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GEOLOGICAL REPORT

Helmerich & Payne, Inc.
1 Adams "K", C SW NE
Section 19-34S-30W
Meade County, Kansas.

Elevations: 2613' KB.
2611' DF.
2603' GL.

ELECTRIC LOG TOPS

Heebner	4342'	(-1729')
Toronto	4378'	(-1765')
Lansing	4481'	(-1868')
EKC	5132'	(-2519')
Marmaton	5168'	(-2555')
Cherokee Shale	5358'	(-2745')
Morrow Shale	5726'	(-3113')
Chester	5800'	(-3187')
St. Genevieve	6095'	(-3482')
St. Louis	6320'	(-3707')

Total depth 6414' (-3801') in the St. Louis Formation.

POROSITY ZONES

Toronto 4378'.

4380'-4385' Limestone, white, fine-medium crystalline porosity.
9 % ϕ , 100 % SW.
4400'-4410' Limestone, gray-white, fine-medium crystalline porosity,
white tripolitic chert.
12-14 % ϕ , 100 % SW.
4421'-4426' Limestone, gray-cream, fine-medium crystalline porosity,
fossiliferous chert.
9 % ϕ , 89 % SW.

Lansing 4481'.

4495'-4504' Limestone, white-cream, fine crystalline & vuggy porosity,
fair show of free oil, good fluresence, good cut, 8-10
Unit gas reading.
7-12 % ϕ , 69 % SW.
4517' 4520' Limestone, cream-tan, fossil cast porosity, slight show
of free oil.
14 % ϕ , 70 % SW.
4524'-4528' Limestone, as above, fair show of free oil.
14 % ϕ , 70 % SW.
4528'-4538' Limestone, cream-light gray, fine crystalline porosity.
8 % ϕ , 100 % SW.
4538'-4542' Limestone, as above.
11 % ϕ , 100 % SW.
4546'-4552' Limestone, as above.
10-12 % ϕ , 100 % SW.

DRILL STEM TEST # 1, 4487'-4558', corrected to 4491'-4562'. Tool open
1 hour with a good blow, decreasing slightly
after 30 minutes.
Recovered: 2700' salt water, slightly gas cut
& muddy at the top.
ISIP 1473#/30 min.
IFP 482#
FFP 1388#
FSIP 1452#/30 min.
IH 2066#
FH 2045# Water Sample Rrf .039 @ 100 °.

4566'-4572' Limestone, white, fine-medium crystalline porosity.
7-12 % ϕ , 100 % SW.
4604'-4608' Limestone, white-cream, fine crystalline porosity, chalky.
10 % ϕ , 80 % SW.
4612'-4620' Limestone, white-tan, fine-medium crystalline porosity.
18 % ϕ , 100 % SW.
4632'-4643' Limestone, as above.
20-24 % ϕ , 100 % SW.

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- 4661'-4666' Limestone, as above.
15.5 % ϕ , 89 % SW.
4676'-4683' Limestone, as above.
13 % ϕ , 100 % SW.
4720'-4726' Limestone, white-gray, fine crystalline porosity, chalky.
12 % ϕ , 89 % SW.
4780'-4782' Limestone, gray-tan, fine crystalline porosity.
16 % ϕ , 46 % SW.
4861'-4863' Limestone, tan, fine crystalline porosity.
11 % ϕ , 60 % SW.
4904'-4908' Limestone, buff-tan, fine crystalline porosity, fossiliferous, dead oil staining on fractures.
10 % ϕ , 59 % SW.
4990'-4996' Limestone, white-tan, fine crystalline porosity.
7-9 % ϕ , 70 % SW.
5012'-5017' Limestone, white-cream, fine crystalline oolitic porosity.
12-15 % ϕ , 60 % SW.
5024'-5030' Limestone, as above.
11-17 % ϕ , 65 % SW.
5037'-5046' Limestone, as above.
15 % ϕ , 89 % SW.
5070'-5090' Limestone, buff, oolitic porosity.
11 % ϕ , 74 % SW.
5090'-5101' Limestone, as above.
13-15 % ϕ , 76 % SW.

Marmaton 5168'.

- 5173'-5186' Limestone, white-cream, fine crystalline, oolitic porosity.
17-19.5 % ϕ , 68 % SW.
5212'-5214' Limestone, white-cream, fine crystalline porosity.
15.5 % ϕ , 53 % SW.
5244'-5250' Limestone, cream-tan, fine crystalline porosity.
13-17 % ϕ , 84 % SW.
5304'-5310' Limestone, cream-gray, fine crystalline porosity.
8.5 % ϕ , 92 % SW.
5320'-5327' Limestone, cream-tan, fine crystalline porosity, chalky.
10 % ϕ , 86 % SW.
5352'-5356' Limestone, buff-tan, chalky.
8 % ϕ , 85 % SW.

Cherokee 5356'.

- 5539'-5542' Limestone, buff-cream, fossiliferous, questionable staining.
11.5 % ϕ , 32 % SW.

Chester 5800'.

- 5800'-5821' Limestone, cream-tan, fragmental, crinoidal, glauconitic.
Less than 5 % ϕ ,.
5842'-5844' Sandstone, clear, rounded, slight fluorescence.
25 % ϕ , 43 % SW.
5966'-5970' Limestone, cream-tan, fragmental.
6-8 % ϕ , 57 % SW.

St. Genevieve 6095'.

- 6095'-6104' Limestone, white, micro-oolitic, sandy, scattered slight dead oil staining, slight flur, & cut.
7-12 % ϕ , 25-28 % SW.

WIRE LINE TEST # 1, 6096'-6098.5'. Tool open 1 1/2 hours.

ISIP Less than explosion pressure in 30 minutes.

FSIP Less than 50#/10 minutes.

Recovered: $\frac{1}{4}$ cu. ft. dry gas, no fluid.

Remarks: Production will be gas, in non-commercial quantities.

- 6111'-6116' Limestone, as above, no show.
10 % ϕ , 27 % SW.
6241'-6248' Limestone, white, micro-oolitic.
12-20 % ϕ , 69 % SW.

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St. Louis 6320'.

6321'-6323' Limestone, white, oolitic (Large). Samples very poor.
10 % ϕ , 33 % SW.
6364'-6374' Limestone, as above.
12-13 % ϕ , 100 % SW.
6374'-6380' Limestone, as above.
10 % ϕ , 100 % SW.
6398'-6401' Limestone, as above.
24 % ϕ , 74 % SW.

CONCLUSIONS

Because of the low structural position, no commercial show of oil, negative drill stem and wire line tests, and negative electric log calculations, it is recommended that the #1 Adams "K" be plugged and abandoned.

Charles E. Nelson
Consulting Geologist
Garden City, Kansas

SPECIAL SERVICES			
Firm	Type	Interval	
E-log	Schlumberger	Induction	1438'-6413'.
		Detail	4200'-6413'.
		Sonic	4200'-6408'.
		Sonic Integrated	1438'-6408'.
		Gamma Ray-Caliper	1438'-6408'.
DST	Bomin Testing Co.	DST # 1	4489'-4558'.
WLT	Schlumberger	WLT # 1	6096'-6098.5'.
Mud Logger	Rotary Engineers	1 Man Operator	2500'-4921.
"	"	Portable	4921'-6414'.

5' DRILLING TIME														
1500'-1600'	5	5	5	5	4	4	4	3	3	3	1	1	1	1
1600'-1700'	5	4	5	5	4	4	3	3	4	5	5	3	3	4
1700'-1800'	4	3	5	3	4	3	3	5	5	5	4	3	3	5
1800'-1900'	5	3	5	5	4	3	6	5	5	5	7	11	7	5
1900'-2000'	3	4	3	2	2	2	2	35	5	5	4	3	3	3
2000'-2100'	4	3	2	2	5	4	3	5	3	5	6	6	2	2
2100'-2200'	3	4	5	2	2	2	4	1	1	1	2	2	4	3
2200'-2300'	3	4	2	2	5	8	5	8	9	7	5	3	6	6
2300'-2400'	9	8	7	7	5	5	5	5	10	8	6	8	4	4
2400'-2500'	8	9	9	9	6	7	8	6	5	10	8	8	6	9

1' DRILLING TIME														
2500'-2520'	2	1	2	2	1	1	2	2	2	2	2	2	2	2
2520'-2540'	2	1	2	2	2	2	2	2	2	2	3	3	3	3
2540'-2560'	2	2	2	2	2	2	1	2	3	2	3	3	2	2
2560'-2580'	2	3	2	3	3	1	1	2	2	2	2	2	3	4
2580'-2600'	3	2	3	3	2	2	2	2	2	4	3	3	2	3
2600'-2620'	1	2	2	2	2	1	1	1	1	1	1	2	3	1
2620'-2640'	2	2	2	3	2	2	1	4	4	5	3	3	4	3
2640'-2660'	3	3	2	2	2	1	1	1	1	1	2	2	1	2
2660'-2680'	3	2	2	2	1	2	1	1	2	1	1	2	2	2
2680'-2700'	4	4	4	3	2	3	3	3	3	3	3	4	2	3
2700'-2720'	2	3	2	2	1	2	2	1	1	1	2	2	1	1
2720'-2740'	1	1	2	1	2	1	1	1	1	1	1	1	1	1
2740'-2760'	2	2	2	2	2	1	3	2	3	2	2	2	3	3
2760'-2780'	4	3	3	3	2	4	3	4	2	2	2	2	2	2
2780'-2800'	2	2	3	2	3	3	4	2	2	1	2	2	2	2
2800'-2820'	2	2	2	2	1	1	1	1	1	2	2	1	2	2
2820'-2840'	3	3	2	2	2	4	3	4	3	3	2	1	2	2
2840'-2860'	3	2	1	1	2	2	2	3	3	2	4	2	3	2
2860'-2880'	2	1	2	3	3	2	4	4	4	4	3	5	4	4
2880'-2900'	2	2	2	2	3	2	4	23	2	2	3	3	2	1
2900'-2920'	3	4	4	5	4	4	4	4	4	3	3	4	3	3
2920'-2940'	3	3	4	3	3	3	4	3	3	4	3	3	4	3
2940'-2960'	3	3	2	2	2	3	2	3	3	3	2	2	2	2
2960'-2980'	2	2	2	3	2	3	2	3	2	2	2	2	1	1
2980'-3000'	1	2	2	2	1	2	2	1	1	3	2	4	3	4

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3000'-3020'	3	4	3	3	3	2	1	2	2	2	3	3	4	5	4	4	5	2	3	3
3020'-3040'	2	3	3	4	4	2	2	2	2	4	3	1	1	1	1	1	1	1	1	1
3040'-3060'	2	2	1	2	2	2	2	2	3	2	4	3	2	3	2	1	2	2	2	4
3060'-3080'	3	2	2	6	4	4	4	3	3	4	3	3	4	2	2	1	2	1	1	1
3080'-3100'	2	1	1	3	2	1	1	2	1	1	3	3	3	4	5	3	3	4	5	5
3100'-3120'	3	4	3	4	2	2	2	1	2	1	3	4	3	4	4	3	4	4	4	3
3120'-3140'	4	4	4	3	3	4	1	1	1	2	2	2	3	1	3	3	2	3	2	3
3140'-3160'	3	3	2	1	2	2	2	1	4	4	4	3	2	1	1	1	2	3	3	
3160'-3180'	2	4	3	4	3	2	2	2	2	4	3	4	3	1	1	1	1	1	1	
3180'-3200'	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
3200'-3220'	1	1	1	2	1	1	1	2	2	2	1	1	2	1	1	1	1	2	1	
3220'-3240'	2	2	2	1	1	1	1	2	2	2	1	1	2	1	2	2	2	2	3	
3240'-3260'	2	2	3	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	
3260'-3280'	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	1	
3280'-3300'	2	2	2	2	1	2	1	1	1	1	2	2	1	1	1	1	1	1	2	
3300'-3320'	2	2	3	2	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	
3320'-3340'	1	1	2	2	1	1	5	1	2	2	7	6	7	5	5	4	4	4	4	
3340'-3360'	4	3	3	2	2	2	3	2	2	3	3	3	3	3	2	3	4	2	2	
3360'-3380'	3	2	1	1	1	1	4	3	2	3	3	3	2	2	1	1	1	1	1	
3380'-3400'	1	1	1	2	3	2	3	2	3	2	3	2	2	2	2	2	2	1	2	
3400'-3420'	3	2	2	3	3	3	3	3	1	1	1	1	1	1	1	1	1	2	3	
3420'-3440'	2	3	3	3	3	3	3	3	3	3	3	3	3	2	1	1	1	3	1	
3440'-3460'	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
3460'-3480'	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
3480'-3500'	1	2	2	2	2	2	2	2	2	1	1	2	2	2	2	1	2	3	3	
3500'-3520'	2	2	2	2	3	2	2	2	2	2	2	1	2	1	2	1	1	1	1	
3520'-3540'	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
3540'-3560'	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
3560'-3580'	2	2	2	2	5	5	4	4	4	3	2	2	2	1	1	1	1	1	1	
3580'-3600'	1	1	3	3	3	3	3	3	3	2	2	2	3	3	2	2	1	1	1	
3600'-3620'	1	1	3	3	3	3	3	3	3	2	2	2	2	2	2	2	1	1	1	
3620'-3640'	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	
3640'-3660'	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	
3660'-3680'	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2	
3680'-3700'	1	1	2	2	2	2	2	2	1	1	2	2	2	3	3	3	2	3	3	
3700'-3720'	2	3	3	3	2	2	3	3	2	2	2	2	3	3	2	2	2	2	3	
3720'-3740'	2	2	1	1	2	2	2	2	3	3	3	3	3	3	3	2	2	2	2	
3740'-3760'	2	2	2	2	1	2	1	2	1	2	2	2	2	1	1	1	2	2	2	
3760'-3780'	2	2	3	3	2	2	2	2	2	2	1	1	2	2	1	1	1	2	2	
3780'-3800'	1	1	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2	1	
3800'-3820'	2	2	2	1	1	1	1	2	2	1	1	2	2	2	1	1	2	2	1	
3820'-3840'	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	
3840'-3860'	1	1	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	
3860'-3880'	1	1	2	1	1	2	1	1	2	1	1	1	2	2	1	1	1	1	1	
3880'-3900'	1	1	2	2	2	2	1	1	2	2	2	2	2	1	2	1	1	2	2	
3900'-3920'	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	2	1	
3920'-3940'	2	2	1	1	1	2	2	2	1	1	2	2	1	1	1	1	1	1	2	
3940'-3960'	2	2	2	2	2	2	2	2	1	1	1	2	2	1	1	1	2	1	1	
3960'-3980'	1	2	2	2	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	
3980'-4000'	2	1	1	1	1	2	1	1	1	1	1	2	1	2	1	2	1	1	1	
4000'-4020'	2	1	1	1	1	1	2	2	1	1	1	3	2	3	3	3	3	3	2	
4020'-4040'	3	2	2	3	2	3	3	2	3	3	2	2	2	2	2	3	3	2	2	
4040'-4060'	2	3	2	2	2	2	2	2	1	2	3	1	2	2	1	2	2	2	1	
4060'-4080'	1	1	2	2	1	1	2	1	1	2	1	2	2	2	2	2	1	2	2	
4080'-4100'	2	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2	3	2	1	
4100'-4120'	2	3	2	2	1	1	1	3	2	2	2	2	2	2	2	2	2	2	2	
4120'-4140'	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
4140'-4160'	2	2	3	1	2	2	1	1	1	1	2	2	1	1	1	1	1	1	1	
4160'-4180'	1	1	1	1	1	1	2	1	1	1	1	2	1	1	1	1	1	1	1	
4180'-4200'	2	1	2	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	1	
4200'-4220'	1	1	1	2	2	2	2	2	2	2	2	1	2	1	1	1	2	2	1	
4220'-4240'	1	1	2	2	2	2	2	1	1	1	1	1	2	1	1	1	1	1	1	
4240'-4260'	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	
4260'-4280'	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	
4280'-4300'	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	
4300'-4320'	2	1	1	2	2	1	1	1	1	1	1	1	1	2	2	2	2	1	1	
4320'-4340'	2	2	2	2	1	1	1	1	1	1	1	1	2	2	1	2	2	2	1	
4340'-4360'	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	1	1	1	1	
4360'-4380'	1	1	2	2	2	1	2	2	2	1	1	2	1	1	2	2	1	1	1	
4380'-4400'	2	1	2	2	2	3	2	2	2	1	2	2	1	2	2	1	2	2	1	
4400'-4420'	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	1	1	2	
4420'-4440'	2	2	2	2	4	3	3	2	3	3	2	2	2	2	2	2	3	2	2	
4440'-4460'	3	3	2	3	3	3	3	3	3	2	3	3	2	3	3	3	3	3	1	
4460'-4480'	2	2	2	2	2	2	2	2	3	2	3	2	3	5	5	3	4	5	5	
4480'-4500'	5	5	4	4	4	5	5	5	4	4	4	3	5	1	1	2	2	5	5	

Trip @ 3144'.

Trip @ 3566'.

Trip @ 4035'.

4500'-4520'	5	5	5	5	5	5	4	4	5	5	5	3	1	1	3	2	4	3
4520'-4540'	5	5	5	5	5	5	4	4	5	5	5	3	1	1	3	2	4	3
4540'-4560'	5	4	3	2	2	3	3	2	2	2	2	4	4	5	5	5	4	4
4560'-4580'	2	2	2	2	1	2	1	1	2	4	2	2	1	2	2	3	4	5
4580'-4600'	4	5	5	5	5	4	3	1	2	2	4	5	5	4	4	5	5	2
4600'-4620'	2	1	2	1	3	3	3	1	2	2	1	1	2	1	1	2	2	2
4620'-4640'	1	1	2	2	1	2	2	2	1	1	1	1	1	1	1	1	1	1
4640'-4660'	1	1	1	1	1	2	2	2	2	1	2	1	1	1	2	2	1	1
4660'-4680'	1	1	2	2	2	1	1	1	2	2	2	1	2	1	1	1	2	2
4680'-4700'	1	2	1	2	2	2	2	2	3	2	4	4	4	4	5	4	4	5
4700'-4720'	4	5	5	5	5	5	5	4	4	5	5	4	4	3	2	2	1	2
4720'-4740'	1	3	4	5	5	5	5	6	6	5	4	3	3	5	4	5	4	4
4740'-4760'	5	6	4	5	5	3	4	4	2	2	2	3	5	5	5	5	5	5
4760'-4780'	4	6	6	6	6	5	5	4	4	4	5	5	6	5	3	2	3	1
4780'-4800'	5	5	4	5	5	4	4	3	5	5	4	5	5	4	6	5	3	4
4800'-4820'	4	5	5	6	5	7	6	5	5	5	4	3	3	4	6	5	5	6
4820'-4840'	6	6	5	5	5	4	5	5	4	5	6	5	6	6	6	6	7	5
4840'-4860'	6	7	7	6	6	6	6	5	5	5	6	5	7	5	6	5	3	1
4860'-4880'	6	7	6	6	7	6	7	6	7	6	7	6	6	6	6	6	6	7
4880'-4900'	6	7	6	6	5	6	6	6	5	6	5	5	6	5	6	5	1	4
4900'-4920'	2	2	2	2	2	3	3	3	3	4	5	6	6	6	6	7	7	8
4920'-4940'	9	7	8	9	9	11	9	2	4	7	7	6	6	6	7	7	5	4
4940'-4960'	5	4	8	3	5	4	4	5	5	4	2	3	3	2	4	3	5	4
4960'-4980'	4	5	3	3	5	3	2	2	2	2	3	2	3	2	3	3	3	2
4980'-5000'	3	3	2	2	2	2	2	2	2	2	2	3	2	2	3	2	2	1
5000'-5020'	3	3	1	3	4	3	5	1	1	1	1	3	4	2	5	3	3	5
5020'-5040'	2	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	2	2
5040'-5060'	1	1	2	5	5	3	4	5	4	5	3	2	3	5	6	6	4	6
5060'-5080'	5	5	5	2	1	1	1	2	1	1	1	1	1	1	1	2	1	1
5080'-5100'	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5100'-5120'	2	2	1	1	1	2	3	4	5	4	5	4	5	4	5	5	5	6
5120'-5140'	6	9	8	9	9	9	10	10	9	3	4	5	8	9	9	10	10	9
5140'-5160'	5	3	3	4	4	3	4	4	4	4	4	4	3	3	3	4	3	2
5160'-5180'	2	3	5	4	3	2	3	1	1	1	1	1	1	1	1	1	1	1
5180'-5200'	3	3	3	4	3	4	4	4	3	4	4	3	3	3	2	3	3	3
5200'-5220'	3	3	4	4	4	3	3	2	1	2	2	4	5	5	5	5	6	6
5220'-5240'	5	5	5	6	5	5	5	5	6	5	5	4	6	6	5	3	4	3
5240'-5260'	1	2	7	1	1	3	5	6	6	6	5	5	4	4	4	6	6	6
5260'-5280'	6	6	8	7	8	5	7	11	11	10	12	12	14	14	13	9	5	9
5280'-5300'	4	6	4	6	5	5	7	7	6	7	3	2	2	2	3	2	3	4
5300'-5320'	3	3	1	3	2	2	4	6	7	8	7	9	8	7	5	6	5	1
5320'-5340'	2	2	2	2	8	10	7	5	3	6	6	5	6	12	8	4	3	3
5340'-5360'	4	4	2	4	2	3	2	4	2	2	2	4	7	5	3	4	3	5
5360'-5380'	5	5	4	6	2	3	5	4	8	4	5	6	6	7	4	10	11	2
5380'-5400'	5	5	5	6	5	3	3	2	4	6	5	6	5	4	6	5	4	6
5400'-5420'	4	4	4	6	5	5	4	5	6	5	4	4	4	6	6	5	5	8
5420'-5440'	4	3	7	7	7	6	6	7	6	7	6	7	4	7	6	6	6	7
5440'-5460'	5	6	7	3	4	3	2	7	8	5	5	5	5	5	6	5	5	6
5460'-5480'	4	6	4	2	6	6	6	7	4	6	4	5	5	6	5	5	4	4
5480'-5500'	5	5	3	4	4	5	5	4	5	3	4	3	3	3	5	5	6	6
5500'-5520'	5	5	6	5	6	6	5	6	5	5	6	5	4	4	3	2	3	3
5520'-5540'	2	2	2	3	5	6	5	5	5	5	4	5	4	5	3	2	5	6
5540'-5560'	4	4	3	2	2	3	7	6	6	5	4	5	6	6	5	4	5	2
5560'-5580'	3	1	4	3	1	2	2	1	2	3	4	5	5	4	3	5	5	3
5580'-5600'	3	5	4	6	6	4	4	2	2	2	2	4	5	2	3	5	5	4
5600'-5620'	4	7	7	6	10	7	6	6	7	4	5	5	3	4	8	7	7	6
5620'-5640'	4	4	6	3	3	2	2	3	2	2	2	2	1	1	3	3	4	4
5640'-5660'	4	3	5	5	4	4	5	4	5	3	4	6	7	7	4	3	3	3
5660'-5680'	1	6	7	4	2	1	6	6	8	3	2	5	6	1	2	3	6	4
5680'-5700'	3	5	7	6	5	2	2	3	7	6	5	2	4	5	5	5	6	5
5700'-5720'	5	6	5	5	6	5	6	7	6	6	6	7	6	5	5	6	6	6
5720'-5740'	5	6	8	11	10	1	2	2	3	2	3	3	4	5	4	4	3	4
5740'-5760'	3	4	3	4	5	7	5	3	3	3	2	5	5	5	5	5	4	4
5760'-5780'	5	5	6	5	7	4	4	7	3	4	4	4	3	3	5	5	6	6
5780'-5800'	4	6	5	4	6	4	5	4	4	3	4	4	3	3	3	3	5	4
5800'-5820'	4	4	4	4	4	2	4	3	3	3	3	3	3	4	3	4	4	2
5820'-5840'	4	4	3	3	4	3	4	4	6	5	4	5	2	2	1	1	1	1
5840'-5860'	1	2	4	4	4	3	5	3	4	4	3	4	3	2	2	4	5	4
5860'-5880'	5	5	4	3	3	3	3	5	4	4	3	3	4	4	2	2	3	4
5880'-5900'	5	4	4	4	3	3	4	4	4	4	4	4	4	5	4	4	4	3
5900'-5920'	4	3	3	3	4	3	3	4	3	4	3	3	2	2	1	2	2	4
5920'-5940'	3	4	2	3	2	2	3	4	3	4	2	5	5	9	7	7	8	7
5940'-5960'	4	7	5	6	6	6	6	6	6	7	6	4	4	3	3	4	1	4
5960'-5980'	2	2	2	3	2	4	4	4	4	4	4	4	5	4	2	4	3	1
5980'-6000'	2	4	2	5	2	3	3	2	4	2	4	4	4	3	5	4	4	4

Circ. Samples
4558'.

Trip @ 4795'.

Trip @ 4922'.

9 9 Trip @ 5121'.

5 9 7 8 Trip @
5267'.

4 Trip @ 5324'.

Trip @ 5439'.

3 Trip @ 5722'.

Trip @ 5932'.

Helmerich & Payne, Inc.

1 Adams "K".

6000'-6020'	4	4	4	4	3	4	3	3	5	5	4	5	4	5	3	4	4	5	2	3
6020'-6040'	1	3	3	3	2	4	3	4	4	5	5	5	5	5	5	5	5	5	2	2
6040'-6060'	4	5	5	5	5	4	4	4	5	4	5	5	4	6	8	6	7	8	6	6
6060'-6080'	5	6	4	5	3	5	5	6	5	7	7	7	5	6	5	4	5	6	4	4
6080'-6100'	6	8	7	8	7	7	8	7	8	6	4	3	3	3	5	3	4	4	4	5
6100'-6120'	5	5	6	5	6	5	4	5	4	3	4	4	6	5	6	7	7	9	9	8
6120'-6140'	8	5	6	5	6	5	4	5	5	7	4	6	5	7	6	5	5	6	5	5
6140'-6160'	4	5	6	5	6	5	6	6	5	5	5	5	5	5	6	6	5	6	5	6
6160'-6180'	6	6	5	5	6	6	7	7	7	7	7	6	7	7	6	7	7	6	7	6
6180'-6200'	8	7	7	8	8	7	6	7	7	7	6	7	8	7	8	7	7	8	7	4
6200'-6220'	8	7	7	7	7	8	7	8	7	8	7	5	7	8	8	6	6	7	7	6
6220'-6240'	9	7	7	9	7	8	8	7	7	7	7	8	7	7	6	8	3	3	3	3
6240'-6260'	3	5	7	6	6	7	7	7	7	5	6	5	6	5	6	6	6	6	6	7
6260'-6280'	7	7	6	6	6	5	6	7	5	5	5	5	5	5	5	5	5	5	5	5
6280'-6300'	5	5	5	5	4	4	6	5	5	4	5	5	6	5	5	5	5	5	5	4
6300'-6320'	5	5	5	5	5	5	7	6	6	5	6	6	6	5	5	4	3	4	4	4
6320'-6340'	3	5	6	6	6	5	6	5	6	6	5	6	5	6	6	7	8	7	8	6
6340'-6360'	7	6	6	7	7	6	8	7	8	9	9	9	9	9	9	8	8	9	5	4
6360'-6380'	5	4	4	5	4	5	5	4	4	5	4	5	3	4	4	4	5	5	5	7
6380'-6400'	6	7	7	6	10	10	9	8	8	10	10	8	3	7	1	1	7	7	8	8
6400'-6410'	7	8	8	8	7	7	7	7	7	7										

Total Depth 6410' Driller.