

15-065-02711-00-00

GEOLOGICAL REPORT

CITIES SERVICE OIL COMPANY
 Company: ~~Imperial Oil of Kansas, Inc.~~ S $\frac{1}{2}$ SE NE Sec. 29-8S-24W
 Farm: ~~Graham No. 1 Holley 1-KC UNIT NORTH # 301~~ Graham County, Kansas
 Contractor: Imperial Oil of Kansas, Inc. Elevation: 2366' R.B.
 Pool: Holley Rotary Total Depth: 3920'

Rotary Completed: 1-31-56

Geological Data:

Samples were examined from 3400' to Rotary Total Depth

Formation Tops

Anhydrite	2072'	{ +294 }
Heebner	3652'	{ -1286 }
Toronto	3672'	{ -1306 }
Lansing	3692'	{ -1326 }
Rotary Total Depth	3920'	

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Core #1 3680- 3710, cored 30' recovered 26'

3680-85 $\frac{1}{2}$ Dense fossiliferous cherty limestone with shale stringers. Very poor porosity. No oil show, no value.

3685 $\frac{1}{2}$ - 86 Dark gray soft mucky shale

3686-91 Red shale - appears solid

3691-91 $\frac{1}{2}$ Green shale

Top Lansing 3691 $\frac{1}{2}$

3691 $\frac{1}{2}$ -93 Gray dense shaly limestone. No oil show, very poor porosity.

3693-95 Cream finely crystalline slightly porous limestone. No oil show.

3695-97 Limestone as above - very dense, non-porous.

3697-3704 Dense slightly shaly limestone. Poor porosity. No oil show.

3704-06 $\frac{1}{2}$ Cream finely crystalline slightly chalky, crumbly limestone. Very slight porosity. No oil show, no value.

3706 $\frac{1}{2}$ -10 Not recovered. Probably limestone as above.

Core #2 3710-60. Cored 50', recovered 50'

3710-14 Cream finely crystalline to dense limestone. Very slight porosity. No oil show.

HOLLEY L.K.C UNIT North # 301
~~Graham No. 1~~

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3714-15 Green shale

3715-22 Red shale

3722-23 Gray calcareous shale.

Top 35' zone 3723

3723-31 Tan dense fossiliferous cherty limestone. Fair to good spotty show free oil. Some saturation. Some bleeding oil. Fair to good scattered vuggy porosity.

3724-28 (This interval consists of the most porous and best stained portion of the 35' zone. Zone should be perforated.)

3731-36½ Red and gray shale - appears solid.

Top 50' zone 3736½

3736½-38 Very dense fossiliferous limestone. Very poor porosity. Trace oil.

3738-40 Gray dense limestone. Trace bleeding oil (heavy dark oil) Poor spotty vuggy porosity.

3740-43½ Dense limestone. No oil show.

3743½-44½ Gray dense limestone. Slight show of oil in thin horizontal streaks of porosity. Porosity is poor.

3744½-52 Gray dense non-porous limestone. No oil show.
(The 50' zone on the #1 Graham as observed in the core would not have any commercial importance.)

3752-55½ Gray shale - solid

3755½-59 Dense shaly limestone. Non-porous. No oil show.

3759-60 Gray shale - solid

Core #3 3760-86 Core 26', recovered 26'

3760-65 Red shale - solid

Top 90' zone 3765

3765-71 Cream finely crystalline to dense oolitic limestone, fair show free oil. Some saturation. Fair to good porosity.

3766-68 (This interval represents the best portion of the 90' zone. Zone should be perforated.)

3771-72 Gray soft mucky shale

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Top 100' zone 3772'

3772-75 Finely crystalline slightly vuggy limestone. Good show oil with saturation. Fair to good porosity.

3775-79 Finely crystalline to dense limestone. Fair show of oil in horizontal fractures. Fair porosity.

3779-86 Dense limestone. Very slight fracture porosity. Very spotty show of oil.

3772-75 (This interval represents the best portion of the 100' zone)

Core #4 3817-66 Cored 49', recovered 49'

3817-21½ Red shale

Top 140' zone 3821½

3821½-22½ Finely crystalline fossiliferous limestone. Good show of oil. Good porosity. Some saturation.

3822½-26 Limestone as above, fair show oil in streaks of fair porosity.

3826-27½ Good show oil. Good porosity.

3827½-36 Dense limestone. Very slight show oil. Poor porosity.

3821½-27½ (This interval represents the most promising section of the 140' zone. Porosity sections at 3821½-22½ and 3826-27½ are the best. Zone should be perforated.)

3836-37 Gray shale

3837-40 Dense fossiliferous shaly limestone. Very slight show oil. Poor porosity. No commercial value.

3840-45 Red Shale

Top 160' zone 3845

3845-53 Gray dense shaly limestone. Very spotty show oil. Very poor porosity. Zone judged no value.

3853-65 Red shale - solid

Top 180' zone 3865

3865-66 Dense fossiliferous vuggy limestone. Good show oil good porosity.

Core #5 3866-3900

3866-67 Dense fossiliferous vuggy limestone. Good show oil, good porosity.

3867-68½ Very dense limestone. Very slight show of oil. Poor porosity.

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3868½-74 Dense fossiliferous limestone. Fair spotty show oil in streaks of porosity. Fair porosity.

3865-67 (This interval is the best portion of the 180' zone). Porosity at 3868½-74 should be carefully checked against the core analysis. Zone should be perforated.

3874-75 Shaly limestone. No Oil show

3875-76½ Gray shale

3876½-77½ Very shaly limestone. No oil show.

3877½-84 Red Crumbly shale

Top 200' zone 3884

3884-87 Finely crystalline oolitic limestone. Very good show of oil. Complete saturation. Good porosity.

3887-92 Limestone as above. Slight porosity. Slight spotty show oil.

3892-93½ Good show oil, good porosity.

3893½-94½ Shaly limestone. No oil show.

3894½-95 Gray shale

3895-96½ Dense limestone. No oil show.

3896½-3900 Gray shale

D.S.T.#1 3877-3920 Open 1 hour, recovered 560' gas, 90' heavy oil cut mud, 180' mud cut oil. BHP 1410# in 20 minutes.

3905-15 (220' zone) Dense limestone. Very poor porosity. No oil show.

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REMARKS:

All zones of staining in the #1 Graham have been judged in this report. Evaluation is based on visual inspection of the core. It is suggested that the core analysis report and the Halliburton log be utilized for a more broader evaluation.

5½" casing cemented at 3920' on 1-31-56.

IMPERIAL OIL OF KANSAS, INC.

By: Don D. Strong *CDR*
Don D. Strong, Geologist
Orlin R. Phelps, Geologist

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CITIES SERVICE OIL COMPANY
IMPERIAL OIL KANSAS, INC.
Well Completion Report

HOLLEY L-KC UNIT NORTH

Lease. Graham Well No. 301
Loc. SW SE NE Sec. 29 Twp. 8S Rge. 24W
County Graham State Kansas
Pool Holley

Spud Date 1-19-56
Rotary Completed 2-1-56
Completion Date 2-10-56
Potential 497 BOPD.
Gravity 36.0
R. T. D. 3920

Surface casing set at (8 5/8) 223 with 175 sacks
Production casing set at (5 1/2) 3920 with 125 Sacks

Formation Tops:
Elevation: 2366 RB

Sample

Electric Log

Produced To

Anhydrite 2072 (+294)
Heebner 3652 (-1286)
Toronto 3672 (-1306)
Lansing 3692 (-1326)

Yes

Jan. 1957 9,335
Jan. 1958 _____
Jan. 1959 _____
Jan. 1960 _____
Jan. 1961 _____
Jan. 1962 _____
Jan. 1963 _____
Jan. 1964 _____
Jan. 1965 _____
Jan. 1966 _____
Jan. 1967 _____

Electric Log measurements

Anhydrite 2118
Heebner 3647
Toronto 3670
Lansing 3686

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PRODUCING AND PROSPECTIVE PRODUCING ZONES

Formation	Depth	Feet	Remarks	Estimated Reserves
Lansing				
B 35' Z	3617-21	4 open	Cored	
E 90' Z	3759-63	4	Cored	
G 100' Z	3768-71	3 open	Cored	
H 140' Z	3815-21	6 open	Cored	
J 180' Z	P. 3858-65	3	Open	18,210
K 200' Z	K 3877-80	3 open	DST Rec. 270' MCO	

Completion Data:

2-6-56

2-10-56

Moved unit in and rigged up. Drilled staging collar. Swabbed hole dry.

8 hr. fillup was 3210' all oil. Ran tubing and rods. Tore unit down.

2-7-56

Drilled float to TD of 3910. Ran Halliburton log to TD. Perf. the 180' zone from 3858-65 with 30 holes using Halliburton 1/3" bullets. Well swabbed 1 BOPH natural.

2-8-56

8 hr. fillup was 800' all oil. a 16 hr. swab test showed 1 1/2 BOPH off bottom.

2-9-56

8 hr. fillup was 800' all oil. Acidized with 3000 gal. J-type acid by Chemical Process. Feeding pressure was from 500# to 450#. Pressure drop in 6 min. was from 450# to 0#. Swabbed well down. Testing 2900' off bottom, well showed 18 BOPH - NW. Testing 1900' off bottom well showed 19 BOPH - NW. Total hours swabbed was 12.