

RECEIVED SEP 16 2014

Jackman Oilfield Services  
1 West Mulberry St.  
Colony, KS 66015  
620-852-3350

WELL LOG  
Kansas Resource Exploration & Development, LLC  
Cartwright KR-13

September 11, 2014

<u>Thickness of Strata</u>	<u>Formation</u>	<u>Total</u>	
17	soil/clay	17	
22	lime	39	
17	shale	56	
6	lime	62	
41	shale	103	
15	lime	118	
9	shale	127	
29	lime	156	
9	shale	165	
27	lime	192	
5	shale	197	
11	lime	208	
166	shale	374	
7	lime	381	
2	shale	383	
3	lime	386	
12	shale	398	
4	grey sand	402	
21	shale	423	
2	coal	425	
6	lime	431	
14	shale	445	
4	lime	449	
1	coal	450	
12	shale	462	
15	lime	477	
10	shale	487	
1	lime	488	
3	coal	491	
2	lime	493	
2.50	lime/oil sand	495.50	good bleed
1.00	lime	496.50	

2	lime/shale	498.50	
3.50	grey sand	502	
1	broken sand	503	light bleed
3	oil sand	506	light bleed
1	broken sand	507	light bleed
2.50	oil sand	509.50	medium bleed
0.50	lime	510	
3	very broken sand	513	medium bleed
5	grey sand	518	
62	shale	580	TD

Drilled a 9 7/8" hole to 19'7"

Drilled a 5 7/8" hole to 580'

Set 20' of 7" surface casing cemented with 5 sacks of portland cement

Set 571.90' of 2 7/8" round upset tubing. Baffle @ 541.45'

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