

Berry Petroleum Company

Garfield Co., CO (CO83C)

OM C15-696 Pad (Sec.15-T6S-R96W)

SHP OM04D C15 696

Wellbore #1

Plan: Design #1

Standard Planning Report

18 October, 2013

Archer



Project: Garfield Co., CO (CO83C)
 Site: OM C15-696 Pad (Sec.15-T6S-R96W)
 Well: SHP OM04D C15 696
 Wellbore: Wellbore #1
 Design: Design #1
 Latitude: 39° 31' 46.178 N
 Longitude: 108° 5' 44.448 W
 Ground Level: 8355.00
 WELL @ 8375.00usft

Archer

PROJECT DETAILS: Garfield Co., CO (CO83C)

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Central Zone
 System Datum: Mean Sea Level

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well SHP OM04D C15 696, True North
 Vertical (TVD) Reference: WELL @ 8375.00usft
 Section (VS) Reference: Slot - (0.00N, 0.00E)
 Measured Depth Reference: WELL @ 8375.00usft
 Calculation Method: Minimum Curvature

WELL DETAILS: SHP OM04D C15 696

+N/-S	+E/-W	Northing	Ground Level: Easting	8355.00 Latitude	Longitude	Slot
0.00	0.00	1628205.651	2267946.074	39° 31' 46.178 N	108° 5' 44.448 W	

DESIGN TARGET DETAILS

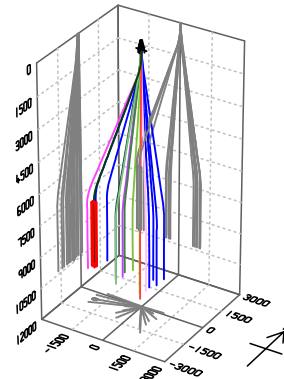
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
C15 696 OM04D Tgt	10350.00	-513.50	-1983.53	39° 31' 41.102 N	108° 6' 9.763 W	Rectangle (Sides: L100.00 W200.00)

SECTION DETAILS

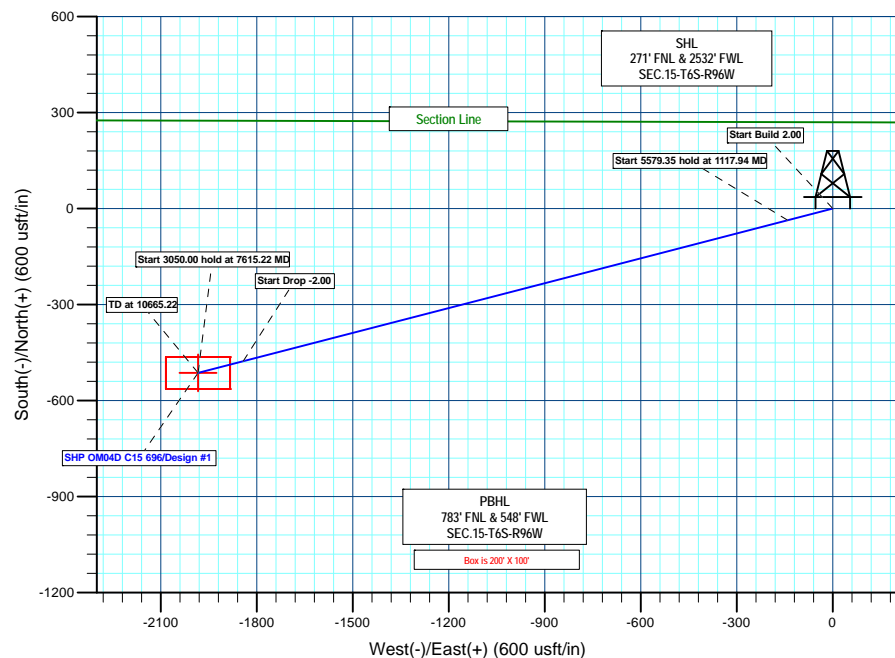
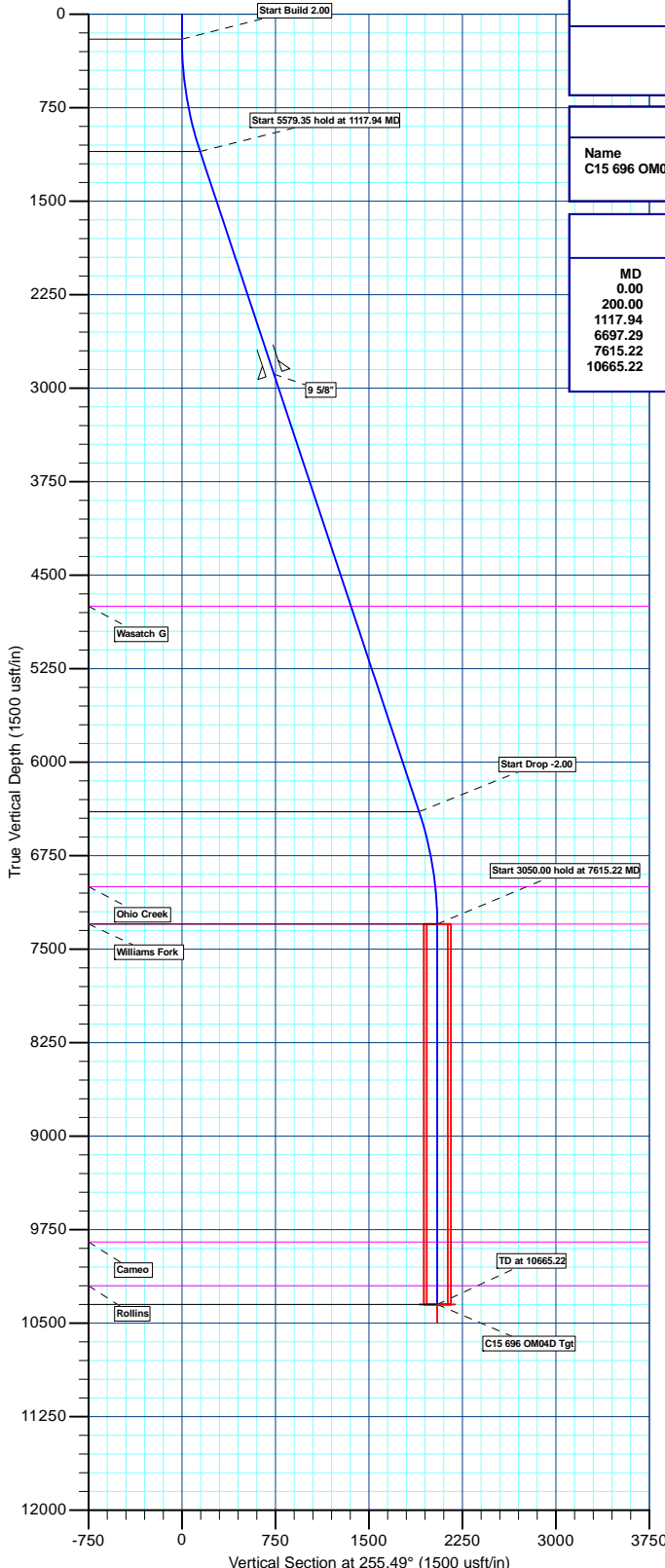
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	Start 5579.35 hold at 1117.94 MD
1117.94	18.36	255.49	1102.31	-36.54	-141.16	2.00	255.49	145.81	Start Drop -2.00
6697.29	18.36	255.49	6397.69	-476.96	-1842.37	0.00	0.00	1903.11	Start 3050.00 hold at 7615.22 MD
7615.22	0.00	0.00	7300.00	-513.50	-1983.53	2.00	180.00	2048.92	TD at 10665.22
10665.22	0.00	0.00	10350.00	-513.50	-1983.53	0.00	0.00	2048.92	

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4750.00	4961.24	Wasatch G
7000.00	7314.67	Ohio Creek
7300.00	7615.22	Williams Fork
9850.00	10165.22	Cameo
10200.00	10515.22	Rollins



Compass Rose
 T: True North
 M: Magnetic North
 Azimuths to True North: 10.11°
 Magnetic North: 10.11°
 Magnetic Field Strength: 52012.5nT
 Dip Angle: 65.69°
 Date: 09/03/2013
 Model: IGRF2010



Plan: Design #1 (SHP OM04D C15 696/Wellbore #1)

Created By: Bret Wolford Date: 9:39, October 18 2013



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well SHP OM04D C15 696
Company:	Berry Petroleum Company	TVD Reference:	WELL @ 8375.00usft
Project:	Garfield Co., CO (CO83C)	MD Reference:	WELL @ 8375.00usft
Site:	OM C15-696 Pad (Sec.15-T6S-R96W)	North Reference:	True
Well:	SHP OM04D C15 696	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Garfield Co., CO (CO83C)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		OM C15-696 Pad (Sec.15-T6S-R96W)			
Site Position:		Northing:	1,628,249.337 usft	Latitude:	39° 31' 46.614 N
From:	Lat/Long	Easting:	2,267,960.585 usft	Longitude:	108° 5' 44.279 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	-1.64 °

Well	SHP OM04D C15 696					
Well Position	+N/-S	-44.08 usft	Northing:	1,628,205.651 usft	Latitude:	39° 31' 46.178 N
	+E/-W	-13.26 usft	Easting:	2,267,946.074 usft	Longitude:	108° 5' 44.448 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	8,355.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	09/03/13	10.11	65.69	52,013

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	255.49

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	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	
1,117.94	18.36	255.49	1,102.31	-36.54	-141.16	2.00	2.00	0.00	255.49	
6,697.29	18.36	255.49	6,397.69	-476.96	-1,842.37	0.00	0.00	0.00	0.00	
7,615.22	0.00	0.00	7,300.00	-513.50	-1,983.53	2.00	-2.00	0.00	180.00	
10,665.22	0.00	0.00	10,350.00	-513.50	-1,983.53	0.00	0.00	0.00	0.00	



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well SHP OM04D C15 696
Company:	Berry Petroleum Company	TVD Reference:	WELL @ 8375.00usft
Project:	Garfield Co., CO (CO83C)	MD Reference:	WELL @ 8375.00usft
Site:	OM C15-696 Pad (Sec.15-T6S-R96W)	North Reference:	True
Well:	SHP OM04D C15 696	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned 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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	2.00	255.49	299.98	-0.44	-1.69	1.75	2.00	2.00	0.00
400.00	4.00	255.49	399.84	-1.75	-6.76	6.98	2.00	2.00	0.00
500.00	6.00	255.49	499.45	-3.93	-15.19	15.69	2.00	2.00	0.00
600.00	8.00	255.49	598.70	-6.99	-26.99	27.88	2.00	2.00	0.00
700.00	10.00	255.49	697.47	-10.91	-42.13	43.52	2.00	2.00	0.00
800.00	12.00	255.49	795.62	-15.69	-60.60	62.60	2.00	2.00	0.00
900.00	14.00	255.49	893.06	-21.33	-82.38	85.10	2.00	2.00	0.00
1,000.00	16.00	255.49	989.64	-27.81	-107.44	110.98	2.00	2.00	0.00
1,100.00	18.00	255.49	1,085.27	-35.14	-135.74	140.21	2.00	2.00	0.00
Start 5579.35 hold at 1117.94 MD									
1,117.94	18.36	255.49	1,102.31	-36.54	-141.16	145.81	2.00	2.00	0.00
1,200.00	18.36	255.49	1,180.20	-43.02	-166.18	171.66	0.00	0.00	0.00
1,300.00	18.36	255.49	1,275.11	-50.91	-196.67	203.15	0.00	0.00	0.00
1,400.00	18.36	255.49	1,370.02	-58.81	-227.16	234.65	0.00	0.00	0.00
1,500.00	18.36	255.49	1,464.93	-66.70	-257.65	266.15	0.00	0.00	0.00
1,600.00	18.36	255.49	1,559.84	-74.59	-288.14	297.64	0.00	0.00	0.00
1,700.00	18.36	255.49	1,654.75	-82.49	-318.63	329.14	0.00	0.00	0.00
1,800.00	18.36	255.49	1,749.66	-90.38	-349.13	360.63	0.00	0.00	0.00
1,900.00	18.36	255.49	1,844.57	-98.28	-379.62	392.13	0.00	0.00	0.00
2,000.00	18.36	255.49	1,939.48	-106.17	-410.11	423.63	0.00	0.00	0.00
2,100.00	18.36	255.49	2,034.39	-114.06	-440.60	455.12	0.00	0.00	0.00
2,200.00	18.36	255.49	2,129.30	-121.96	-471.09	486.62	0.00	0.00	0.00
2,300.00	18.36	255.49	2,224.21	-129.85	-501.58	518.12	0.00	0.00	0.00
2,400.00	18.36	255.49	2,319.12	-137.74	-532.07	549.61	0.00	0.00	0.00
2,500.00	18.36	255.49	2,414.03	-145.64	-562.56	581.11	0.00	0.00	0.00
2,600.00	18.36	255.49	2,508.94	-153.53	-593.06	612.61	0.00	0.00	0.00
2,700.00	18.36	255.49	2,603.85	-161.42	-623.55	644.10	0.00	0.00	0.00
2,800.00	18.36	255.49	2,698.76	-169.32	-654.04	675.60	0.00	0.00	0.00
2,900.00	18.36	255.49	2,793.67	-177.21	-684.53	707.10	0.00	0.00	0.00
9 5/8"									
3,000.00	18.36	255.49	2,888.58	-185.11	-715.02	738.59	0.00	0.00	0.00
3,100.00	18.36	255.49	2,983.49	-193.00	-745.51	770.09	0.00	0.00	0.00
3,200.00	18.36	255.49	3,078.40	-200.89	-776.00	801.59	0.00	0.00	0.00
3,300.00	18.36	255.49	3,173.31	-208.79	-806.50	833.08	0.00	0.00	0.00
3,400.00	18.36	255.49	3,268.22	-216.68	-836.99	864.58	0.00	0.00	0.00
3,500.00	18.36	255.49	3,363.13	-224.57	-867.48	896.08	0.00	0.00	0.00
3,600.00	18.36	255.49	3,458.04	-232.47	-897.97	927.57	0.00	0.00	0.00
3,700.00	18.36	255.49	3,552.95	-240.36	-928.46	959.07	0.00	0.00	0.00
3,800.00	18.36	255.49	3,647.86	-248.25	-958.95	990.57	0.00	0.00	0.00
3,900.00	18.36	255.49	3,742.78	-256.15	-989.44	1,022.06	0.00	0.00	0.00
4,000.00	18.36	255.49	3,837.69	-264.04	-1,019.93	1,053.56	0.00	0.00	0.00
4,100.00	18.36	255.49	3,932.60	-271.94	-1,050.43	1,085.05	0.00	0.00	0.00
4,200.00	18.36	255.49	4,027.51	-279.83	-1,080.92	1,116.55	0.00	0.00	0.00
4,300.00	18.36	255.49	4,122.42	-287.72	-1,111.41	1,148.05	0.00	0.00	0.00
4,400.00	18.36	255.49	4,217.33	-295.62	-1,141.90	1,179.54	0.00	0.00	0.00
4,500.00	18.36	255.49	4,312.24	-303.51	-1,172.39	1,211.04	0.00	0.00	0.00
4,600.00	18.36	255.49	4,407.15	-311.40	-1,202.88	1,242.54	0.00	0.00	0.00
4,700.00	18.36	255.49	4,502.06	-319.30	-1,233.37	1,274.03	0.00	0.00	0.00
4,800.00	18.36	255.49	4,596.97	-327.19	-1,263.87	1,305.53	0.00	0.00	0.00



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well SHP OM04D C15 696
Company:	Berry Petroleum Company	TVD Reference:	WELL @ 8375.00usft
Project:	Garfield Co., CO (CO83C)	MD Reference:	WELL @ 8375.00usft
Site:	OM C15-696 Pad (Sec.15-T6S-R96W)	North Reference:	True
Well:	SHP OM04D C15 696	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned 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)
4,900.00	18.36	255.49	4,691.88	-335.08	-1,294.36	1,337.03	0.00	0.00	0.00
Wasatch G									
4,961.24	18.36	255.49	4,750.00	-339.92	-1,313.03	1,356.31	0.00	0.00	0.00
5,000.00	18.36	255.49	4,786.79	-342.98	-1,324.85	1,368.52	0.00	0.00	0.00
5,100.00	18.36	255.49	4,881.70	-350.87	-1,355.34	1,400.02	0.00	0.00	0.00
5,200.00	18.36	255.49	4,976.61	-358.76	-1,385.83	1,431.52	0.00	0.00	0.00
5,300.00	18.36	255.49	5,071.52	-366.66	-1,416.32	1,463.01	0.00	0.00	0.00
5,400.00	18.36	255.49	5,166.43	-374.55	-1,446.81	1,494.51	0.00	0.00	0.00
5,500.00	18.36	255.49	5,261.34	-382.45	-1,477.30	1,526.01	0.00	0.00	0.00
5,600.00	18.36	255.49	5,356.25	-390.34	-1,507.80	1,557.50	0.00	0.00	0.00
5,700.00	18.36	255.49	5,451.16	-398.23	-1,538.29	1,589.00	0.00	0.00	0.00
5,800.00	18.36	255.49	5,546.07	-406.13	-1,568.78	1,620.50	0.00	0.00	0.00
5,900.00	18.36	255.49	5,640.98	-414.02	-1,599.27	1,651.99	0.00	0.00	0.00
6,000.00	18.36	255.49	5,735.89	-421.91	-1,629.76	1,683.49	0.00	0.00	0.00
6,100.00	18.36	255.49	5,830.80	-429.81	-1,660.25	1,714.98	0.00	0.00	0.00
6,200.00	18.36	255.49	5,925.71	-437.70	-1,690.74	1,746.48	0.00	0.00	0.00
6,300.00	18.36	255.49	6,020.62	-445.59	-1,721.24	1,777.98	0.00	0.00	0.00
6,400.00	18.36	255.49	6,115.53	-453.49	-1,751.73	1,809.47	0.00	0.00	0.00
6,500.00	18.36	255.49	6,210.44	-461.38	-1,782.22	1,840.97	0.00	0.00	0.00
6,600.00	18.36	255.49	6,305.35	-469.28	-1,812.71	1,872.47	0.00	0.00	0.00
Start Drop -2.00									
6,697.29	18.36	255.49	6,397.69	-476.96	-1,842.37	1,903.11	0.00	0.00	0.00
6,700.00	18.30	255.49	6,400.26	-477.17	-1,843.20	1,903.96	2.00	-2.00	0.00
6,800.00	16.30	255.49	6,495.73	-484.62	-1,871.99	1,933.71	2.00	-2.00	0.00
6,900.00	14.30	255.49	6,592.18	-491.24	-1,897.54	1,960.10	2.00	-2.00	0.00
7,000.00	12.30	255.49	6,689.49	-497.00	-1,919.82	1,983.11	2.00	-2.00	0.00
7,100.00	10.30	255.49	6,787.55	-501.92	-1,938.80	2,002.71	2.00	-2.00	0.00
7,200.00	8.30	255.49	6,886.23	-505.97	-1,954.45	2,018.88	2.00	-2.00	0.00
7,300.00	6.30	255.49	6,985.41	-509.16	-1,966.76	2,031.59	2.00	-2.00	0.00
Ohio Creek									
7,314.67	6.01	255.49	7,000.00	-509.55	-1,968.28	2,033.17	2.00	-2.00	0.00
7,400.00	4.30	255.49	7,084.98	-511.47	-1,975.71	2,040.84	2.00	-2.00	0.00
7,500.00	2.30	255.49	7,184.81	-512.92	-1,981.29	2,046.60	2.00	-2.00	0.00
7,600.00	0.30	255.49	7,284.78	-513.49	-1,983.49	2,048.88	2.00	-2.00	0.00
Start 3050.00 hold at 7615.22 MD - Williams Fork									
7,615.22	0.00	0.00	7,300.00	-513.50	-1,983.53	2,048.92	2.00	-2.00	0.00
7,700.00	0.00	0.00	7,384.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
7,800.00	0.00	0.00	7,484.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
7,900.00	0.00	0.00	7,584.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
8,000.00	0.00	0.00	7,684.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
8,100.00	0.00	0.00	7,784.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
8,200.00	0.00	0.00	7,884.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
8,300.00	0.00	0.00	7,984.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
8,400.00	0.00	0.00	8,084.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
8,500.00	0.00	0.00	8,184.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
8,600.00	0.00	0.00	8,284.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
8,700.00	0.00	0.00	8,384.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
8,800.00	0.00	0.00	8,484.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
8,900.00	0.00	0.00	8,584.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
9,000.00	0.00	0.00	8,684.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
9,100.00	0.00	0.00	8,784.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
9,200.00	0.00	0.00	8,884.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
9,300.00	0.00	0.00	8,984.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
9,400.00	0.00	0.00	9,084.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well SHP OM04D C15 696
Company:	Berry Petroleum Company	TVD Reference:	WELL @ 8375.00usft
Project:	Garfield Co., CO (CO83C)	MD Reference:	WELL @ 8375.00usft
Site:	OM C15-696 Pad (Sec.15-T6S-R96W)	North Reference:	True
Well:	SHP OM04D C15 696	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned 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)
9,500.00	0.00	0.00	9,184.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
9,600.00	0.00	0.00	9,284.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
9,700.00	0.00	0.00	9,384.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
9,800.00	0.00	0.00	9,484.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
9,900.00	0.00	0.00	9,584.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
10,000.00	0.00	0.00	9,684.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
10,100.00	0.00	0.00	9,784.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
Cameo									
10,165.22	0.00	0.00	9,850.00	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
10,200.00	0.00	0.00	9,884.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
10,300.00	0.00	0.00	9,984.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
10,400.00	0.00	0.00	10,084.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
10,500.00	0.00	0.00	10,184.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
Rollins									
10,515.22	0.00	0.00	10,200.00	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
10,600.00	0.00	0.00	10,284.78	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00
TD at 10665.22 - C15 696 OM04D Tgt									
10,665.22	0.00	0.00	10,350.00	-513.50	-1,983.53	2,048.92	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
C15 696 OM04D Tgt	0.00	0.00	10,350.00	-513.50	-1,983.53	1,627,749.030	2,265,948.685	39° 31' 41.102 N	108° 6' 9.763 W
- plan hits target center									
- Rectangle (sides W100.00 H200.00 D0.00)									

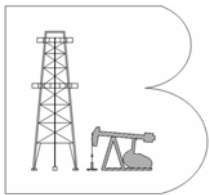
Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
3,000.00	2,888.58	9 5/8"	9-5/8	12-1/4

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,961.24	4,750.00	Wasatch G		0.00		
7,314.67	7,000.00	Ohio Creek		0.00		
7,615.22	7,300.00	Williams Fork		0.00		
10,165.22	9,850.00	Cameo		0.00		
10,515.22	10,200.00	Rollins		0.00		



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well SHP OM04D C15 696
Company:	Berry Petroleum Company	TVD Reference:	WELL @ 8375.00usft
Project:	Garfield Co., CO (CO83C)	MD Reference:	WELL @ 8375.00usft
Site:	OM C15-696 Pad (Sec.15-T6S-R96W)	North Reference:	True
Well:	SHP OM04D C15 696	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
200.00	200.00	0.00	0.00	Start Build 2.00
1,117.94	1,102.31	-36.54	-141.16	Start 5579.35 hold at 1117.94 MD
6,697.29	6,397.69	-476.96	-1,842.37	Start Drop -2.00
7,615.22	7,300.00	-513.50	-1,983.53	Start 3050.00 hold at 7615.22 MD
10,665.22	10,350.00	-513.50	-1,983.53	TD at 10665.22



Berry Petroleum Company

Garfield Co., CO (CO83C)

OM C15-696 Pad (Sec.15-T6S-R96W)

SHP OM04D C15 696

Wellbore #1

Design #1

Anticollision Summary Report

18 October, 2013

Archer



Archer
Anticollision Summary Report

Archer

Company:	Berry Petroleum Company	Local Co-ordinate Reference:	Well SHP OM04D C15 696
Project:	Garfield Co., CO (CO83C)	TVD Reference:	WELL @ 8375.00usft
Reference Site:	OM C15-696 Pad (Sec.15-T6S-R96W)	MD Reference:	WELL @ 8375.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	SHP OM04D C15 696	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Reference	Design #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	10/18/13		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	10,665.22	Design #1 (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
OM C15-696 Pad (Sec.15-T6S-R96W)						
SHP OM02A C15 696 - Wellbore #1 - Design #1	200.00	200.00	46.02	45.39	73.123	CC, ES
SHP OM02A C15 696 - Wellbore #1 - Design #1	500.00	495.23	65.57	63.57	32.773	SF
SHP OM02B C15 696 - Wellbore #1 - Design #1	200.00	200.00	31.56	30.93	50.152	CC, ES
SHP OM02B C15 696 - Wellbore #1 - Design #1	500.00	496.65	50.99	49.00	25.590	SF
SHP OM02C C15 696 - Wellbore #1 - Design #1	200.00	200.00	9.90	9.27	15.729	CC, ES
SHP OM02C C15 696 - Wellbore #1 - Design #1	300.00	299.63	12.94	11.88	12.231	SF
SHP OM02D C15 696 - Wellbore #1 - Design #1	200.00	200.00	17.97	17.34	28.549	CC, ES
SHP OM02D C15 696 - Wellbore #1 - Design #1	400.00	398.87	27.35	25.84	18.129	SF
SHP OM03A C15 696 - Wellbore #1 - Design #1	200.00	200.00	29.95	29.32	47.594	CC
SHP OM03A C15 696 - Wellbore #1 - Design #1	300.00	300.13	30.29	29.23	28.682	ES
SHP OM03A C15 696 - Wellbore #1 - Design #1	700.00	699.50	43.77	40.77	14.576	SF
SHP OM03B C15 696 - Wellbore #1 - Design #1	200.00	200.00	29.95	29.32	47.594	CC
SHP OM03B C15 696 - Wellbore #1 - Design #1	300.00	299.50	30.23	29.18	28.786	ES
SHP OM03B C15 696 - Wellbore #1 - Design #1	800.00	797.84	37.12	33.29	9.696	SF
SHP OM03C C15 696 - Wellbore #1 - Design #1	200.00	200.00	60.25	59.62	95.733	CC, ES
SHP OM03C C15 696 - Wellbore #1 - Design #1	1,300.00	1,280.24	163.36	155.12	19.832	SF
SHP OM03D C15 696 - Wellbore #1 - Design #1	200.00	200.00	44.93	44.30	71.391	CC, ES
SHP OM03D C15 696 - Wellbore #1 - Design #1	1,000.00	991.46	91.57	86.26	17.240	SF
SHP OM04A C15 696 - Wellbore #1 - Design #1	200.00	200.00	44.93	44.30	71.391	CC, ES
SHP OM04A C15 696 - Wellbore #1 - Design #1	10,665.22	10,577.68	667.61	588.00	8.385	SF
SHP OM04B C15 696 - Wellbore #1 - Design #1	200.00	200.00	14.98	14.35	23.797	CC
SHP OM04B C15 696 - Wellbore #1 - Design #1	300.00	300.09	15.24	14.18	14.439	ES
SHP OM04B C15 696 - Wellbore #1 - Design #1	10,665.22	10,686.07	343.73	251.24	3.716	SF
SHP OM04C C15 696 - Wellbore #1 - Design #1	200.00	200.00	14.98	14.35	23.797	CC
SHP OM04C C15 696 - Wellbore #1 - Design #1	300.00	299.77	15.17	14.12	14.428	ES
SHP OM04C C15 696 - Wellbore #1 - Design #1	1,500.00	1,496.87	49.11	37.26	4.143	SF
SHP OM06A C15 696 - Wellbore #1 - Design #1	200.00	200.00	61.09	60.46	97.069	CC, ES
SHP OM06A C15 696 - Wellbore #1 - Design #1	10,665.22	10,471.37	1,711.76	1,643.37	25.028	SF
SHP OM07A C15 696 - Wellbore #1 - Design #1	200.00	200.00	18.08	17.45	28.724	CC, ES
SHP OM07A C15 696 - Wellbore #1 - Design #1	400.00	398.08	27.90	26.40	18.678	SF
SHP OM07B C15 696 - Wellbore #1 - Design #1	307.18	307.05	45.87	44.78	41.854	CC, ES
SHP OM07B C15 696 - Wellbore #1 - Design #1	600.00	592.53	66.27	63.82	27.073	SF
SHP OM07D C15 696 - Wellbore #1 - Design #1	200.00	200.00	31.60	30.97	50.210	CC, ES
SHP OM07D C15 696 - Wellbore #1 - Design #1	500.00	494.82	50.53	48.56	25.719	SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Company:	Berry Petroleum Company	Local Co-ordinate Reference:	Well SHP OM04D C15 696
Project:	Garfield Co., CO (CO83C)	TVD Reference:	WELL @ 8375.00usft
Reference Site:	OM C15-696 Pad (Sec.15-T6S-R96W)	MD Reference:	WELL @ 8375.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	SHP OM04D C15 696	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Reference Depths are relative to WELL @ 8375.00usft

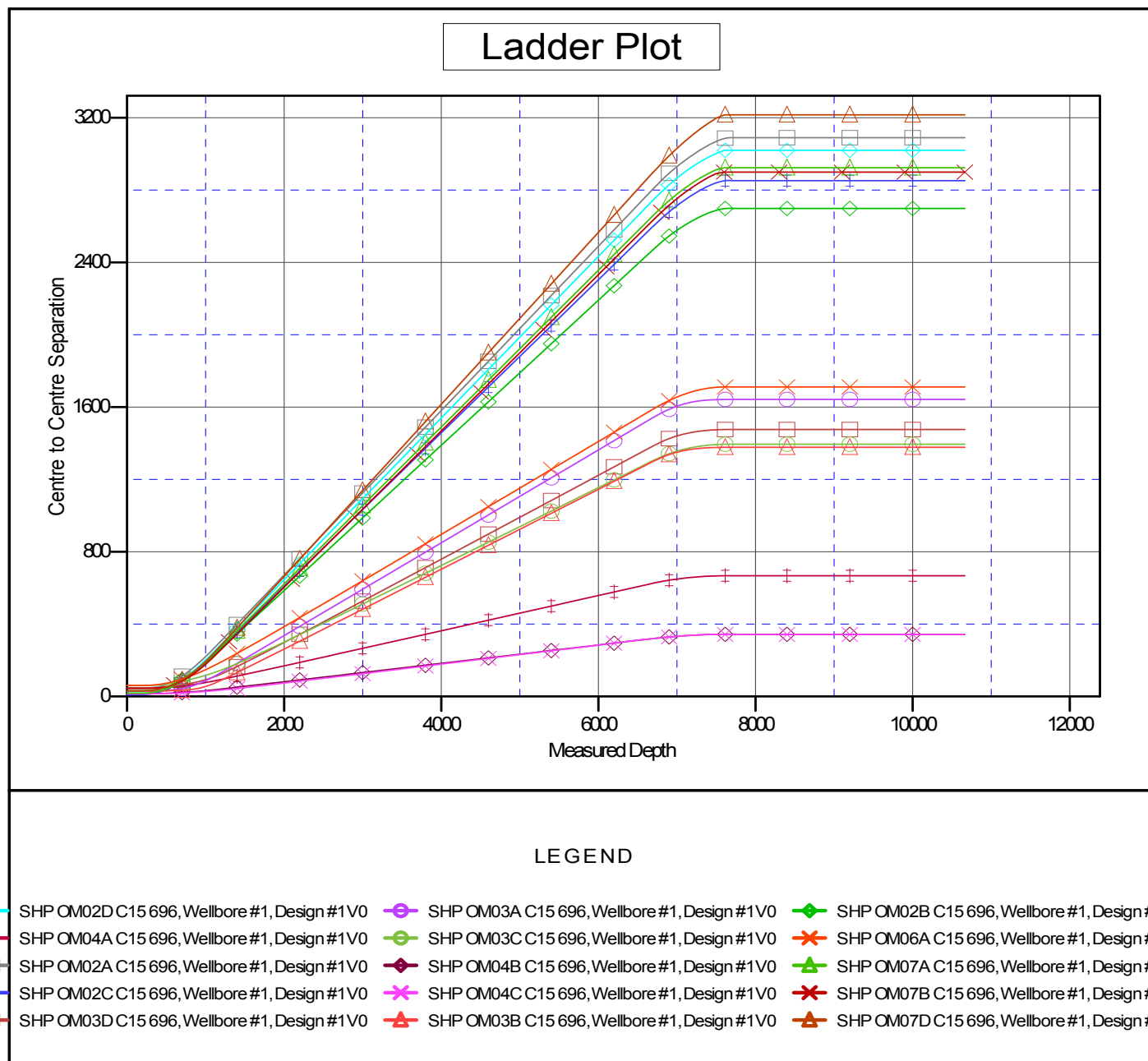
Offset Depths are relative to Offset Datum

Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: SHP OM04D C15 696

Coordinate System is US State Plane 1983, Colorado Central Zone

Grid Convergence at Surface is: -1.64°



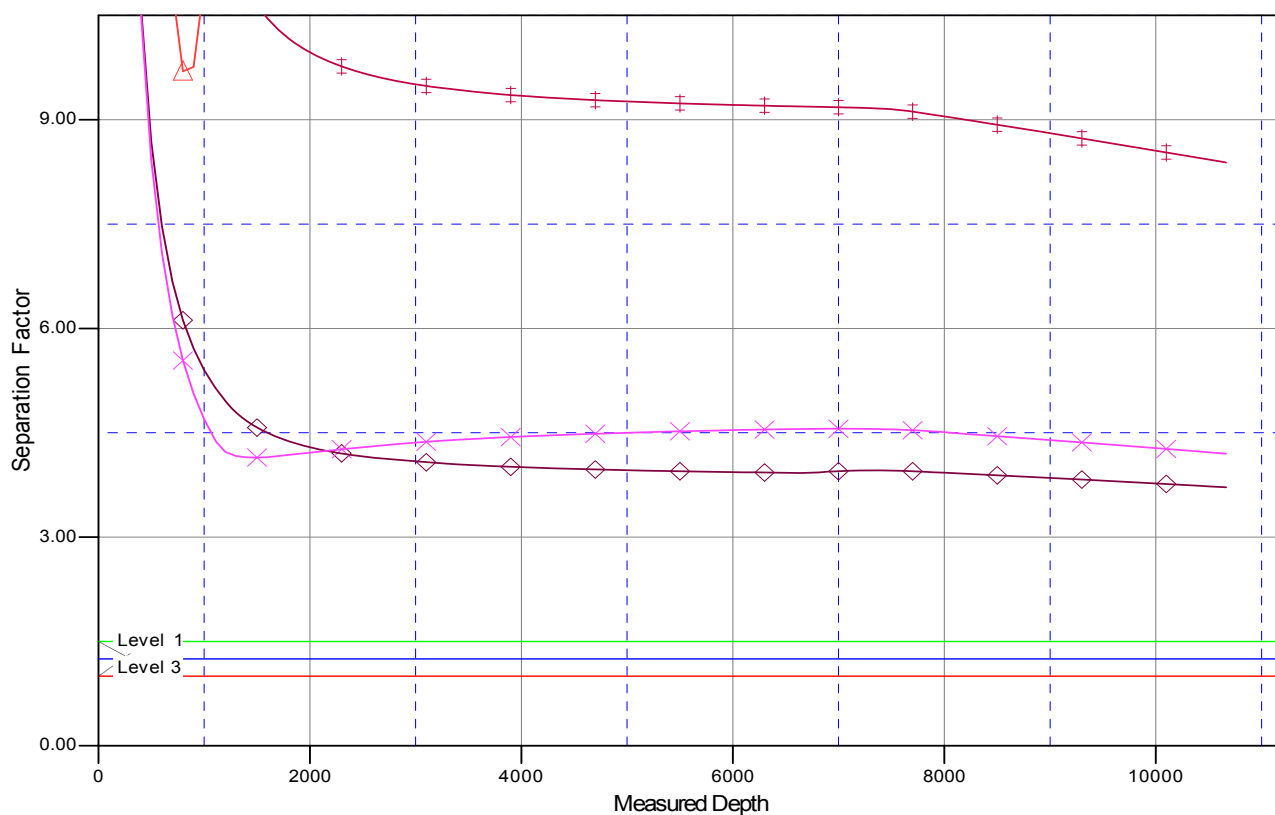


Company:	Berry Petroleum Company	Local Co-ordinate Reference:	Well SHP OM04D C15 696
Project:	Garfield Co., CO (CO83C)	TVD Reference:	WELL @ 8375.00usft
Reference Site:	OM C15-696 Pad (Sec.15-T6S-R96W)	MD Reference:	WELL @ 8375.00usft
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Reference Well:	SHP OM04D C15 696	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Reference Depths are relative to WELL @ 8375.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: SHP OM04D C15 696
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.64°

Separation Factor Plot



LEGEND

SHP OM02D C15 696, Wellbore #1, Design #1V0	SHP OM03A C15 696, Wellbore #1, Design #1V0	SHP OM02B C15 696, Wellbore #1, Design #1V0
SHP OM04A C15 696, Wellbore #1, Design #1V0	SHP OM03C C15 696, Wellbore #1, Design #1V0	SHP OM06A C15 696, Wellbore #1, Design #1V0
SHP OM02A C15 696, Wellbore #1, Design #1V0	SHP OM04B C15 696, Wellbore #1, Design #1V0	SHP OM07A C15 696, Wellbore #1, Design #1V0
SHP OM02C C15 696, Wellbore #1, Design #1V0	SHP OM04C C15 696, Wellbore #1, Design #1V0	SHP OM07B C15 696, Wellbore #1, Design #1V0
SHP OM03D C15 696, Wellbore #1, Design #1V0	SHP OM03B C15 696, Wellbore #1, Design #1V0	SHP OM07D C15 696, Wellbore #1, Design #1V0