33-8S-28W

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GEOLOGICAL REPORT

DONALD C. SLAWSON
SHAW "C" NO. 1
C SE SE SEC. 33-8S-28W
SHERIDAN COUNTY, KANSAS

ELEVATION:	2666' Kelly Bushing 2664' Derrick Floor 2661' Ground
CONTRACTOR:	Slawson Drilling Company, Inc.
COMMENCED:	September 20, 1968
COMPLETED:	September 29, 1968
R.T.D.:	4050'
SURFACE PIPE:	207' of 8 5/8" with 175 sacks cement
PRODUCTION PIPE:	4050' of 4 1/2"
HOLE SIZE:	12 1/2" to 207' 7 7/8" to 4050'
LOGS:	Schlumberger - Dual Induction - Laterolog - Neutron

DAILY PENETRATION RATE:

September 20, 1968	Off Bottom Drilling at 3:45 A.M.
September 21, 1968	Drilling at 2345'
September 22, 1968	Drilling at 3020'
September 23, 1968	Drilling at 3326'
September 24, 1968	Drilling at 3536'
September 25, 1968	Drilling at 3716'
September 26, 1968	Drilling at 3780'
September 27, 1968	Drilling at 3840'
September 28, 1968	Drilling at 3982'
September 29, 1968	Running 4 1/2" casing at 4050'

BIT RECORD:

	Size	Make	Type	Depth Out	Footage	Hours
	12 1/4"	Globe	Retip	207	207	2
(1)	7 7/8"	Sec	S4T-J	1540	1333	9 1/2
(2)	7 7/8"	Sec	S4T-J	2296	756	9 1/2
(3)	7 7/8"	Reed	YTIT-J	2781	485	14
(4)	7 7/8"	Sec	S4T-J	3145	364	14 1/4
(5)	7 7/8"	Sec	S4T-J	3335	190	15 1/4
(6)	7 7/8"	Reed	YTIT-J	3707	372	21
(7)	7 7/8"	Reed	YSI-J	3933	226	17 1/2
(8)	7 7/8"	Reed	YSI-J	4050	117	8

REMARKS:

Samples were examined from 3300' to R.T.D. 4050'. Sample descriptions in detail and other information are shown on the accompanying sample log.

FORMATIONS:

All measurements from 2666' Kelly Bushing Elevation.
All tops and zones corrected to the electric log.

FORMATION		DEPTH	DATUM
Anhydrite		2299	(+ 367)
Ft. Riley		2824	(- 158)
Elmont		3450	(- 784)
Howard		3486	(- 820)
Topeka		3538	(- 872)
Heebner		3750	(-1084)
Toronto		3772	(-1106)
Lansing		3784	(-1118)
Base Kansas City		4024	(-1358)
R.T.D.	4050 (D.L.)	4049 (E.L.)	

RESERVOIRS AND DRILL STEM TESTS:

TOP PENNSYLVANIAN 3407 (-741)

3438 - 3448 White to gray finely crystalline slightly fossiliferous limestone. Very scattered black oil residue stain. No free oil. Fair to poor visible porosity. Judged no value.

ELMONT 3450 (-784)

3450 - 3461 Off white finely crystalline soft slightly chalky, slightly nodular and fossiliferous dolomitic limestone. Scattered black oil residue stain. No free oil. Fair visible fine pinhead porosity. Judged no value.

3470 - 3479	Dense fossiliferous slightly nodular limestone. Trace of oil residue stain. No free oil. Fair to poor visible porosity. Zone judged no value.

HOWARD 3486 (-820)

3486 - 3496	Off white very finely crystalline dense slightly dolomitic fossiliferous limestone. Very scattered oil residue stain. No free oil. Fair porosity. Judged no value.
3505 - 3509	Tan dense limestone. Trace of oil residue stain. No free oil. Poor porosity. Judged no value.
3521 - 3530	Cream finely crystalline sucrose fossiliferous dolomitic limestone. Spotty oil stain. Fair show dark heavy free oil, Fair crystalline and pinhole porosity.

Drill Stem Test No. 1, 3516 to 3536. Open 45 minutes. Recovered 20' oil-cut mud (14% oil). The initial shut-in pressure was 1140# in 30 minutes, the final shut-in pressure was 1050# in 30 minutes, the initial flow pressure was 30# in 15 minutes, and the final flow pressure was 50# in 30 minutes.

TOPEKA 3538 (-872)

3595 - 3602	White dense fossiliferous nodular limestone. Scattered dark oil stain. Mostly oil residue stain. Trace of tarry oil. Fair nodular porosity. Judged no value.
3612 - 3622	White finely crystalline chalky dolomite. Trace of oil residue stain. No free oil. Fair to good fossiliferous porosity. Judged no value.
3648 - 3666	Gray fine grained shaly sand. No oil show. Fair visible fine porosity. Judged no value.
3676 - 3680	White dense fossiliferous limestone. Abundant black and residue stain. Trace of dark tarry oil. Fair fossiliferous porosity. Judged no value.
3792 - 3799	Cream dense limestone. Very scattered residue stain. Poor porosity. Judged no value.
3710 - 3715	Off white finely crystalline chalky fossiliferous limestone. Scattered fair oil stain. Slight show free oil. Fair porosity.
3719 - 3724	Cream to gray finely crystalline slightly nodular chalky limestone. Fair oil stain. Fair show free oil. Slight oil odor. Fair fossiliferous porosity.

Drill Stem Test No. 2, 3701 to 3730. Open 1 hour and 15 minutes. Recovered 115' oil cut mud (15%-20% oil), 5' heavy dark free oil, The initial shut-in pressure was 1255# in 30 minutes, final shut-in pressure 1215# in 1 hour, initial flow pressure 50# in 15 minutes, and final flow pressure 70# in 1 hour.

REMARKS

From a strict sample interpretation, there appears to be a definite separation of oil staining within the limestone body (3706-25) at 3710-15 and 3719-24. It was the writer's opinion that the best oil staining was located near the base of the zone at 3719-24.

3730 - 3737	White finely crystalline dolomite. Rare traces of black oil residue. No free oil. Fair to poor visible porosity. Judged no value.

TORONTO 3772 (-1106)

3772 - 3776	Off white finely crystalline fossiliferous grainy cherty limestone. Fair dark oil stain and saturation. Fair show free oil. Oil odor. Fair fossiliferous porosity.

Drill Stem Test No. 3, 3755 to 3780. Open 1 hour and 15 minutes. Recovered 1395' slightly oily water. The initial shut-in pressure was 1295# in 30 minutes, the final shut-in pressure was 1270# in 1 hour, the initial flow pressure was 89# to 305# in 15 minutes, and the final flow pressure was 370# to 695# in 1 hour.

3784 - 3794	(Top Zone) White finely crystalline chalky oolitic limestone. Fair to good scattered dark oil stain. Fair show free oil. Slight oil odor. Fair coarse oolitic porosity.

Drill Stem Test No. 4, 3780 - 3794. Open 1 hour and 15 minutes. Recovered 1880' gas, 420' clean oil, 60' very heavy oil cut mud, and 360' oil-cut water. The initial shut-in pressure was 1280# in 30 minutes, the final shut-in pressure was 1280# in 1 hour, the initial flow pressure was 35# to 115# in 15 minutes, and the final flow pressure was 165# to 340# in 1 hour.

3807 - 3809	(Top Zone) (Lower Part) Gray dense fossiliferous oolitic limestone. Scattered dark oil stain. Slight trace free oil. Poor scattered porosity.
3822 - 3824	(35' Zone) Cream finely crystalline fossiliferous oolitic limestone. Scattered dark oil stain. Slight show free oil. Fair scattered visible porosity.

3830 - 3837	(50' Zone) Cream to white finely crystalline chalky cherty dolomite. Very scattered black oil residue. No free oil. Fair to poor visible porosity.

Drill Stem Test No. 5, 3804 - 3840. Open 1 hour and 15 minutes. Recovered 180' slightly oil-cut mud. The initial shut-in pressure was 1370# in 30 minutes, the final shut-in pressure was 1360# in 1 hour, the initial flow pressure was 50# in 15 minutes and the final flow pressure was 85# to 110# in 1 hour.

REMARKS

According to sample interpretation, the only show of free oil covered by Drill Stem Test #5 was at 3822-24. It is the writer's opinion that the indicated porosity as per the Schlumberger log (Neutron log) at 3830-37 is a chalky sucrose dolomite zone with very poor permeability.

3853 - 3856	(70' Zone) Off white to greenish dense limestone. Trace of oil stain. Very poor porosity. Judge no value.
3862 - 3867	(90' Zone) Cream medium crystalline dolomite. Some rhombic porosity - mostly dense compact dolomite. Very scattered light stain. Very slight show free oil. Some dead oil and residue. Fair porosity. Some fair to good coarse crystalline porosity. Zone judged to be water bearing.
3878 - 3906	(100' Zone) White dense to sub-chalky limestone. No oil show. Very poor visible porosity.
3921 - 3924	(140' Zone) Tan finely crystalline slightly cherty dolomitic limestone. Trace of oil residue. No free oil. Poor porosity. Zone judged no value.
3946 - 3950	(160' Zone) Gray dense fossiliferous shaly limestone. Very scattered oil stain. Trace of free oil. Very poor visible porosity. Judged no value.
3963 - 3967	(180' Zone) Off white to gray dense to finely crystalline, slightly chalky fossiliferous limestone. Limestone appears shaly to dirty. Brown oil residue stain to saturation. Possible trace of free oil. No odor. Poor visible porosity. The Schlumberger log indicates a thin porosity break in this zone at 3964-66 with very high water saturation (70%)

REMARKS

It is the writer's opinion that the Neutron log is reading too high a porosity because of the dirty shaly condition of this limestone. At any rate, the 180' zone in this area tends to be somewhat stratigraphic and often water free with production dependent upon porosity. This zone should be carefully watched in any future development test drilled in the area and treated accordingly.

3987 - 4000	(200' Zone) Light gray finely crystalline slightly chalky limestone. Trace of dark stain. No free oil. Poor porosity. Judged no value.
4009 - 4024	(220' Zone) Greenish gray to reddish dense fossiliferous limestone. No oil show. Poor porosity.
BASE KANSAS CITY	4024 (-1358)
4033 - 4037	Brown silty shale. No oil show. Some fine grained limy shaly sand. Trace of black gilsonite. Fair porosity. Judged no value.

RTD 4050

Ran 4 1/2 inch casing on September 29, 1968

Ran Schlumberger Log

REMARKS

Results from Drill Stem Test #4 covering the top zone of 3784-94 was the chief factor in deciding to run pipe at the Shaw "C" No. 1. In addition, the Howard Zone at 3521-30, the Topeka Zones at 3710-15 and 3719-24 and the Lansing-Kansas City Zone at 3822-24 had slight shows of oil on Drill Stem Test and should be evaluated accordingly.

Final judgment as to further evaluation of the 180' Zone at 3963-67 should be reserved until future development and testing throw additional information on this zone. All other zones were condemned by drill stem test, the electric log and/or sample evaluation.

Respectfully submitted,

DON D. STRONG
Petroleum Geologist

DDS:fd