer low permeabilities but can have local production. Associated with &/or replaced by Terra Rosa (also spelled Terra Rossa) which consists of multicoloured shales (red, green, grey green, mauve and, most diagnostically, ochre) with thin interbeds of tight limestones, poor sandstones and occasional cherts.

WARSAW

Usually medium to light grey lime mudstone, occasional wackestone, very poor porosity development. Occasional bitumen type stain associated with trace porosities. Usually tight. Essentially cap rock. May be slightly dolomitic. Some claim lower Warsaw has porosity and shows but by definition once you get porosity and shows you are in Osage. Is well represented in Shell Gross 2-18. Also present are multicoloured shales including brick red and bright green. When the Osage is karsted, these shales thicken and replace the upper Osage.

OSAGE

Consists of abundant light coloured cherts (35 to 40%) and microcrystalline to very finely crystalline dolomites, often with sponge spicules. Dolomite has occasional glauconite present. Dolomites may have vuggy and pinpoint porosity. Porosity may have associated earthy brown bituminous stain with dull gold fluorescence and good cut. Oil shows decrease abruptly with depth. As you head down into section, can have random red, pink and pale orange cherts as well as light coloured cherts. Some thin bright green shales are present. The Osage is the main pay zone and is usually not penetrated deeply due to coning water, many times not deeply enough for log signature. Most wells are completed open hole (barefoot).

Summary Section Supplied By Kate Connolly On Disk In Microsoft Word.