



Weatherford®

SHELL E&P

MOFFAT COUNTY, CO

DEAL GULCH 2-16

DEAL GULCH 2-16

DEAL GULCH 2-16

Plan: PLAN #2

Standard Planning Report

25 June, 2012



Weatherford®



Project: MOFFAT COUNTY, CO
Site: DEAL GULCH 2-16
Well: DEAL GULCH 2-16
Wellbore: DEAL GULCH 2-16
Design: Design #2
Latitude: 40° 23' 16.640 N
Longitude: 107° 29' 53.710 W
GL: 7210.00
KB: KB @ 7222.00ft (Original Well Elev)
RIG: Original Well Elev



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WELL DETAILS: DEAL GULCH 2-16

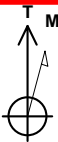
+N/-S	+E/-W	Northing	Ground Level: Easting	7210.00 Latitude	Longitude	Slot
0.00	0.00	1390444.13	2443414.14	40° 23' 16.640 N	107° 29' 53.710 W	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.04
3576.01	21.95	88.57	3549.88	5.09	203.56	2.04	88.57	-49.21	Start 826.91 hold at 3576.01 MD
4402.92	21.95	88.57	4316.83	12.82	512.60	0.00	0.00	-123.91	Start DLS 7.14 TFO 115.44
5841.38	92.72	206.70	5200.00	-873.42	437.29	7.14	115.44	757.51	Start 2526.18 hold at 5841.38 MD
8367.56	92.72	206.70	5080.00	-3127.75	-696.36	0.00	0.00	3204.33	TD at 8367.56

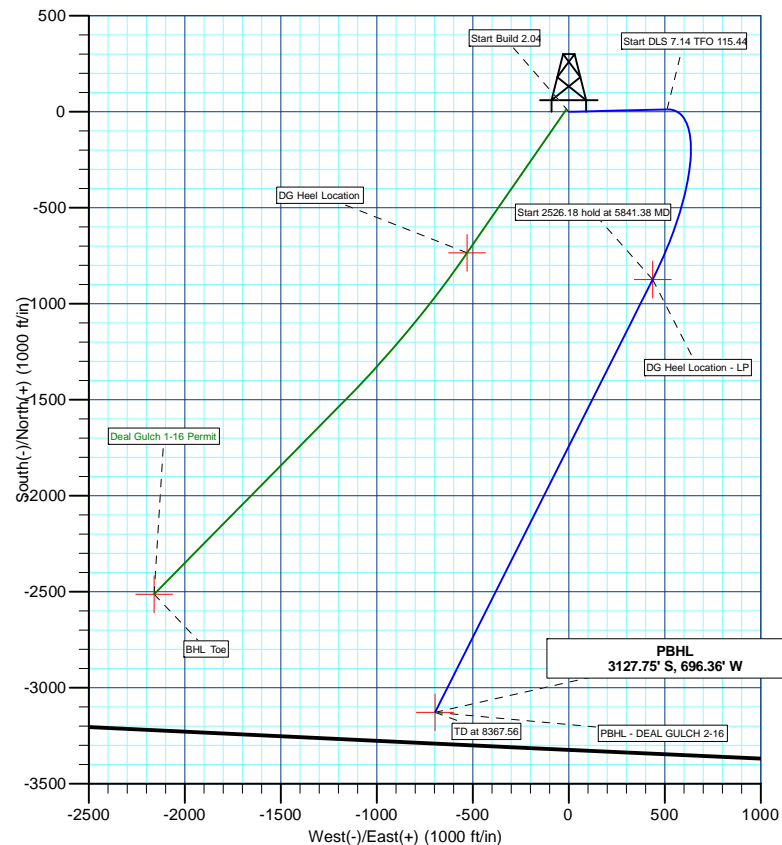
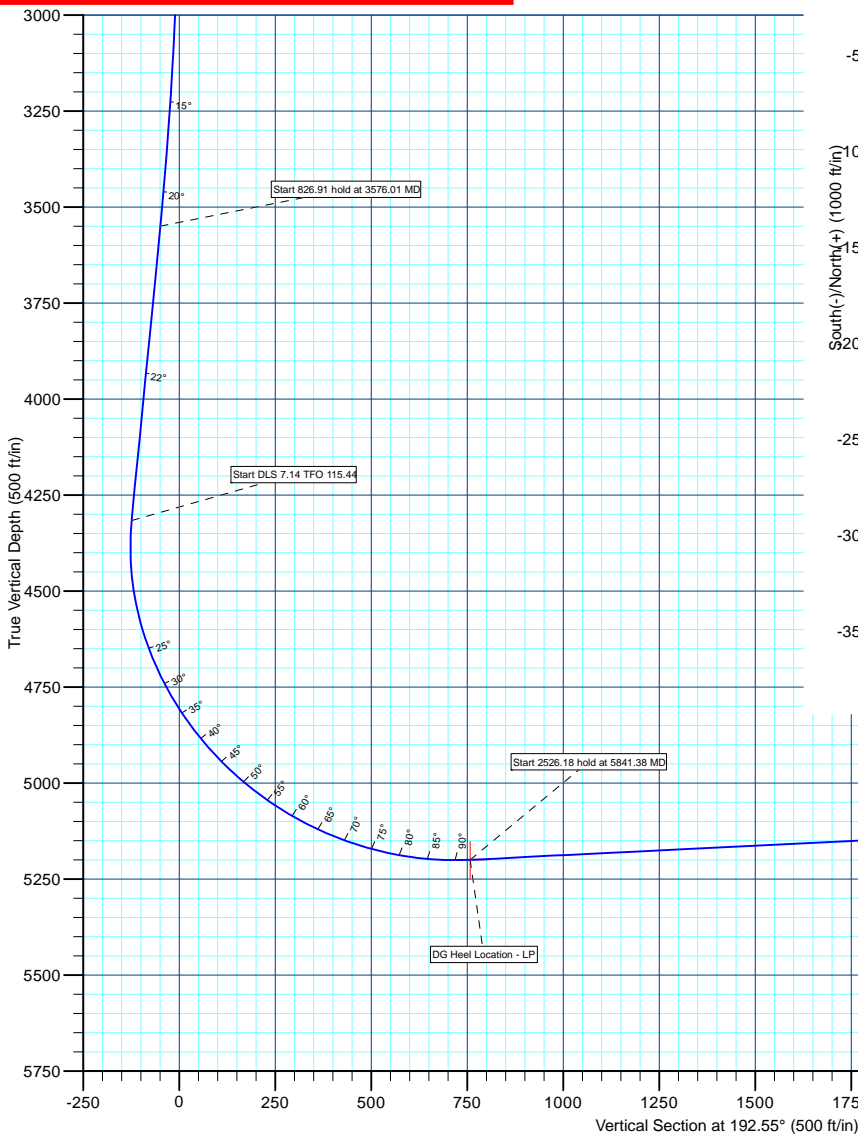
WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL - DEAL GULCH 2-16	5080.00	-3127.75	-696.36	1387332.87	2442647.48	40° 22' 45.731 N	107° 30' 2.708 W	Point
DG Heel Location - LP	5200.00	-873.42	437.29	1389561.08	2443831.64	40° 23' 6.009 N	107° 29' 48.059 W	Point



Azimuths to True North
Magnetic North: 10.12°

Magnetic Field
Strength: 52638.3snT
Dip Angle: 66.51°
Date: 6/20/2012
Model: BGGM2011



Plan: Design #2 (DEAL GULCH 2-16/DEAL GULCH 2-16)

Created By: TRACY WILLIAMS Date: 15:22, June 25 2012



SHELL E&P

MOFFAT COUNTY, CO

DEAL GULCH 2-16

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Plan: Design #2

Standard Planning Report

25 June, 2012



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Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well DEAL GULCH 2-16
Company:	SHELL E&P	TVD Reference:	KB @ 7222.00ft (Original Well Elev)
Project:	MOFFAT COUNTY, CO	MD Reference:	KB @ 7222.00ft (Original Well Elev)
Site:	DEAL GULCH 2-16	North Reference:	True
Well:	DEAL GULCH 2-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	DEAL GULCH 2-16		
Design:	Design #2		

Project	MOFFAT COUNTY, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		DEAL GULCH 2-16			
Site Position:		Northing:	1,390,444.13ft	Latitude:	40° 23' 16.640 N
From:	Lat/Long	Easting:	2,443,414.14ft	Longitude:	107° 29' 53.710 W
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16"	Grid Convergence:	-1.29 °

Well	DEAL GULCH 2-16					
Well Position	+N-S	0.00 ft	Northing:	1,390,444.13 ft	Latitude:	40° 23' 16.640 N
	+E-W	0.00 ft	Easting:	2,443,414.14 ft	Longitude:	107° 29' 53.710 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	7,210.00 ft

Wellbore	DEAL GULCH 2-16				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2011	6/20/2012	10.12	66.51	52,638

Design	Design #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	192.55

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,576.01	21.95	88.57	3,549.88	5.09	203.56	2.04	2.04	0.00	88.57	
4,402.92	21.95	88.57	4,316.83	12.82	512.60	0.00	0.00	0.00	0.00	
5,841.38	92.72	206.70	5,200.00	-873.42	437.29	7.14	4.92	8.21	115.44	DG Heel Location -
8,367.56	92.72	206.70	5,080.00	-3,127.75	-696.36	0.00	0.00	0.00	0.00	PBHL - DEAL GUL



Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well DEAL GULCH 2-16
Company:	SHELL E&P	TVD Reference:	KB @ 7222.00ft (Original Well Elev)
Project:	MOFFAT COUNTY, CO	MD Reference:	KB @ 7222.00ft (Original Well Elev)
Site:	DEAL GULCH 2-16	North Reference:	True
Well:	DEAL GULCH 2-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	DEAL GULCH 2-16		
Design:	Design #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.04									
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	2.04	88.57	2,599.98	0.04	1.78	-0.43	2.04	2.04	0.00
2,700.00	4.08	88.57	2,699.83	0.18	7.12	-1.72	2.04	2.04	0.00
2,800.00	6.12	88.57	2,799.43	0.40	16.00	-3.87	2.04	2.04	0.00
2,900.00	8.16	88.57	2,898.65	0.71	28.43	-6.87	2.04	2.04	0.00
3,000.00	10.20	88.57	2,997.36	1.11	44.38	-10.73	2.04	2.04	0.00
3,100.00	12.24	88.57	3,095.45	1.60	63.83	-15.43	2.04	2.04	0.00
3,200.00	14.28	88.57	3,192.77	2.17	86.76	-20.97	2.04	2.04	0.00
3,300.00	16.32	88.57	3,289.22	2.83	113.14	-27.35	2.04	2.04	0.00
3,400.00	18.36	88.57	3,384.67	3.57	142.94	-34.55	2.04	2.04	0.00
3,500.00	20.40	88.57	3,479.00	4.40	176.11	-42.57	2.04	2.04	0.00
Start 826.91 hold at 3576.01 MD									
3,576.01	21.95	88.57	3,549.88	5.09	203.56	-49.21	2.04	2.04	0.00
3,600.00	21.95	88.57	3,572.13	5.31	212.53	-51.37	0.00	0.00	0.00
3,700.00	21.95	88.57	3,664.88	6.25	249.90	-60.41	0.00	0.00	0.00
3,800.00	21.95	88.57	3,757.62	7.18	287.27	-69.44	0.00	0.00	0.00
3,900.00	21.95	88.57	3,850.37	8.12	324.65	-78.47	0.00	0.00	0.00
4,000.00	21.95	88.57	3,943.12	9.05	362.02	-87.51	0.00	0.00	0.00
4,100.00	21.95	88.57	4,035.87	9.99	399.39	-96.54	0.00	0.00	0.00
4,200.00	21.95	88.57	4,128.62	10.92	436.76	-105.58	0.00	0.00	0.00
4,300.00	21.95	88.57	4,221.37	11.85	474.14	-114.61	0.00	0.00	0.00
Start DLS 7.14 TFO 115.44									
4,402.92	21.95	88.57	4,316.83	12.82	512.60	-123.91	0.00	0.00	0.00
4,450.00	20.72	97.17	4,360.69	12.00	529.67	-126.81	7.14	-2.62	18.28
4,500.00	19.93	107.21	4,407.59	8.37	546.59	-126.95	7.14	-1.58	20.07
4,550.00	19.74	117.73	4,454.64	1.91	562.21	-124.05	7.14	-0.38	21.04
4,600.00	20.17	128.13	4,501.65	-7.34	576.47	-118.11	7.14	0.85	20.80



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Project:	MOFFAT COUNTY, CO	MD Reference:	KB @ 7222.00ft (Original Well Elev)
Site:	DEAL GULCH 2-16	North Reference:	True
Well:	DEAL GULCH 2-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	DEAL GULCH 2-16		
Design:	Design #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,650.00	21.17	137.86	4,548.45	-19.36	589.31	-109.17	7.14	2.00	19.45
4,700.00	22.67	146.55	4,594.85	-34.10	600.68	-97.26	7.14	3.00	17.38
4,750.00	24.58	154.08	4,640.67	-51.49	610.54	-82.42	7.14	3.82	15.07
4,800.00	26.81	160.52	4,685.73	-71.48	618.85	-64.71	7.14	4.47	12.87
4,850.00	29.29	165.98	4,729.86	-93.99	625.57	-44.21	7.14	4.96	10.93
4,900.00	31.96	170.64	4,772.88	-118.92	630.69	-20.98	7.14	5.34	9.31
4,950.00	34.78	174.63	4,814.64	-146.19	634.18	4.88	7.14	5.63	7.98
5,000.00	37.71	178.08	4,854.96	-175.68	636.03	33.26	7.14	5.86	6.91
5,050.00	40.73	181.10	4,893.70	-207.28	636.23	64.07	7.14	6.04	6.04
5,100.00	43.82	183.77	4,930.69	-240.87	634.77	97.17	7.14	6.17	5.33
5,150.00	46.96	186.15	4,965.81	-276.32	631.68	132.44	7.14	6.29	4.76
5,200.00	50.15	188.30	4,998.90	-313.49	626.95	169.75	7.14	6.37	4.29
5,250.00	53.37	190.25	5,029.85	-352.24	620.60	208.95	7.14	6.45	3.91
5,300.00	56.62	192.05	5,058.53	-392.41	612.67	249.89	7.14	6.51	3.60
5,350.00	59.90	193.72	5,084.83	-433.85	603.18	292.40	7.14	6.55	3.34
5,400.00	63.20	195.28	5,108.65	-476.40	592.16	336.33	7.14	6.59	3.12
5,450.00	66.51	196.75	5,129.90	-519.90	579.67	381.50	7.14	6.63	2.94
5,500.00	69.83	198.15	5,148.49	-564.16	565.75	427.73	7.14	6.65	2.80
5,550.00	73.17	199.49	5,164.35	-609.04	550.45	474.86	7.14	6.67	2.68
5,600.00	76.52	200.79	5,177.42	-654.34	533.83	522.69	7.14	6.69	2.59
5,650.00	79.87	202.04	5,187.65	-699.89	515.96	571.04	7.14	6.70	2.52
5,700.00	83.22	203.28	5,195.00	-745.52	496.91	619.72	7.14	6.71	2.46
5,750.00	86.58	204.49	5,199.45	-791.05	476.75	668.54	7.14	6.72	2.43
5,800.00	89.94	205.70	5,200.96	-836.30	455.55	717.32	7.14	6.72	2.41
Start 2526.18 hold at 5841.38 MD - DG Heel Location - LP									
5,841.38	92.72	206.70	5,200.00	-873.42	437.29	757.51	7.14	6.72	2.41
5,900.00	92.72	206.70	5,197.22	-925.73	410.99	814.29	0.00	0.00	0.00
6,000.00	92.72	206.70	5,192.47	-1,014.97	366.11	911.15	0.00	0.00	0.00
6,100.00	92.72	206.70	5,187.71	-1,104.21	321.23	1,008.01	0.00	0.00	0.00
6,200.00	92.72	206.70	5,182.96	-1,193.45	276.36	1,104.87	0.00	0.00	0.00
6,300.00	92.72	206.70	5,178.21	-1,282.69	231.48	1,201.73	0.00	0.00	0.00
6,400.00	92.72	206.70	5,173.46	-1,371.92	186.61	1,298.58	0.00	0.00	0.00
6,500.00	92.72	206.70	5,168.71	-1,461.16	141.73	1,395.44	0.00	0.00	0.00
6,600.00	92.72	206.70	5,163.96	-1,550.40	96.85	1,492.30	0.00	0.00	0.00
6,700.00	92.72	206.70	5,159.21	-1,639.64	51.98	1,589.16	0.00	0.00	0.00
6,800.00	92.72	206.70	5,154.46	-1,728.88	7.10	1,686.02	0.00	0.00	0.00
6,900.00	92.72	206.70	5,149.71	-1,818.12	-37.78	1,782.88	0.00	0.00	0.00
7,000.00	92.72	206.70	5,144.96	-1,907.36	-82.65	1,879.73	0.00	0.00	0.00
7,100.00	92.72	206.70	5,140.21	-1,996.60	-127.53	1,976.59	0.00	0.00	0.00
7,200.00	92.72	206.70	5,135.46	-2,085.83	-172.40	2,073.45	0.00	0.00	0.00
7,300.00	92.72	206.70	5,130.71	-2,175.07	-217.28	2,170.31	0.00	0.00	0.00
7,400.00	92.72	206.70	5,125.96	-2,264.31	-262.16	2,267.17	0.00	0.00	0.00
7,500.00	92.72	206.70	5,121.21	-2,353.55	-307.03	2,364.03	0.00	0.00	0.00
7,600.00	92.72	206.70	5,116.46	-2,442.79	-351.91	2,460.89	0.00	0.00	0.00
7,700.00	92.72	206.70	5,111.71	-2,532.03	-396.79	2,557.74	0.00	0.00	0.00
7,800.00	92.72	206.70	5,106.96	-2,621.27	-441.66	2,654.60	0.00	0.00	0.00
7,900.00	92.72	206.70	5,102.21	-2,710.51	-486.54	2,751.46	0.00	0.00	0.00
8,000.00	92.72	206.70	5,097.46	-2,799.75	-531.41	2,848.32	0.00	0.00	0.00
8,100.00	92.72	206.70	5,092.71	-2,888.98	-576.29	2,945.18	0.00	0.00	0.00
8,200.00	92.72	206.70	5,087.96	-2,978.22	-621.17	3,042.04	0.00	0.00	0.00
8,300.00	92.72	206.70	5,083.21	-3,067.46	-666.04	3,138.89	0.00	0.00	0.00
TD at 8367.56 - PBHL - DEAL GULCH 2-16									
8,367.56	92.72	206.70	5,080.00	-3,127.75	-696.36	3,204.33	0.00	0.00	0.00



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Company:	SHELL E&P	TVD Reference:	KB @ 7222.00ft (Original Well Elev)
Project:	MOFFAT COUNTY, CO	MD Reference:	KB @ 7222.00ft (Original Well Elev)
Site:	DEAL GULCH 2-16	North Reference:	True
Well:	DEAL GULCH 2-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	DEAL GULCH 2-16		
Design:	Design #2		

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
PBHL - DEAL GULCH- - plan hits target center - Point	0.00	0.00	5,080.00	-3,127.75	-696.36	1,387,332.87	2,442,647.48	40° 22' 45.731 N	107° 30' 2.708 W
DG Heel Location - LF - plan hits target center - Point	0.00	0.00	5,200.00	-873.42	437.29	1,389,561.08	2,443,831.64	40° 23' 8.009 N	107° 29' 48.059 W

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,500.00	2,500.00	0.00	0.00	Start Build 2.04
3,576.01	3,549.88	5.09	203.56	Start 826.91 hold at 3576.01 MD
4,402.92	4,316.83	12.82	512.60	Start DLS 7.14 TFO 115.44
5,841.38	5,200.00	-873.42	437.29	Start 2526.18 hold at 5841.38 MD
8,367.56	5,080.00	-3,127.75	-696.36	TD at 8367.56