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Osage Oil and Gas Company Cochran Estate #1
NE-NE-SW 10-27-15W
Pratt County, Kansas
Elevation: 2042 Kelly bushing

Contractor: Peel Drilling Company
Drilling commenced: August 21, 1956
Drilling completed: September 14, 1956
8 5/8" casing at 308'.

Geological formations and zones of porosity as determined by sample examination, drilling time and electric log correlation are herein described. Drilling operations and sample examination were observed on location from 3800 feet to the total depth.

All depths as listed below, are corrected to Schlumberger log measurements, which are approximately four feet lower than drillers measurements, as shown on the accompanying drilling time log.

Anhydrite 1791 (-251) (Drillers top.)

Reebner shale 3774 (-1732)

Toronto 3794 (-1752)

Douglas 3822 (-1780)

3856-74 Sand, gray fine grained, micaceous, slight porosity, no show.

Brown Lime 3935 (-1893)

Lansing 3955 (-1913)

3959-62 Limestone, oolitic, good porosity, slight show free oil, good odor.

D.S.T. #1: 3940-70. Open 1 hour, weak blow, recovered 55 feet gas cut muddy water. 30 minute B.H.P. 690#, I.F. 80#, F.F. 115#.

3982-86 Limestone, white, dense, fair vuggy porosity, light staining.

3999-4002 Limestone, white, dense, fair vuggy porosity, light staining.

D.S.T. 3974-4011. No fluid shut off, no test.

D.S.T. #2: 3945-4011. Open 1 hour, weak blow, recovered 105 feet drilling mud. 30 minute B.H.P. 1165#, I.F. 65#, F.F. 120#.

4037-49 Limestone, dense, dolomitic, cherty, poor vuggy porosity, no show.

4062-74 Limestone, white, crystalline, poor vuggy porosity, no show.

4102-05 Limestone, oolitic, good porosity, no show.

D.S.T. #3: 4094-4110. Open 1 hour, good blow, recovered 115 feet muddy water. 30 minute B.H.P. 1470#, I.F. 50#, F.F. 80#.

4137-42 Limestone, white chalky, part oolitic, poor porosity, no show.

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Continued:

h152-59 Limestone, chalky, part oolitic, poor to fair porosity, light spotted stain.

h179-88 Limestone, chalky, part oolitic, poor to fair porosity, light spotted stain.

D.S.T. h139-93. No fluid shut off, no test.

Base Kansas City h246 (-220h)

Conglomerate h388 (-2346)

h388-91 Variegated shale with some weathered cherts.

h391-96 Sand, tan, fine to medium grained, poor porosity, light staining.

h396-98 Shale, red, soft.

h398-h402 Sand, medium grained, fair porosity, good saturation.

h402-16 Shale, variegated weathered shale and sandy shale.

Mississippi chert h416 (-237h)

h416-29 Chert, white, leached, part tripolitic, fair vuggy porosity with good stain in vugs and fractures.

D.S.T. #4: h387-h419. Open 1 hour 10 minutes, gas to surface in 5 minutes, gauge 96,000, flow oil in 55 minutes. 30 minute B.H.P. 1600#, I.F. 420#, F.F. 740#.

D.S.T. #5: h421-29. Open 1 hour, weak blow, recovered 15 feet drilling mud. 20 minute B.H.P. "0", I.F. "0", F.F. "0".

h429-43 Chert, white, blocky, poor to fair vuggy porosity with carbonaceous residue.

D.S.T. #6: h423-43. Open 1½ hours, gas to surface in 30 minutes, insufficient to measure, recovered 35 feet gas cut mud. 30 minute B.H.P. 1430#, I.F. "0", F.F. "0".

h443-47 Chert, white, blocky, fair vuggy porosity, fair stain carbonaceous residue.

D.S.T. #7: h444-51. Open 1½ hours, good blow, recovered 15 feet drilling mud. 30 minute B.H.P. 880#, I.F. "0", F.F. "0".

KINDERHOOK SHALE h447 (-2405)

Kinderhook sand h450 (-2408)

h450-h462 Sand, tan, buff, medium grained, poor porosity, interbedded with pale green shale, light staining, no free oil or odor, fair fluorescence.

D.S.T. #6: h453-63. Open 1½ hours, strong blow, recovered 182 feet muddy water. 30 minute B.H.P. 1410#, I.F. 120#, F.F. 120#.

h462-65 Shale, black, gray, green.

D.S.T. #9: h464-73. Open 1 hour, weak blow, recovered 15 feet drilling mud, 30 minute B.H.P. "0", I.F. "0", F.F. "0".

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Continued:

4465-74 Sand, tan, medium grained, loosely cemented, fair porosity, trace free oil, good florescence.

Viola Chert 4470 (-2436)

4478-87 Chert, white, yellow, part leached, residual staining in vugs and fractures, light odor.

D.S.T. #10: 4481-87. Open 1 hour, weak blow, bypassed tool, no increase, recovered 30 feet drilling mud. 30 minute B.H.P. "0", I.F. "0", F.F. "0".

4487-4510 Chert as above interbedded with gray, green, maroon shales.

Viola lime 4510 (-2468)

4510-30 Limestone, brown, tan, dense, tan chert.

4530-83 Limestone, brown, tan, dense, tan chert with much white chert and dolomitic limestone.

4583-85 Shale, pale green, sandy. (Simpson.)

Simpson Dolomite 4485 (-2443)

4485-4603 Dolomite, gray, coarse crystalline with few large sand grains, good vuggy porosity, trace free oil, good staining and light odor.

D.S.T. #11: 4562-90. Open 1 hour, fair blow, recovered 90 feet drilling mud. 30 minute B.H.P. 1420#, I.F. 80#, F.F. 80#.

D.S.T. #12: 4587-95. Open 1 hour, fair blow, recovered 115 feet muddy salt water with scum of oil. 30 minute B.H.P. 1555#, I.F. 20#, F.F. 65#.

4603-08 Shale, gray, green, maroon, mottled.

4608-23 Sand, medium grained quartzitic, part dolomitic, fair porosity, no show, no florescence.

4643-50 Sand, medium grained quartzitic, part dolomitic, fair porosity, no show, no florescence, shaley.

Arbuckle 4684 (-2642)

4684-4700 Dolomite, tan, cream finely crystalline, dense.

4700-10 Dolomite, crystalline, part oolitic, fair porosity, no show.

4710-4726 Dolomite, tan, finely crystalline, part coarse, no show.

Schlumberger Total Depth 4726 (-2684).

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REMARKS

A number of zones of porosity and shows of oil were observed and tested in the Lansing, Conglomerate, Kinderhook, Mississippi chert, Viola Chert and Simpson dolomite. Results of drill stem tests and electric log computations eliminate from further testing all sections other than the sand encountered from (4391-96) and (4398-4402). This Conglomerate (or Cherokee) sand comprises eight or nine feet of pay section, and should prove commercially productive without fracturing or acidizing.

Structural position of the Cochran #1 is indicated by the Arbuckle datum which is fifty four feet higher than the Armer-Robbins, a Conglomerate sand gas well one and one-half miles south, and is seventy five feet higher than the NCRA #1 Lemon, a dry hole, one and one-half miles south and west. The Cochran Arbuckle datum is thirty seven feet higher than the Anschutz-Jones, a dry hole two miles southeast, and is eighty four feet higher than a dry hole three miles northwest. Arbuckle datum at the Rooney-Siegfried #1 Ward, a dry hole two miles northeast, is eleven feet higher than at the Cochran #1.

Inasmuch as the sand was developed in only the Armer-Robbins well, a possible terrace deposit is indicated extending both north and south of the Cochran Estate well.

/s/ W. Vernon Hess
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DILLING TIME LOG

DEPTH	MINUTES	REMARKS
3500-3520	5-6-5-3-4-5-6-6-5-6-6-4-4-4-4-6-5-5-6-4	
3520-3540	3-2-2-3-3-4-4-5-5-5-4-4-7-7-4-5-9-12-4-6	
3540-3560	6-6-5-6-7-9-8-11-15-14-13-12-7-6-7-6-6-7-6-5	
3560-3580	4-6-7-9-7-5-6-6-4-5-5-5-4-5-5-5-6-7-11-10	
3580-3600	6-5-7-6-6-8-8-8-7-7-5-9-8-6-6-6-6-6-7-8	Trip at 3600.
3600-3620	8-7-7-5-5-8-8-4-4-4-4-4-4-4-7-7-8-8-7-7	
3620-3640	7-7-5-5-5-5-5-5-3-5-4-4-4-3-3-2-4-3-3-4	
3640-3660	2-2-2-2-2-2-3-2-2-2-3-2-2-3-3-3-4-4-3	
3660-3680	3-4-4-33-4-4-4-4-3-2-3-3-4-2-3-2-3-2	
3680-3700	2-2-2-2-2-2-3-2-2-2-2-3-3-3-2-2-3-2-2	
3700-3720	2-1-2-1-1-2-4-8-5-3-4-4-4-4-4-5-5-5-5-5	
3720-3740	5-6-5-5-4-3-1-3-5-4-5-4-4-4-5-2-3-4	
3740-3760	5-3-5-5-3-3-3-3-4-5-4-5-5-5-5-5-3-2-3-4	
3760-3780	8-7-6-7-5-8-7-11-11-6-5-4-4-4-3-7-11-8-13-10	
3780-3800	5-5-6-4-4-6-4-6-6-7-6-7-5-4-7-6-6-6-10-10	
3800-3820	6-6-7-8-6-12-11-9-6-9-12-6-7-7-12-9-7-6-6-3	
3820-3840	3-3-3-2-2-4-2-2-2-2-3-3-2-3-4-2-3-3-3-3	
3840-3860	2-3-2-3-2-3-4-3-4-4-3-3-3-2-2-1-2-2-2-2	
3860-3880	1-2-1-2-1-2-2-1-2-2-2-2-3-3-3-6-5-5-5-5	
3880-3900	4-5-6-6-6-8-8-9-10-8-6-6-6-6-6-6-6-5-5-5	
3900-3920	5-5-4-5-5-5-5-5-7-6-6-5-5-5-4-5-5-5-5-5	
3920-3940	6-6-6-5-5-6-6-4-5-5-5-6-13-10-10-8-7-6-6-6	
3940-3960	7-7-7-7-6-7-7-6-7-7-5-5-8-10-10-8-2-1-2-9	
3960-3980	10-11-13-10-9-14-7-8-6-5-4-7-8-5-5-5-6-7-7-6	Cir. & D.S.T. #1 3966.
3980-4000	6-6-6-7-7-7-9-9-8-7-10-15-19-14-11-5-3-3-4-3	Cir. at 3995.
4000-4020	6-6-5-4-6-8-8-10-10-13-12-12-16-15-12-13-13-8-11-10	Cir. & D.S.T. #2 4007.
4020-4040	8-11-13-8-10-7-9-7-9-10-10-7-13-14-7-9-9-10-7-7	
4040-4060	8-6-5-7-3-6-8-14-15-x-15-14-13-8-11-8-12-12-11-9	
4060-4080	3-6-6-7-7-12-7-5-4-4-3-7-10-12-14-14-14-12-12-13	Cir. at 4074.
4080-4100	11-14-12-12-17-18-23-20-18-16-24-6-6-4-4-8-7-5-1-1	Trip at 4091.
4100-4120	1-1-2-8-7-9-4-9-12-10-6-11-12-8-7-6-8-7-6-5-	Cir. & D.S.T. #3 4106.
4120-4140	6-7-9-12-12-9-8-10-10-10-9-11-9-10-11-13-2-2-3-4	
4140-4160	7-7-10-9-10-8-8-4-2-2-2-2-3-3-1-3-4-7-8-9	Cir. at 4143 & 4160.
4160-4180	9-10-11-11-12-11-11-6-6-9-11-10-11-10-9-5-3-4-5-5-	
4180-4200	4-4-4-7-5-10-15-12-11-14-19-17-15-16-11-12-13-15-13-12	Cir. at 4189.
4200-4220	13-13-15-14-12-11-11-11-11-11-14-12-9-8-14-7-17-14-9-16	
4220-4240	14-15-12-13-13-12-15-11-7-8-8-8-8-6-6-5-6-8-7-10	Trip at 4227.
4240-4260	9-10-7-7-5-5-9-12-10-7-7-11-13-12-12-10-9-7-7-7	
4260-4280	9-7-7-9-7-6-6-5-5-5-5-7-10-11-10-9-10-8-7-7-	
4280-4300	9-10-7-7-6-5-5-5-5-5-6-5-5-5-9-7-10-11-10-8	
4300-4320	7-9-9-10-9-9-10-10-9-7-5-5-8-5-4-6-7-5-7-8	
4320-4340	11-8-5-11-15-15-11-11-10-10-10-15-9-10-10-12-15-12-13-12	
4340-4360	14-13-11-10-10-12-10-12-12-13-21-10-10-13-12-13-10-15-12-8	
4360-4380	7-13-12-14-12-12-11-11-13-12-11-15-17-16-17-9-10-9-10-8	Trip at 4375.
4380-4400	8-9-8-11-10-10-13-11-8-7-7-7-6-7-10-9-15-11-10-10	
4400-4420	10-7-10-13-9-9-9-7-5-6-5-5-6-5-7-7-10-9-7-7	D.S.T. #4 4415.
4420-4440	6-7-6-7-7-7-7-7-11-13-10-6-5-5-4-4-5-4-4-3	D.S.T. #5 4425. D.S.T. #6 4433
4440-4460	6-6-5-7-11-17-18-7-7-4-4-4-4-4-3-4-3-5-7-12	D.S.T. #7 4447. D.S.T. #8 4459

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DRILLING TIME LOG

DEPTH	MINUTES	REMARKS
4500-4520	13-15-14-14-11-13-15-16-19-19-23-11-16-10-12-11-11-11-12-10	Trip at 4513.
4520-4540	15-11-12-11-13-13-10-10-9-9-11-10-11-11-9-12-11-13-10-12	
4540-4560	11-11-11-11-11-17-11-10-10-11-10-11-11-15-18-20-18-22-8-12	Trip at 4558.
4560-4580	10-13-12-11-10-10-10-9-10-10-11-11-11-10-10-10-10-11-11	
4580-4600	11-6-5-4-4-2-2-2-2-2-2-2-3-4-4-4-3-4-4-3	D.S.T. #11 4586.D.S.T.#12 4591.
4600-4620	3-8-9-8-9-6-5-6-6-7-3-3-10-15-16-16-19-19-18-8	Cir. at 4610.
4620-4640	8-8-8-8-9-10-8-14-13-12-12-10-8-10-10-10-10-9-7-8	Cir. at 4623.
4640-4660	7-8-11-11-12-20-19-23-9-10-8-7-7-7-7-8-8-7-7-7	Trip at 4648. Cir. at 465
4660-4680	7-8-9-8-16-8-8-10-9-9-8-9-10-10-12-10-10-8-9-8	
4680-4700	9-10-11-12-11-9-8-8-10-11-14-11-13-11-11-3-12-18-10-8	Cir. at 4690 & 4695.
4700-4720	9-9-10-11-20-12-13-13-8-11-13-10-10-15-12-10-13-10-9-10	
4720-4723	15-12-10	Cir. at 4723.

R.T.D. 4723.