



*End of Well Report*



## **GREAT WESTERN**

**MS #DDOK-120027**

**Binder 0-6-20  
Weld County, Colorado  
Cade 22**

*January 13, 2012*

**Prepared By:  
Megan Pope**

***Actual Well & Surveys 1***

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***Daily Reports 2***

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***BHA's 3***

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***Job Performance Charts 4***

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***Support Staff 5***

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# Great Western

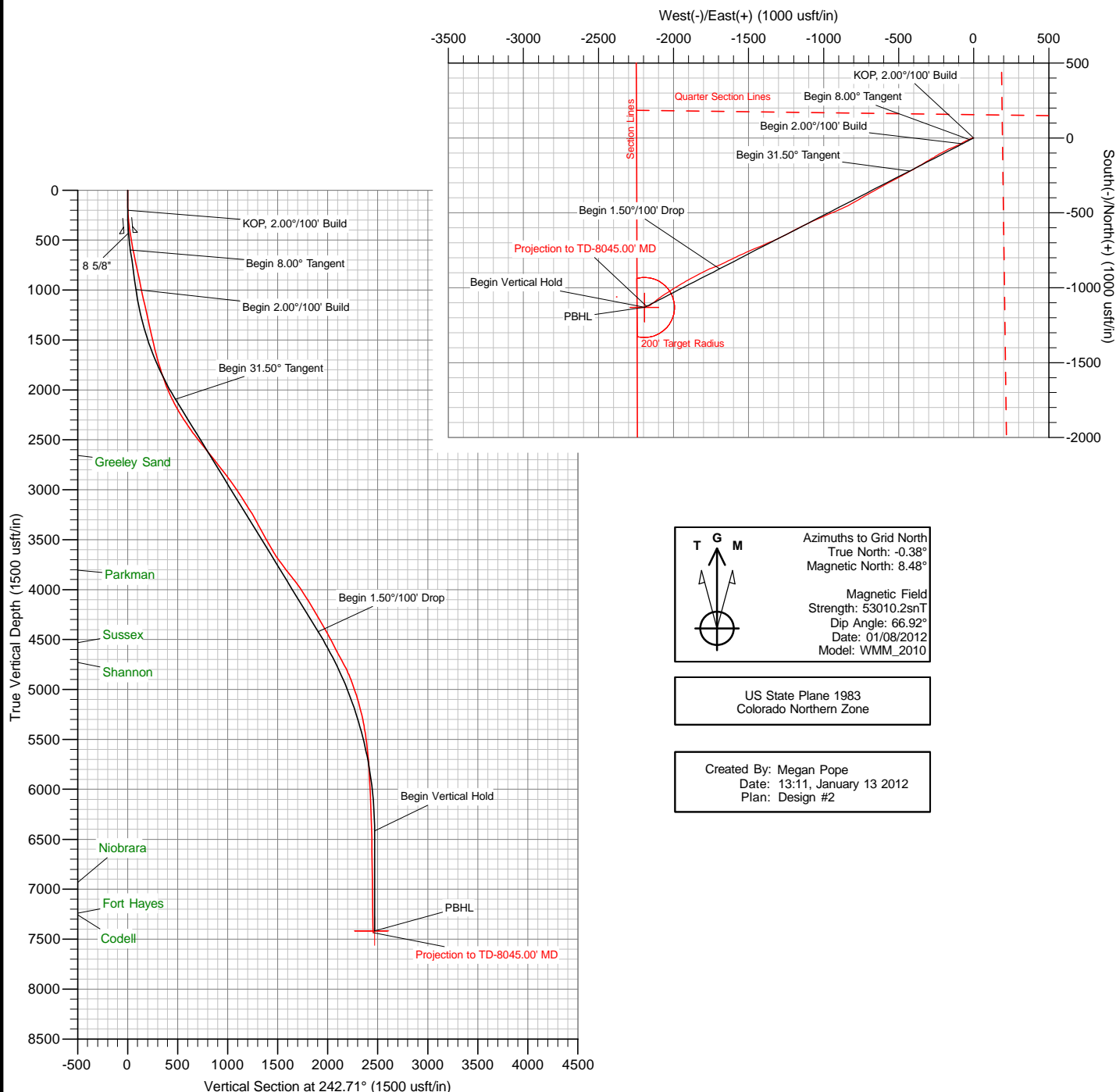
Company: Great Western  
 Site: Binder  
 Well: 0-6-20  
 Project: Weld County, Colorado (NAD 83)  
 Rig Name: Cade 22



Planning: 936.442.2510 Fax: 936.442.2515  
 Operations: 936.442.2500 Fax: 936.442.2599

## ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	KOP, 2.00°/100' Build
600.00	8.00	242.72	598.70	-12.78	-24.78	27.88	27.88	Begin 8.00° Tangent
1000.00	8.00	242.72	994.81	-38.29	-74.26	83.55	83.55	Begin 2.00°/100' Build
2175.13	31.50	242.72	2093.07	-219.01	-424.75	477.89	477.89	Begin 31.50° Tangent
4905.53	31.50	242.72	4421.05	-872.87	-1692.85	1904.63	1904.63	Begin 1.50°/100' Drop
7005.71	0.00	0.00	6417.00	-1130.86	-2193.21	2467.60	2467.60	Begin Vertical Hold
8006.71	0.00	0.00	7418.00	-1130.86	-2193.21	2467.60	2467.60	PBHL



The customer should only rely on this document after independently verifying all paths, targets, coordinates, lease and hard lines represented. Any decisions made or wells drilled utilizing this or any other information supplied by MS Energy are at the sole risk and responsibility of the customer. MS Energy is not responsible for the accuracy of this schematic or the information contained herein.



# **Great Western**

**Weld County, Colorado (NAD 83)**

**Binder**

**0-6-20**

**Wellbore #1**

**Survey: MS MWD**

## **Standard Survey Report**

**13 January, 2012**

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well 0-6-20
<b>Project:</b>	Weld County, Colorado (NAD 83)	<b>TVD Reference:</b>	Well @ 4916.00usft (Cade 22)
<b>Site:</b>	Binder	<b>MD Reference:</b>	Well @ 4916.00usft (Cade 22)
<b>Well:</b>	0-6-20	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	Southern Region

Site	Binder					
Site Position:			Northing:	0.00 usft	Latitude:	36° 7' 5.9694 N
From:	Map		Easting:	0.00 usft	Longitude:	115° 39' 12.952 W
Position Uncertainty:		0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-6.56 °

Well	0-6-20					
Well Position	+N/-S	0.00 usft	Northing:	1,351,992.92 usft	Latitude:	40° 17' 53.3151 N
	+E/-W	0.00 usft	Easting:	3,163,180.72 usft	Longitude:	104° 54' 53.890 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,902.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM_2010	01/08/12	8.85	66.92	53,010

Design	Surveys			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	242.71

Survey Program		Date	01/13/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
81.00	8,045.00	MS MWD (Wellbore #1)	MWD	MWD - Standard	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
81.00	0.50	304.30	81.00	0.20	-0.29	0.17	0.62	0.62	0.00
172.00	1.90	273.70	171.98	0.52	-2.13	1.65	1.64	1.54	-33.63
263.00	4.60	257.10	262.82	-0.20	-7.19	6.48	3.11	2.97	-18.24
354.00	6.90	247.90	353.36	-3.07	-15.81	15.46	2.71	2.53	-10.11
445.00	9.20	246.10	443.46	-8.07	-27.53	28.17	2.54	2.53	-1.98
570.00	9.80	245.50	566.74	-16.53	-46.35	48.77	0.49	0.48	-0.48
630.00	11.60	241.40	625.70	-21.54	-56.29	59.90	3.26	3.00	-6.83
724.00	10.90	238.60	717.89	-30.69	-72.17	78.21	0.94	-0.74	-2.98
818.00	12.50	243.10	809.94	-39.93	-88.83	97.25	1.96	1.70	4.79
910.00	12.50	247.60	899.76	-48.23	-106.92	117.13	1.06	0.00	4.89
1,005.00	12.30	244.90	992.55	-56.44	-125.58	137.48	0.65	-0.21	-2.84
1,099.00	11.70	247.70	1,084.49	-64.30	-143.47	156.98	0.89	-0.64	2.98
1,193.00	13.70	244.90	1,176.19	-72.64	-162.37	177.60	2.23	2.13	-2.98
1,287.00	12.20	244.40	1,267.80	-81.65	-181.41	198.66	1.60	-1.60	-0.53

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well 0-6-20
<b>Project:</b>	Weld County, Colorado (NAD 83)	<b>TVD Reference:</b>	Well @ 4916.00usft (Cade 22)
<b>Site:</b>	Binder	<b>MD Reference:</b>	Well @ 4916.00usft (Cade 22)
<b>Well:</b>	0-6-20	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	Southern Region

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
1,382.00	12.50	239.60	1,360.60	-91.19	-199.33	218.96	1.13	0.32	-5.05	
1,475.00	12.50	242.40	1,451.40	-100.95	-216.93	239.07	0.65	0.00	3.01	
1,569.00	13.50	241.00	1,542.99	-110.98	-235.54	260.21	1.12	1.06	-1.49	
1,665.00	14.60	237.50	1,636.11	-122.92	-255.55	283.46	1.45	1.15	-3.65	
1,760.00	16.20	240.30	1,727.70	-135.92	-277.16	308.63	1.86	1.68	2.95	
1,855.00	18.30	240.30	1,818.42	-149.87	-301.63	336.77	2.21	2.21	0.00	
1,950.00	19.10	237.50	1,908.41	-165.61	-327.69	367.15	1.27	0.84	-2.95	
2,042.00	23.00	239.40	1,994.25	-182.86	-355.87	400.10	4.30	4.24	2.07	
2,135.00	26.20	240.30	2,078.80	-202.28	-389.35	438.76	3.46	3.44	0.97	
2,227.00	29.00	241.80	2,160.33	-222.89	-426.65	481.36	3.14	3.04	1.63	
2,322.00	30.50	240.30	2,242.80	-245.72	-467.89	528.47	1.76	1.58	-1.58	
2,418.00	33.50	241.90	2,324.21	-270.27	-512.44	579.32	3.25	3.13	1.67	
2,513.00	35.60	242.20	2,402.45	-295.52	-560.03	633.19	2.22	2.21	0.32	
2,606.00	37.80	241.60	2,477.01	-321.70	-609.05	688.76	2.40	2.37	-0.65	
2,701.00	37.80	240.00	2,552.08	-350.11	-659.87	746.95	1.03	0.00	-1.68	
2,794.00	39.80	240.70	2,624.55	-378.93	-710.52	805.17	2.20	2.15	0.75	
2,889.00	37.80	238.90	2,698.59	-408.85	-761.97	864.61	2.42	-2.11	-1.89	
2,984.00	37.70	241.70	2,773.71	-437.66	-812.47	922.71	1.81	-0.11	2.95	
3,078.00	36.90	243.50	2,848.48	-463.88	-863.04	979.66	1.44	-0.85	1.91	
3,173.00	36.30	248.00	2,924.77	-487.14	-914.64	1,036.19	2.89	-0.63	4.74	
3,266.00	33.80	246.80	3,000.90	-507.65	-963.95	1,089.42	2.79	-2.69	-1.29	
3,361.00	32.90	246.10	3,080.25	-528.51	-1,011.83	1,141.53	1.03	-0.95	-0.74	
3,456.00	32.70	246.10	3,160.10	-549.36	-1,058.88	1,192.90	0.21	-0.21	0.00	
3,551.00	31.40	244.50	3,240.63	-570.41	-1,104.68	1,243.26	1.63	-1.37	-1.68	
3,645.00	28.80	244.80	3,321.94	-590.60	-1,147.28	1,290.37	2.77	-2.77	0.32	
3,740.00	28.50	241.20	3,405.32	-611.26	-1,187.85	1,335.90	1.84	-0.32	-3.79	
3,833.00	28.80	240.90	3,486.93	-632.85	-1,226.86	1,380.47	0.36	0.32	-0.32	
3,928.00	29.60	244.40	3,569.86	-654.12	-1,268.02	1,426.80	1.98	0.84	3.68	
4,022.00	32.20	244.20	3,650.52	-675.05	-1,311.51	1,475.05	2.77	2.77	-0.21	
4,117.00	36.40	247.40	3,728.98	-696.91	-1,360.35	1,528.47	4.81	4.42	3.37	
4,208.00	37.60	246.80	3,801.66	-718.22	-1,410.80	1,583.07	1.38	1.32	-0.66	
4,302.00	39.20	246.50	3,875.32	-741.37	-1,464.40	1,641.32	1.71	1.70	-0.32	
4,398.00	36.00	246.50	3,951.37	-764.72	-1,518.11	1,699.76	3.33	-3.33	0.00	
4,492.00	33.00	245.30	4,028.83	-786.44	-1,566.71	1,752.91	3.27	-3.19	-1.28	
4,587.00	31.60	242.40	4,109.14	-808.78	-1,612.28	1,803.65	2.20	-1.47	-3.05	
4,681.00	31.10	245.10	4,189.42	-830.42	-1,656.12	1,852.54	1.59	-0.53	2.87	
4,777.00	29.80	246.00	4,272.17	-850.56	-1,700.41	1,901.13	1.44	-1.35	0.94	
4,869.00	29.70	249.20	4,352.05	-867.95	-1,742.60	1,946.60	1.73	-0.11	3.48	
4,964.00	29.40	244.00	4,434.71	-886.53	-1,785.57	1,993.30	2.72	-0.32	-5.47	
5,058.00	27.80	242.50	4,517.24	-906.77	-1,825.75	2,038.29	1.87	-1.70	-1.60	
5,153.00	27.50	241.70	4,601.39	-927.40	-1,864.71	2,082.37	0.50	-0.32	-0.84	
5,248.00	29.00	240.30	4,685.07	-949.21	-1,904.03	2,127.32	1.73	1.58	-1.47	
5,343.00	26.90	239.00	4,768.99	-971.69	-1,942.46	2,171.77	2.30	-2.21	-1.37	
5,438.00	23.60	239.20	4,854.90	-992.50	-1,977.22	2,212.21	3.47	-3.47	0.21	

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<b>Design:</b>	Surveys	<b>Database:</b>	Southern Region

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,532.00	20.00	238.00	4,942.16	-1,010.66	-2,007.03	2,247.03	3.86	-3.83	-1.28	
5,626.00	18.40	237.80	5,030.93	-1,027.08	-2,033.22	2,277.83	1.70	-1.70	-0.21	
5,721.00	16.40	235.90	5,121.58	-1,042.59	-2,057.01	2,306.09	2.19	-2.11	-2.00	
5,815.00	13.70	235.30	5,212.35	-1,056.37	-2,077.16	2,330.31	2.88	-2.87	-0.64	
5,907.00	11.80	235.80	5,302.07	-1,067.86	-2,093.89	2,350.45	2.07	-2.07	0.54	
6,002.00	9.70	230.20	5,395.40	-1,078.45	-2,108.08	2,367.91	2.47	-2.21	-5.89	
6,096.00	7.70	230.50	5,488.32	-1,087.52	-2,119.02	2,381.79	2.13	-2.13	0.32	
6,191.00	6.60	235.00	5,582.58	-1,094.70	-2,128.41	2,393.43	1.30	-1.16	4.74	
6,286.00	5.30	234.90	5,677.07	-1,100.36	-2,136.47	2,403.18	1.37	-1.37	-0.11	
6,381.00	3.90	225.80	5,771.76	-1,105.13	-2,142.38	2,410.62	1.66	-1.47	-9.58	
6,665.00	2.50	233.50	6,055.31	-1,115.55	-2,154.28	2,425.98	0.51	-0.49	2.71	
6,950.00	1.90	249.80	6,340.10	-1,120.88	-2,163.71	2,436.80	0.30	-0.21	5.72	
7,234.00	0.50	283.60	6,624.03	-1,122.22	-2,169.33	2,442.41	0.53	-0.49	11.90	
7,519.00	0.80	258.40	6,909.02	-1,122.32	-2,172.49	2,445.27	0.14	0.11	-8.84	
7,798.00	0.80	260.80	7,187.99	-1,123.03	-2,176.32	2,448.99	0.01	0.00	0.86	
7,984.00	0.80	273.20	7,373.97	-1,123.16	-2,178.90	2,451.35	0.09	0.00	6.67	
8,045.00	0.80	273.20	7,434.96	-1,123.11	-2,179.75	2,452.08	0.00	0.00	0.00	
Projection to TD-8045.00' MD										

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,045.00	7,434.96	-1,123.11	-2,179.75	Projection to TD-8045.00' MD



JOB NO.:	DDOK-120027	Report Time:	2400	1 of 5
Company:	Great Western	API JOB #	05-123-32970-00	
LOCATION:	Weld County	WORK ORDER#	MS#110823RR	
RIG NAME:	Cade 22	FIELD:	Wattenberg	
STATE:	Colorado	Township:		
COUNTY:	Weld County	SECTRANGE:		
WELL NAME:	Binder 0-6-20			

From Monday, January 09, 2012 at 0000 to Monday, January 09, 2012 at 2400

DRILLING SUMMARY				Drilling Parameters						
Start Depth	130.00	Rotary Hours	3.62	WOB	15	Pick UP	15	Slack Off	15	SPM
End Depth	529.00	Circulating Hours	1.03	RAB	15	SPP	800	FlowRate	0 - 425	125
Total Drilled:	399.00	Avg. Total ROP:	82.84	Mud Data						
Total Rotary Drilled:	324.00	Avg. Rotary ROP:	89.59	Type	Water		PV	0	SOLID	0
Total Drilled Sliding:	75.00	Avg. Slide ROP:	62.50	Weight	8.3	GAS	0	YP	0	BHT°
Slide Hours:	1.20	Percent Rotary:	81.20	Viscosity	22	SAND	0	PH	0	Flow T°
Below Rotary Hrs.	9.50	Percent Slide:	18.80	Chlorides	0	WL	0	Oil %		0

PERSONNEL						CASING			BHA
Lead Directional :		David Cathey				Size	Lb/ft	Set Depth	BHA # 1: 12 1/4 ROCK BIT, 7 3/4" MTR 4/5_5.3 Stg, 4 1/2" XH BX - 6 5/8" Reg Pin, 6 15/16, 6 1/4 NMDC, 6 1/2 NMFC, 6 Jts 6 1/2 Steel DC, 15 Jts 4 1/2 Spiral, 4 1/2 Drill pipe, ,
Second Directional :		Coty Jeane				4 1/2	11.6	0	
MWD Operator1		Chuck Johnson				Signature:			
MWD Operator2									
Directional Company:		MS Energy							
Geologist:									
Company Man:		Junior Loya							
Incl. In:	0	Azm. In:	0	Incl. Out:	9.8	Azm. Out:	245.5		

#### GENERAL COMMENT

Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
9-Jan-12	00:00	06:00	6.00	0	0	Standby	Standby While Rig Crew Rig Downs Off Of Binder 13-20 & Skid Over On Binder 0-6-20.
9-Jan-12	06:00	09:30	3.50	0	130	Standby	Standby While Rig Crew Riggs Up On Binder 0-6-20.
9-Jan-12	09:30	10:30	1.00	130	130	Change BHA	Pick Up BHA #1.
9-Jan-12	10:30	10:55	0.42	130	130	Circulating	Wash BHA Down.
9-Jan-12	10:55	11:00	0.08	130	130	Survey & Conn.	Survey & Conn @ 81' - .50 Inc - 304.3 Azm
9-Jan-12	11:00	11:16	0.27	130	145	Sliding	Sliding - (WOB:15;GPM :425;TFO:242MTF)
9-Jan-12	11:16	11:45	0.48	145	195	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
9-Jan-12	11:45	11:49	0.07	195	195	Circulating	Check Shot
9-Jan-12	11:49	12:05	0.27	195	210	Sliding	Sliding - (WOB:15;GPM :425;TFO:230MTF)
9-Jan-12	12:05	12:14	0.15	210	225	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
9-Jan-12	12:14	12:21	0.12	225	225	Survey & Conn.	Survey & Conn @ 172' - 1.9 Inc - 273 Azm
9-Jan-12	12:21	12:40	0.32	225	255	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
9-Jan-12	12:40	12:46	0.10	255	255	Circulating	Check Shot
9-Jan-12	12:46	13:08	0.37	255	280	Sliding	Sliding - (WOB:15;GPM :425;TFO:186M)
9-Jan-12	13:08	13:35	0.45	280	316	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
9-Jan-12	13:35	13:40	0.08	316	316	Survey & Conn.	Survey & Conn @ 263' - 4.6 Inc - 257.1 Azm
9-Jan-12	13:40	13:50	0.17	316	326	Sliding	Sliding - (WOB:15;GPM :425;TFO:242M)



Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
9-Jan-12	13:50	14:28	0.63	326	377	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
9-Jan-12	14:28	14:34	0.10	377	377	Circulating	Check Shot
9-Jan-12	14:34	14:42	0.13	377	387	Sliding	Sliding - (WOB:15;GPM :425;TFO:330)
9-Jan-12	14:42	14:59	0.28	387	407	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
9-Jan-12	14:59	15:06	0.12	407	407	Survey & Conn.	Survey & Conn @ 354' - 6.9 Inc - 247.9 Azm
9-Jan-12	15:06	16:00	0.90	407	498	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
9-Jan-12	16:00	16:06	0.10	498	498	Survey & Conn.	Survey & Conn @ 445' - 9.2 Inc - 246.1 Azm
9-Jan-12	16:06	16:30	0.40	498	529	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
9-Jan-12	16:30	16:36	0.10	529	529	Circulating	Check Shot
9-Jan-12	16:36	17:30	0.90	529	529	Short Trip	Short Trip
9-Jan-12	17:30	17:45	0.25	529	529	Circulating	Circulating
9-Jan-12	17:45	18:11	0.43	529	529	POOH	POOH
9-Jan-12	18:11	19:00	0.82	529	529	Change BHA	Lay Down BHA.
9-Jan-12	19:00	22:00	3.00	529	529	Standby	Standby While Rig Crew Runs CSG & Cements.
9-Jan-12	22:00	24:00	2.00	529	529	N/U BOPS	N/U BOPS



JOB NO.:	DDOK-120027	Report Time:	2400	2 of 5
Company:	Great Western	API JOB #	05-123-32970-00	
LOCATION:	Weld County	WORK ORDER#	MS#110823RR	
RIG NAME:	Cade 22	FIELD:	Wattenberg	
STATE:	Colorado	Township:		
COUNTY:	Weld County	SECTRANGE:		
WELL NAME:	Binder 0-6-20			

From Tuesday, January 10, 2012 at 0000 to Tuesday, January 10, 2012 at 2400

DRILLING SUMMARY				Drilling Parameters							
Start Depth	529.00	Rotary Hours	7.48	WOB	15	Pick UP	55	Slack Off	50	SPM	
End Depth	2416.00	Circulating Hours	1.38	RAB	50	SPP	1300	FlowRate	425 - 425	125	
Total Drilled:	1887.00	Avg. Total ROP:	204.00	Mud Data							
Total Rotary Drilled:	1571.00	Avg. Rotary ROP:	209.93	Type	Water			PV	0	SOLID	0
Total Drilled Sliding:	316.00	Avg. Slide ROP:	178.87	Weight	8.3	GAS	0	YP	0	BHT°	0
Slide Hours:	1.77	Percent Rotary:	83.25	Viscosity	22	SAND	0	PH	0	Flow T°	0
Below Rotary Hrs.	17.27	Percent Slide:	16.75	Chlorides	0	WL	0			Oil %	0
PERSONNEL				CASING					BHA		
Lead Directional :	David Cathey			Size	Lb/ft	Set Depth		BHA # 2:7 7/8 Hughes PDC, 6 1/4" MTR 7/8_4.8 Stg, 6 3/8" FLT Sub, 6 13/16 NMPC, 6 15/16 UBHO, 6 1/4 NMDC, 6 1/2 NMFC, 18 Jts 4 1/2 Spiral, 4 Drill Pipe,			
Second Directional :	Coty Jeane			4 1/2	11.6	0					
MWD Operator1	Chuck Johnson			8 5/8	24	690					
MWD Operator2				Signature:							
Directional Company:	MS Energy										
Geologist:											
Company Man:	Junior Loya										
Incl. In:	9.8	Azm. In:	245.5	Incl. Out:	30.5	Azm. Out:	240.3				

#### GENERAL COMMENT

Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
10-Jan-12	00:00	06:30	6.50	529	529	N/U BOPS	N/U BOPS & Test Same.
10-Jan-12	06:30	07:30	1.00	529	529	Change BHA	Pick Up MTR & Test. Motor Pressured Up. Lay Motor Down. Pick Up New MTR & BHA.
10-Jan-12	07:30	07:45	0.25	529	529	TIH	TIH
10-Jan-12	07:45	08:25	0.67	529	529	Circulating	Drill Out Cement.
10-Jan-12	08:25	09:45	1.33	529	691	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	09:45	09:51	0.10	691	691	Survey & Conn.	Survey & Conn @ 630' - 11.6 Inc - 241.4 Azm
10-Jan-12	09:51	10:06	0.25	691	785	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	10:06	10:12	0.10	785	785	Survey & Conn.	Survey & Conn @ 724' - 10.9 Inc - 238.6 Azm
10-Jan-12	10:12	10:18	0.10	785	795	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
10-Jan-12	10:18	11:07	0.82	795	879	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	11:07	11:13	0.10	879	879	Survey & Conn.	Survey & Conn @ 818' - 12.5 Inc - 243.1 Azm
10-Jan-12	11:13	11:33	0.33	879	971	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	11:33	11:39	0.10	971	971	Survey & Conn.	Survey & Conn @ 910' - 12.5 Inc - 247.6 Azm
10-Jan-12	11:39	11:58	0.32	971	1066	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	11:58	12:04	0.10	1066	1066	Survey & Conn.	Survey & Conn @ 1005' - 12.3 Inc - 244.9 Azm
10-Jan-12	12:04	12:26	0.37	1066	1160	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	12:26	12:33	0.12	1160	1160	Survey & Conn.	Survey & Conn @ 1099' - 11.7 Inc - 247.7 Azm

Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
10-Jan-12	12:33	12:38	0.08	1160	1170	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
10-Jan-12	12:38	12:54	0.27	1170	1254	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	12:54	13:00	0.10	1254	1254	Survey & Conn.	Survey & Conn @ 1193' - 13.7 Inc - 244.9 Azm
10-Jan-12	13:00	13:20	0.33	1254	1348	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	13:20	13:26	0.10	1348	1348	Survey & Conn.	Survey & Conn @ 1287' - 12.2 Inc - 244.4 Azm
10-Jan-12	13:26	13:30	0.07	1348	1358	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)
10-Jan-12	13:30	13:47	0.28	1358	1443	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	13:47	13:53	0.10	1443	1443	Survey & Conn.	Survey & Conn @ 1382' - 12.5 Inc - 239.6 Azm
10-Jan-12	13:53	13:57	0.07	1443	1458	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)
10-Jan-12	13:57	14:27	0.50	1458	1536	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	14:27	15:10	0.72	1536	1536	Rig repair	Rig repair
10-Jan-12	15:10	15:16	0.10	1536	1536	Survey & Conn.	Survey & Conn @ 1475' - 12.5 Inc - 242.4 Azm
10-Jan-12	15:16	15:18	0.03	1536	1551	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)
10-Jan-12	15:18	15:36	0.30	1551	1630	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	15:36	15:42	0.10	1630	1630	Survey & Conn.	Survey & Conn @ 1569' - 13.5 Inc - 241.0 Azm
10-Jan-12	15:42	15:47	0.08	1630	1645	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)
10-Jan-12	15:47	16:05	0.30	1645	1692	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	16:05	16:11	0.10	1692	1692	Rig repair	Change Out Saber Sub.
10-Jan-12	16:11	16:16	0.08	1692	1726	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	16:16	16:30	0.23	1726	1726	L/D DP	Lay Down Wash Out Joint.
10-Jan-12	16:30	16:36	0.10	1726	1726	Survey & Conn.	Survey & Conn @ 1665' - 14.6 Inc - 237.5 Azm
10-Jan-12	16:36	16:40	0.07	1726	1746	Sliding	Sliding - (WOB:15;GPM :425;TFO:10)
10-Jan-12	16:40	16:50	0.17	1746	1790	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	16:50	16:56	0.10	1790	1790	Circulating	Check Shot.
10-Jan-12	16:56	17:00	0.07	1790	1805	Sliding	Sliding - (WOB:15;GPM :425;TFO:10)
10-Jan-12	17:00	17:02	0.03	1805	1821	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	17:02	17:08	0.10	1821	1821	Survey & Conn.	Survey & Conn @ 1760' - 16.2 Inc - 240.3 Azm
10-Jan-12	17:08	17:13	0.08	1821	1836	Sliding	Sliding - (WOB:15;GPM :425;TFO:10)
10-Jan-12	17:13	17:22	0.15	1836	1856	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	17:22	17:37	0.25	1856	1856	Circulating	Check Shot.
10-Jan-12	17:37	17:42	0.08	1856	1877	Sliding	Sliding - (WOB:15;GPM :425;TFO:10)
10-Jan-12	17:42	17:52	0.17	1877	1916	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	17:52	17:58	0.10	1916	1916	Survey & Conn.	Survey & Conn@1855- 18.3 Inc- 240.3 Azm
10-Jan-12	17:58	18:04	0.10	1916	1931	Sliding	Sliding - (WOB:15;GPM :425;TFO:10)
10-Jan-12	18:04	18:18	0.23	1931	1979	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	18:18	18:28	0.17	1979	1979	Survey & Conn.	Survey & Conn.
10-Jan-12	18:28	18:35	0.12	1979	1994	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
10-Jan-12	18:35	18:38	0.05	1994	2011	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	18:38	18:48	0.17	2011	2011	Survey & Conn.	Survey & Conn@1950- 19.1 Inc- 237.5 Azm
10-Jan-12	18:48	18:54	0.10	2011	2031	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
10-Jan-12	18:54	19:09	0.25	2031	2072	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	19:09	19:19	0.17	2072	2072	Survey & Conn.	Survey & Conn.
10-Jan-12	19:19	19:28	0.15	2072	2087	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
10-Jan-12	19:28	19:31	0.05	2087	2103	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	19:31	19:41	0.17	2103	2103	Survey & Conn.	Survey & Conn@2042- 23.0 Inc- 239.4
10-Jan-12	19:41	19:46	0.08	2103	2118	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
10-Jan-12	19:46	19:58	0.20	2118	2166	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	19:58	20:08	0.17	2166	2166	Survey & Conn.	Survey & Conn.

Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
10-Jan-12	20:08	20:13	0.08	2166	2181	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
10-Jan-12	20:13	20:16	0.05	2181	2196	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	20:16	20:26	0.17	2196	2196	Survey & Conn.	Survey & Conn@2135- 26.2 Inc- 240.3 Azm
10-Jan-12	20:26	20:33	0.12	2196	2211	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
10-Jan-12	20:33	20:38	0.08	2211	2228	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	20:38	21:00	0.37	2228	2228	Rig Service-Inhole	Rig Service-Inhole
10-Jan-12	21:00	21:10	0.17	2228	2258	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	21:10	21:20	0.17	2258	2258	Survey & Conn.	Survey & Conn.
10-Jan-12	21:20	21:23	0.05	2258	2273	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
10-Jan-12	21:23	21:25	0.03	2273	2288	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	21:25	22:17	0.87	2288	2288	Rig repair	Rig repair
10-Jan-12	22:17	22:26	0.15	2288	2288	Survey & Conn.	Survey & Conn.
10-Jan-12	22:26	22:30	0.07	2288	2303	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
10-Jan-12	22:30	22:35	0.08	2303	2320	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	22:35	23:10	0.58	2320	2320	Rig repair	Rig repair
10-Jan-12	23:10	23:19	0.15	2320	2351	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	23:19	23:29	0.17	2351	2351	Survey & Conn.	Survey & Conn.
10-Jan-12	23:29	23:36	0.12	2351	2366	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
10-Jan-12	23:36	23:40	0.07	2366	2383	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
10-Jan-12	23:40	23:43	0.05	2383	2383	Rig repair	Rig repair
10-Jan-12	23:43	23:53	0.17	2383	2383	Survey & Conn.	Survey & Conn@2322- 30.5 Inc- 240.3 Azm
10-Jan-12	23:53	23:56	0.05	2383	2398	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
10-Jan-12	23:56	24:00	0.07	2398	2416	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)



JOB NO.:	DDOK-120027	Report Time:	2400	3 of 5
Company:	Great Western	API JOB #	05-123-32970-00	
LOCATION:	Weld County	WORK ORDER#	MS#110823RR	
RIG NAME:	Cade 22	FIELD:	Wattenberg	
STATE:	Colorado	Township:		
COUNTY:	Weld County	SECTRANGE:		
WELL NAME:	Binder 0-6-20			

From Wednesday, January 11, 2012 at 0000 to Wednesday, January 11, 2012 at 2400

DRILLING SUMMARY				Drilling Parameters						
Start Depth	2416.00	Rotary Hours	10.72	WOB	15	Pick UP	120	Slack Off	80	SPM
End Depth	5219.00	Circulating Hours	1.33	RAB	85	SPP	1500	FlowRate	425 - 425	125
Total Drilled:	2803.00	Avg. Total ROP:	169.37	Mud Data						
Total Rotary Drilled:	2290.00	Avg. Rotary ROP:	213.69	Type	Water		PV	0	SOLID	0
Total Drilled Sliding:	513.00	Avg. Slide ROP:	87.94	Weight	8.3	GAS	0	YP	0	BHT°
Slide Hours:	5.83	Percent Rotary:	81.70	Viscosity	22	SAND	0	PH	0	Flow T°
Below Rotary Hrs.	24.00	Percent Slide:	18.30	Chlorides	0	WL	0	Oil %		0

PERSONNEL						CASING			BHA
Lead Directional :		David Cathey				Size	Lb/ft	Set Depth	BHA # 2:7 7/8 Hughes PDC, 6 1/4" MTR 7/8_4.8 Stg, 6 3/8" FLT Sub, 6 13/16 NMPC, 6 15/16 UBHO, 6 1/4 NMDC, 6 1/2 NMFC, 18 Jts 4 1/2 Spiral, 4 Drill Pipe,
Second Directional :		Coty Jeane				4 1/2	11.6	0	
MWD Operator1		Chuck Johnson				8 5/8	24	690	
MWD Operator2									
Directional Company:		MS Energy				Signature:			
Geologist:									
Company Man:		Junior Loya							
Incl. In:	30.5	Azm. In:	240.3	Incl. Out:	27.5	Azm. Out:	241.7		

### GENERAL COMMENT

Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
11-Jan-12	00:00	00:12	0.20	2416	2447	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	00:12	00:24	0.20	2447	2447	Survey & Conn.	Survey & Conn.
11-Jan-12	00:24	00:31	0.12	2447	2457	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	00:31	00:36	0.08	2457	2479	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	00:36	00:46	0.17	2479	2479	Survey & Conn.	Survey & Conn@2418- 33.5 Inc- 241.9 Azm
11-Jan-12	00:46	00:49	0.05	2479	2489	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	00:49	01:01	0.20	2489	2542	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	01:01	01:08	0.12	2542	2542	Survey & Conn.	Survey & Conn.
11-Jan-12	01:08	01:15	0.12	2542	2574	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	01:15	01:25	0.17	2574	2574	Survey & Conn.	Survey & Conn@2513- 35.6 Inc- 242.2 Azm
11-Jan-12	01:25	01:29	0.07	2574	2589	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	01:29	01:42	0.22	2589	2635	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	01:42	01:48	0.10	2635	2635	Survey & Conn.	Survey & Conn.
11-Jan-12	01:48	01:54	0.10	2635	2667	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	01:54	02:02	0.13	2667	2667	Survey & Conn.	Survey & Conn@2606- 37.8 Inc- 241.6 Azm
11-Jan-12	02:02	02:19	0.28	2667	2730	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	02:19	02:23	0.07	2730	2730	Survey & Conn.	Survey & Conn.

Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
11-Jan-12	02:23	02:30	0.12	2730	2762	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	02:30	02:40	0.17	2762	2762	Survey & Conn.	Survey & Conn@2701- 37.8 Inc- 240.0 Azm
11-Jan-12	02:40	02:46	0.10	2762	2777	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	02:46	02:59	0.22	2777	2823	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	02:59	03:07	0.13	2823	2823	Survey & Conn.	Survey & Conn.
11-Jan-12	03:07	03:13	0.10	2823	2855	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	03:13	03:22	0.15	2855	2855	Survey & Conn.	Survey & Conn@2794- 39.8 Inc- 240.7 Azm
11-Jan-12	03:22	03:40	0.30	2855	2918	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	03:40	03:45	0.08	2918	2918	Survey & Conn.	Survey & Conn.
11-Jan-12	03:45	03:51	0.10	2918	2950	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	03:51	04:04	0.22	2950	2950	Survey & Conn.	Survey & Conn@2889- 37.8 Inc- 238.9 Azm
11-Jan-12	04:04	04:10	0.10	2950	2960	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	04:10	04:23	0.22	2960	3013	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	04:23	04:30	0.12	3013	3013	Survey & Conn.	Survey & Conn.
11-Jan-12	04:30	04:36	0.10	3013	3045	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	04:36	04:43	0.12	3045	3045	Survey & Conn.	Survey & Conn@2984- 37.7 Inc- 241.7 Azm
11-Jan-12	04:43	04:51	0.13	3045	3055	Sliding	Sliding - (WOB:15;GPM :425;TFO:60)
11-Jan-12	04:51	05:10	0.32	3055	3107	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	05:10	05:15	0.08	3107	3107	Survey & Conn.	Survey & Conn.
11-Jan-12	05:15	05:17	0.03	3107	3139	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	05:17	05:25	0.13	3139	3139	Survey & Conn.	Survey & Conn@3078- 36.9 Inc- 243.5 Azm
11-Jan-12	05:25	05:32	0.12	3139	3149	Sliding	Sliding - (WOB:15;GPM :425;TFO:90)
11-Jan-12	05:32	05:44	0.20	3149	3202	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	05:44	05:50	0.10	3202	3202	Survey & Conn.	Check Shot.
11-Jan-12	05:50	05:56	0.10	3202	3234	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	05:56	06:02	0.10	3234	3234	Survey & Conn.	Survey & Conn @ 3173' - 36.3 Inc - 248.0 Azm
11-Jan-12	06:02	06:25	0.38	3234	3327	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	06:25	06:31	0.10	3327	3327	Survey & Conn.	Survey & Conn @ 3266' - 33.8 Inc - 246.8 Azm
11-Jan-12	06:31	06:38	0.12	3327	3342	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	06:38	06:57	0.32	3342	3422	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	06:57	07:03	0.10	3422	3422	Survey & Conn.	Survey & Conn @ 3361' - 32.9 Inc - 246.10 Azm
11-Jan-12	07:03	07:12	0.15	3422	3437	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	07:12	07:37	0.42	3437	3517	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	07:37	07:45	0.13	3517	3517	Survey & Conn.	Survey & Conn @ 3456' - 32.7 Inc - 246.1 Azm
11-Jan-12	07:45	07:54	0.15	3517	3532	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	07:54	08:16	0.37	3532	3612	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	08:16	08:22	0.10	3612	3612	Survey & Conn.	Survey & Conn @ 3551' - 31.4 Inc - 244.5 Azm
11-Jan-12	08:22	08:35	0.22	3612	3632	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	08:35	09:01	0.43	3632	3706	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	09:01	09:07	0.10	3706	3706	Survey & Conn.	Survey & Conn @ 3645' - 28.8 Inc - 244.8 Azm.
11-Jan-12	09:07	09:20	0.22	3706	3731	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	09:20	09:33	0.22	3731	3769	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	09:33	09:39	0.10	3769	3769	Circulating	Check Shot.
11-Jan-12	09:39	09:46	0.12	3769	3784	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	09:46	09:48	0.03	3784	3801	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	09:48	09:56	0.13	3801	3801	Survey & Conn.	Survey & Conn @ 3740' - 28.5 Inc - 241.2 Azm
11-Jan-12	09:56	10:05	0.15	3801	3816	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	10:05	10:16	0.18	3816	3864	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)



Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
11-Jan-12	10:16	10:24	0.13	3864	3864	Circulating	Check Shot.
11-Jan-12	10:24	10:30	0.10	3864	3879	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	10:30	10:34	0.07	3879	3894	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	10:34	10:40	0.10	3894	3894	Survey & Conn.	Survey & Conn @ 3833' - 28.8 Inc - 240.9 Azm
11-Jan-12	10:40	10:54	0.23	3894	3909	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	10:54	11:05	0.18	3909	3957	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	11:05	11:13	0.13	3957	3957	Circulating	Check Shot.
11-Jan-12	11:13	11:19	0.10	3957	3972	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	11:19	11:23	0.07	3972	3989	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	11:23	11:39	0.27	3989	3989	Survey & Conn.	Survey & Conn @ 3928' - 29.6 Inc - 244.4 Azm
11-Jan-12	11:39	11:48	0.15	3989	4014	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	11:48	11:57	0.15	4014	4051	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	11:57	12:03	0.10	4051	4051	Circulating	Check Shot.
11-Jan-12	12:03	12:24	0.35	4051	4083	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	12:24	12:30	0.10	4083	4083	Survey & Conn.	Survey & Conn @ 4022' - 32.2 Inc - 244.2 Azm
11-Jan-12	12:30	12:52	0.37	4083	4115	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	12:52	12:58	0.10	4115	4115	Circulating	Check Shot.
11-Jan-12	12:58	13:09	0.18	4115	4146	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	13:09	13:15	0.10	4146	4146	Circulating	Check Shot.
11-Jan-12	13:15	13:21	0.10	4146	4178	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	13:21	13:28	0.12	4178	4178	Survey & Conn.	Survey & Conn @ 4117' - 36.4 Inc - 247.4 Azm
11-Jan-12	13:28	13:37	0.15	4178	4193	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	13:37	13:50	0.22	4193	4239	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	13:50	13:57	0.12	4239	4239	Circulating	Check Shot.
11-Jan-12	13:57	14:10	0.22	4239	4269	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	14:10	14:14	0.07	4269	4269	Survey & Conn.	Survey & Conn @ 4208' - 37.6 Inc - 246.8 Azm
11-Jan-12	14:14	14:23	0.15	4269	4284	Sliding	Sliding - (WOB:15;GPM :425;TFO:20)
11-Jan-12	14:23	14:41	0.30	4284	4363	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	14:41	14:47	0.10	4363	4363	Survey & Conn.	Survey & Conn @ 4302' - 39.2 Inc - 246.5 Azm
11-Jan-12	14:47	15:20	0.55	4363	4459	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	15:20	15:26	0.10	4459	4459	Survey & Conn.	Survey & Conn @ 4398' - 37.0 Inc - 246.5 Azm
11-Jan-12	15:26	15:54	0.47	4459	4553	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	15:54	16:00	0.10	4553	4553	Survey & Conn.	Survey & Conn @ 4492' - 33.00 Inc - 245.3 Azm
11-Jan-12	16:00	16:19	0.32	4553	4573	Sliding	Sliding - (WOB:15;GPM :425;TFO:350)
11-Jan-12	16:19	16:40	0.35	4573	4648	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	16:40	16:46	0.10	4648	4648	Survey & Conn.	Survey & Conn @ 4587' - 31.6 Inc - 242.4 Azm
11-Jan-12	16:46	17:05	0.32	4648	4668	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)
11-Jan-12	17:05	17:20	0.25	4668	4711	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	17:20	17:26	0.10	4711	4711	Circulating	Check Shot.
11-Jan-12	17:26	17:35	0.15	4711	4731	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)
11-Jan-12	17:35	17:44	0.15	4731	4742	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	17:44	17:50	0.10	4742	4742	Survey & Conn.	Survey & Conn @ 4681' - Inc - Azm
11-Jan-12	17:50	18:03	0.22	4742	4752	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)
11-Jan-12	18:03	18:18	0.25	4752	4806	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	18:18	18:26	0.13	4806	4806	Survey & Conn.	Survey & Conn.
11-Jan-12	18:26	18:39	0.22	4806	4821	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)
11-Jan-12	18:39	18:46	0.12	4821	4838	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	18:46	18:56	0.17	4838	4838	Survey & Conn.	Survey & Conn@4777- 29.8 Inc- 246.0 Azm

Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
11-Jan-12	18:56	19:04	0.13	4838	4848	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)
11-Jan-12	19:04	19:20	0.27	4848	4899	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	19:20	19:47	0.45	4899	4899	Rig Service-Inhole	Rig Service-Inhole
11-Jan-12	19:47	19:59	0.20	4899	4899	Survey & Conn.	Survey & Conn.
11-Jan-12	19:59	20:11	0.20	4899	4914	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)
11-Jan-12	20:11	20:15	0.07	4914	4930	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	20:15	20:25	0.17	4930	4930	Survey & Conn.	Survey & Conn@4869- 29.7 Inc- 249.2 Azm
11-Jan-12	20:25	20:31	0.10	4930	4940	Sliding	Sliding - (WOB:15;GPM :425;TFO:330)
11-Jan-12	20:31	20:49	0.30	4940	4993	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	20:49	20:59	0.17	4993	4993	Survey & Conn.	Survey & Conn.
11-Jan-12	20:59	21:10	0.18	4993	5006	Sliding	Sliding - (WOB:15;GPM :425;TFO:330)
11-Jan-12	21:10	21:15	0.08	5006	5025	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	21:15	21:25	0.17	5025	5025	Survey & Conn.	Survey & Conn@4964- 29.4 Inc- 244.0 Azm
11-Jan-12	21:25	21:38	0.22	5025	5038	Sliding	Sliding - (WOB:15;GPM :425;TFO:330)
11-Jan-12	21:38	21:53	0.25	5038	5088	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	21:53	22:03	0.17	5088	5088	Survey & Conn.	Survey & Conn.
11-Jan-12	22:03	22:10	0.12	5088	5093	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)
11-Jan-12	22:10	22:17	0.12	5093	5119	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	22:17	22:34	0.28	5119	5119	Rig repair	Rig repair
11-Jan-12	22:34	22:44	0.17	5119	5119	Survey & Conn.	Survey & Conn@5058- 27.8 Inc- 242.5 Azm
11-Jan-12	22:44	22:55	0.18	5119	5134	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)
11-Jan-12	22:55	23:08	0.22	5134	5183	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	23:08	23:18	0.17	5183	5183	Survey & Conn.	Survey & Conn.
11-Jan-12	23:18	23:30	0.20	5183	5193	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)
11-Jan-12	23:30	23:35	0.08	5193	5214	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
11-Jan-12	23:35	23:45	0.17	5214	5214	Survey & Conn.	Survey & Conn@5153- 27.5 Inc- 241.7 Azm
11-Jan-12	23:45	24:00	0.25	5214	5219	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)





JOB NO.:	DDOK-120027	Report Time:	2400	4 of 5
Company:	Great Western	API JOB #	05-123-32970-00	
LOCATION:	Weld County	WORK ORDER#	MS#110823RR	
RIG NAME:	Cade 22	FIELD:	Wattenberg	
STATE:	Colorado	Township:		
COUNTY:	Weld County	SECTRANGE:		
WELL NAME:	Binder 0-6-20			

From Thursday, January 12, 2012 at 0000 to Thursday, January 12, 2012 at 2400

DRILLING SUMMARY				Drilling Parameters							
Start Depth	5219.00	Rotary Hours	20.57	WOB	15	Pick UP	160	Slack Off	95	SPM	
End Depth	7970.00	Circulating Hours	0.00	RAB	100	SPP	1500	FlowRate	425 - 425	125	
Total Drilled:	2751.00	Avg. Total ROP:	129.36	Mud Data							
Total Rotary Drilled:	2716.00	Avg. Rotary ROP:	132.06	Type	Water Base			PV	2	SOLID	5.8
Total Drilled Sliding:	35.00	Avg. Slide ROP:	50.00	Weight	9.1	GAS	0	YP	1	BHT°	0
Slide Hours:	0.70	Percent Rotary:	98.73	Viscosity	32	SAND	0	PH	8	Flow T°	0
Below Rotary Hrs.	24.00	Percent Slide:	1.27	Chlorides	900	WL	15.8			Oil %	0
PERSONNEL				CASING					BHA		
Lead Directional :	David Cathey			Size	Lb/ft	Set Depth		BHA # 2:7 7/8 Hughes PDC, 6 1/4" MTR 7/8 .4.8 Stg, 6 3/8" FLT Sub, 6 13/16 NMPC, 6 15/16 UBHO, 6 1/4 NMDC, 6 1/2 NMFC, 18 Jts 4 1/2 Spiral, 4 Drill Pipe,			
Second Directional :	Coty Jeane			4 1/2	11.6	0					
MWD Operator1	Chuck Johnson			8 5/8	24	690					
MWD Operator2				Signature:							
Directional Company:	MS Energy										
Geologist:											
Company Man:	Eric Geiger										
Incl. In:	27.5	Azm. In:	241.7	Incl. Out:	0.8	Azm. Out:	260.8				

#### GENERAL COMMENT

Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
12-Jan-12	00:00	00:13	0.22	5219	5277	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	00:13	00:23	0.17	5277	5277	Survey & Conn.	Survey & Conn.
12-Jan-12	00:23	00:28	0.08	5277	5309	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	00:28	00:38	0.17	5309	5309	Survey & Conn.	Survey & Conn@5248- 29.0 Inc- 240.3 Azm
12-Jan-12	00:38	00:58	0.33	5309	5404	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	00:58	01:06	0.13	5404	5404	Survey & Conn.	Survey & Conn@5343- 26.9 Inc- 239.0 Azm
12-Jan-12	01:06	01:28	0.37	5404	5499	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	01:28	01:36	0.13	5499	5499	Survey & Conn.	Survey & Conn@5438- 23.6 Inc- 239.2 Azm
12-Jan-12	01:36	02:02	0.43	5499	5593	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	02:02	02:12	0.17	5593	5593	Survey & Conn.	Survey & Conn@5532- 20.0 Inc- 238.1 Azm
12-Jan-12	02:12	02:25	0.22	5593	5608	Sliding	Sliding - (WOB:15;GPM :425;TFO:360)
12-Jan-12	02:25	02:53	0.47	5608	5687	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	02:53	03:03	0.17	5687	5687	Survey & Conn.	Survey & Conn@5626- 18.4 Inc- 237.8 Azm
12-Jan-12	03:03	03:20	0.28	5687	5697	Sliding	Sliding - (WOB:15;GPM :425;TFO:45)
12-Jan-12	03:20	03:47	0.45	5697	5782	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	03:47	03:57	0.17	5782	5782	Survey & Conn.	Survey & Conn @ 5721' - 16.4 Inc - 235.9 Azm
12-Jan-12	03:57	04:09	0.20	5782	5792	Sliding	Sliding - (WOB:15;GPM :425;TFO:50)

Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
12-Jan-12	04:09	04:38	0.48	5792	5876	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	04:38	04:48	0.17	5876	5876	Survey & Conn.	Survey & Conn @ 5815' - 13.7 Inc - 235.3 Azm
12-Jan-12	04:48	05:15	0.45	5876	5968	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	05:15	05:23	0.13	5968	5968	Survey & Conn.	Survey & Conn @ 5907' - 11.8 Inc - 235.8 Azm
12-Jan-12	05:23	05:56	0.55	5968	6063	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	05:56	06:04	0.13	6063	6063	Survey & Conn.	Survey & Conn @ 6002' - 9.7 Inc - 230.2 Azm
12-Jan-12	06:04	07:13	1.15	6063	6157	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	07:13	07:19	0.10	6157	6157	Survey & Conn.	Survey & Conn @ 6096' - 7.7 Inc - 235.0 Azm
12-Jan-12	07:19	08:30	1.18	6157	6252	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	08:30	08:36	0.10	6252	6252	Survey & Conn.	Survey & Conn @ 6191' - 6.6 Inc - 235.0 Azm
12-Jan-12	08:36	09:15	0.65	6252	6347	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	09:15	09:22	0.12	6347	6347	Survey & Conn.	Survey & Conn @ 6286' - 5.3 Inc - 234.9 Azm
12-Jan-12	09:22	09:54	0.53	6347	6442	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	09:54	10:00	0.10	6442	6442	Survey & Conn.	Survey & Conn @ 6381' - 3.9 Inc - 225.8 Azm
12-Jan-12	10:00	11:40	1.67	6442	6726	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	11:40	11:46	0.10	6726	6726	Survey & Conn.	Survey & Conn @ 6665' - 2.5 Inc - 233.5 Azm
12-Jan-12	11:46	14:31	2.75	6726	7011	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	14:31	14:37	0.10	7011	7011	Survey & Conn.	Survey & Conn @ 6950' - 1.9 Inc - 249.8 Azm
12-Jan-12	14:37	16:50	2.22	7011	7390	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	16:50	16:56	0.10	7390	7390	Survey & Conn.	Survey & Conn @ 7234' - .50 Inc - 283.6 Azm
12-Jan-12	16:56	19:14	2.30	7390	7580	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	19:14	19:23	0.15	7580	7580	Survey & Conn.	Survey & Conn@7519- .8 Inc- 258.4 Azm
12-Jan-12	19:23	22:34	3.18	7580	7859	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
12-Jan-12	22:34	22:54	0.33	7859	7859	Survey & Conn.	Survey & Conn@7798- .8 Inc- 260.8 Azm
12-Jan-12	22:54	24:00	1.10	7859	7970	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)



JOB NO.:	DDOK-120027	Report Time:	2400	5 of 5
Company:	Great Western	API JOB #	05-123-32970-00	
LOCATION:	Weld County	WORK ORDER#	MS#110823RR	
RIG NAME:	Cade 22	FIELD:	Wattenberg	
STATE:	Colorado	Township:		
COUNTY:	Weld County	SECTRANGE:		
WELL NAME:	Binder 0-6-20			

From Friday, January 13, 2012 at 0000 to Friday, January 13, 2012 at 2400

DRILLING SUMMARY				Drilling Parameters							
Start Depth	7970.00	Rotary Hours	0.82	WOB	15	Pick UP	160	Slack Off	95	SPM	
End Depth	8045.00	Circulating Hours	2.43	RAB	100	SPP	1500	FlowRate	425 - 425	125	
Total Drilled:	75.00	Avg. Total ROP:	91.84	Mud Data							
Total Rotary Drilled:	75.00	Avg. Rotary ROP:	91.84	Type	Water Base			PV	2	SOLID	5.8
Total Drilled Sliding:	0.00	Avg. Slide ROP:	NA	Weight	9.1	GAS	0	YP	1	BHT°	0
Slide Hours:	0.00	Percent Rotary:	100.00	Viscosity	32	SAND	0	PH	8	Flow T°	0
Below Rotary Hrs.	9.50	Percent Slide:	.00	Chlorides	900	WL	15.8	Oil %		0	

PERSONNEL						CASING			BHA
Lead Directional :		David Cathey				Size	Lb/ft	Set Depth	BHA # 2:7 7/8 Hughes PDC, 6 1/4" MTR 7/8_4.8 Stg, 6 3/8" FLT Sub, 6 13/16 NMPC, 6 15/16 UBHO, 6 1/4 NMDC, 6 1/2 NMFC, 18 Jts 4 1/2 Spiral, 4 Drill Pipe,
Second Directional :		Coty Jeane				4 1/2	11.6	0	
MWD Operator1		Chuck Johnson				8 5/8	24	690	
MWD Operator2						Signature:			
Directional Company:		MS Energy							
Geologist:									
Company Man:		Eric Geiger							
Incl. In:	0.8	Azm. In:	260.8	Incl. Out:	0.8	Azm. Out:	273.2		

#### GENERAL COMMENT

Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
13-Jan-12	00:00	00:49	0.82	7970	8045	Drilling	Drilling - (WOB:15;GPM :425;RPM:85)
13-Jan-12	00:49	00:54	0.08	8045	8045	Survey & Conn.	Survey & Conn@7984- .8 Inc- 273.2 Azm
13-Jan-12	00:54	01:20	0.43	8045	8045	Circulating	Circulating
13-Jan-12	01:20	06:30	5.17	8045	8045	Short Trip	Short Trip
13-Jan-12	06:30	08:30	2.00	8045	8045	Circulating	Circulating
13-Jan-12	08:30	16:00	7.50	8045	8045	L/D DP	POOH L/D DP
13-Jan-12	16:00	17:00	1.00	8045	8045	Change BHA	Lay Down BHA.
13-Jan-12	17:00	20:30	3.50	8045	8045	Standby	Standby While Rig Crew Runs Wire Line Loggs.
13-Jan-12	20:30	24:00	3.50	8045	8045	Standby	Standby While Rig Crew Runs CSG.

# Well Information

**BHA #** 1



**JOB NO.:** DDOK-120027  
**Company:** Great Western  
**LOCATION:** Weld County  
**RIG NAME:** Cade 22  
**STATE:** Colorado  
**COUNTY:** Weld County  
**WELL NAME:** Binder 0-6-20

**FIELD:** Wattenberg  
**Township:**  
**SECT. RANGE:**  
**Lead DD:** David Cathey  
**Co. Man:** Junior Loya  
**BHA TYPE:** Steerable Assembly

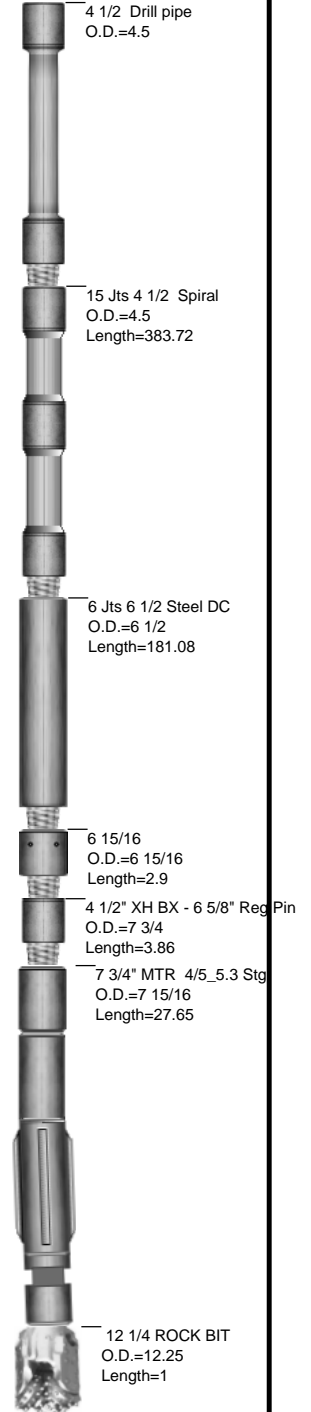
## BHA Summary Information

TIME IN - OUT		Rotary Hours		3.62	Start Depth		130.00	RPM	Flow Rate	
Start Time	End Time	Circ Hrs Tot/Only		5.85 / 1.03	End Depth		529.00			
09-Jan-12 @ 10:30	09-Jan-12 @ 19:00	Slide Hours		1.20	Percent Rotary:		81.20	85 -85	425 -425	
		Below Rotary Hrs.		8.50	Percent Slide:		18.80			
Total Drilled:		399.00	Avg. Total ROP:		82.84	Incl.		Azimuth		
Total Rotary Drilled:		324.00	Avg. Rotary ROP:		89.59	IN	OUT	IN	OUT	
Total Drilled Sliding:		75.00	Avg. Slide ROP:		62.50	1.3	9.6	287.82	245.70	
SPP	800 -800	Weights	SO	10 -15	PU	10 -15	RAB	10 -15	Reason POOH	TD

Bit Data							MOTOR DATA					Mud Data						
OTHER		12 1/4 ROCK BIT					Performance					Type	Water					
Type Bit				ROCK			Model: 7754553			Pad OD		WT	8.3	GAS	0	Solids	0	
TFA		1.113					MFG. Mpact			.25		Vis	22	SAND	0	T °	0	
JETS			22	22	22	0	0	Bend °	1.83	Stator/Rotor	4/5	PV	0	PH	0	Chlor	0	
			0	0	0	0	0	Bit to Bend	6.88	Motor Diff	200	YP	0	WL	0	Oil %	0	
Bit Coding				IADC#				Rev/GAL	0.25						BHT°		0	
IR	OR	DL	Loc	BS	G	ODL	NB Stab		12	PUMPS		PUMP1		PUMP1				
							Rotor Jet		0	NAME		OFR						
										Model		FR1300						
Bit Drop:			111 PSI @ 425 GPM				Sensor Offsets			Type		Triplex						
Comments				Sensor	48	Sonic	0			Liner		6.00					.00	
				Gamma	0	DNsc	0			Stroke		12.00					.00	
				Restiv	0	GYRO	0			Efficiency		95.00					.00	

## BHA Detail

#	Description	Serial #	I.D.	O.D.	Length	Sum	Top Conn
1	12 1/4 ROCK BIT	CH36MRS	0	12.25	1.00	1.00	6 5/8 REGP
2	7 3/4" MTR 4/5_5.3 Stg	MSD77D116D		7 15/16	27.65	28.65	6 5/8 REGB
3	4 1/2" XH BX - 6 5/8" Reg Pin	SD107244	2 7/8	7 3/4	3.86	32.51	4 1/2 XHB
4	6 15/16	MSD65192MWD	2 1/2	6 15/16	2.90	35.41	4 1/2 XHB
5	6 1/4 NMDC	SD39672	2 7/8	6 1/4	28.49	63.90	4 1/2 XHB
6	6 1/2 NMFC	SD44762	3 7/8	6 1/2	28.75	92.65	4 1/2 XHB
7	6 Jts 6 1/2 Steel DC	Rig	3 7/8	6 1/2	181.08	273.73	4 1/2 XHB
8	15 Jts 4 1/2 Spiral	HWDP-2.75-	2.75	4.5	383.72	657.45	4 1/2 XH
9	4 1/2 Drill pipe	DP-3.64-S-135	3.64	4.5	0.00	657.45	4 1/2 XH
10					0.00	657.45	



# Well Information

**BHA #** 2



**JOB NO.:** DDOK-120027

**FIELD:** Wattenberg

**Company:** Great Western

**Township:**

**LOCATION:** Weld County

**SECT. RANGE:**

**RIG NAME:** Cade 22

**Lead DD:** David Cathey

**STATE:** Colorado

**Co. Man:** Eric Geiger

**COUNTY:** Weld County

**BHA TYPE:** Steerable Assembly

**WELL NAME:** Binder 0-6-20

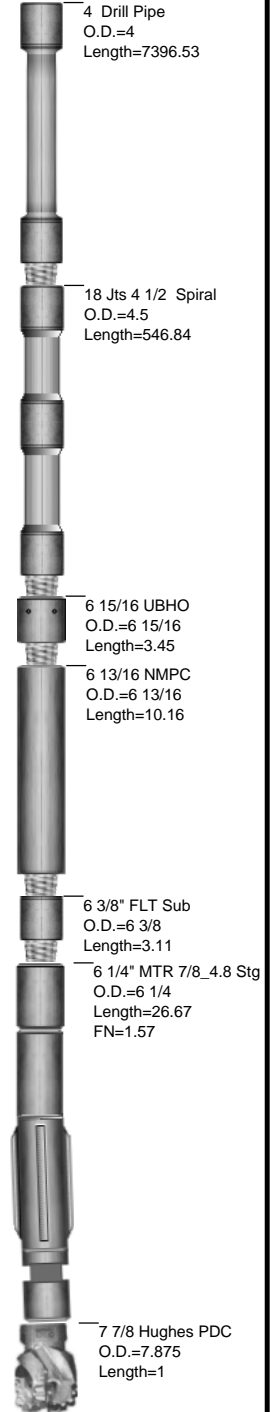
## BHA Summary Information

TIME IN - OUT			Rotary Hours		39.58		Start Depth		529.00		RPM	Flow Rate
Start Time	End Time	Circ Hrs Tot/Only		53.03 / 5.15		End Depth		8045.00				
10-Jan-12 @ 07:30	13-Jan-12 @ 17:00	Slide Hours		8.30		Percent Rotary:		88.50		85 -85	425 -425	
		Below Rotary Hrs.		73.77		Percent Slide:		11.50				
Total Drilled:			7516.00		Avg. Total ROP:		156.96		Incl.		Azimuth	
Total Rotary Drilled:			6652.00		Avg. Rotary ROP:		168.05		IN	OUT	IN	OUT
Total Drilled Sliding:			864.00		Avg. Slide ROP:		104.10		9.6	.8	245.70	273.20
SPP	800 -1500	Weights	SO	15 -95	PU	15 -160	RAB	15 -100	Reason POOH		TD	

Bit Data								MOTOR DATA								Mud Data							
BAKER		7 7/8 Hughes PDC						Performance								Type	Water Base						
Type Bit				PDC				Model: 625 4878				Pad OD				WT 9.1		GAS 0		Solids 5.8			
TFA		1.207						MFG. MPact				.25				Vis 32		SAND 0		T ° 0			
JETS			15	15	15	15	15	Bend ° 1.83		Stator/Rotor 7/8		PV 2		PH 8		Chlor 900							
			15	15	0	0	0	Bit to Bend 5.67		Motor Diff 250		YP 1		WL 15.8		Oil % 0							
Bit Coding				IADC#				Rev/GAL 0.34						BHT°		0							
IR	OR	DL	Loc	BS	G	ODL	NB Stab 0		PUMPS				PUMP1			PUMP1							
							Rotor Jet 0		NAME				OFR										
									Model				FR1300										
Bit Drop:			104 PSI @ 425 GPM					Sensor Offsets				Type				Triplex							
Comments				Sensor		58		Sonic		0		Liner				6.00				.00			
				Gamma		0		DNSC		0		Stroke				12.00				.00			
				Restiv		0		GYRO		0		Efficiency				95.00				.00			

## BHA Detail

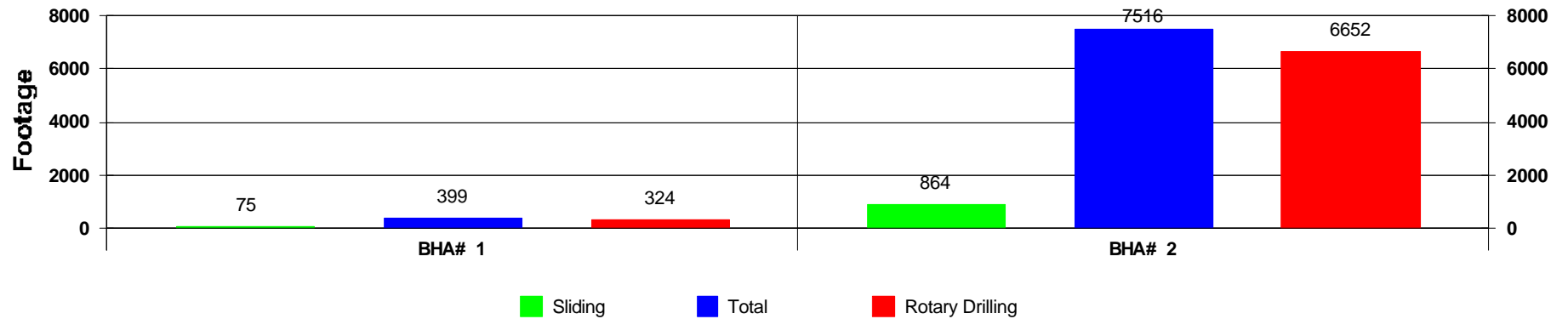
#	Description	Serial #	I.D.	O.D.	Length	Sum	Top Conn
1	7 7/8 Hughes PDC	7028278		7.875	1.00	1.00	4 1/2 REGP
2	6 1/4" MTR 7/8_4.8 Stg	MSD62D277SR		6 1/4	26.67	27.67	4 1/2 XHB
3	6 3/8" FLT Sub	SD105358	2 7/8	6 3/8	3.11	30.78	4 1/2 XHB
4	6 13/16 NMPC	SD38939	3 7/8	6 13/16	10.16	40.94	4 1/2 XHB
5	6 15/16 UBHO	SN6528	2 1/2	6 15/16	3.45	44.39	4 1/2 XHB
6	6 1/4 NMDC	SD39672	2 7/8	6 1/4	28.49	72.88	4 1/2 XHB
7	6 1/2 NMFC	SD44762	3 7/8	6 1/2	28.75	101.63	4 1/2 XHB
8	18 Jts 4 1/2 Spiral	HWDP-2.75-	2.75	4.5	546.84	648.47	4 1/2 XH
9	4 Drill Pipe	DP-3.476-E	3.476	4	7,396.53	8045.00	4 1/2 XH



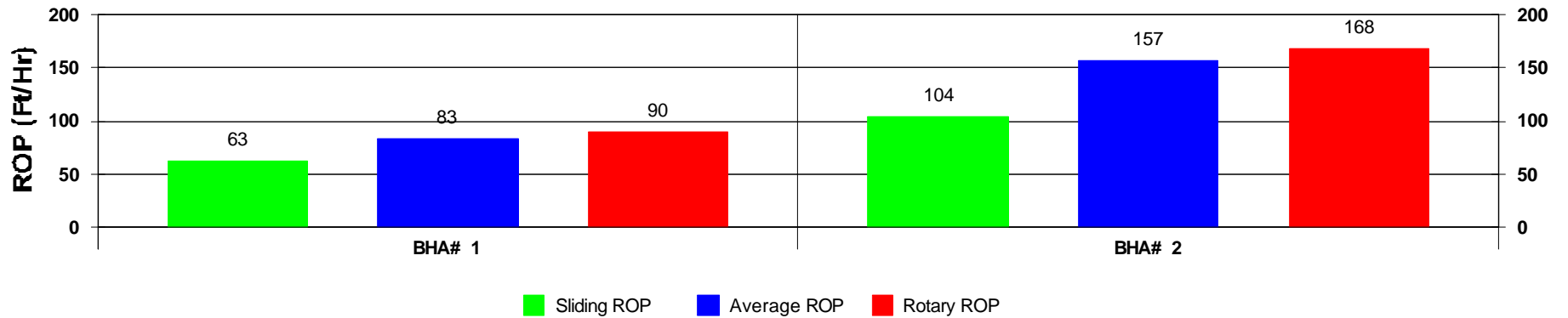


JOB NO.:	DDOK-120027	FIELD:	Wattenberg	
Company:	Great Western	Township:		
LOCATION:	Weld County	SECT/RANGE:		
RIG NAME:	Cade 22	COMMENT		
STATE:	Colorado			
COUNTY:	Weld County			
WELL NAME:	Binder 0-6-20			

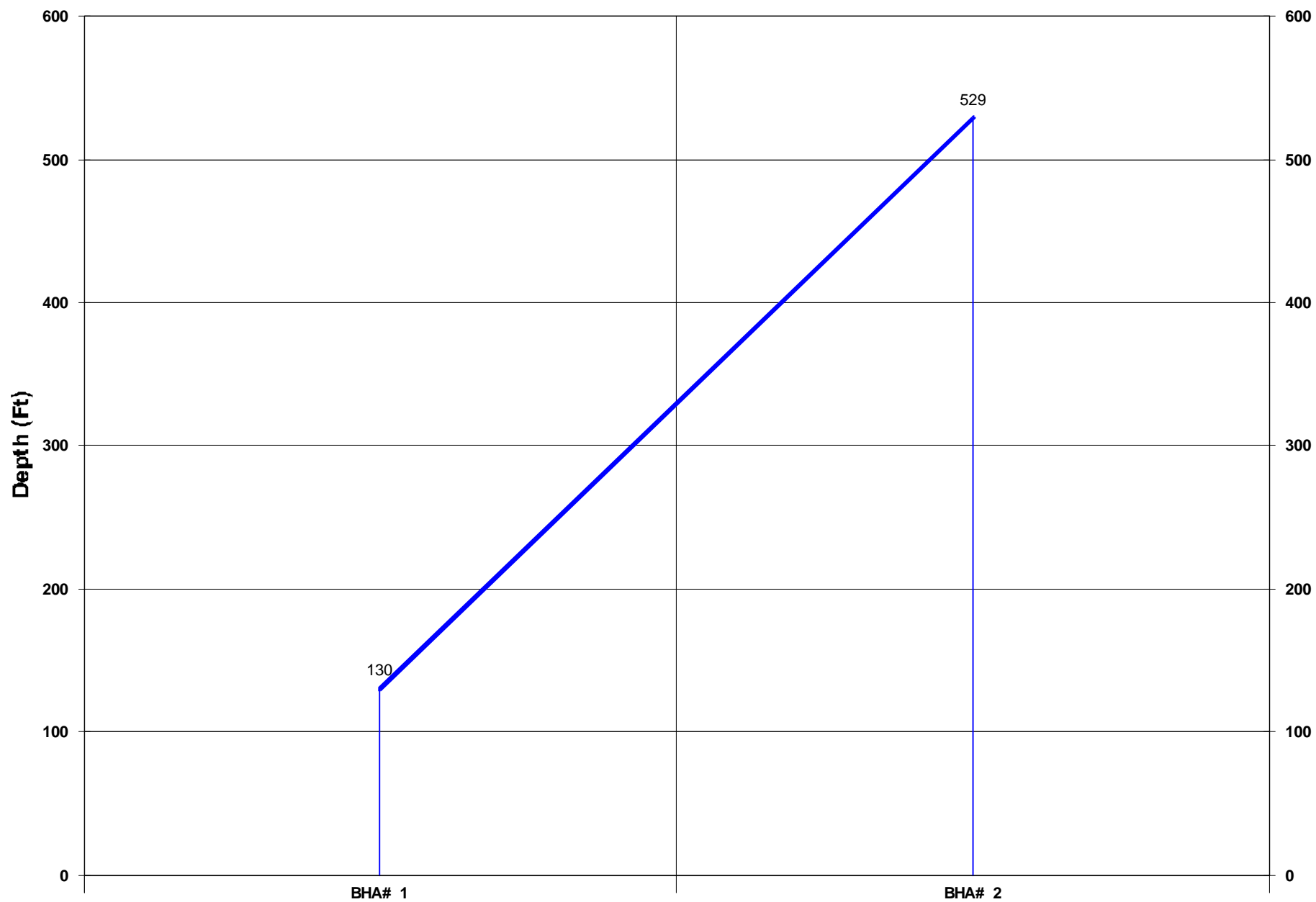
### Footage Drilled with BHA



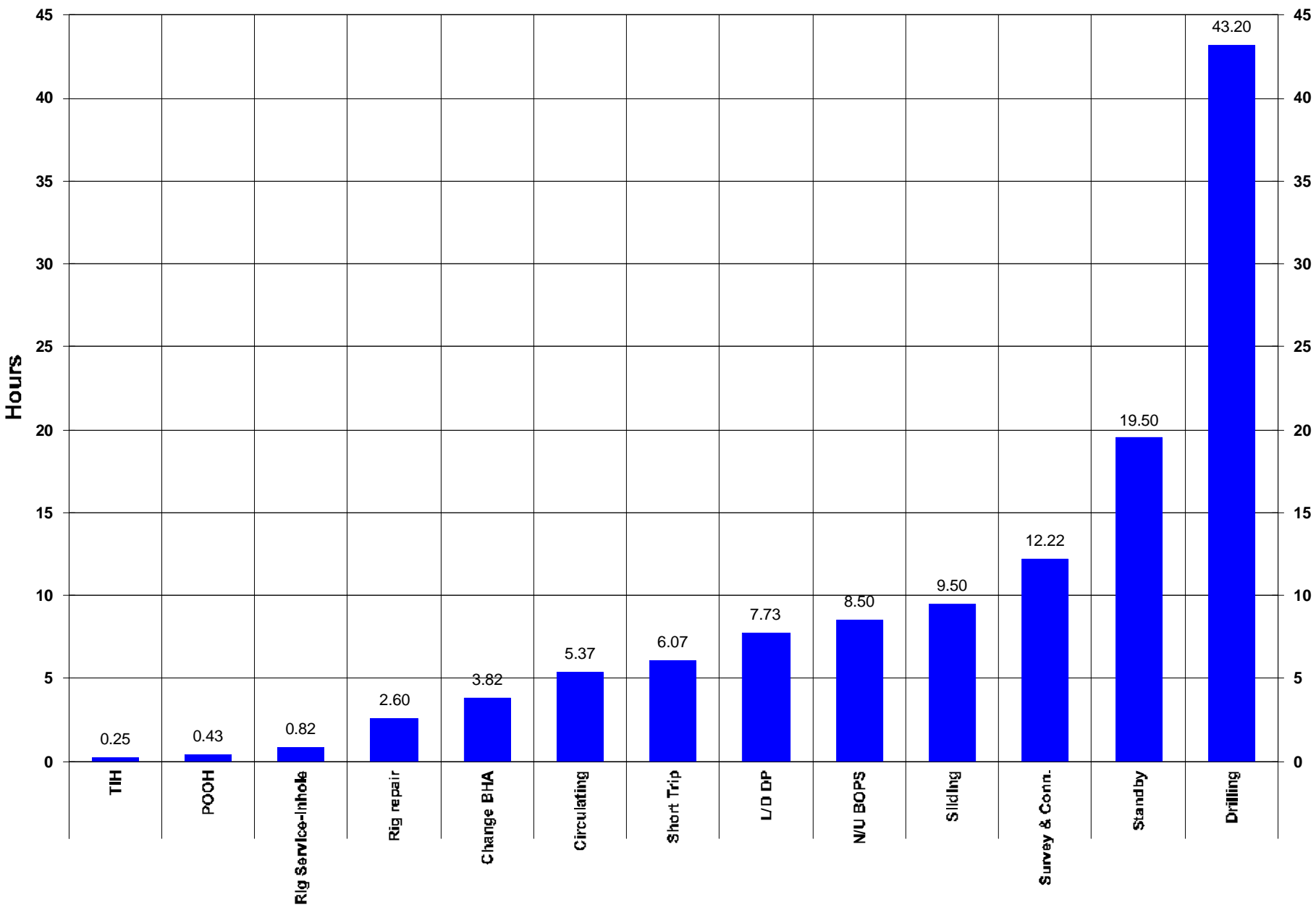
### ROP vs BHA



## Depth vs BHA

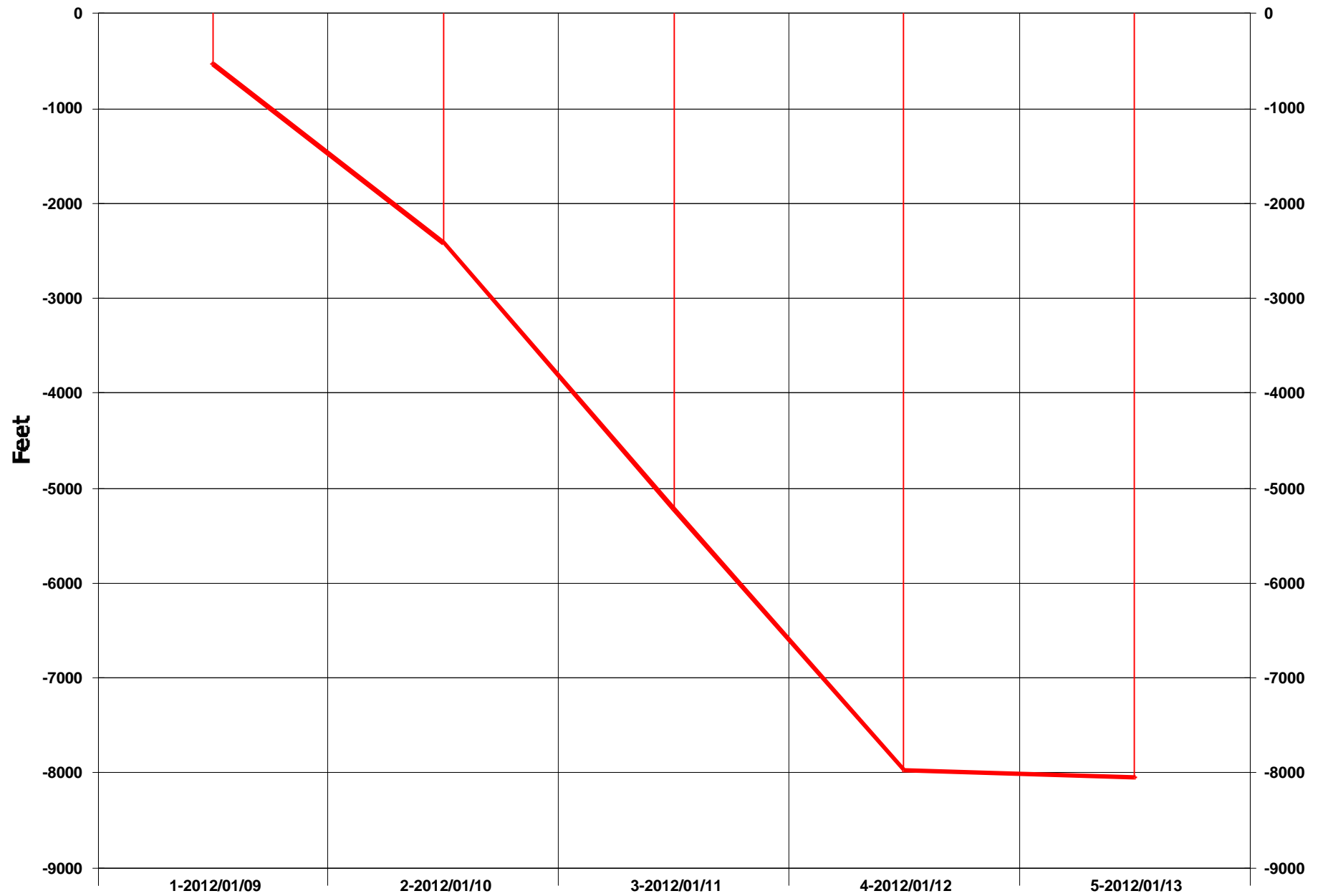


Activity Histogram

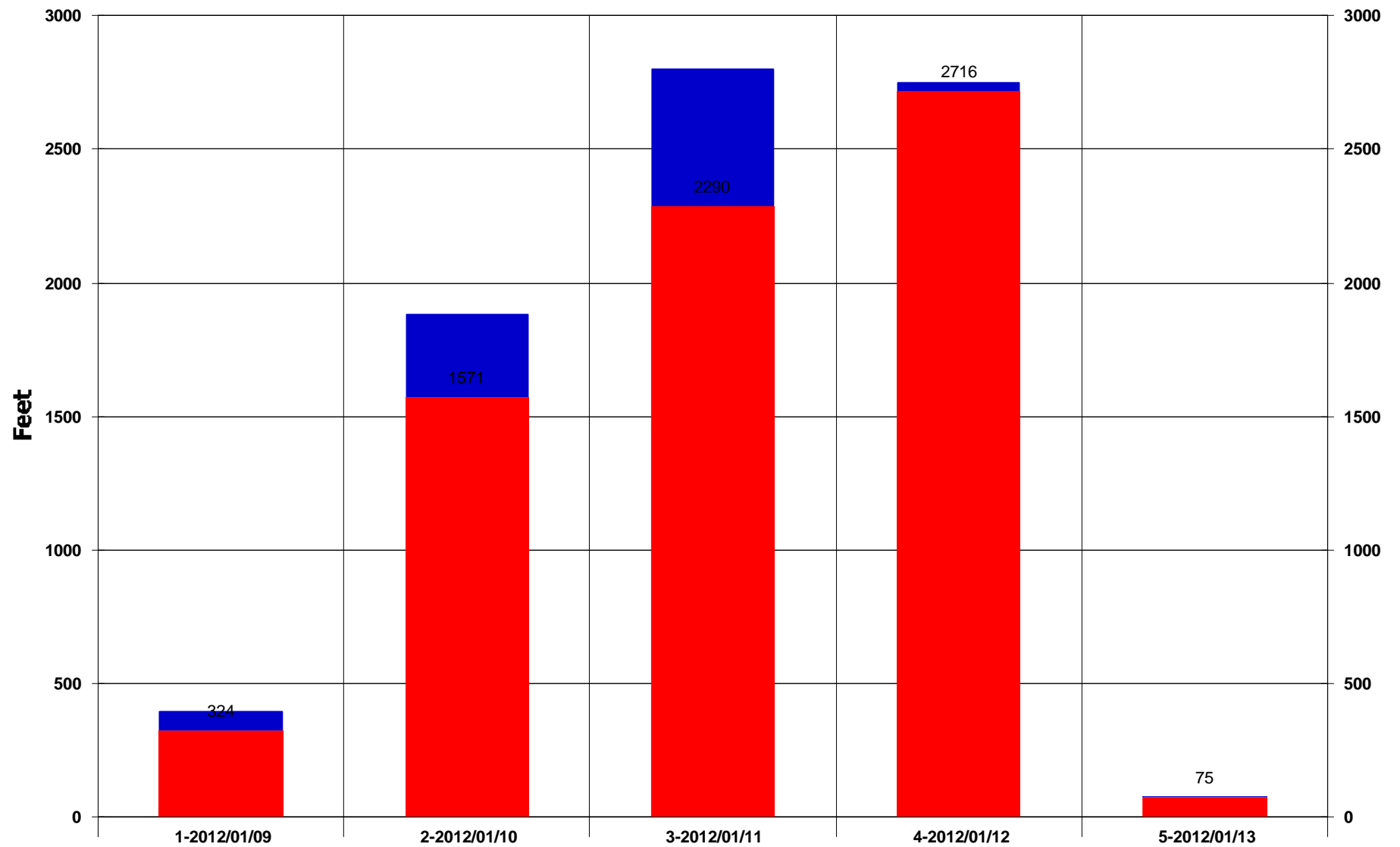




Measured Depth vs Days

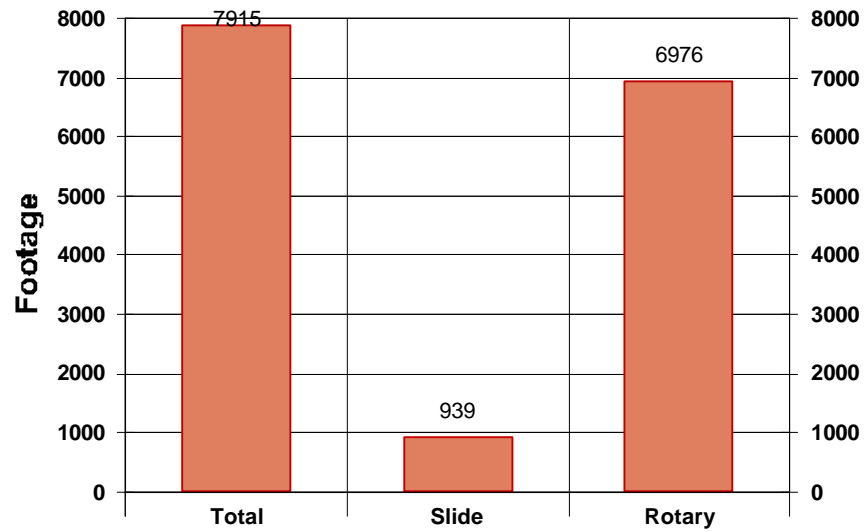


## Daily Footage

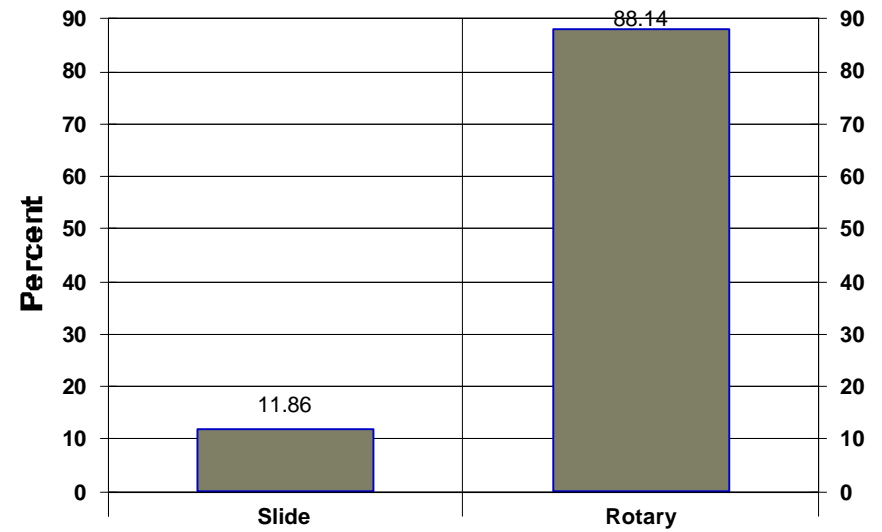


Rotary Drilling Sliding

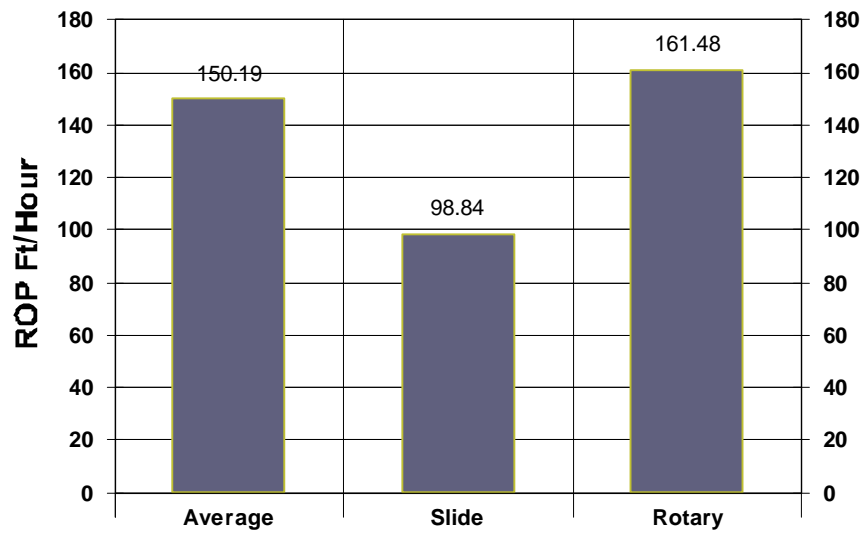
Footage Drilled Totals



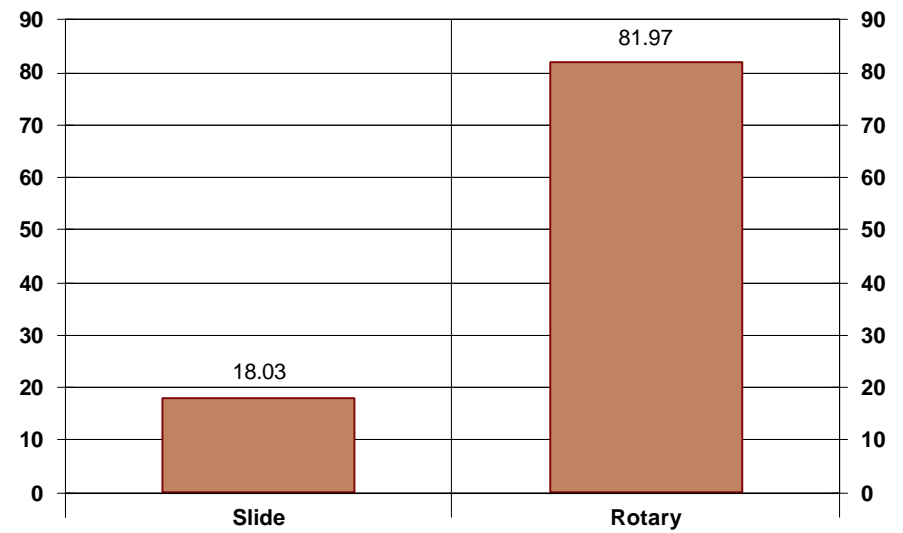
Footage Percent



Rate of Penetration Totals



Time Percent



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Fax: 406.778.3982

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Fax: 817.870.4829

**Denver, CO**

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Denver, CO 80202  
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**Odessa, TX**

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Fax: 432.570.8385

**Oklahoma City, OK**

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**West Alexander, PA**

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West Alexander, PA 15376  
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