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GRAHAM-MICHAELIS DRILLING COMPANY

GRAHAM-MICHAELIS DRILLING COMPANY • 311 NORTH BROADWAY • WICHITA 2, KANSAS

GEOLOGICAL REPORT
ISAAC #1-15

LOCATION:	C SE/4 SE/4; Section 15-33S-28W Meade County, Kansas
DRILLING CONTRACTOR:	Graham-Michaelis Drilling, Inc.
DRILLING COMMENCED:	December 27, 1966
DRILLING COMPLETED:	January 11, 1967
CASING RECORD.	8 5/8" @ 1466' w/300 sx cement
ELEVATION:	2500' G.L. - 2516' K.B.
TOTAL DEPTH:	6030'

During the drilling of this test, ten foot samples were saved from 4200' to total depth and donated to the Kansas Geological Society, Wichita, Kansas. One foot drilling time was recorded from 4200' to total depth. A Schlumberger Dual Induction Laterolog and Compensated Formation Density Log was run with all measurements taken from Kelly Bushing. Three drill stem tests were run.

FORMATION TOPS AND THEIR SUBSEA DATUM

			Ferguson Oil Co. Section 22-33S-28W
Lansing	4428'	(-1912)	(-1804)
Morrow Shale	5732'	(-3236)	(-3215)
Morrow Sand	5770'	(-3254)	
Chester	5793'	(-3282)	

ZONES OF INTEREST

Morrow Sand
5770-5790'

Sand, white, very fine grained, friable. Good porosity and slight stain.
Schlumberger Electric Log Calculations using R_w .03 and P_2 2.68:

Depth	Porosity	Gals Water Saturation
5772-5787'	20%	93%

DRILL STEM TEST #1
5734-5771'

Open:	37 minutes
Recovery:	5' drilling mud
ISIP:	115# in 30 minutes
FP:	(20-30)
FSIP:	63# in 30 minutes

DRILL STEM TEST #2
5770-5785'

Open:	1 hour
Recovery:	745' salt water
ISIP:	1791# in 30 minutes
FP:	(80-325)
FSIP:	1545# in 30 minutes

Chester Zone
5924-5952'

Limestone, gray, fine crystalline, fair porosity and trace of stain.

DRILL STEM TEST #3
5847-5950'

Open:	1 hour
Recovery:	50' drilling mud
ISIP:	1381# in 30 minutes
FP:	(48-54)
FSIP:	618# in 30 minutes

Chester Zone
5989-6002'

Limestone, light gray, fine crystalline, poor porosity
Schlumberger Electric Log Calculations using R_w.035 and P_2 2.71:

Depth	Porosity	Salt Water Saturation
5990-5994'	7.8%	70-80%

RECOMMENDATION:

This test was 21' lower than the Ferguson test 1/2 mile south in Section 22 based on the top of the Morrow Shale. I stopped at 5771' to run Drill Stem Test #1 as I felt that the gas-water contact in the Ferguson well would be 5772' (-3250) in the Isaac #1-15. With the test being a negative result I then drilled 14' of porous sand and then tested salt water on Drill Stem Test #2 with no indication of gas. Drill Stem Test #3 was run to test the Chester Zone which produces to the southeast 4 or 5 miles. The permeability was low as indicated by the Drill Stem Test.

Based on the electric log and drill stem test results, it was recommended to plug the test with no further testing.

Jack L. Yinger - Geologist

JLY/mj

GRAHAM-MICHAELS
DRILLING COMPANY

[illegible] • [illegible] NORTH BROADWAY • WICHITA 2, KANSAS

Re: Isaac #1-15
SE/4 SE/4; Section 15-33S-28W
Meade County, Kansas

DRILLING TIME LOG

DEPTH FROM - TO	DRILLING TIME	REMARKS
4200 - 4210	3-2-3-3-2-3-3-3-2-3	
4220	2-3-3-2-3-3-2-2-2-2	
4230	3-3-2-2-2-2-3-2-2-2	
4240	3-2-2-2-2-2-3-2-2-3	
4250	2-3-2-2-2-3-2-2-2-2	
4260	2-2-2-2-2-2-2-2-2-2	
4270	2-2-2-2-2-2-2-2-2-2	
4280	2-2-2-2-2-2-1-1-1-2	
4290	2-2-1-1-1-1-1-1-1-1	
4300	1-1-1-2-2-1-3-1-1-1	
4300 - 4310	1-1-2-2-1-1-1-1-1-1	
4320	— 42 minutes —	
4330		
4340	1½-1½-1½-1½-1½-1½-1½-1½-1½-1½	
4350	1½-1½-1½-1½-1½-1½-1½-1½-1½-1½	
4360	1½-1½-1½-1½-1½-1½-1½-1½-1½-1½	
4370	1½-1½-1½-1½-1½-1½-1½-1½-1½-1½	
4380	1½-1½-1½-2-1-1-1-2-1-2	
4390	1-2-2-1-2-1-2-2-1-2	
4400	2-1-2-2-1-2-2-1-2-2	
4400 - 4410	1-2-2-2-1-2-2-2-1-1	
4420	2-1-1-1-1-1-1-1-1-1	
4430	1-1-1-1-1-2-4-2-1-3	
4440	1-2-4-1-1-2-1-2-1-1	
4450	1-1-1-1-1-1-2-2-1-2	
4460	2-3-2-2-2-2-1-1-1-1	
4470	1-1-1-1-1-1-2-3-3-2	
4480	1-1-1-2-2-3-2-2-3-2	
4490	3-3-3-3-3-3-3-4-2-1	Trip @ 4486'
4500	2-2-1-1-2-3-1-2 2-4	
4500 - 4510	4-4-3-4-4-5-5-3-3-4	
4520	2-3-2-3-2-2-5-2-3-2	
4530	2-2-2-2-1-2-2-2-3-2	
4540	1-3-2-2-2-1-1-2-2-2	
4550	1-2-2-3-1-1-1-1-1-1	
4560	1-2-1-1-2-1-1-1-2-1	
4570	1-1-1-2-1-1-1-1-1-2	
4580	1-2-1-1-1-2-2-1-2-2	
4590	2-3-2-2-2-2-2-2-3-2	
4600	3-2-2-2-2-2-2-2-2-2	
4600 - 4610	1-2-1-2-1-1-2-1-1-1	

DRILLING TIME LOG
Isaac #1-15
Page 2

DEPTH FROM - TO	DRILLING TIME	REMARKS
4620	2-1-1-2-2-2-2-3-2-2	
4630	2-1-1-1-2-1-2-2-1-2	
4640	1-2-1-1-2-2-2-2-2-2	
4650	3-2-2-2-3-2-1-2-1-2	
4660	3-2-3-2-2-2-3-3-3-3	
4670	4-3-1-3-2-3-4-3-2-4	
4680	2-1-2-1-2-1-2-2-3-3	
4690	2-1-1-2-1-2-1-1-2-3	
4700	3-3-4-3-4-2-3-1-3-4	
4700 - 4710	2-2-2-1-2-3-2-1-2-1	
4720	1-1-1-1-1-2-2-2-2-2	
4730	4-3-4-3-3-2-3-5-5-4	
4740	4-1-2-2-3-5-6-4-4-7	
4750	3-2-5-4-3-3-3-3-2-2	
4760	1-2-2-2-2-2-2-2-3-4	
4770	6-5-4-4-6-5-3-4-2-3	
4780	1-2-3-4-3-2-2-2-2-2	
4790	3-3-3-2-1-1-1-1-1-1	
4800	1-1-1-1-1-1-1-1-1-1	
4800 - 4810	1-1-1-1-1-1-1-1-1-1	
4820	1-1-1-1-1-1-1-1-1-2	
4830	2-2-4-5-4-4-2-3-4-4	Trip @ 4828'
4840	3-3-3-5-4-3-2-1-1-2	
4850	-1-1-1-1-2-1-2-1-1	
4860	2-1-2-2-2-3-2-2-2-2	
4870	2-1-2-2-2-3-2-3-2-3	
4880	4-2-2-4-2-3-3-3-2-2	
4890	2-3-2-3-3-1-3-3-6-3	
4900	4-3-4-2-3-3-3-4-4-2	
4900 - 4910	3-2-2-2-1-2-3-6-5-5	
4920	5-5-5-5-4-4-3-3-3-3	
4930	2-3-4-4-4-3-4-3-2-2	
4940	1-1-2-2-4-3-3-2-2-5	
4950	5-4-3-3-2-4-5-6-6-7	
4960	6-6-6-4-2-4-4-4-5-8	
4970	6-6-4-3-3-3-4-3-3-4	
4980	4-5-3-8-6-6-7-7-7-5	
4990	7-5-4-3-3-3-4-3-6-9	
5000	7-8-6-5-6-7-5-3-6-4	
5000 - 5010	4-4-5-4-7-7-5-6-6-6	
5020	9-6-6-7-6-7-5-4-3-2	Trip @ 5016'
5030	2-2-2-4-3-4-1-2-1-2	
5040	2-2-1-1-2-2-2-2-3-2	
5050	1-2-3-2-3-3-2-3-3-4	
5060	3-3-3-4-4-3-4-3-3-3	
5070	3-3-3-3-3-3-3-3-3-2	
5080	2-3-2-2-2-3-2-2-2-3	
5090	2-2-3-3-2-1-1-1-1-3	

DRILLING TIME LOG
Isaac #1-15
Page 3

DEPTH FROM - TO	DRILLING TIME	REMARKS
5100	½-½-½-½-½-½-½-½-½-½	
5100 - 5110	1-1-1-2-1-2-2-2-2-2	
5120	3-2-2-2-2-2-2-2-3-2	
5130	2-2-2-3-2-2-2-2-3-2	
5140	2-2-2-2-2-2-3-2-2-3	
5150	2-2-2-3-2-2-2-2-3-3	
5160	2-2-2-3-2-2-2-2-2-1	
5170	1-3-2-2-2-3-2-2-2-2	
5180	2-3-2-3-3-2-3-2-3-1	
5190	1-1-1-1-1-1-1-1-1-1	
5200	2-4-3-4-3-4-4-4-4-4	
5200 - 5210	4-4-1-4-4-4-5-5-5-6	Trip @ 5210'
5220	6-5-4-5-5-5-6-7-7-7	
5230	6-7-7-5-5-6-7-6-5-7	
5240	8-5-8-6-7-7-10-8-6-4	
5250	4-4-2-2-2-2-2-2-5-7	
5260	6-6-5-3-7-4-3-3-2-3	
5270	2-5-3-2-2-1-2-2-2-3	
5280	2-2-2-5-5-5-5-5-5-4	
5290	4-6-4-5-5-5-2-2-2-5	
5300	5-6-5-6-7-5-7-5-6-5	
5300 - 5310	5-4-2-3-2-2-6-5-5-5	Trip @ 5307'
5320	5-5-4-3-3-2-2-2-2-3	
5330	5-2-5-2-2-2-2-2-5-2	
5340	5-5-3-5-5-5-5-3-5-3	
5350	3-4-5-5-2-1-2-2-1-2	
5360	2-3-2-3-2-5-2-5-5-4	
5370	3-3-5-2-3-2-1-1-1-2	
5380	2-3-3-3-4-4-1-2-3-1	
5390	3-3-3-3-3-2-2-2-2-2	
5400	2-2-3-3-2-5-2-2-2-2	
5400 - 5410	2-3-3-4-4-4-3-3-3-4	
5420	3-5-5-5-3-2-1-1-1-2	
5430	1-2-4-4-5-3-4-4-6-7	Trip @ 5428'
5440	6-5-5-6-5-5-1-1-3-2	
5450	3-6-4-5-4-5-5-5-4-4	
5460	3-4-4-5-3-4-4-5-5-4	
5470	5-4-3-4-5-4-2-2-5-4	
5480	3-2-4-6-4-5-5-4-8-5	
5490	5-5-4-4-1-1-3-2-7-4	
5500	4-4-7-9-4-4-6-4-4-6	
5500 - 5510	6-2-5-5-2-6-6-5-4-5	
5520	8-6-2-4-3-2-6-8-7-7	
5530	8-10-5-6-6-5-5-3-4-2	
5540	4-6-7-7-7-8-7-5-7-7	
5550	6-4-4-4-4-4-5-2-2-2	
5560	2-5-2-6-10-7-8-8-	
5570	5-5-5-4-2	

DRILLING TIME LOG
Isaac #1-15
Page 4

DEPTH FROM - TO	DRILLING TIME	REMARKS
5580	2-3-3-3-1-3-3-3-4-3	
5590	2-3-4-4-4-3-2-2-4-2	
5600	3-2-3---2-1-1-4-3-3	
5600 - 5610	3-3-4-3-3-3-4-4-4-4	
5620	3-4-4-4-4-4-4-4-4-3	
5630	3-2-3-1-2-3-5-4-7-8	
5640	7-7-7-7-8-4-8-8-8-6	
5650	4-4-3-7-6-7-6-10-7-6	
5660	8-7-9-8-8-7-6-7-7-8	
5670	7-6-8-7-7-6-3-7-7-7	
5680	6-7-8-7-8-7-7-7-7-7	
5690	7-9-6-9-4-4-6-4-5-5	Trip @ 5681'
5700	3-5-6-7-3-1-1-2-1-1	
5700 - 5710	4-4-6-8-3-1-6-5-2-6	
5720	5-2-2-2-2-5-5-7-8-7	
5730	7-7-4-6-9-8-5-5-3-3	
5740	7-8-8-8-5-7-8-7-7-5	
5750	5-6-5-6-6-8-9-8-3-4	
5760	6-6-6-2-2-3-3-3-3-4	
5770	5-4-4-5-6-5-8-8-5-6	
5780	6-5-3-2-1-7-3-3-3-2	
5790	2-4-3-1-1-1-1-1-1-1	
5800	1-2-1-1-1-1-1-1-2-1	
5800 - 5810	3-4-6-5-5-5-5-5-7-5	
5820	5-6-5-5-6-5-6-6-5-5	
5830	5-3-1-1-2-2-2-5-5-1	
5840	1-2-1-1-2-5-3-1-2-4	
5850	2-5-6-7-5-5-5-4-4-3	
5860	3-3-4-4-6-6-5-4-3-5	
5870	4-4-3-4-4-3-4-5-4-5	
5880	2-1-2-2-5-4-4-2-3-5	
5890	5-7-4-3-3-2-4-3-2-2	
5900	5-4-5-4-4-5-4-2-2-3	
5900 - 5910	5-4-4-2-5-5-2-2-3-4	
5920	3-2-4-4-5-2-2-3-4-4	
5930	4-4-5-3-2-4-5-4-5-5	
5940	5-4-3-4-5-3-3-4-3-5	
5950	3-3-4-4-3-5-4-4-4-7	
5960	5-7-7-7-7-5-2-4-7-4	
5970	2-3-1-2-1-5-3-3-4-1	
5980	1-1-2-2-3-5-3-2-2-2	
5990	3-2-2-3-2-2-2-2-1-2	
6000	5-5-4-4-2-4-3-3-4-4	
6000 - 6010	4-3-5-2-2-3-4-4-4-3	
6020	3-4-5-4-4-3-4-5-4-3	
6030	4-4-3-4-6-4-4-3-4-4	R.T.D. 6030'

/mj