

WELL HISTORY
ENSIGN OPERATING COMPANY
NO.1-6 SCHAFFTER
C SE SEC. 6, T35S, R33W
SEWARD COUNTY, KANSAS

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TABLE OF CONTENTS

SYNOPSIS	1
GENERAL WELL INFORMATION	2
DAILY DRILLING REPORT	4
WIRE LINE GEOPHYSICAL LOG FORMATION TOPS	5
LITHOLOGIC SAMPLE DESCRIPTIONS	7
SUMMARY	25
 STRIP LOG (WITH DRILL TIME, LITHOLOGY AND HOT WIRE MEASUREMENTS)	 ATTACHED

SYNOPSIS

The Ensign Operating Co. No. 1-6 Schaffter C. SE Sec. 6, T35S, R33W, Seward County, Kansas was a 6950 foot well to evaluate the Liberal Chester Prospect. The main objective of the well was to evaluate the Pennsylvanian Morrow sandstones, the Chester sandstones, and the Mississippian Ste. Genevieve. A secondary objective was to evaluate any significant oil and gas shows encountered while drilling to total depth.

The expected sandstones in the Morrow that produce oil and gas in this area were not present. There were no significant shows of oil or gas in any formation from the Heebner, to total depth. No drill-stem tests were taken while drilling the well.

There was a 30 foot error made in the pipe tally at 1640 feet. There was another 20 foot pipe tally error made at 1665 feet. These errors were corrected along with the pipe strap correction on a bit trip at 5254 feet. The net result was a 11 foot up hole correction. Another pipe strap was scheduled for the next bit trip. The well was drilled to total depth without another bit trip. Most of the upper hole formation tops, those above 5254 feet are off by 11 feet. The formation tops below 5254 feet are approximately on depth.

After an evaluation of the lithologic samples and bore hole geophysical logs, it was determined that the well was not capable of oil and gas production from the formations in the Pennsylvanian and Mississippian. Pipe was set to evaluate the Permian Chase Group for commercial gas production.

GENERAL WELL INFORMATION

Operator: Ensign Operating Co.

Well Name: No. 1-6 Schaffter API No. 15-175-21 423

Prospect: Liberal Chester Prospect

Location: C SE Sec. 6, T35S, R33W, 1320' FSL, 1320' FEL

County: Seward

State: Kansas

Elevation: G.L. 2857' K.B. 2870'

Spudded: September 22, 1994 @ 8:15 P.M..

Completed October 7, 1994 @ 1:30 P.M.

Drilling:

Total Depth: Driller 6950' Logger 6951'

Status: Set Production Casing To Produce Permian Chase Group Gas

Drill-Stem Tests: None

Logging Program: DIL/SGRD/SP/GR 0' - 6949'
SDL/DSN/GR/Cal 1637' - 6916'
MRS/GR/Cal 1637' - 6915'

Halliburton Energy Services, Paul Montgomery, Engineer.

Sample Program: Ten foot samples from 4283' - 6950'. Samples were examined and described at the well site. Samples were caught on depth intervals by rig crews. Samples were lagged by geologist. All depths reported herein are lagged depths.

Mud Logging: Holmes Gas Detector Service, Unmanned Unit.

Mud Program: Cimмерon Mud Co. Jim Reed, Engineer.

Lost Circulation: None.

Contractor: Gabbert•Jones Inc., Rig No. 8, Gilbert Divalla, Toolpusher.

Bit Record:

No.	Size	Make	Type	Depth Out	Feet	Hours
1	12.25	HTC	X3AR	1640'	1640'	25.00
2	7.875	Sec	S84F	5254'	3614'	149.00
3	7.875	Sec	S88F	6950'	1696'	116.00

Total Rotating Hours 290.5, Average 23.92 Ft/Hr

Deviation Record:

1/2°	@ 616'
1°	@ 1356'
3/4°	@ 1640'
3/4°	@ 2107'
1°	@ 2940'
3/4°	@ 4142'
3/4°	@ 4660'
1°	@ 5053'
1°	@ 5240'
1°	@ 6347'
3/4°	@ 6950'

DAILY DRILLING REPORT

Ensign Operating Co.
No. 1-6 Schaffter
C SE Sec. 6, T35S, R33W
Seward County, Kansas

7:00 A.M. Reports

1	Sept	22	0' (0') Rig up rotary tools. Spud @ 8:15 P.M..
2	Fri	23	890' (890')
3	Sat	24	1640' (750') Set 8 5/8" @ 1640', Plug Down @ 5:25 A.M.
4	Sun	25	2220' (580') Drill Plug @ 7:00 P.M.
5	Mon	26	2990' (770')
6	Tue	27	3550' (560')
7	Wed	28	4070' (520')
8	Thur	29	4490' (420')
9	Fri	30	4870' (380')
10	Oct	1	5255' (385')
11	Sun	2	5520' (280')
12	Mon	3	5900' (480')
13	Tue	4	6320' (420')
14	Wed	5	6600' (280')
15	Thur	6	6845' (245')
16	Fri	7	6950' (105') Logging.
17	Sat	8	6950' (0') Set Production Casing

FORMATION TOPS

Ensign Operating Co.
No. 1-6 Schaffter
C SE Sec. 6, T35S, R33W
Seward County, Kansas

G.L. 2857' K.B. 2870'	Comparison Well NE NE 6-35S-33W K.B. 2866'	Drill Time And Samples	Wire Line Logs
Tertiary	Surface +2855'	Surface +2857'	Surface +2857'
Permian			
Glaudalupian			
White Horse	716' +2150'	670' +2200'	690' +2180'
Leonardian			
Nipewalla Gr.			
Blaine	940' +1926'	920' +1950'	918' +1952'
Cedar Hills	1076' +1790'	1076' +1794'	1088' +1782'
Sumner Gr.			
Stone Corral	1559' +1307'	1572' +1298'	1570' +1300'
Ninnescah	1628' +1238'	1641' +1640'	1640' +1230'
Wellington	2142' +724'	2156' +714'	2156' +714'
Hutchinson	2202' +664'	2216' +654'	2216' +654'
Wolfcampian			
Chase Gr.			
Herington	2613' +253'	2609' +261'	2628' +242'
Krider	2678' +188'	2677' +193'	2696' +174'
Winfield	2737' +129'	2227' +143'	2755' +115'
Towanda	2794' +72'	2786' +84'	2814' +56'
Fort Riley	2852' +14'	2831' +39'	2866' +4'
Wreford	2938' -72'	2919' -49'	2954' -84'
Council Grove Gr.	3078' -212'	3102' -232'	3091' -221'
Pennsylvanian			
Virgilian			
Wabaunsee Gr.	3496' -630'	3524' -654'	3512' -642'
Shawnee Gr.			
Douglas Gr.			
Heebner	4339' -1473'	4369' -1499'	4356' -1486'
Toronto	4356' -1490'	4385' -1515'	4374' -1504'

G.L. 2857' K.B. 2880'	Comparison Well NE NE 6-35S-33W K.B. 2866'	Drill Time And Samples	Wire Line Logs
Missourian			
Lansing Gr.	4493' -1627'	4520' -1650'	4510' -1640'
Kansas City Gr.	4782' -1916'	4809' -1939'	4797' -1927'
Demoinesian			
Marmaton Gr.	5192' -2326'	5204' -2334'	5199' -2329'
Cherokee Gr.	3499' -2633'	5531' -2661'	5530' -2660'
Atokaian	5678' -2812'	5700' -2830'	5700' -2830'
Morrowian	5861' -2995'	5894' -3024'	5894' -3024'
L. Morrow	6140' -3274'	6164' -3294'	6160' -3290'
Chester	6177' -3311'	6201' -3331'	6199' -3329'
Orange Marker	6404' -3538'	6435' -3565'	6418' -3548'
Mississippian			
Meramecian			
Ste. Genevieve	6698' -3832'	6608' -3738'	6605' -3735'
Total Depth	6931' -4065'	6950' -4080'	6951' -4081'

LITHOLOGIC SAMPLE DESCRIPTIONS

Ensign Operating Co.
No. 1-6 Schaffter
C SE Sec. 6, T35S, R33W
Seward County, Kansas

Sample examination commenced at 4283 feet and continued to total depth at 6950 feet. Samples were caught by crews on depth intervals and lagged by geologist. All depths reported herein are lagged depths. A 10 foot sample interval was used from 4283 feet to 6950 feet.

- 4283 - 4291 Dolomite (85%), gray, fine crystalline. Shale (15%), black, gray.
- 4291 - 4300 Dolomite (70%), gray, fine crystalline. Shale (30%), black, gray.
- 4300 - 4313 Shale (80%), black, gray. Dolomite (20%), gray, fine crystalline. Mud Gas 12 Units, 4309'-4312'.
- 4313 - 4328 Limestone (90%), gray, grayish brown, brown, mudstone, wackestone. Shale (5%), black, gray. Dolomite (5%), gray, fine crystalline.
- 4328 - 4338 Limestone (90%), gray, grayish brown, brown, mudstone, some wackestone. Shale (10%), black, gray. Mud Gas 16 Units, 4330'-4333'.
- 4338 - 4346 Shale (70%), black, gray. Limestone (30%), gray, grayish brown, brown, mudstone, some wackestone. Dolomite (trace), gray, fine crystalline.
- 4346 - 4353 Dolomite (45%), gray, fine crystalline. Shale (45%), black, gray. Limestone (10%), grayish tan, wackestone, mudstone.
- 4353 - 4366 Limestone (85%), gray, grayish brown, tan, wackestone with black pellets, fossiliferous. Dolomite (10%), gray, fine crystalline. Mud Gas 35 Units, 4355'-4360'.

Heebner 4369' -1499'

- 4366 - 4378 Limestone (60%), gray, grayish brown, brown, tan, wackestone, packstone, fossiliferous. Shale (35%), black, gray. Dolomite (5%), gray, fine crystalline. Mud Gas 18 Units, 4369'-4376'.
- 4378 - 4384 Limestone (50%), gray, grayish brown, brown, tan, wackestone, packstone some with black pellets and fragments. Shale (50%), black, gray.

Toronto 4385' -1515'

- 4384 - 4390 Limestone (100%), grayish tan, tan, wackestone, mudstone. Shale (trace), black, gray.
- 4390 - 4398 Limestone (100%), grayish tan, tan, wackestone, mudstone. Shale (trace), black, gray.
- 4398 - 4406 Limestone (100%), tan, grayish tan, wackestone, mudstone, trace oolitic packstone without oomoldic porosity. Shale (trace), black, gray.
- 4406 - 4428 Limestone (100%), buff, tan, wackestone, packstone, good vuggy porosity. Shale (trace), gray.
- 4428 - 4437 Limestone (100%), buff, tan wackestone, packstone, some with vuggy porosity. Shale (trace), black, gray.
- 4437 - 4444 Limestone (100%), buff, tan, wackestone, packstone, some vuggy porosity. Shale (trace), black, gray.
- 4444 - 4450 Limestone (85%), buff, tan, wackestone, packstone, mudstone. Shale (15%), gray, black, pyritic.
- 4450 - 4466 Limestone (95%), buff, tan, wackestone, packstone. Shale (10%), black, gray.
- 4466 - 4478 Limestone (95%), tan, grayish tan, wackestone, mudstone. Shale (5%), black, gray.
- 4478 - 4484 Limestone (95%), tan, light grayish tan, wackestone, packstone. Shale (5%), black, gray.
- 4484 - 4495 Limestone (95%), tan, light grayish tan, wackestone, packstone. Shale (5%), black, gray.
- 4495 - 4508 Limestone (80%), tan, light grayish tan, wackestone, packstone. Shale (20%), black, gray.
- 4508 - 4516 Limestone (70%), tan, grayish tan, grayish brown, wackestone, packstone. Shale (30%), black, gray.

Lansing 4520'-1650'

- 4516 - 4526 Limestone (60%), tan, grayish tan, gray, brown, mudstone, wackestone. Shale (40%), gray, black. Chert (trace), light gray.
- 4526 - 4536 Limestone (85%), buff, grayish tan, grayish brown, wackestone, packstone. Shale (15%), black, gray. Chert (trace), white, tan.

- 4536 - 4546 Limestone (90%), buff, grayish tan, grayish brown, gray, wackestone, some mudstone, packstone, fusulinids. Shale (10%), black, gray. Chert (trace), gray, tan.
- 4546 - 4559 Limestone (70%), gray, dark grayish brown, mudstone, dolomitic. Shale (30%), black, gray.
- 4559 - 4566 Limestone (65%), gray, dark grayish brown, mudstone, dolomitic. Shale (35%), black, gray.
- 4566 - 4575 Shale (90%), black, gray. Limestone (10%), gray, dark grayish brown, dolomitic.
- 4575 - 4586 Dolomite (95%), gray, fine crystalline. Shale (5%), gray, black.
- 4586 - 4596 Limestone (95%), grayish tan, light gray, wackestone, very coarse grained oolitic packstone with black centers (may be pisolites, no porosity). Shale (5%), black, gray.
- 4596 - 4610 Limestone (100%), light grayish tan, mudstone, trace grayish tan coarse grained oolitic packstone, no porosity. Shale (trace), black, gray.
- 4610 - 4621 Limestone (80%), light grayish tan, mudstone, some wackestone. Shale (20%), black, gray.
- 4621 - 4626 Limestone (65%), light grayish tan, mudstone, trace grayish tan, coarse grained oolitic packstone, no porosity, dolomitic. Shale (35%), black, gray.
- 4626 - 4631 Limestone (70%), light grayish tan, mudstone, coarse grained oolitic packstone, dolomitic. Shale (30%), black, gray.
- 4631 - 4650 Limestone (80%), light grayish tan, tan, mudstone, some coarse grained oolitic packstone. Shale (20%), black, gray.
- 4650 - 4658 Limestone (70%), light grayish, tan, tan, mudstone, wackestone, coarse grained oolitic packstone, no porosity. Shale (30%), black, gray.
- 4658 - 4667 Limestone (85%), grayish tan, tan, mudstone, wackestone, coarse grained oolitic packstone, no porosity. Shale (15%), black, gray.
- 4667 - 4672 Limestone (80%), grayish tan, brown, mudstone, wackestone. Shale (20%), gray, black.
- 4672 - 4678 Limestone (95%), tan, light grayish tan, wackestone, mudstone, some vuggy porosity. Shale (5%), black, gray.
- 4678 - 4696 Limestone (95%), tan, light grayish tan, wackestone, fine grained oolitic packstone with oomoldic porosity. Shale (5%), black, gray.

- 4696 - 4708 Limestone (100%), tan, wackestone, packstone, fine grained oolitic packstone with oomoldic porosity. Shale (trace), black, gray.
- 4708 - 4718 Limestone (100%), light grayish tan, tan, wackestone, packstone, trace fine grained oolitic packstone with oomoldic porosity, some vuggy porosity. Shale (trace), black, gray.
- 4718 - 4731 Limestone (90%), grayish brown, tan, grayish tan, mudstone, wackestone, dolomitic. Shale (10%), black, gray. Chert (trace), dark brown.
- 4731 - 4739 Limestone (95%), grayish brown, mudstone, some wackestone, dolomitic. Shale (95%), black, gray.
- 4739 - 4748 Limestone (80%), grayish brown, grayish tan, wackestone, packstone. Shale (20%), black, gray. Chert (trace), gray, dark brown.
- 4748-4754 Limestone (80%), grayish brown, grayish tan, wackestone, packstone, dolomitic. Shale (10%), black, gray. Chert (trace), gray, tan. This is a "bagged sample"
- 4754 - 4766 No sample or gas readings. Sample trap gate left open.
- 4766 - 4778 Limestone (90%), grayish brown, grayish tan, wackestone, packstone, dolomitic. Shale (10%), black, gray.
- 4778 - 4784 Limestone (90%), grayish brown, grayish tan, wackestone, packstone, dolomitic. Shale (10%), black, gray. Chert (trace), gray, tan.
- 4784 - 4800 No sample.
- 4800 - 4806 Limestone (85%), grayish tan, tan, wackestone, packstone, oolitic packstone with oomoldic porosity. Shale (15%), black, gray.

Kansas City 4809' -1939'

- 4806 - 4818 Limestone (90%), grayish tan, tan, wackestone, packstone. Shale (10%), black, gray.
- 4818 - 4824 Limestone (80%), grayish tan, tan, wackestone, packstone, some vuggy and pin point porosity. Shale (20%), black, gray.
- 4824 - 4830 Limestone (85%), tan, light grayish tan, wackestone, mudstone. Shale (15%), black, gray. Chert (trace), gray, white, tan.
- 4830 - 4844 No sample or gas readings. Sample gate left open. Morning tour sleeping off drunk. When he woke up he bagged the next two samples. Limestone (75%), tan, grayish tan, mudstone, wackestone, trace fine grained oolitic packstone with oomoldic porosity. Shale (25%), black, gray. Chert (trace), gray, tan.

- 4844 - 4860 Limestone (90%), tan, grayish tan, mudstone, wackestone. Shale (10%), black, gray. Chert (trace), gray, tan. Bagged sample.
- 4860 - 4871 Limestone (90%), tan, grayish tan, mudstone, wackestone. Shale (10%), black, gray. Chert (trace), gray, tan.
- 4871 - 4880 Limestone (80%), gray, grayish brown, grayish tan, wackestone, mudstone. Shale (20%), black, gray. Chert (trace), gray, white.
- 4880 - 4890 Limestone (80%), gray, grayish brown, grayish tan, wackestone, mudstone. Shale (20%), black, gray. Chert (trace), gray, tan.
- 4890 - 4893 Limestone (85%), gray, grayish brown, grayish tan, wackestone, packstone, trace coarse grained oolitic packstone, no porosity. Shale (15%), black, gray.
- 4893 - 4896 Limestone (90%), grayish tan, mudstone, wackestone. Shale (10%), black, gray.
- 4896 - 4911 Limestone (90%), grayish tan, mudstone, wackestone, some packstone with vuggy porosity. Shale (10%), black, gray. Chert (trace), gray, tan.
- 4911 - 4918 Limestone (95%), tan, light grayish tan, wackestone, mudstone. Shale (5%), gray, black. Chert (trace), tan, light gray.
- 4918- 4928 Limestone (95%), tan, light grayish tan, wackestone, mudstone, dolomitic. Shale (95%), gray, black. Chert (trace), light gray, tan..
- 4928 - 4940 Limestone (90%), tan, buff, wackestone, mudstone. Shale (10%), black, gray.
- 4940 - 4951 Limestone (100%), tan, buff, wackestone, mudstone. Shale (trace), black, gray.
- 4951 - 4964 Limestone (100%), tan, grayish tan, wackestone, mudstone, some packstone, some vuggy porosity. Shale (trace), gray, black.
- 4964 - 4976 Limestone (100%), tan, grayish tan, gray, mudstone, wackestone, some packstone, dolomitic. Shale (trace), black, gray.
- 4976 - 4981 Limestone (100%), tan, grayish tan, gray, mudstone, wackestone, packstone, dolomitic. Shale (trace), black, gray.
- 4981 - 4995 Limestone (100%), tan, grayish tan, gray, mudstone, wackestone, dolomitic, vuggy porosity.
- 4995 - 5018 Limestone (100%), tan, light grayish tan, wackestone, mudstone, fusulinids, dolomitic, vuggy porosity.
- 5018 - 5028 Limestone (100%), tan, light grayish tan, wackestone, mudstone, some packstone, dolomitic, vuggy porosity.

- 5028 - 5030 Limestone (100%), tan, light grayish tan, light brown, mudstone. Shale (trace), black, gray.
- 5030 - 5038 Limestone (100%), tan, light grayish tan, wackestone, mudstone. Shale (trace), black, gray.
- 5038 - 5058 Limestone (100%), tan, light grayish tan, oolitic packstone with oomoldic porosity, wackestone, packstone. Mud Gas 5 Units, 5042'-5053'.
- 5058 - 5068 Limestone (100%), brown, grayish brown, tan, mudstone, some wackestone.
- 5068 - 5078 Limestone (100%), brown, grayish brown, tan, mudstone, some wackestone.
- 5078 - 5086 Limestone (95%), brown, grayish brown, tan, mudstone, trace wackestone. Shale (5%), black, gray.
- 5086 - 5092 Limestone (95%), brown, grayish brown, tan, mudstone, wackestone. Shale (5%), black, gray.
- 5092 - 5106 Limestone (100%), tan, grayish tan, wackestone, mudstone, trace vuggy porosity.
- 5106 - 5118 Limestone (95%), brown, grayish brown, tan, wackestone, mudstone, some wackestone with black pellets and fragments. Shale (5%), black, gray.
- 5118 - 5131 Limestone (100%), brown, grayish brown, tan, mudstone, wackestone.
- 5131 - 5139 Limestone (100%), brown, grayish brown, tan, mudstone, wackestone.
- 5139 - 5149 Limestone (85%), brown, grayish brown, mudstone, wackestone, fossiliferous. Shale (15%), black, gray.
- 5149 - 5160 Limestone (70%), dark brown, grayish brown, mudstone. Shale (30%), black, gray.
- 5160 - 5170 Limestone (50%), dark brown, grayish brown, brown, mudstone. Shale (50%), black, gray.
- 5170 - 5180 Shale (75%), black, gray. Limestone (25%), dark brown, brown, mudstone.
- 5180 - 5190 Limestone (50%), dark brown, grayish brown, brown, mudstone. Shale (50%), black, gray.
- 5190- 5200 Shale (70%), black, gray. Limestone (30%), dark brown, grayish brown, mudstone.
- Marmaton 5204' -2334'**
- 5200 - 5207 Shale (55%), lack, gray. Limestone (45%),dark brown, grayish brown, mudstone.

- 5207 - 5215 Limestone (65%), dark brown, brown, grayish brown, mudstone. Shale (35%), black, gray.
- 5215 - 5223 Limestone (80%), grayish tan, brown, dark brown, mudstone, some wackestone. Shale (20%), black, gray.
- 5223 - 5234 Limestone (70%), grayish tan, brown, dark brown, mudstone, wackestone. Shale (30%), black, gray.
- 5234 - 5244 Limestone (90%), tan, grayish tan, wackestone, packstone, some oolitic packstone, no oomoldic porosity. Shale (10%), black, gray.
- Note: Pipe strap on bit trip made at 5254'. Board was 32' long. Depth corrected to 5267.48' at Kelly Down. A 20' error on board tally made at 1645'. Should be 1665.26'. Correction of 11' $\pm$ up hole. Will not change depth until next trip when pipe is strapped again. Started drilling at 5243 feet.
- 5244 - 5243 (New Depth) Limestone (95%), tan, packstone, wackestone. Shale (5%), black, gray. Trip Sample.
- 5243 - 5246 Limestone (85%), tan, grayish tan, brown, grayish brown, wackestone, mudstone, some packstone. Shale (15%), black, gray.
- 5246 - 5256 Limestone (95%), grayish tan, brown, wackestone, mudstone. Shale (15%), black, gray.
- 5256 - 5264 Limestone (95%), grayish tan, wackestone, some chloritic limestone. Shale (5%), black, gray.
- 5264 - 5276 Limestone (95%), grayish tan, brown, wackestone, trace packstone, mudstone. Shale (5%), black, gray.
- 5276 - 5288 Limestone (80%), grayish brown, grayish tan, wackestone, mudstone. Shale (20%), black, gray.
- 5288 - 5297 Shale (50%), black gray. Limestone (50%), grayish brown, brown, mudstone, some wackestone.
- 5297 - 5305 Limestone (75%), grayish tan, grayish brown, mudstone, wackestone. Shale (25%), black, gray.
- 5305 - 5320 Limestone 9100%), tan, grayish tan, wackestone, mudstone. Shale (trace), black, gray.
- 5320 - 5335 Limestone (95%), tan, grayish tan, wackestone, mudstone. Shale (10%), black, gray. Mud Gas 20 Units, 5329'-5331'.

- 5335 - 5348 Limestone (90%), tan, grayish tan, wackestone, mudstone. Shale (10%), black, gray.
- 5348 - 5360 Limestone (95%), tan, grayish tan, gray, wackestone, mudstone. Shale (10%), black, gray.
- 5360 - 5368 Limestone (100%), tan, grayish tan, wackestone, mudstone, some packstone with vuggy porosity. Shale (trace), gray, black.
- 5368 - 5374 Limestone (100%), tan, buff, mudstone, wackestone. Shale (trace), black, gray. Chert (trace), gray, tan.
- 5374 - 5384 Limestone (100%), tan, buff, mudstone, wackestone. Shale (trace), black, gray. Chert (trace), tan, gray.
- 5384 - 5398 Limestone (100%), tan, grayish tan, mudstone, wackestone. Shale (trace), black, gray.
- 5398 - 5405 Limestone (100%), tan, grayish tan, mudstone, wackestone. Shale (trace), black, gray.
- 5405 - 5413 Limestone (100%), tan, grayish tan, mudstone, wackestone. Shale (trace), black, gray. Chert (trace), gray.
- 5413 - 5423 Limestone (100%), tan, grayish tan, mudstone wackestone. Shale (trace), black, gray.
- 5423 - 5438 Limestone (100%), tan, grayish tan, mudstone, wackestone. Shale (trace), black, gray. Chert (trace), gray.
- 5438 - 5450 Limestone (75%), tan, grayish brown, dark brown, mudstone, some wackestone. Shale (25%), black, gray. Chert (trace), gray.
- 5450 - 5460 Limestone (80%), grayish brown, dark brown, mudstone, wackestone. Shale (20%), black, gray. Chert (trace), dark brown, gray. Mud Gas 10 Units, 5450'-5452'
- 5460 - 5469 Limestone (70%), grayish brown, dark brown, mudstone, wackestone. Shale (30%), black, gray.
- 5469 - 5474 Limestone (85%), grayish brown, dark brown, mudstone, wackestone. Shale (15%), black, gray.
- 5474 - 5484 Limestone (80%), grayish brown, dark brown, mudstone, some wackestone. Shale (20%), black, gray. Chert (trace), dark brown, gray.
- 5484 - 5494 Limestone (95%), grayish tan, brown, mudstone, some wackestone. Shale (5%), black, gray.

- 5494 - 5503 No sample.
- 5503 - 5520 Limestone (85%), grayish tan, brown, mudstone. Shale (15%), black, gray.
- 5520 - 5528 Limestone (80%), tan, grayish tan, mudstone. Shale (20%), black, gray.

Cherokee 5531' 2661'

- 5528 - 5538 Limestone (95%), tan, grayish tan, mudstone. Shale (5%), black, gray. Samples just went to hell, cuttings are fine grained sand size. Mud Gas 30 Units, 5532'-5536'.
- 5538 - 5550 Limestone (85%), grayish tan, brown, mudstone. Shale (15%), black, gray. VPS Mud Gas 7 Units, 5540'-5542'.
- 5550 - 5560 Limestone (90%), grayish tan, brown, mudstone. Shale (10%), black, gray. VPS
- 5560 - 5571 Limestone (50%), grayish tan, brown, mudstone. Shale (50%), black, gray. VPS
- 5571 - 5580 Limestone (65%), grayish tan, brown, mudstone. Shale (35%), black, gray. VPS
- 5580 - 5587 Limestone (60%), grayish tan, brown, mudstone. Shale (40%), black, gray. VPS
- 5587 - 5598 Limestone (70%), grayish tan, brown, mudstone. Shale (30%), black, gray. VPS Mud Gas 26 Units, 5589'-5592'.
- 5598 - 5605 Limestone (75%), grayish tan, brown, mudstone. Shale (25%), black, gray. VPS
- 5605 - 5612 Shale (95%), black, gray. Limestone (5%), grayish tan, brown, mudstone. VPS
- 5612 - 5624 Shale (60%), black, gray. Limestone (40%), brown, grayish tan, mudstone. Samples improving. Mud Gas 22 Units, 5612'-5620'.
- 5624 - 5635 Shale (70%), black, gray. Limestone (30%), brown, grayish tan, mudstone.
- 5635 - 5645 Shale (85%), black, gray. Limestone (15%), dark brown, mudstone.
- 5645 - 5654 Shale (90%), black, gray. Limestone (10%), dark brown, mudstone.
- 5654 - 5664 Shale (95%), black, gray. Limestone (5%), dark brown, mudstone.
- 5664 - 5675 Shale (95%), black, gray. Limestone (5%), dark brown, mudstone.
- 5675 - 5688 Shale (95%), black, gray. Limestone (5%), dark brown, mudstone.
- 5688 - 5698 Shale (95%), black, gray. Limestone (5%), dark brown, mudstone.
- 5698 - 5705 Shale (90%), black, gray. Limestone (10%), dark brown, mudstone.

Atoka 5700' -2830'

- 5705 - 5712 Shale (70%), black, gray. Limestone (30%), dark brown, mudstone.
- 5712 - 5728 No sample.
- 5728 - 5739 Limestone (80%), brown, dark brown, mudstone. Shale (20%), black, gray. Mud Gas 14 Units, 5628'-5630'.
- 5739 - 5746 Shale (65%), black, gray. Limestone (35%), dark brown, brown, mudstone.
- 5746 - 5754 Shale (70%), black, gray. Limestone (30%), dark brown, brown, mudstone.
- 5754 - 5767 Shale (55%), black, gray. Limestone (45%), dark brown, brown, mudstone. Mud Gas 23 Units, 5756'-5760'.
- 5767 - 5775 Shale (50%), black, gray. Limestone (50%), dark brown, brown, mudstone.
- 5775 - 5783 Shale (80%), black, gray. Limestone (20%), dark brown, brown, mudstone. Mud Gas 14 Units, 5778'-5781'.
- 5783 - 5791 Shale (90%), black, gray. Limestone (10%), dark brown, brown, mudstone. Mud Gas 11 Units, 5786'-5789'.
- 5791 - 5800 Shale (60%), black, gray. Limestone (40%), dark brown, brown, mudstone. Mud Gas 14 Units, 5792'-5796'.
- 5800 - 5814 Shale (65%), black, gray. Limestone (35%), dark brown, brown, mudstone. Mud Gas 17 Units, 5806'-5810'.
- 5814 - 5823 Limestone (85%), dark brown, brown, mudstone. Shale (15%), black, gray. Mud Gas 20 Units, 5811'-5815, 5 Units, 5820'-5821'.
- 5823 - 5830 Limestone (75%), brown, dark brown, mudstone. Shale (25%), black, gray. Mud Gas 15 Units, 5825'-5827'.
- 5830 - 5838 Shale (65%), black, gray. Limestone (35%), dark brown, brown, mudstone. Mud Gas 15 Units, 5831'-5833, 23 Units, 5834'-5836'.
- 5838 - 5852 Shale (50%), black, gray. Limestone (50%), dark brown, brown, mudstone. Mud Gas 17 Units, 5838'-5840, 10 Units, 5845'-5848'.
- 5852 - 5865 Limestone (65%), brown, dark brown, mudstone, pyritic. Shale (35%), black, gray. Mud Gas 20 Units, 5856'-5858', 18 Units 5860' 5862'.
- 5865 - 5877 Limestone (90%), brown, dark brown, mudstone. Shale (10%), black, gray. Mud Gas 45 Units, 5873'-5878'.

- 5877 - 5887 Limestone (90%), brown, dark brown, mudstone, trace wackestone, fossiliferous, pyritic. Shale (10%), black, gray. Mud Gas 22 Units, 5878'-5880'.
- 5887 - 5895 Limestone (90%), brown, dark brown, mudstone, trace wackestone. Shale (10%), black, gray. Mud Gas 23 Units, 5888'-5892'.
- Morrow 5894' -3024'**
- 5895 - 5902 Limestone (85%), brown, dark brown, mudstone, trace wackestone. Shale (5%), black, gray. Mud Gas 35 Units, 5898'-5900'.
- 5902 - 5908 Limestone (65%), brown, dark brown, mudstone, trace wackestone. Shale (35%), black, gray.
- 5908 - 5920 Shale (65%), black, gray. Limestone (35%), brown, dark brown, mudstone, pyritic. Mud Gas 24 Units, 5913'-5918'.
- 5920 - 5927 Shale (60%), black, gray. Limestone (40%), brown, dark brown, mudstone, some wackestone, pyritic.
- 5927 - 5936 Shale (85%), black, gray. Limestone (15%), brown, dark brown, mudstone, some wackestone, pyritic.
- 5936 - 5947 Shale (85%), black, gray. Limestone (15%), brown, dark brown, mudstone, some wackestone, pyritic. Mud Gas 11 Units, 5946'-5948'.
- 5947 - 5960 Shale (70%), black, gray. Limestone (30%), brown, dark brown, mudstone, some wackestone, pyritic. Mud Gas 16 Units, 5949'-5951', 11 Units, 5954'-5956', 12 Units, 5958'-5960'.
- 5960 - 5969 Shale (70%), black, gray. Limestone (30%), brown, dark brown, mudstone, some wackestone, pyritic. Mud Gas 24 Units, 5963'-5968'.
- 5969 - 5981 Shale (90%), black, gray. Limestone (10%), brown, dark brown, mudstone, some wackestone, pyritic. Mud Gas 27 Units, 5974'-5975', 22 Units, 5977'- 5978', 14 Units, 5980'-5982'.
- 5981 - 5990 Shale (85%), black, gray. Limestone (15%), brown, dark brown, mudstone, pyritic. Mud Gas 34 Units, 5984'-5986'.
- 5990 - 6000 Shale (90%), black, gray. Limestone (10%), brown, dark brown, mudstone, pyritic.
- 6000 - 6013 Shale (95%), black, gray. Limestone (5%), brown, dark brown, mudstone, pyritic.
- 6013 - 6020 Shale (65%), black, gray. Limestone (35%), brown, dark brown, mudstone, pyritic.

- 6020 - 6030 Shale (55%), black, gray. Limestone (45%), brown, dark brown, mudstone, pyritic.
- 6030 - 6039 Shale (95%), black, gray. Limestone (5%), brown, dark brown, mudstone.
- 6039 - 6048 Shale (100%), black, gray, pyritic. Limestone (trace) brown, dark brown, mudstone.
- 6048 - 6059 Shale (100%), black, gray, pyritic. Limestone (trace) brown, dark brown, mudstone.
- 6059 - 6067 Shale (100%), black, gray, pyritic. Limestone (trace) brown, dark brown, mudstone.
- 6067 - 6077 Shale (100%), black, gray, pyritic. Limestone (trace) brown, dark brown, mudstone.
- 6077 - 6090 Shale (100%), black, gray, pyritic. Limestone (trace) brown, dark brown, mudstone.
- 6090 - 6106 Shale (90%), black, gray, pyritic. Limestone (10%) brown, dark brown, mudstone.
- 6106 - 6114 Shale (100%), black, gray, pyritic. Limestone (trace) brown, dark brown, mudstone.
- 6114 - 6127 Shale (100%), black, gray, pyritic. Limestone (trace) brown, dark brown, mudstone.
- 6127 - 6136 Shale (100%), black, gray, pyritic. Limestone (trace) brown, dark brown, mudstone.
- 6136 - 6143 Shale (100%), black, gray, pyritic. Limestone (trace) brown, dark brown, mudstone.
- 6143 - 6154 Shale (100%), black, gray, pyritic. Limestone (trace) brown, dark brown, mudstone.

Lower Morrow 6164' -3294'

- 6154 - 6170 Limestone (50%), grayish brown, tan, buff, coarse grained fossiliferous packstone few floating coarse rounded quartz grains, trace glauconite. Shale (50%), black.
- 6170 - 6180 Shale (60%), black, gray. Limestone (40%), grayish brown, tan, buff, coarse grained, fossiliferous packstone, trace chlorite, glauconite, floating coarse rounded sand grains, pyritic.

- 6180 - 6189 Limestone (60%), grayish brown, tan, coarse grained fossiliferous packstone, chloritic, glauconitic, few floating coarse rounded quartz sand grains. Shale (40%), black, gray. Chert (trace), gray.
- 6189 - 6192 Limestone (60%), tan, grayish brown, coarse grained fossiliferous packstone, some glauconitic, chloritic limestone. Shale (40%), black, gray. Chert (trace), tan, gray.
- 6192 - 6200 Limestone (55%), tan, grayish brown, coarse grained fossiliferous packstone. Shale (45%), black, gray. Chert (trace), gray.

Chester 6201' -3331'

- 6200 - 6215 Limestone (80%), tan, brown, grayish brown, fossiliferous coarse grained packstone. Shale (20%), black, gray. Chert (trace), gray.
- 6215 - 6226 Limestone (85%), tan, brown, grayish brown, fossiliferous, coarse grained packstone. Shale (15%), black, gray. Chert (trace), gray.
- 6226 - 6236 Limestone (80%), tan, brown, grayish brown, fossiliferous, coarse grained packstone. Shale (20%), black, gray.
- 6236 - 6244 Limestone (75%), tan, brown, grayish brown, fossiliferous, coarse grained packstone. Shale (20%), black, gray, pyritic. Mud Gas 8 Units, 6240'-6242'.
- 6244 - 6249 Limestone (55%), tan, brown, grayish brown, fossiliferous, coarse grained packstone. Shale (45%), black, gray, pyritic.
- 6249 - 6252 Limestone (85%), tan, brown, grayish brown, fossiliferous, coarse grained packstone. Shale (15%), black, gray. Mud Gas 22 Units, 6251'-6253'.
- 6252 - 6263 Limestone (85%), tan, brown, grayish brown, fossiliferous, coarse grained packstone. Shale (15%), black, gray.
- 6263 - 6268 Limestone (75%), tan, brown, grayish brown, fossiliferous, coarse grained packstone. Shale (25%), black, gray.
- 6268 - 6276 Limestone (70%), tan, brown, grayish brown, fossiliferous, coarse grained packstone. Shale (30%), black, gray. Mud Gas 10 Units, 6275'-6285'.
- 6276 - 6290 Limestone (50%), tan, brown, grayish brown, fossiliferous, coarse grained packstone. Shale (50%), black, gray, light gray, pyritic.
- 6290 - 6302 Shale (65%), black, gray. Limestone (35%), tan, brown, grayish brown, fossiliferous, coarse grained packstone.
- 6302 - 6310 Limestone (65%), tan, brown, grayish brown, fossiliferous, coarse grained packstone. Shale (35%), black, gray, light gray. Mud Gas 12 Units, 6308'-6310'.

- 6310 - 6325 Shale (80%), black, gray, light gray. Limestone (20%), brown, grayish brown, tan, coarse-medium grained packstone.
- 6325 - 6330 Shale (50%), black, gray, light gray. Limestone (50%), brown, grayish brown, wackestone, some coarse grained fossiliferous packstone.
- 6330 - 6344 Limestone (70%), grayish tan, brown, tan, coarse grained packstone, wackestone, some mudstone. Shale (30%), black, gray, light gray.
- 6344 - 6356 Limestone (50%), grayish brown, tan, coarse grained packstone, wackestone, some mudstone. Shale (50%), black, gray, light gray.
- 6356 - 6369 Limestone (80%), grayish tan, brown, tan, coarse grained packstone, wackestone, some mudstone. Shale (20%), black, gray, light gray, pyritic.
- 6369 - 6376 Shale (70%), black, gray, light gray, pyritic. Limestone (30%), grayish tan, brown, tan, coarse grained packstone, wackestone, some mudstone.
- 6376 - 6385 Shale (80%), black, light gray, gray. Limestone (20%), grayish brown, light gray, packstone, wackestone, mudstone.
- 6385 - 6394 Shale (90%), black, light gray, gray, pyritic. Limestone (10%), grayish brown, light gray, coarse grained packstone, wackestone, some mudstone.
- 6394 - 6409 Shale (90%), light gray, black, gray, pyritic. Limestone (10%), grayish brown, brown, coarse grained fossiliferous packstone.
- 6409 - 6416 Shale (95%), light gray, gray, black, trace ochre, red-gray mottled shale. Limestone (5%), brown, grayish brown, packstone.
- 6416 - 6426 Limestone (75%), grayish tan, medium grained packstone, wackestone. Shale (25%), light gray, black, gray, trace, green.
- 6426 - 6437 Limestone (75%), grayish tan, medium grained packstone, wackestone. Shale (25%), light gray, black, gray, trace green.

Orange Marker 6435' -3565'

- 6437 - 6448 Shale (60%), light gray, gray, black. Limestone (40%), brown, tan, grayish brown, mudstone, wackestone, trace packstone.
- 6448 - 6457 Shale (70%), gray, light gray, black, calcareous. Limestone (30%), brown, tan, grayish brown, mudstone, wackestone.
- 6457 - 6467 Shale (90%), gray, light gray, black, calcareous. Limestone (10%), brown, tan, grayish brown, wackestone, packstone.

- 6467 - 6475 Shale (80%), gray, light gray, black, calcareous. Limestone (20%), grayish brown, brown, mudstone, trace tan glauconitic sandy packstone.
- 6475 - 6486 Shale (90%), gray, light gray, black, calcareous. Limestone (10%), grayish brown, brown, tan, mudstone.
- 6486 - 6495 Shale (85%), gray, light gray, black, calcareous. Limestone (15%), grayish brown, brown, mudstone.
- 6495 - 6504 Shale (80%), gray, light gray, black, calcareous. Limestone (20%), grayish brown, brown, wackestone, mudstone, dolomitic.
- 6504 - 6517 Limestone (85%), grayish brown, brown, tan, fine medium grained packstone, wackestone, mudstone, dolomitic. Shale (15%), black, gray, light gray.
- 6517 - 6530 Limestone (85%), grayish brown, brown, tan, fine-medium grained packstone, wackestone, some mudstone, dolomitic. Shale (15%), black, gray, light gray.
- 6530 - 6540 Limestone (55%), grayish brown, tan, fine-medium grained packstone, wackestone, some mudstone, dolomitic. Shale (45%), black, gray, light gray.
- 6540 - 6550 Shale (55%), light gray, gray, black. Limestone (45%), grayish tan, grayish brown, fine-medium grained packstone, some wackestone, mudstone, dolomitic.
- 6550 - 6558 Shale (65%), black, gray, light gray. Limestone (25%), grayish tan, brown, brown, mudstone, wackestone, some fine medium grained packstone. Sandstone (10%), gray, white, fine-medium grained with some coarse grains and granules as inclusions, quartzitic, trace sandstone with brown oil stain, yellow fluorescence, good cut, good residual ring.
- 6558 - 6572 Shale (80%), light gray, gray, black. Limestone (15%), grayish tan, grayish brown, brown, mudstone, wackestone, some fine-medium grained wackestone. Sandstone (5%), gray, white, fine-medium grained, quartzitic, few pieces of sandstone with brown oil stain, yellow fluorescence, good cut, good residual ring.
- 6572 - 6582 Shale (85%), light gray, gray, black. Limestone (10%), grayish brown, wackestone, mudstone. Sandstone (trace-5%), gray, white, fine-medium grained with some coarse grains and granules as inclusions, few pieces of sandstone with yellow fluorescence, delayed cut, good residual ring.
- 6582 - 6593 Shale (95%), light gray, gray, black. Limestone (5%), grayish tan, grayish brown, wackestone, mudstone. Sandstone (trace), gray, white, fine-medium grained, some granules and coarse grain as inclusions.
- 6593 - 6601 Shale (95%), light gray, gray, black. Limestone (5%), grayish brown, grayish tan, wackestone, mudstone. Sandstone (trace), gray, fine-medium grained, quartzitic.

- 6601 - 6608 Shale (80%), light gray, gray, black. Limestone (20%), brown, grayish brown, fine-medium grained packstone, wackestone, mudstone. Sandstone (trace), gray, fine-medium grained, quartzitic.
- 6608 - 6619 Limestone (60%), buff, light tan, wackestone, fine grained packstone. Shale (40%), black, gray, light gray. Chert (trace-5%), light gray, white. Sandstone (trace), gray, fine-medium grained.
- 6619 - 6631 Limestone (40%), buff, light tan, wackestone, fine grained packstone. Shale (60%), black, gray light gray. Chert (trace), light gray, white.
- 6631 - 6639 Limestone (15%), buff, light tan, wackestone, fine grained packstone. Shale (85%), black, gray, light gray. Chert (trace), light gray, white.
- 6639 - 6648 Limestone (10%), buff, light tan, fine grained packstone, wackestone. Shale (90%), black, gray, light gray. PSQ.
- 6648 - 6658 Limestone (25%), buff, light tan, fine grained packstone, wackestone. Shale (75%), black, gray, light gray. PSQ.
- 6658 - 6667 Limestone (20%), buff, light tan, fine grained packstone, wackestone. Shale (80%), black, gray, light gray. PSQ.
- 6667 - 6674 Limestone (30%), buff, tan, fine-medium grained packstone, wackestone. Shale (70%), black, gray, light gray. PSQ.
- 6674 - 6687 Limestone (20%), buff, tan, fine-medium grained packstone, wackestone. Shale (80%), black, gray, light gray. Chert (trace), gray. PSQ.
- 6687 - 6698 Limestone (35%), buff, tan, fine-medium grained packstone, wackestone, some oolitic packstone. Shale (65%), black, gray, light gray. Chert (trace), gray. PSQ.
- 6698 - 6710 Limestone (30%), buff, tan, fine-medium grained packstone, wackestone. Shale (70%), black, gray. Chert (trace), light gray. PSQ.
- 6710 - 6716 Limestone (35%), buff, tan, fine-medium grained packstone, wackestone. Shale (65%), black, gray. Chert (trace), gray. PSQ.
- 6716 - 6728 Limestone (65%), buff, tan, fine-coarse grained packstone, wackestone. Shale (30%), black, gray, light gray. Chert (5%), light gray, tan, white. PSQ.
- 6728 - 6738 Limestone (50%), buff, tan, fine-coarse grained packstone, wackestone. Shale (50%), black, gray, light gray. Chert (trace), light gray, tan. PSQ.
- 6738 - 6750 Limestone (65%), buff, tan, fine-coarse grained wackestone, packstone. Shale (35%), black, gray. Chert (trace), white, light gray. PSQ.

- 6750 - 6760 Limestone (70%), buff, tan fine-coarse grained packstone, wackestone. Shale (30%), black, gray. Chert (trace), white, light gray.
- 6760 - 6771 Limestone (70%), tan, light grayish tan, medium-coarse grained packstone. Shale (30%), black, gray. Chert (trace), light gray, white.
- 6771 - 6778 Limestone (75%)s, tan, light grayish tan, medium-coarse grained packstone. Shale (25%), black, gray. Chert (trace), light gray, white.
- 6778 - 6788 Limestone (80%), tan, light grayish tan, medium-coarse grained packstone. Shale (20%), black, gray, light gray.
- 6788 - 6800 Limestone (85%), tan, buff, light grayish tan, medium-coarse grained packstone. Shale (15%), black, gray, light gray. Chert (trace), light gray, white, tan.
- 6800 - 6811 Limestone (80%), tan, buff, light grayish tan, medium-coarse grained packstone, wackestone. Chert (trace), light gray, tan. Shale (20%), black, gray, light gray.
- 6811 - 6823 Limestone (75%), tan, buff, light grayish tan, wackestone, packstone, mudstone. Shale (25%), black, gray, light gray. Chert (trace) tan, gray.
- 6823 - 6830 Limestone (60%), tan, buff, light grayish tan, wackestone, packstone, mudstone. Shale (40%), black, gray.
- 6830 - 6838 Limestone (75%), tan, light grayish tan, wackestone, mudstone. Shale (25%), black, gray, light gray. Chert (trace), tan, light gray.
- 6838 - 6848 Limestone (60%), tan, grayish tan, wackestone, packstone. Dolomite (20%), light gray, micro sucrosic, very fine crystalline. Shale (20%), black, gray, light gray.
- 6848 - 6854 Limestone (60%), tan, grayish tan, brown, wackestone, mudstone. Shale (40%), black, gray, light gray. Dolomite (trace), light gray, tan, very fine crystalline.
- 6854 - 6860 Limestone (60%), tan, grayish tan, brown, wackestone, mudstone. Shale (40%), black, gray, light gray.
- 6860 - 6872 Limestone (35%), tan, grayish tan, wackestone, mudstone. Dolomite (35%), tan, very fine crystalline. Shale (30%), black, gray, light gray.
- 6872 - 6884 Limestone (55%), tan, buff, wackestone, packstone. Shale (45%), gray, black, light gray. Dolomite (trace), tan, very fine crystalline.
- 6884 - 6895 Limestone (70%), tan, buff, wackestone, packstone. Dolomite (20%), light brown, fine crystalline. Shale (10%), black, gray, light gray.
- 6895 - 6904 Limestone (50%), tan, light grayish brown, wackestone, packstone. Dolomite (45%), brown, fine crystalline. Shale (5%), black, gray.

- 6904 - 6912 Dolomite (65%), tan, light brown, fine crystalline. Limestone (30%), tan, wackestone, packstone. Shale (5%), black, gray, light gray.
- 6912 - 6920 Limestone (80%), tan, light brown, packstone, wackestone. Dolomite (20%), tan, light brown, fine crystalline.
- 6920 - 6930 Dolomite (90%), tan, light brown, fine crystalline. Limestone (10%), tan, light brown, wackestone, packstone.
- 6930 - 6942 Dolomite (90%), tan, light brown, fine crystalline. Limestone (10%), tan, light brown, wackestone, packstone.
- 6942 - 6948 Dolomite (90%), tan, light brown, fine crystalline. Limestone (10%), tan, light brown, wackestone, packstone, vuggy porosity.
- 6948 - 6950 Dolomite (90%), tan, light brown, fine crystalline. Limestone (10%), tan, light brown, wackestone, packstone.

Total Depth Driller 6950' - 4080'

Total Depth Logger 6951' -4081'

SUMMARY

The Ensign Operating Co. No. 1-6 Schaffter C SE Sec. 6, T35S, R33W, Seward County, Kansas was a 6950 foot well to evaluate the Liberal Chester Prospect. The main objective of the well was to evaluate the Pennsylvanian Morrow sandstones, the Chester sandstones, and the Mississippian Ste. Genevieve. A secondary objective was to evaluate any significant oil and gas shows encountered while drilling to total depth.

The expected sandstones in the Morrow that produce oil and gas in this area were not present. There were no significant shows of oil or gas in any formations from the Heebner to total depth. No drill-stem tests were taken while drilling the well.

There was a 30 foot error made in the pipe tally at 1640 feet. There was another 20 foot pipe tally error made at 1665 feet. These errors were corrected along with the pipe strap correction on a bit trip at 5254 feet. The net result was a 11 foot up hole correction. Another pipe strap was scheduled for the next bit trip. The well was drilled to total depth without another bit trip. Most of the upper hole formation tops, those above 5254 feet are off by 11 feet. The formation tops below 5254 feet are approximately on depth.

The quality of the lithologic samples was generally good for most of the interval of the well where samples were collected. There were several lapses by the sample catchers where no samples or bagged samples were recorded. The Morrow shale sloughed when the upper part of the Ste. Genevieve was being drilled this resulting in samples that contained mostly black shale cavings. This problem is common in most wells while drilling this interval.

After an evaluation of the lithologic samples and bore hole geophysical logs, it was determined that the well was not capable of oil and gas production from the formations in the Pennsylvanian and Mississippian. Pipe was set to evaluate the Permian Chase Group for commercial gas production.