

**Leam Drilling Systems**2027A Airport RD  
Conroe, TX 77301**Horsetail 07F PAD 1808****Scale 5":100' - TVD****3/14/2016 9:00 PM****Oper. Company:** Whiting Petroleum Corporation**Well:** Horsetail 07F PAD 1808**Field:** Wildcat**Rig:** Unit 406**Well ID:** 05-123-41779-00**Job Number:** ND-160095**State:** Colorado**County:** Weld County**Country:** USA**Location:** Weld County, CO**Start Date:** 03/09/2016 23:00:00**End Date:** 03/14/2016 20:00:00**Latitude:** 40° 51' 12.971 N**Longitude:** 103° 47' 45.031 W**Elev GL:** 4898.8'**Elev DF:** 4919.8'**Elev KB:** 21'**Operator 1:** Jacob Zink**Operator 2:** Shaun Dagenhart

Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	E00CD	DG150	DG80	DG150	DG80
Bit Size	13 1/2	8 1/2	8 1/2	8 1/2	8 1/2
Cal Factor		5.08	5.08	5.08	5.08
Survey Offset	51.00	47.00	47.00	47.00	47.00
Gamma Offset	0.00	37.00	37.00	37.00	37.00
Resistivity Offset	0.00	0.00	0.00	0.00	0.00
Start Depth	101.00	2036.00	5591.00	6320.00	9879.00
StartDate	3/8/2016	3/9/2016	3/10/2016	3/10/2016	3/13/2016
StartTime	03:30	23:00	07:30	20:02	05:15
EndDepth	2036.00	5591.00	6320.00	9879.00	11570.00
EndDate	3/8/2016	3/10/2016	3/10/2016	3/13/2016	3/13/2016
EndTime	11:00	06:00	20:45	04:00	11:30
Mud Type	WBM	WBM	WBM	WBM	WBM
Mud Weight	9.20	9.85	9.85	10.4	10.7
Funnel Viscosity	32	39	39	40	40
Plastic Viscosity	4	10	10	13	14
Yield Point	4	9	9	14	15
Gel Strength	12 / 8 / 6 / 4 / 3 / 2	4 / 14 / 21	4 / 14 / 21	7 / 18 / 24	8 / 17 / 24
Solids Content	6.0 / 2.0	5.9 / 2.8	5.9 / 2.8	8.1 / 3.8	9.8 / 4.1
Sand Content	0.50	0.35	0.35	0.20	0.40
Mud Alkalinity	1.40	1.30	1.30	1.80	2.10
Filtrate Alkalinity	0.20 / 0.60	0.10 / 1.10	0.10 / 1.10	0.10 / 1.20	0.15 / 1.30
Chlorides	2000	2600	2600	2900	2900
Temperature	64	145	145	205	205
Tool Run Data	Run #6	Run #7	Run #8	Run #9	Run #10
Tool S/N	DG150				
Bit Size	8 1/2				
Cal Factor	5.08				
Survey Offset	47.00				
Gamma Offset	37.00				
Resistivity Offset	0.00				
Start Depth	11570.00				
StartDate	3/13/2016				
StartTime	12:30				
EndDepth	14070.00				
EndDate	3/14/2016				
EndTime	20:00				
Mud Type	WBM				
Mud Weight	10.35				

Funnel Viscosity	41				
Plastic Viscosity	13				
Yield Point	16				
Gel Strength	8 / 20 / 28				
Solids Content	9.5 / 2.9				
Sand Content	0.30				
Mud Alkalinity	2.20				
Filtrate Alkalinity	0.10 / 1.30				
Chlorides	2800				
Temperature	212				
Hole Data			Casing Data		
Size	From	To	Size	From	To
13 1/2	101.00	2036.00	9.625	101.00	2026.00
8 1/2	2036.00	14070.00			
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost damages or expenses incurred or sustained by anyone resulting from an interpretation made by any of our officers, agents, or employees.					











