

CONFIDENTIAL

GEOLOGIC REPORT

AND

DRILLING SUMMARY

of the

DROLTE AND CHRISTOPHER NO. 1 MOSHUR

C SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 21, T. 10 S., R. 11 W.

Osborne County, Kansas

drilled by

Hilton Drilling Company

Great Bend, Kansas

CONFIDENTIAL

June 8, 1959

CONFIDENTIAL

GEOLOGIC REPORT

Well: Drolte & Christopher No. 1 Moshur

Location: C SE SW 21-10S-11W, Osborne County, Kansas.

Altitude: 1,688 feet (RB).

Completed: June 7, 1959.

Contractor: Hilton Drilling Company, Great Bend, Kansas.

The No. 1 Moshur well was drilled with rotary tools to a total depth of 3,975 feet. Samples were collected at ten-foot intervals and drilling time was logged for each five feet from 1,500 feet to 2,800 feet and for each foot from 2,800 feet to the total depth. A Welex electric log was run at the original contract depth of 3,740 feet, and because the well was structurally quite high at this depth the operators continued the well an additional 235 feet to test the Arbuckle and Simpson formations.

Descriptions of Formational Tops and Lithology.

Tabulated below are descriptions of all lithologically significant formations and zones, including porous zones. Tops of formations are taken from the Welex Electric Log which confirmed the sample tops. Depths are referred to the top of the drive bushing.

Formation or zone description	Formation depths	
	Surface datum	Sea datum
ANHYDRITE	683	/1005
HEEBNER SHALE	2921	-1163
LANSING-KANSAS CITY GROUP	2921	-1233
limestone; buff, good oolitic porosity	3042-47	
limestone; tan, good oolitic porosity	3132-38	
BASE KANSAS CITY LIME	3228	-1540
PENNSYLVANIAN CHERTY CONGLOMERATE	3486	-1798
chert; leached & weathered, hematitic, traces of "flake" oil	3486-3500	
MISSISSIPPIAN LIME	3500	-1812
limestone; dolomitic, buff, sucrosic	3500-19	

GILMORE CITY LIMESTONE (Kinderhookian)	3578	-1890
HUNTON LIMESTONE	3630	-1942
limestone; white, finely crystalline, very shaly, probably more of a rubble than a limestone <u>in situ</u>	3630-42	
MAQUOKETA SHALE	3642	-1954
VIOLA LIMESTONE	3663	-1975
limestone; cherty, black & white mottled, finely crystalline	3663-70	
limestone; less cherty, black & white mottled, medium crystalline (DST #1)	3673-82	
limestone; dolomitic, shaly	3682-3704	
limestone; brown, coarse sucrosic	3712-24	
SIMPSON SANDY DOLOMITE (Decorah)	3902	-2214
SIMPSON SAND	3921	-2233
sandstone; quartzitic, rounded, frosted, densely packed	3921-28 & 3935-39	
ARBUCKLE DOLOMITE	3957	-2269
dolomite; tan, coarse sucrosic with some oolitic chert	3971-TD	
ROTARY TOTAL DEPTH	3975	-2289

Results of Drill-Stem Test.

DST No. 1: 3672-86; Tool open 1 hour with 15 minute initial and final closed-in periods. Weak blow throughout test. Recovered 130 feet of muddy salt water. Initial and final closed-in pressures were 1240/1128 lbs.; initial and final flow pressures were 25/56 lbs.

Interpretation of Welex Electric Log.

A Welex Well Survey was made for the No. 1 Moshur well. This survey included simultaneous Gamma Ray/Gamma-Neutron curves from 2,800 feet to the total depth (detail), and an integrated Guard Log from below the surface pipe to the total depth. This survey corroborated the sample tops and revealed no shows of hydrocarbons in the test.

Structural Comparisons and Production Possibilities.

The No. 1 Moshur well is structurally much higher on the lower formations than the wells previously drilled in this area. In comparison with the No. 1 Nichols, the Moshur test is 3 feet lower on the Lansing; 22 feet higher on the Mississippian; 82 feet higher on the Viola; and 89 feet higher on the Arbuckle.

This structural advantage is commensurate with that predicted by the Seis-Tech Corporation and, according to their study, is the highest that can be expected in this immediate area. Because you have apparently tested the most favorable location on your acreage and because the examination of the samples, the results of the drill-stem test, and the interpretation of the electric log require that this location be abandoned, I respectfully recommend that you consider your acreage in this area condemned with respect to realizing commercial production.

The expected favorable conditions were encountered and the geologic requirements for the entrapment of oil apparently are present at the Moshur location; in view of this, it is surprising that the test was unsuccessful.

DRILLING SUMMARY

Location of the Well.

Geographical location: The No. 1 Moshur test is exactly 660 feet north of the south line and 660 feet west of the east line of the Southwest Quarter of Section 21, Township 10 South of the 40th Parallel, Range 11 West of the Sixth Principal Meridian, in Osborne County, Kansas.

Geologic setting: The test penetrated Mesozoic and Paleozoic rocks from the Blue Hill shale member of the Carlile Shale of Cretaceous age at the surface into the Arbuckle dolomite of the Cambro-Ordovician System at total depth.

Altitude: The top of the rotary bashing was 1,688 feet above mean sea level and five feet above the ground level. The altitude was determined by the Laughlin-Simmons Company.

History of the Well.

Rigged up: May 22, 1959.

Set surface pipe: May 24, 1959.

Drilled surface plug: May 25, 1959.

Geologic supervision: May 27-June 7, 1959.

Ran Welox Log: June 5, 1959.

Reached total depth: June 7, 1959.

Description of Tools.

Draw works: National T-32, 4½" drill pipe.

Mast: Lee C. Moore, 97 foot.

Pump: Ideal, 7" liners and 14" stroke.

Motors: Murphy Diesel Power.

Casing Record.

Size: 8 5/8" from surface to 181 feet.

Cement: Surface pipe cemented with 175 sacks cement.

Drilling Mud Record.

Type of Mud: Water base.

Treatment: Starch.

Amount used: 18 sacks Magcogel
 24 sacks Hulls
 61 sacks Starch
 23 sacks Fibretex
 1 drum Preservative
 1 sack Lime

Bit Record.

Make	Size	Model	Serial Number	Depth from	to	Footage	Hours Run
Smith	7 7/8	DT2G	44175	181	1015	834	12 $\frac{1}{4}$
Smith	7 7/8	K2P	44545	1015	1715	700	21 $\frac{1}{2}$
HTC	7 7/8	OWV	11919	1715	1915	200	14
Smith	7 7/8	DT2G	44071	1915	2455	540	22
HTC	7 7/8	OSC	77862	2455	2795	340	19 $\frac{1}{2}$
Smith	7 7/8	SV2	43896	2795	3065	270	27 $\frac{1}{4}$
Smith	7 7/8	SV2	43774	3065	3266	201	24
Smith	7 7/8	SV2	43231	3266	3531	265	26
HTC	7 7/8	W7	5407	3531	3560	30	4 $\frac{1}{2}$
Smith	7 7/8	T2	417C3	3560	3686	126	15 $\frac{1}{2}$
Smith	7 7/8	T2	419C3	3686	3746	54	7 $\frac{1}{2}$
Smith	7 7/8	SV2	43217	3746	3855	115	20
Smith	7 7/8	C2	44123	3855	3975	120	

TIME LOG

Drolte & Christopher
No. 1 Moshur
C SE SW 21-10S-11W
Osborne Co., Kans.

Altitude: 1,688 feet (RB)
1,683 feet (Grd)
Contractor: Hilton Drilling
Completed: June 7, 1959

Five-foot time from 1,500 feet to 2,850 feet and one-foot time from 2,850 feet to total depth. Only that time from 2,850 feet is given here. All measurements referred to the rotary bushing.

Depth	Time	Remarks
2850-2860	6- 4- 3- 3- 3- 5-10- 9- 6- 5	
2860-2870	4- 5- 6- 7- 7- 7- 5- 6- 6- 6	
2870-2880	5- 5- 5- 5- 5- 5- 5- 5- 4- 4	
2880-2890	5- 3- 4- 5- 4- 4- 4- 7- 8- 6	
2890-2900	3- 4- 4- 5- 6- 5- 6- 7- 6- 5	
2900-2910	4- 4- 4- 4- 4- 4- 4- 4- 3- 3	
2910-2920	2- 2- 3- 4- 3- 4- 3- 3- 4- 3	
2920-2930	3- 9- 5- 4- 4- 5- 5- 5- 5- 5	
2930-2940	7- 5- 4- 3- 3- 6- 6- 8- 9- 9	
2940-2950	8- 7- 7- 7- 5- 7- 7- 7- 2- 2	
2950-2960	6- 5- 7- 8-11-10-13-13-11- 9-	
2960-2970	6-14-13-13-12-12-10- 7-10-10	
2970-2980	5- 6- 5- 6- 8- 6- 5- 5- 6- 6	
2980-2990	7- 9-11-12-10-10- 9-12-12- 7	
2990-3000	4- 7- 7- 7-10-11- 7- 5- 4- 6	
3000-3010	7- 8- 7- 8- 8-10-16-16-13-13	
3010-3020	10-12-11-12-11-14-14-14-14-12	
3020-3030	15-10- 8- 7- 5- 6-13- 9- 6- 5	
3030-3040	10-11-13-14-17-21- 8- 6- 5- 8	
3040-3050	5- 1- $\frac{1}{2}$ - $\frac{1}{4}$ - $\frac{1}{2}$ - $\frac{1}{2}$ - 2- 6- 7- 5	Circ. @ 3046
3050-3060	6- 8- 6- 2- 5- 7- 1- 3- 4- 5	
3060-3070	4- 4- 4- 7-15- 8- 8- 8- 8- 8	Trip @ 3065
3070-3080	8- 8- 8- 8- 8- 9- 5- 5- 7- 6	
3080-3090	6- 6- 5- 3- 4- 4- 5- 6- 5- 6	
3090-3100	6- 7- 7- 7- 7- 8- 9- 8- 7- 8	
3100-3110	8- 6- 6- 8-10- 8- 4- 4- 3- 6	
3110-3120	8- 8- 5- 6- 7- 7- 7- 8- 8- 7	
3120-3130	6- 7- 8- 6- 8- 7- 5- 5- 5- 7	
3130-3140	6- 5- 3- 2- 1- 1- 2- 2- 4- 7	Circ. @ 3138
3140-3150	3- 3- 5- 4- 5- 4- 4- 4- 3- 4	
3150-3160	5- 4- 5- 3- 3- 3- 3- 3- 4- 7	
3160-3170	5- 5- 5- 5- 6- 7- 6- 5- 5- 5	
3170-3180	4- 4- 4- 5- 4- 5- 5- 6- 9- 8	
3180-3190	8- 9- 9- 9- 9- 8- 9- 9- 9- 9	
3190-3200	7- 5- 3- 7- 6- 8- 7- 6- 8- 7	
3200-3210	7- 6- 7- 9- 8- 8- 9-11- 6- 5	
3210-3220	4- 5-10-11-12-10-10-10-11-11	
3220-3230	10-12-11-12-12-12-11-11-12-11	
3230-3240	10- 8- 8- 8- 7- 5- 9-12-13-12	
3240-3250	12-13-14-13-10- 6- 7- 6- 7- 8	

Drolte & Christopher No. 1 Moshur
C SE SW 21-10S-11W, Osborne Co., Kans.

Depth	Time	Remarks
3250-3260	8- 8-10-12-12-10- 9- 6- 5- 4	Trip @ 3266
3260-3270	11- 8- 7- 6-12-14- 5- 5- 4- 5	
3270-3280	5- 4- 4- 4- 4- 6- 9- 7- 8- 7	
3280-3290	7- 5- 3- 6- 3- 3- 5- 4- 6- 3	
3290-3300	5- 6- 5- 5- 8- 6- 8- 6- 6- 7	
3300-3310	5- 5- 4- 4- 5- 6- 6- 7- 6- 7	Circ. @ 3500
3310-3320	7- 4- 2- 2- 5- 6- 4- 5- 4- 5	
3320-3330	4- 6- 5- 5- 6- 5- 6- 7- 6- 5	
3330-3340	5- 5- 7- 7- 5- 7- 7- 7- 7- 4	
3340-3350	2- 2- 2- 7- 8- 4- 2- 2- 3- 8	
3350-3360	4- 4- 6- 5- 5- 6- 7- 7- 8- 6	
3360-3370	6- 7- 7- 5- 5- 5- 4- 7- 5- 4	
3370-3380	5- 4- 5- 4- 4- 4- 6- 7- 5- 3	
3380-3390	2- 2- 4- 5- 5- 4- 4- 5- 4- 7	
3390-3400	7- 9- 7- 5- 7- 7- 5- 5- 8- 6	
3400-3410	7- 7- 7- 8- 6- 6- 9- 8- 6- 4	
3410-3420	3- 4- 8- 4- 5- 8- 6- 7- 9-10	
3420-3430	8- 5- 3- 3- 4- 5- 6- 5- 4- 8	
3430-3440	10-10- 8- 7- 7- 4- 5- 5- 6- 6	
3440-3450	4- 4- 7- 5- 5- 7- 7- 9- 9- 9	
3450-3460	8- 7- 8- 9- 6- 7- 6- 6- 7- 7	
3460-3470	8- 7- 8- 9- 8- 9- 5- 7-11- 9	
3470-3480	10-11- 7- 6- 6- 8- 8- 7- 6- 6	
3480-3490	5- 5- 7- 5- 7- 7- 6- 6- 5- 4	
3490-3500	4- 4- 4- 4- 2- 5- 3- 5- 4- 3	
3500-3510	6- 5- 4- 4- 4- 5- 5- 5- 6- 7-	Trip @ 3531
3510-3520	10- 7- 5- 5- 4- 5- 6- 6- 7-10	
3520-3530	9- 4- 6- 7- 7- 7- 5- 8- 8- 5	
3530-3540	10- 4- 7- 4- 5- 5- 4- 5- 5- 3	
3540-3550	3- 2- 2- 6-11-13-13-15-14-16	
3550-3560	14-14-12-14-14-14-14-13-13-16	Trip @ 3560
3560-3570	9- 7- 7- 4- 4- 4- 4- 5- 4- 3	
3570-3580	10-10-10-14-10-10-11-11-11-10	
3580-3590	6- 5- 6- 6- 6- 6- 6- 6- 7- 6	
3590-3600	7- 6- 7- 9-10- 9- 9- 9- 9- 8	
3600-3610	8- 9-10-9- 9- 8- 8- 8- 9- 9	Circ. & DST @ 3686
3610-3620	9- 9- 9-10- 9- 9- 9- 9-11- 9	
3620-3630	10- 9- 9- 8- 9- 8- 9- 9- 9- 8	
3630-3640	9- 8- 8- 8- 7- 8- 8- 8- 9- 8	
3640-3650	8- 7- 8- 8- 7- 5- 8- 7- 7- 6	
3650-3660	6- 7- 6- 7- 7- 7- 6- 6- 7- 7	
3660-3670	6- 7- 6- 5- 4- 2- 3- 3- 3- 3	
3670-3680	5- 5- 7- 4- 5- 4- 2- 3- 3- 4	
3680-3690	5- 4-11- 9-12-10- 6- 7- 7- 9	
3690-3700	7- 8- 8- 7- 7- 8- 5- 6- 7- 9	

Drolte & Christopher No. 1 Moshur
C SE SW 21-10S-11W, Osborne Co., Kans.

Depth	Time	Remarks
3700-3710	7- 8- 8- 7- 7- 8- 5- 6- 7- 9	
3710-3720	8- 8-12-11-8 -12-10-11-10-14	
3720-3730	10-11-11-12-11-11-10- 9-11-11	
3730-3740	9-12-11- 9-11-10-10- 9-10-11	Circ. & Log @ 3740
3740-3750	9- 6- 6- 8- 7- 7- 8- 9- 8-12	
3750-3760	10-11-10-10-11-12-12-11-13-10	
3760-3770	11- 9- 9- 9- 8-11-11-12-12-11	
3770-3780	11-11-11-11-11-11-10-11-10-11	
3780-3790	10-12-11-11-11-12-12- 9-12-10	
3790-3800	9- 9- 8- 8-11-10-11-12-13-11	
3800-3810	12-12-12-12-12-12-12-12-11	
3810-3820	12-12-10-11-11-11-11-11-11	
3820-3830	10- 9-10- 9-10- 7-10-10-10-10	
3830-3840	9-10-10-10-10-10-10-10-11-11	
3840-3850	10- 9-10-10-10-10-10-10- 9-11	
3850-3860	10-12-11-10- 9- 5- 6- 8- 7- 8	Trip @ 3854
3860-3870	9- 7- 8- 8- 8- 9-10- 9-10- 8	
3870-3880	9- 8-10- 6- 7- 8- 8- 7- 7- 8	
3880-3890	8- 8- 7- 7- 7- 8- 9- 9- 8- 8	
3890-3900	8- 8- 7- 8- 6- 6- 6- 6- 6- 7	Circ. @ 3900
3900-3910	8- 9-10-11-8-10- 9-10- 9- 9-	
3910-3920	7-10-10- 8- 6- 6- 5- 7- 8- 6	
3920-3930	7- 8- 9-11- 8- 8- 8- 7- 5- 7	
3930-3940	7- 7- 7- 6- 6- 7- 7- 9-10- 7	
3940-3950	8-11-10-10- 8-10-10- 9- 8-11	
3950-3960	12-13- 9- 7- 5-10- 8- 7- 7-11	
3960-3970	10-11- 6- 4- 6-11-11-13-10- 8	
3970-3975	8- 5- 5- 3- 3	Circ. @ 3975
RTD--3975		