ORIGINAL

****

GEOLOGICAL REPORT

HINKLE OIL COMPANY

#1 SPENCE

C N/2 NE NE SECTION 34-23S-18W

PAWNEE COUNTY, KANSAS

BY

ORVIE HOWELL, GEOLOGIST

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15-145-20605

HINKLE OIL COMPANY
#1 SPENCE
C N/2 NE NE SECTION 34-23S-18W
PAWNEE COUNTY, KANSAS

ORIGINAL

15-145-20605

STARTING DATE:	June 22, 1979
COMPLETION DATE:	July 2, 1979
DRILLING CONTRACTOR	Search Drilling Company
SURFACE CASING:	Used 28# 8 5/8" surface casing was set @361' with 250 sacks of cement
DRILLING MUD COMPANY:	Davis Mud Company
CEMENTING COMPANY:	Sun Cementing Company
DRILL STEM TESTING COMPANY:	Miller Testing Company
OPEN HOLE ELECTRICAL LOG:	Petro-Log Radiation Guard Log-CDL-Caliper-Bore Hole Compensated Integrated Sonic
GAS DETECTOR:	Analytical (In Operation from 2200' to the Total Depth).
PRODUCTION CASING:	New 4½" 10.5# K-55 API Production Casing was set @4510' with 200 sacks 60-40 salt saturated posmix cement

The #1 Spence was under geological supervision at the drillsite from 2200' to the total depth.

1' drilling time and 10' samples were obtained from 2200' to the total depth with 5' samples taken over selected intervals.

Open Hole Log measurements were found to be 5' shallow to rotary measurements all tops, intervals, and depths referred to herein have been corrected to Open Hole Log measurements. All measurements are from the rotary bushing elevation.

ELEVATION 2118 RB 2114 DF 2108 GL

ANHYDRITE	1163 (+955)	TOPEKA	3368 (-1250)
HERINGTON-KRIDER	2234 (-116)	HEEBNER	3738 (-1620)
WINFIELD	2294 (-176)	BROWN LIME	3849 (-1731)
TOWANDA	2362 (-244)	LANSING	3847 (-1739)
FT. RILEY	2402 (-284)	BASE KANSAS CITY	4159 (-2041)
BASE FLORENCE FLINT	2501 (-383)	CHEROKEE	4310 (-2192)
RED EAGLE	2845 (-727)	MISSISSIPPIAN	4380 (-2262)
FORAKER	2910 (-792)	MISSISSIPPIAN	
PENNSYLVANIAN	3018 (-900)	LIMESTONE	4430 (-2312)
STOTLER	3155 (-1037)	KINDERHOOK SAND	4462 (-2344)
TARKIO	3206 (-1088)	VIOLA	4473 (-2355)
BERN LIMESTONE	3287 (-1169)	LTD	4515 (-2397)
HOWARD	3358 (-1240)	RTD	4520 (-2402)

Zones of interest that carried porosity and/or shows of oil and gas are described as follows. (Refer to strip log in pocket for additional lithology).

HERINGTON-KRIDER	2234 (-116)
2239-2255	Dolomite, very finely crystalline, tan, fair pinpoint and vugular porosity, trace of questionable stain, no free oil. 5 gas units over a 6 minute time duration. Not tested. Considered to be non-commercial. Should be watched closely on all additional wells in the area.
BERN LIMESTONE	3287 (-1169)
3287-3302	Limestone, grey to brown, fossiliferous with limestone, white to cream, medium crystalline, fossiliferous, good pinpoint and vugular porosity, trace of fluorescence, trace of free oil, trace of light brown stain, no odor, 28 gas units. (Covered by DST #1).
DRILL STEM TEST #1	3291-3312
Open:	30" - 30" - 60" - 30"
Recovery:	Gas to surface in 5 minutes of second flow period. 5 minute gauge 31.6 MCF, 15 minute gauge 24.5 MCF and stabilized. Recoverd 830' gas cut salt water.
IFP:	70# - 211#
IBHP:	1100#
FFP:	211# - 328#
FBHP:	1053#
	Means Laboratories Inc. BTU analysis = 710.7
NOTE:	The Rw of recovered drill stem test water as measured by Petro-Log = .05 at 76° F.; .035 at 109° F.
COMMENT:	As Electrical Log water saturations over the interval from 3287-3395 calculate to be equal to or less than 50%, this zone should be considered for further testing before abandonment of the well.
HOWARD LIMESTONE	3358 (-1240)
3358-3363	Limestone, buff, oocastic, trace of fluorescence, no stain, 15 gas units over a 8 minute time period. Not tested. Should be considered for further testing before abandonment.
LANSING	3857 (-1739)
4001-4005	Limestone, white to light grey, scattered oocastic and vugular porosity, no shows of oil, no shows on gas detector.
NOTE:	Electrical Log calculations over the intereval from 4003-4005 indicate 14% porosity and 18% water saturation. Although this extremely low water saturation is probably due to ineffective oocastic porosity, this zone should be considered for further testing before abandonment.

4018-4032	Limestone, white to light grey, chalky, scattered oocastic porosity, no shows of oil.
4043-4052	Limestone, cream to light grey, medium crystalline, good oocastic and vugular porosity, good show of free oil, good odor, heavily spotted fluorescence, moderately spotted light brown stain, 23 gas units. (Covered by DST #2).
4059-4066	Limestone, buff to brown, finely crystalline, oocastic, fair show of free oil, odor, lightly spotted fluorescence, lightly spotted stain, 19 gas units. (Covered by DST #2).
4087-4096	Limestone, cream to light grey, finely crystalline, fossiliferous, slightly oolitic, fair pinpoint and oocastic porosity, good show of free oil, fluorescence, fair odor, lightly spotted light brown stain, 12 gas units. (Covered by DST #2).
4133-4138	Limestone, cream to light grey, finely crystalline, fair pinpoint porosity, fair show of free oil, slight odor, spotted stain. (Covered by DST #2).

DRILL STEM TEST #2 4041-4140

Open:	30" - 45"
Recovery:	Gas to surface in 3 minutes. Gauged 206 MCF in 5 minutes. Flowed oil in 25 minutes, reversed circulated oil out of drill pipe. Oil is 40° gravity at 60° F.
IFP:	397# - 813#
IBHP:	1463#

CHEROKEE 4310 (-2192)

4326-4332	Sandstone, fine to coarse grained, poorly sorted, feldspathic, fair porosity, even brown stain, good show of free oil, odor, no fluorescence. (Covered by DST #3).
4350-4356	Sandstone, grey, medium gained, conglomeratic, show of free oil, slight odor, heavy black oil stain, no fluorescence. (Covered by DST #3).

DRILL STEM TEST #3 4310-4370

Open:	30" - 30" - 25" - 30"
Recovery:	Recovered 120' mud
IFP:	46# - 46#
IBHP:	117#
FFP:	117# - 117#
FBHP:	187#

MISSISSIPPIAN CHERT 4380 (-2262)

4380-4398	Chert, white, cream, opaque, 30% tripolitic and devitrified, fair porosity, good show of free oil in tripolitic fraction, spotted stain, heavily spotted fluorescence, fair odor, 50 gas units. (Covered by DST #4).

4400-4430	Chert, same as above, stain decreasing toward base. (Covered by DST #4).

DRILL STEM TEST #4 4383-4420

Open:	30" - 30" - 45" - 30" Gas to surface in 3 minutes Initial Flow Period Gauged 527 MCF and stabilized Second Flow Period Gauged 527 MCF and stabilized
Recovery:	806' Total fluid, 60' oil and gas cut mud + 60' heavily oil and gas cut mud + 386' gassy muddy oil + 60' heavily oil and gas cut water + 240' water
IFP:	381# - 228#
IBHP:	1379#
FFP:	352# - 375#
FBHP:	1379#

Means Laboratories Inc. BTU analysis = 940

NOTE: As 523' of drill collars were run on this test the volume of recovered water is not in proportion to the footages reported above. Capacity of drill collars = 4.9 barrels per 1,000 feet. Capacity of drill pipe = 14.22 barrels per 1,000 feet. Total fluid recovery = 6.5870 barrels. Water recovery = 1.47 barrels or 22.3% of total.

Measured Rw of recovered water = .07 at 76° F.; .044 at 113° F.

KINDERHOOK SAND 4462 (-2344)

4462-4470	Sandstone, white, fine grained, subangular, calcareous, no shows.

VIOLA 4473 (-2355)

4473-4488	Limestone, white and yellow with stringers of buff to brown, very finely crystalline dolomite.
4488-4500	Limestone, light grey to cream and buff with traces of pink and red. Fine to coarsely crystalline, siliceous and sandy in part, dolomitic in part, slightly cherty.
4500-4515	Limestone, white to buff and pink, fine to coarsely crystalline, chalky in part. Cherty in part.

LOG TOTAL DEPTH 4515 (-2397)

PRODUCTIVE OR POTENTIALLY PRODUCTIVE ZONES

ZONE	INTERVAL	COMMENTS
1. Mississippian	4400-4416	Oil and gas, probably associated with some water.
2. Mississippian	4380-4395	Oil and gas, water free
3. Kansas City	4133-4138	Oil, probably associated with water

ZONE	INTERVAL	COMMENTS
4. Kansas City	4087-4093	Oil, probably associated with some water
5. Kansas City	4058-4066	Oil, water free
6. Kansas City	4043-4052	Oil, water free
7. Kansas City	4001-4005	Questionable, could produce water free oil
8. Howard	3358-3363	Gas
9. Bern	3287-3295	Gas, but probably associated with water
10. Herington-Krider	2240-2252	Gas - questionable economic value

Respectfully submitted,
July 30, 1979

Orvie Howell

Orvie Howell, Geologist

HINKLE OIL COMPANY
#1 SPENCE
C N2 NE NE
SECTION 34-23S-18W
PAWNEE COUNTY, KANSAS

DEPTH	FIVE FOOT DRILLING TIME	REMARKS
2200-2250	17-12-10-7-7/9-8-10-10-8	
2250-2300	7-7-11-9-4/7-10-8-7-7	
2300-2350	6-10-10-6-4/4-4-4-9-7	
2350-2400	9-7-7-7-7-7/8-8-8-9-9	
2400-2450	11-6-8-7-10/12-11-10-9-11	
2450-2500	8-5-7-8-3/5-9-6-10-14	
2500-2550	11-10-10-9-9/11-10-8-11-9	
2550-2600	8-8-5-7-12/12-13-6-6-10	
2600-2650	13-11-9-8-10/8-9-12-10-12	
2650-2700	12-13-11-12-8/9-13-15-9-11	
2700-2750	11-13-11-11-7/9-10-8-12-11	
2750-2800	10-10-13-10-11/11-12-12-12-8	
2800-2850	7-11-13-12-11/12-11-11-8-8	
2850-2900	8-4-8-10-15/10-9-8-8-7	
2900-2950	10-10-7-2-6/11-11-9-12-17	
2950-3000	11-13-9-14-9/6-10-11-10-12	
3000-3050	9-5-10-6-10/18-12-13-12-11	
3050-3100	13-12-11-12-10/10-14-10-11-13	
3100-3150	18-10-10-10-10/10-6-7-6-10	
3150-3200	5-8-10-12-11/12-13-13-16-8	
3200-3250	5-5-13-10-11/15-13-15-14-16	
3250-3300	13-13-11-9-16/14-13-11-6-3½	
3300-3350	3-5½-12-13-21/16-17-15-15-17	DST #1 @3317 CFS 1 Hr.
3350-3400	10-8-10-10-38/31-17-16-13-18	
3400-3450	19-19-10-12-17/16-19-18-10-10	
3450-3500	14-13-14-14-13/12-7-7-6-9	
3500-3550	5-12-9-6-12/9-10-4-7-14	
3550-3600	12-9-17-16-12/9-12-13-10-11	
3600-3650	14-16-17-18-13/8-9-7-6-7	
3650-3700	6-6-5-8-7/7-6-8-3-4	

DEPTH	ONE FOOT DRILLING TIME	REMARKS
3700-3710	1-1-1½-1½-2/1½-2½-2-1½-1½	
3710-3720	1½-1-½-1-1/1-½-½-½-½	
3720-3730	½-1-½-½-1/1-½-½-1-½	
3730-3740	½-1-1-2-2/1-1-1½-1½-1	
3740-3750	2½-3-3½-3-3/2-1-1½-2-3½	
3750-3760	3½-3-3½-3½-3/3-3-3-3-2	
3760-3770	3-3-3-2-3/2-2½-2½-3½-3½	
3770-3780	4-3-4-2-1½/1½-2-2-2-2	
3780-3790	2-2½-4-4-3½/3½-3½-3-2½-2½	
3790-3800	3-2½-2½-2½-2½/2½-2½-2-2½-2	

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DEPTH	ONE FOOT DRILLING TIME	REMARKS
3800-3810	2½-2-2½-2-2/2-2-2½-2-2½	
3810-3820	2-2-2-2-2/2-1½-1½-2-2	
3820-3830	2-1p-2-2-1½/2-2-2-2-2	
3830-3840	1½-1½-2-2-1½/2-2-1½-2½-2	
3840-3850	2-2-2-1½-1½/1½-2-1½-2-1½	
3850-3860	1½-1½-1½-4-4/3-4-4-3-3	
3860-3870	3-4-4-3-4/3-3-2-3-1	
3870-3880	1½-3-3½-2-2/4-4-5-3½-3½	
3880-3890	3-3-4-4-4/4-5-4-4-5	
3890-3900	4-4-3-5-4/5-5-5-6-6	
3900-3910	5-4-3-3-2½/2-1-4-3-4	
3910-3920	4-3-4-4-4/3-3-3-4-4	
3920-3930	5-4-4-5-4/4-4-6-4-4	
3930-3940	4-9-2-2-2/2-2-2-2-3	
3940-3950	2-2-2-3-1/3-2-4-4-4	
3950-3960	3-4-4-4-3/5-4-4-5-3	
3960-3970	4-3-2-3-4/3-2-2-2-2	
3970-3980	1-2-2-2-2/2-3-3-2-2	
3980-3990	2-3-2-3-2/3-2-2-3-5	
3990-4000	4-4-5-4-4/4-4-3-3-4	
4000-4010	4-5-3-5-3/3-5-3-1-3	
4010-4020	4-2-2-4-3/4-5-3-4-4	
4020-4030	4-4-5-4-4/3-4-4-4-2	
4030-4040	1-2-4-3-3/1-2-3-4-4	
4040-4050	3-4-3-4-4/3-2-2-4-2	
4050-4060	1-1-2-2-2/2-2-3-3-4	
4060-4070	2-3-4-4-3½/2½-1-2-3-2	
4070-4080	4-4-4-5-4/4-4-4-4½-4½	
4080-4090	4-5-5-4-3/4-4-3-4½-4½	
4090-4100	5-2-2-3-2/2½-3-3½-5-5	
4100-4110	5-4-5-5-5/5-5½-4½-6-5	
4110-4120	5-5½-5½-6-6/6-6-5½-5½-5	
4120-4130	5-4½-3-4-2½/4-4½-6-4-2	
4130-4140	1½-3½-5-5½-4½/4-4-3-4½-5½	
4140-4150	4½-4½-4-4-4/3-3-2-5-6	DST #2 @4145 CFS 1 Hr.
4150-4160	3-5-6-5-5/6-5-6½-6½-5	
4160-4170	7-6-8-6-8/5-5-5-3-3	
4170-4180	3-2-2-2-3/7-6-7-7-4	
4180-4190	4-5-4-5-4/4-4-4-4-3	
4190-4200	4-4-5-6-6/4-6-5-2-2	

HINKLE OIL COMPANY
#1 SPENCE
C N2 NE NE
SECTION 34-23S-18W
PAWNEE COUNTY, KANSAS

DEPTH	ONE FOOT DRILLING TIME	REMARKS
4200-4210	3-1-2-3-4/5-7-6-6-5	
4210-4220	4-6-3-6-4/6-6-5-4-2	
4220-4230	1-4-3-3-3/3-3-3-3-5	
4230-4240	5-6-6-6-6/6-6-6-5-4	
4240-4250	5-5-5-4-5/5-5-6-5-5	
4250-4260	5-4-5-5-5/5-5-6-6-6	
4260-4270	7-6-7-5-2/3-3-4-6-4	
4270-4280	3-3-5-5-3/6-6-6-6-4	
4280-4290	4-6-6-7-7/3-7-5-7-7	
4290-4300	7-6-4-2-2/2-6-7-5-5	
4300-4310	6-5-5-6-6/5-7-8-9-7	
4310-4320	6-8-8-9-7/6-6-5-7-9	
4320-4330	7-7-5-4-3/3-4-5-5-5	
4330-4340	3½-3½-3½-4½-2/1-2-3-4½-4½	
4340-4350	5-5-5-6-4½/4½-4-4½-5-5	
4350-4360	5-4½-4½-5-8/9-5-3-4-3	
4360-4370	3-5-7-9-9/9-5½-5-4½-6	
4370-4380	4-8-6-7-5/3-2-3-4-6	DST #3 @4375 CFS 1½ Hr.
4380-4390	7-7-6-5-6/4-3-2-3-2	
4390-4400	2-2-2-2-2/2-2-3-2-2	
4400-4410	2-2-5-3-2/2-2-1-1-1	
4410-4420	1-1-1-1-1/1-1-1-1-2	
4420-4430	1-1-½-1½-1/1-1-1-1-2	DST #4 @4425 CFS 2 Hrs.
4430-4440	3-2-2-3-5/9-6-10½-7½-7	
4440-4450	8-8½-8½-11-12/13-11-9-10-9	
4450-4460	14-12-12-12-9/11-15-13-6-9	
4460-4470	8-10-9-12-11/9-6-1-3-5	
4470-4480	5-5-5-4-7/10-9-11-10-12	
4480-4490	17-11-18-27-12/7-8-7-8-5	
4490-4500	10-7-9-8-9/8-7-7½-7½-6	
4500-4510	5-9-8-7-6/4½-5-5-5-5	
4510-4520	5-3½-5-5-6/6-4-4½-5½-6	CFS 1½ Hrs.