

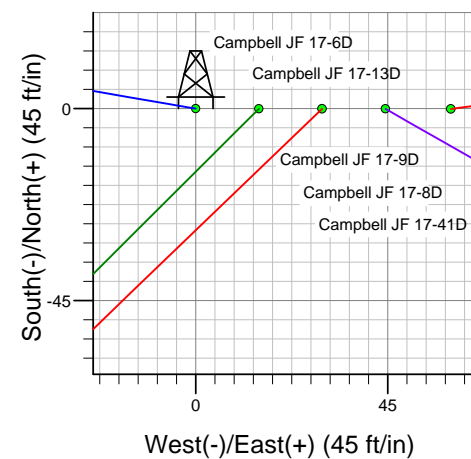
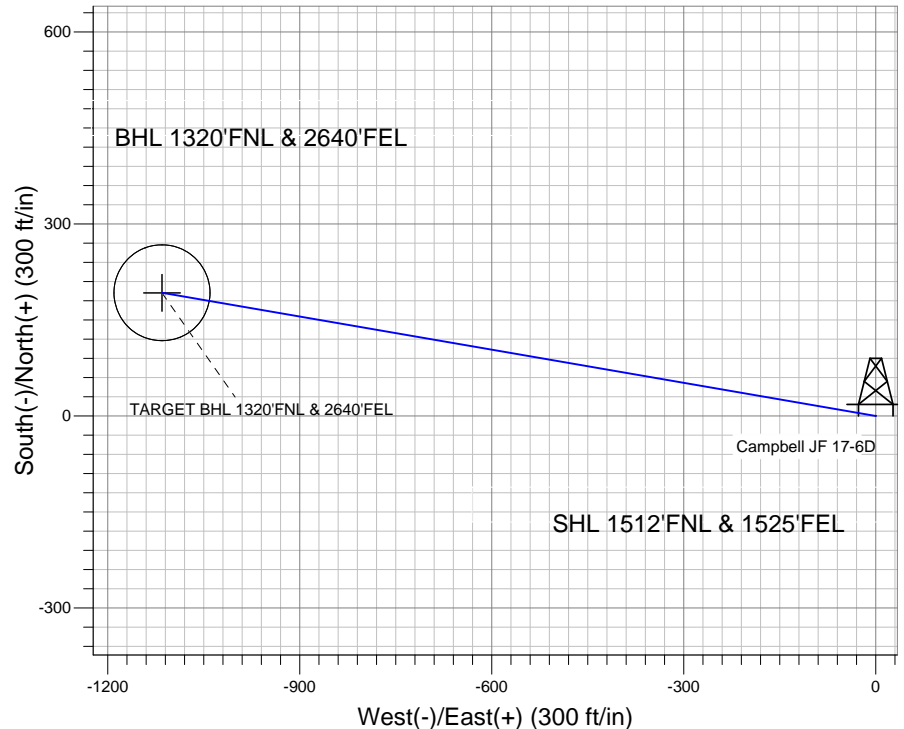
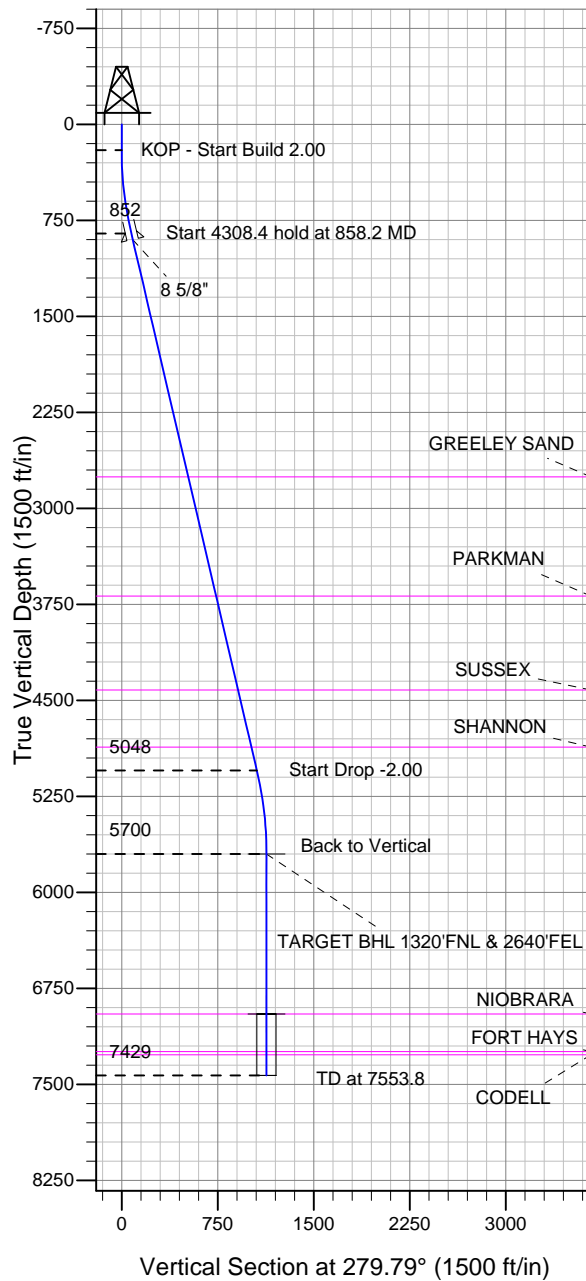
ENSIGN

Directional

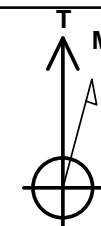
Well Name: Campbell JF 17-6D

Surface Location: Campbell JF 17-6D Pad Sec.17-T2N-R65W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone
 Ground Elevation: 4916.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1295554.19 3228167.85 40.141808 -104.683853
 Original Well Elev WELL @ 4930.0ft (Original Well Elev)

Great Western



Campbell JF 17-6D Pad Sec.17-T2N-R65W
 Campbell JF 17-6D
 Plan #1 (10-04-12)



Azimuths to True North
 Magnetic North: 8.62°

Magnetic Field
 Strength: 52865.8snT
 Dip Angle: 66.81°
 Date: 10/5/2012
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1320'FNL & 2640'FEL	5700.0	192.4	-1115.2	40.142336	-104.687842	Point
TARGET CIRCLE 1320'FNL & 2640'FEL	6949.0	192.4	-1115.2	40.142336	-104.687842	Circle (Radius: 75.0)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	858.2	13.16	279.79	852.4	12.8	-74.2	2.00	279.79	75.3	
4	5166.6	13.16	279.79	5047.6	179.6	-1041.1	0.00	0.00	1056.4	
5	5824.8	0.00	0.00	5700.0	192.4	-1115.2	2.00	180.00	1131.7	TARGET BHL 1320'FNL & 2640'FEL
6	7553.8	0.00	0.00	7429.0	192.4	-1115.2	0.00	0.00	1131.7	



Directional

Great Western

SEC.17-T2N-R65W

Campbell JF 17-6D Pad Sec.17-T2N-R65W

Campbell JF 17-6D

Wellbore #1

Plan: Plan #1 (10-04-12)

Standard Planning Report

05 October, 2012

Database:	Landmark	Local Co-ordinate Reference:	Well Campbell JF 17-6D
Company:	Great Western	TVD Reference:	WELL @ 4930.0ft (Original Well Elev)
Project:	SEC.17-T2N-R65W	MD Reference:	WELL @ 4930.0ft (Original Well Elev)
Site:	Campbell JF 17-6D Pad Sec.17-T2N-R65W	North Reference:	True
Well:	Campbell JF 17-6D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-04-12)		

Project	SEC.17-T2N-R65W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site		Campbell JF 17-6D Pad Sec.17-T2N-R65W			
Site Position:		Northing:	1,295,554.20ft	Latitude:	40.141808
From:	Lat/Long	Easting:	3,228,167.85ft	Longitude:	-104.683853
Position Uncertainty:		0.0 ft	Slot Radius:	"	Grid Convergence:
					0.53 °

Well	Campbell JF 17-6D					
Well Position	+N-S	0.0 ft	Northing:	1,295,554.19 ft	Latitude:	40.141808
	+E-W	0.0 ft	Easting:	3,228,167.85 ft	Longitude:	-104.683853
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,916.0ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/5/2012	8.62	66.81	52,866

Design	Plan #1 (10-04-12)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	279.79

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
858.2	13.16	279.79	852.4	12.8	-74.2	2.00	2.00	0.00	279.79	
5,166.6	13.16	279.79	5,047.6	179.6	-1,041.1	0.00	0.00	0.00	0.00	
5,824.8	0.00	0.00	5,700.0	192.4	-1,115.2	2.00	-2.00	0.00	180.00	TARGET BHL 132C
7,553.8	0.00	0.00	7,429.0	192.4	-1,115.2	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Campbell JF 17-6D
Company:	Great Western	TVD Reference:	WELL @ 4930.0ft (Original Well Elev)
Project:	SEC.17-T2N-R65W	MD Reference:	WELL @ 4930.0ft (Original Well Elev)
Site:	Campbell JF 17-6D Pad Sec.17-T2N-R65W	North Reference:	True
Well:	Campbell JF 17-6D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-04-12)		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
240.0	0.80	279.79	240.0	0.0	-0.3	0.3	2.00	2.00	0.00
280.0	1.60	279.79	280.0	0.2	-1.1	1.1	2.00	2.00	0.00
320.0	2.40	279.79	320.0	0.4	-2.5	2.5	2.00	2.00	0.00
360.0	3.20	279.79	359.9	0.8	-4.4	4.5	2.00	2.00	0.00
400.0	4.00	279.79	399.8	1.2	-6.9	7.0	2.00	2.00	0.00
440.0	4.80	279.79	439.7	1.7	-9.9	10.0	2.00	2.00	0.00
480.0	5.60	279.79	479.6	2.3	-13.5	13.7	2.00	2.00	0.00
520.0	6.40	279.79	519.3	3.0	-17.6	17.9	2.00	2.00	0.00
560.0	7.20	279.79	559.1	3.8	-22.3	22.6	2.00	2.00	0.00
600.0	8.00	279.79	598.7	4.7	-27.5	27.9	2.00	2.00	0.00
640.0	8.80	279.79	638.3	5.7	-33.2	33.7	2.00	2.00	0.00
680.0	9.60	279.79	677.8	6.8	-39.5	40.1	2.00	2.00	0.00
720.0	10.40	279.79	717.1	8.0	-46.4	47.1	2.00	2.00	0.00
760.0	11.20	279.79	756.4	9.3	-53.8	54.6	2.00	2.00	0.00
800.0	12.00	279.79	795.6	10.6	-61.7	62.6	2.00	2.00	0.00
840.0	12.80	279.79	834.7	12.1	-70.2	71.2	2.00	2.00	0.00
858.2	13.16	279.79	852.4	12.8	-74.2	75.3	2.00	2.00	0.00
Start 4308.4 hold at 858.2 MD									
880.0	13.16	279.79	873.7	13.6	-79.1	80.2	0.00	0.00	0.00
907.1	13.16	279.79	900.0	14.7	-85.1	86.4	0.00	0.00	0.00
8 5/8"									
920.0	13.16	279.79	912.6	15.2	-88.1	89.4	0.00	0.00	0.00
960.0	13.16	279.79	951.5	16.7	-97.0	98.5	0.00	0.00	0.00
1,000.0	13.16	279.79	990.5	18.3	-106.0	107.6	0.00	0.00	0.00
1,040.0	13.16	279.79	1,029.4	19.8	-115.0	116.7	0.00	0.00	0.00
1,080.0	13.16	279.79	1,068.4	21.4	-124.0	125.8	0.00	0.00	0.00
1,120.0	13.16	279.79	1,107.3	22.9	-132.9	134.9	0.00	0.00	0.00
1,160.0	13.16	279.79	1,146.3	24.5	-141.9	144.0	0.00	0.00	0.00
1,200.0	13.16	279.79	1,185.2	26.0	-150.9	153.1	0.00	0.00	0.00
1,240.0	13.16	279.79	1,224.2	27.6	-159.9	162.2	0.00	0.00	0.00
1,280.0	13.16	279.79	1,263.1	29.1	-168.8	171.3	0.00	0.00	0.00
1,320.0	13.16	279.79	1,302.1	30.7	-177.8	180.4	0.00	0.00	0.00
1,360.0	13.16	279.79	1,341.0	32.2	-186.8	189.6	0.00	0.00	0.00
1,400.0	13.16	279.79	1,380.0	33.8	-195.8	198.7	0.00	0.00	0.00
1,440.0	13.16	279.79	1,418.9	35.3	-204.8	207.8	0.00	0.00	0.00
1,480.0	13.16	279.79	1,457.9	36.9	-213.7	216.9	0.00	0.00	0.00
1,520.0	13.16	279.79	1,496.8	38.4	-222.7	226.0	0.00	0.00	0.00
1,560.0	13.16	279.79	1,535.8	40.0	-231.7	235.1	0.00	0.00	0.00
1,600.0	13.16	279.79	1,574.7	41.5	-240.7	244.2	0.00	0.00	0.00
1,640.0	13.16	279.79	1,613.7	43.1	-249.6	253.3	0.00	0.00	0.00
1,680.0	13.16	279.79	1,652.6	44.6	-258.6	262.4	0.00	0.00	0.00
1,720.0	13.16	279.79	1,691.6	46.2	-267.6	271.5	0.00	0.00	0.00
1,760.0	13.16	279.79	1,730.5	47.7	-276.6	280.7	0.00	0.00	0.00
1,800.0	13.16	279.79	1,769.5	49.3	-285.5	289.8	0.00	0.00	0.00
1,840.0	13.16	279.79	1,808.4	50.8	-294.5	298.9	0.00	0.00	0.00
1,880.0	13.16	279.79	1,847.4	52.4	-303.5	308.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Campbell JF 17-6D
Company:	Great Western	TVD Reference:	WELL @ 4930.0ft (Original Well Elev)
Project:	SEC.17-T2N-R65W	MD Reference:	WELL @ 4930.0ft (Original Well Elev)
Site:	Campbell JF 17-6D Pad Sec.17-T2N-R65W	North Reference:	True
Well:	Campbell JF 17-6D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-04-12)		

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)
1,920.0	13.16	279.79	1,886.3	53.9	-312.5	317.1	0.00	0.00	0.00
1,960.0	13.16	279.79	1,925.3	55.5	-321.4	326.2	0.00	0.00	0.00
2,000.0	13.16	279.79	1,964.2	57.0	-330.4	335.3	0.00	0.00	0.00
2,040.0	13.16	279.79	2,003.2	58.5	-339.4	344.4	0.00	0.00	0.00
2,080.0	13.16	279.79	2,042.1	60.1	-348.4	353.5	0.00	0.00	0.00
2,120.0	13.16	279.79	2,081.1	61.6	-357.4	362.6	0.00	0.00	0.00
2,160.0	13.16	279.79	2,120.0	63.2	-366.3	371.7	0.00	0.00	0.00
2,200.0	13.16	279.79	2,159.0	64.7	-375.3	380.9	0.00	0.00	0.00
2,240.0	13.16	279.79	2,197.9	66.3	-384.3	390.0	0.00	0.00	0.00
2,280.0	13.16	279.79	2,236.9	67.8	-393.3	399.1	0.00	0.00	0.00
2,320.0	13.16	279.79	2,275.8	69.4	-402.2	408.2	0.00	0.00	0.00
2,360.0	13.16	279.79	2,314.8	70.9	-411.2	417.3	0.00	0.00	0.00
2,400.0	13.16	279.79	2,353.7	72.5	-420.2	426.4	0.00	0.00	0.00
2,440.0	13.16	279.79	2,392.7	74.0	-429.2	435.5	0.00	0.00	0.00
2,480.0	13.16	279.79	2,431.6	75.6	-438.1	444.6	0.00	0.00	0.00
2,520.0	13.16	279.79	2,470.6	77.1	-447.1	453.7	0.00	0.00	0.00
2,560.0	13.16	279.79	2,509.5	78.7	-456.1	462.8	0.00	0.00	0.00
2,600.0	13.16	279.79	2,548.5	80.2	-465.1	471.9	0.00	0.00	0.00
2,640.0	13.16	279.79	2,587.4	81.8	-474.1	481.1	0.00	0.00	0.00
2,680.0	13.16	279.79	2,626.4	83.3	-483.0	490.2	0.00	0.00	0.00
2,720.0	13.16	279.79	2,665.3	84.9	-492.0	499.3	0.00	0.00	0.00
2,760.0	13.16	279.79	2,704.3	86.4	-501.0	508.4	0.00	0.00	0.00
2,800.0	13.16	279.79	2,743.2	88.0	-510.0	517.5	0.00	0.00	0.00
2,811.1	13.16	279.79	2,754.0	88.4	-512.5	520.0	0.00	0.00	0.00
GREELEY SAND									
2,840.0	13.16	279.79	2,782.1	89.5	-518.9	526.6	0.00	0.00	0.00
2,880.0	13.16	279.79	2,821.1	91.1	-527.9	535.7	0.00	0.00	0.00
2,920.0	13.16	279.79	2,860.0	92.6	-536.9	544.8	0.00	0.00	0.00
2,960.0	13.16	279.79	2,899.0	94.2	-545.9	553.9	0.00	0.00	0.00
3,000.0	13.16	279.79	2,937.9	95.7	-554.8	563.0	0.00	0.00	0.00
3,040.0	13.16	279.79	2,976.9	97.3	-563.8	572.2	0.00	0.00	0.00
3,080.0	13.16	279.79	3,015.8	98.8	-572.8	581.3	0.00	0.00	0.00
3,120.0	13.16	279.79	3,054.8	100.4	-581.8	590.4	0.00	0.00	0.00
3,160.0	13.16	279.79	3,093.7	101.9	-590.8	599.5	0.00	0.00	0.00
3,200.0	13.16	279.79	3,132.7	103.5	-599.7	608.6	0.00	0.00	0.00
3,240.0	13.16	279.79	3,171.6	105.0	-608.7	617.7	0.00	0.00	0.00
3,280.0	13.16	279.79	3,210.6	106.6	-617.7	626.8	0.00	0.00	0.00
3,320.0	13.16	279.79	3,249.5	108.1	-626.7	635.9	0.00	0.00	0.00
3,360.0	13.16	279.79	3,288.5	109.7	-635.6	645.0	0.00	0.00	0.00
3,400.0	13.16	279.79	3,327.4	111.2	-644.6	654.1	0.00	0.00	0.00
3,440.0	13.16	279.79	3,366.4	112.7	-653.6	663.2	0.00	0.00	0.00
3,480.0	13.16	279.79	3,405.3	114.3	-662.6	672.4	0.00	0.00	0.00
3,520.0	13.16	279.79	3,444.3	115.8	-671.5	681.5	0.00	0.00	0.00
3,560.0	13.16	279.79	3,483.2	117.4	-680.5	690.6	0.00	0.00	0.00
3,600.0	13.16	279.79	3,522.2	118.9	-689.5	699.7	0.00	0.00	0.00
3,640.0	13.16	279.79	3,561.1	120.5	-698.5	708.8	0.00	0.00	0.00
3,680.0	13.16	279.79	3,600.1	122.0	-707.5	717.9	0.00	0.00	0.00
3,720.0	13.16	279.79	3,639.0	123.6	-716.4	727.0	0.00	0.00	0.00
3,760.0	13.16	279.79	3,678.0	125.1	-725.4	736.1	0.00	0.00	0.00
3,767.2	13.16	279.79	3,685.0	125.4	-727.0	737.8	0.00	0.00	0.00
PARKMAN									
3,800.0	13.16	279.79	3,716.9	126.7	-734.4	745.2	0.00	0.00	0.00
3,840.0	13.16	279.79	3,755.9	128.2	-743.4	754.3	0.00	0.00	0.00
3,880.0	13.16	279.79	3,794.8	129.8	-752.3	763.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Campbell JF 17-6D
Company:	Great Western	TVD Reference:	WELL @ 4930.0ft (Original Well Elev)
Project:	SEC.17-T2N-R65W	MD Reference:	WELL @ 4930.0ft (Original Well Elev)
Site:	Campbell JF 17-6D Pad Sec.17-T2N-R65W	North Reference:	True
Well:	Campbell JF 17-6D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-04-12)		

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)
3,920.0	13.16	279.79	3,833.8	131.3	-761.3	772.6	0.00	0.00	0.00
3,960.0	13.16	279.79	3,872.7	132.9	-770.3	781.7	0.00	0.00	0.00
4,000.0	13.16	279.79	3,911.7	134.4	-779.3	790.8	0.00	0.00	0.00
4,040.0	13.16	279.79	3,950.6	136.0	-788.2	799.9	0.00	0.00	0.00
4,080.0	13.16	279.79	3,989.6	137.5	-797.2	809.0	0.00	0.00	0.00
4,120.0	13.16	279.79	4,028.5	139.1	-806.2	818.1	0.00	0.00	0.00
4,160.0	13.16	279.79	4,067.5	140.6	-815.2	827.2	0.00	0.00	0.00
4,200.0	13.16	279.79	4,106.4	142.2	-824.1	836.3	0.00	0.00	0.00
4,240.0	13.16	279.79	4,145.4	143.7	-833.1	845.4	0.00	0.00	0.00
4,280.0	13.16	279.79	4,184.3	145.3	-842.1	854.5	0.00	0.00	0.00
4,320.0	13.16	279.79	4,223.3	146.8	-851.1	863.7	0.00	0.00	0.00
4,360.0	13.16	279.79	4,262.2	148.4	-860.1	872.8	0.00	0.00	0.00
4,400.0	13.16	279.79	4,301.2	149.9	-869.0	881.9	0.00	0.00	0.00
4,440.0	13.16	279.79	4,340.1	151.5	-878.0	891.0	0.00	0.00	0.00
4,480.0	13.16	279.79	4,379.1	153.0	-887.0	900.1	0.00	0.00	0.00
4,520.0	13.16	279.79	4,418.0	154.6	-896.0	909.2	0.00	0.00	0.00
SUSSEX									
4,560.0	13.16	279.79	4,457.0	156.1	-904.9	918.3	0.00	0.00	0.00
4,600.0	13.16	279.79	4,495.9	157.7	-913.9	927.4	0.00	0.00	0.00
4,640.0	13.16	279.79	4,534.9	159.2	-922.9	936.5	0.00	0.00	0.00
4,680.0	13.16	279.79	4,573.8	160.8	-931.9	945.6	0.00	0.00	0.00
4,720.0	13.16	279.79	4,612.7	162.3	-940.8	954.7	0.00	0.00	0.00
4,760.0	13.16	279.79	4,651.7	163.9	-949.8	963.9	0.00	0.00	0.00
4,800.0	13.16	279.79	4,690.6	165.4	-958.8	973.0	0.00	0.00	0.00
4,840.0	13.16	279.79	4,729.6	166.9	-967.8	982.1	0.00	0.00	0.00
4,880.0	13.16	279.79	4,768.5	168.5	-976.8	991.2	0.00	0.00	0.00
4,920.0	13.16	279.79	4,807.5	170.0	-985.7	1,000.3	0.00	0.00	0.00
4,960.0	13.16	279.79	4,846.4	171.6	-994.7	1,009.4	0.00	0.00	0.00
4,978.0	13.16	279.79	4,864.0	172.3	-998.8	1,013.5	0.00	0.00	0.00
SHANNON									
5,000.0	13.16	279.79	4,885.4	173.1	-1,003.7	1,018.5	0.00	0.00	0.00
5,040.0	13.16	279.79	4,924.3	174.7	-1,012.7	1,027.6	0.00	0.00	0.00
5,080.0	13.16	279.79	4,963.3	176.2	-1,021.6	1,036.7	0.00	0.00	0.00
5,120.0	13.16	279.79	5,002.2	177.8	-1,030.6	1,045.8	0.00	0.00	0.00
5,160.0	13.16	279.79	5,041.2	179.3	-1,039.6	1,054.9	0.00	0.00	0.00
5,166.6	13.16	279.79	5,047.6	179.6	-1,041.1	1,056.4	0.00	0.00	0.00
Start Drop -2.00									
5,200.0	12.50	279.79	5,080.2	180.9	-1,048.4	1,063.9	2.00	-2.00	0.00
5,240.0	11.70	279.79	5,119.3	182.3	-1,056.6	1,072.2	2.00	-2.00	0.00
5,280.0	10.90	279.79	5,158.5	183.6	-1,064.4	1,080.1	2.00	-2.00	0.00
5,320.0	10.10	279.79	5,197.8	184.9	-1,071.5	1,087.4	2.00	-2.00	0.00
5,360.0	9.30	279.79	5,237.3	186.0	-1,078.2	1,094.1	2.00	-2.00	0.00
5,400.0	8.50	279.79	5,276.8	187.0	-1,084.3	1,100.3	2.00	-2.00	0.00
5,440.0	7.70	279.79	5,316.4	188.0	-1,089.8	1,105.9	2.00	-2.00	0.00
5,480.0	6.90	279.79	5,356.1	188.9	-1,094.8	1,111.0	2.00	-2.00	0.00
5,520.0	6.10	279.79	5,395.8	189.6	-1,099.3	1,115.5	2.00	-2.00	0.00
5,560.0	5.30	279.79	5,435.6	190.3	-1,103.2	1,119.5	2.00	-2.00	0.00
5,600.0	4.50	279.79	5,475.5	190.9	-1,106.6	1,122.9	2.00	-2.00	0.00
5,640.0	3.70	279.79	5,515.4	191.4	-1,109.4	1,125.8	2.00	-2.00	0.00
5,680.0	2.90	279.79	5,555.3	191.8	-1,111.6	1,128.1	2.00	-2.00	0.00
5,720.0	2.10	279.79	5,595.3	192.1	-1,113.4	1,129.8	2.00	-2.00	0.00
5,760.0	1.30	279.79	5,635.2	192.3	-1,114.5	1,131.0	2.00	-2.00	0.00
5,800.0	0.50	279.79	5,675.2	192.4	-1,115.1	1,131.6	2.00	-2.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Campbell JF 17-6D
Company:	Great Western	TVD Reference:	WELL @ 4930.0ft (Original Well Elev)
Project:	SEC.17-T2N-R65W	MD Reference:	WELL @ 4930.0ft (Original Well Elev)
Site:	Campbell JF 17-6D Pad Sec.17-T2N-R65W	North Reference:	True
Well:	Campbell JF 17-6D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-04-12)		

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)
5,824.8	0.00	0.00	5,700.0	192.4	-1,115.2	1,131.7	2.00	-2.00	0.00
Back to Vertical									
5,840.0	0.00	0.00	5,715.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
5,880.0	0.00	0.00	5,755.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
5,920.0	0.00	0.00	5,795.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
5,960.0	0.00	0.00	5,835.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,000.0	0.00	0.00	5,875.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,040.0	0.00	0.00	5,915.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,080.0	0.00	0.00	5,955.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,120.0	0.00	0.00	5,995.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,160.0	0.00	0.00	6,035.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,200.0	0.00	0.00	6,075.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,240.0	0.00	0.00	6,115.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,280.0	0.00	0.00	6,155.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,320.0	0.00	0.00	6,195.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,360.0	0.00	0.00	6,235.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,400.0	0.00	0.00	6,275.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,440.0	0.00	0.00	6,315.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,480.0	0.00	0.00	6,355.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,520.0	0.00	0.00	6,395.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,560.0	0.00	0.00	6,435.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,600.0	0.00	0.00	6,475.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,640.0	0.00	0.00	6,515.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,680.0	0.00	0.00	6,555.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,720.0	0.00	0.00	6,595.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,760.0	0.00	0.00	6,635.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,800.0	0.00	0.00	6,675.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,840.0	0.00	0.00	6,715.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,880.0	0.00	0.00	6,755.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,920.0	0.00	0.00	6,795.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
6,960.0	0.00	0.00	6,835.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,000.0	0.00	0.00	6,875.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,040.0	0.00	0.00	6,915.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,073.8	0.00	0.00	6,949.0	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
NIOBRARA									
7,080.0	0.00	0.00	6,955.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,120.0	0.00	0.00	6,995.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,160.0	0.00	0.00	7,035.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,200.0	0.00	0.00	7,075.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,240.0	0.00	0.00	7,115.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,280.0	0.00	0.00	7,155.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,320.0	0.00	0.00	7,195.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,360.0	0.00	0.00	7,235.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,368.8	0.00	0.00	7,244.0	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
FORT HAYS									
7,393.8	0.00	0.00	7,269.0	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
CODELL									
7,400.0	0.00	0.00	7,275.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,440.0	0.00	0.00	7,315.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,480.0	0.00	0.00	7,355.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,520.0	0.00	0.00	7,395.2	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
7,553.8	0.00	0.00	7,429.0	192.4	-1,115.2	1,131.7	0.00	0.00	0.00
TD at 7553.8									

Database:	Landmark	Local Co-ordinate Reference:	Well Campbell JF 17-6D
Company:	Great Western	TVD Reference:	WELL @ 4930.0ft (Original Well Elev)
Project:	SEC.17-T2N-R65W	MD Reference:	WELL @ 4930.0ft (Original Well Elev)
Site:	Campbell JF 17-6D Pad Sec.17-T2N-R65W	North Reference:	True
Well:	Campbell JF 17-6D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-04-12)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
907.1	900.0	8 5/8"	8-5/8	12-1/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,811.1	2,754.0	GREELEY SAND		0.00		
3,767.2	3,685.0	PARKMAN		0.00		
4,520.0	4,418.0	SUSSEX		0.00		
4,978.0	4,864.0	SHANNON		0.00		
7,073.8	6,949.0	NIOBRARA		0.00		
7,368.8	7,244.0	FORT HAYS		0.00		
7,393.8	7,269.0	CODELL		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.0	200.0	0.0	0.0	KOP - Start Build 2.00	
858.2	852.4	12.8	-74.2	Start 4308.4 hold at 858.2 MD	
5,166.6	5,047.6	179.6	-1,041.1	Start Drop -2.00	
5,824.8	5,700.0	192.4	-1,115.2	Back to Vertical	
7,553.8	7,429.0	192.4	-1,115.2	TD at 7553.8	



Directional

Great Western

SEC.17-T2N-R65W

Campbell JF 17-6D Pad Sec.17-T2N-R65W

Campbell JF 17-6D

Wellbore #1

Plan #1 (10-04-12)

Anticollision Report

05 October, 2012

Company:	Great Western	Local Co-ordinate Reference:	Well Campbell JF 17-6D
Project:	SEC.17-T2N-R65W	TVD Reference:	WELL @ 4930.0ft (Original Well Elev)
Reference Site:	Campbell JF 17-6D Pad Sec.17-T2N-R65W	MD Reference:	WELL @ 4930.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Campbell JF 17-6D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-04-12)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
2,200.0	2,159.0	2,153.9	2,090.6	8.8	9.5	-110.82	-299.2	-285.8	381.0	364.1	16.82	22.649	
2,300.0	2,256.3	2,250.1	2,181.3	9.3	10.1	-109.82	-321.8	-308.5	407.5	389.6	17.82	22.862	
2,400.0	2,353.7	2,346.3	2,272.0	9.8	10.8	-108.94	-344.4	-331.2	434.1	415.3	18.82	23.061	
2,500.0	2,451.1	2,442.5	2,362.7	10.3	11.5	-108.16	-367.1	-354.0	460.8	441.0	19.82	23.247	
2,600.0	2,548.5	2,538.7	2,453.3	10.8	12.1	-107.46	-389.7	-376.7	487.5	466.7	20.82	23.421	
2,700.0	2,645.8	2,634.9	2,544.0	11.3	12.8	-106.84	-412.3	-399.4	514.4	492.6	21.81	23.583	
2,800.0	2,743.2	2,731.1	2,634.7	11.8	13.4	-106.28	-435.0	-422.2	541.2	518.4	22.80	23.734	
2,900.0	2,840.6	2,827.2	2,725.4	12.3	14.1	-105.77	-457.6	-444.9	568.2	544.4	23.80	23.875	
3,000.0	2,937.9	2,923.4	2,816.1	12.8	14.8	-105.30	-480.2	-467.6	595.1	570.3	24.79	24.008	
3,100.0	3,035.3	3,019.6	2,906.8	13.3	15.4	-104.88	-502.9	-490.4	622.1	596.3	25.78	24.132	
3,200.0	3,132.7	3,115.8	2,997.5	13.8	16.1	-104.49	-525.5	-513.1	649.1	622.4	26.77	24.249	
3,300.0	3,230.1	3,212.0	3,088.1	14.3	16.8	-104.14	-548.1	-535.9	676.2	648.4	27.76	24.359	
3,400.0	3,327.4	3,308.2	3,178.8	14.8	17.4	-103.81	-570.7	-558.6	703.2	674.5	28.75	24.463	
3,500.0	3,424.8	3,404.4	3,269.5	15.3	18.1	-103.50	-593.4	-581.3	730.3	700.6	29.74	24.560	
3,600.0	3,522.2	3,500.6	3,360.2	15.8	18.8	-103.22	-616.0	-604.1	757.4	726.7	30.72	24.652	
3,700.0	3,619.6	3,596.8	3,450.9	16.3	19.4	-102.96	-638.6	-626.8	784.5	752.8	31.71	24.739	
3,800.0	3,716.9	3,693.0	3,541.6	16.8	20.1	-102.71	-661.3	-649.5	811.7	779.0	32.70	24.822	
3,900.0	3,814.3	3,789.2	3,632.2	17.3	20.8	-102.48	-683.9	-672.3	838.8	805.1	33.69	24.900	
4,000.0	3,911.7	3,885.4	3,722.9	17.8	21.4	-102.27	-706.5	-695.0	866.0	831.3	34.67	24.975	
4,100.0	4,009.0	3,981.6	3,813.6	18.3	22.1	-102.06	-729.2	-717.7	893.2	857.5	35.66	25.045	
4,200.0	4,106.4	4,077.7	3,904.3	18.8	22.8	-101.87	-751.8	-740.5	920.3	883.7	36.65	25.112	
4,300.0	4,203.8	4,173.9	3,995.0	19.2	23.4	-101.69	-774.4	-763.2	947.5	909.9	37.64	25.176	
4,400.0	4,301.2	4,270.1	4,085.7	19.7	24.1	-101.52	-797.0	-786.0	974.7	936.1	38.62	25.237	
4,500.0	4,398.5	4,366.3	4,176.4	20.2	24.7	-101.36	-819.7	-808.7	1,001.9	962.3	39.61	25.296	
4,600.0	4,495.9	4,462.5	4,267.0	20.7	25.4	-101.21	-842.3	-831.4	1,029.1	988.5	40.59	25.351	
4,700.0	4,593.3	4,558.7	4,357.7	21.2	26.1	-101.07	-864.9	-854.2	1,056.3	1,014.8	41.58	25.404	
4,800.0	4,690.6	4,654.9	4,448.4	21.7	26.8	-100.93	-887.6	-876.9	1,083.6	1,041.0	42.57	25.455	
4,900.0	4,788.0	4,751.1	4,539.1	22.2	27.4	-100.80	-910.2	-899.6	1,110.8	1,067.2	43.55	25.504	
5,000.0	4,885.4	4,847.3	4,629.8	22.7	28.1	-100.68	-932.8	-922.4	1,138.0	1,093.5	44.54	25.551	
5,100.0	4,982.8	4,943.5	4,720.5	23.2	28.8	-100.56	-955.5	-945.1	1,165.3	1,119.7	45.53	25.596	
5,166.6	5,047.6	5,007.5	4,780.8	23.6	29.2	-100.48	-970.5	-960.2	1,183.4	1,137.2	46.18	25.625	
5,200.0	5,080.2	5,039.7	4,811.2	23.7	29.4	-100.62	-978.1	-967.8	1,192.5	1,145.9	46.54	25.625	
5,300.0	5,178.2	5,135.9	4,901.9	24.0	30.1	-100.92	-1,000.7	-990.6	1,219.2	1,171.7	47.48	25.680	
5,400.0	5,276.8	5,253.6	5,013.1	24.3	30.8	-100.98	-1,027.8	-1,017.8	1,244.9	1,196.6	48.35	25.747	
5,500.0	5,375.9	5,392.6	5,146.3	24.6	31.4	-100.89	-1,055.9	-1,046.0	1,267.2	1,218.1	49.12	25.798	
5,600.0	5,475.5	5,534.1	5,283.7	24.8	31.9	-100.74	-1,079.8	-1,070.0	1,285.6	1,235.8	49.77	25.832	
5,700.0	5,575.3	5,677.9	5,424.9	24.9	32.4	-100.52	-1,099.1	-1,089.4	1,300.0	1,249.7	50.29	25.849	
5,800.0	5,675.2	5,823.5	5,569.0	25.1	32.8	-100.24	-1,113.6	-1,103.9	1,310.3	1,259.6	50.69	25.851	
5,824.8	5,700.0	5,859.8	5,605.1	25.1	32.8	179.63	-1,116.3	-1,106.8	1,312.2	1,261.4	50.76	25.849	
5,900.0	5,775.2	5,970.6	5,715.4	25.2	33.0	179.92	-1,122.9	-1,113.3	1,316.6	1,265.7	50.96	25.837	
6,000.0	5,875.2	6,118.6	5,863.3	25.3	33.2	-179.91	-1,126.9	-1,117.4	1,319.4	1,268.2	51.22	25.761	
6,100.0	5,975.2	6,230.5	5,975.2	25.4	33.3	-179.90	-1,127.1	-1,117.5	1,319.5	1,268.0	51.43	25.654	
6,200.0	6,075.2	6,330.5	6,075.2	25.5	33.4	-179.90	-1,127.1	-1,117.5	1,319.5	1,267.8	51.64	25.550	
6,300.0	6,175.2	6,430.5	6,175.2	25.6	33.4	-179.90	-1,127.1	-1,117.5	1,319.5	1,267.6	51.85	25.446	
6,400.0	6,275.2	6,530.5	6,275.2	25.7	33.5	-179.90	-1,127.1	-1,117.5	1,319.5	1,267.4	52.07	25.341	
6,500.0	6,375.2	6,630.5	6,375.2	25.8	33.6	-179.90	-1,127.1	-1,117.5	1,319.5	1,267.2	52.29	25.236	
6,600.0	6,475.2	6,730.5	6,475.2	26.0	33.7	-179.90	-1,127.1	-1,117.5	1,319.5	1,267.0	52.51	25.130	
6,700.0	6,575.2	6,830.5	6,575.2	26.1	33.8	-179.90	-1,127.1	-1,117.5	1,319.5	1,266.8	52.73	25.024	
6,800.0	6,675.2	6,930.5	6,675.2	26.2	33.8	-179.90	-1,127.1	-1,117.5	1,319.5	1,266.5	52.96	24.917	
6,900.0	6,775.2	7,030.5	6,775.2	26.3	33.9	-179.90	-1,127.1	-1,117.5	1,319.5	1,266.3	53.18	24.810	
7,000.0	6,875.2	7,130.5	6,875.2	26.4	34.0	-179.90	-1,127.1	-1,117.5	1,319.5	1,266.1	53.42	24.702	
7,100.0	6,975.2	7,230.5	6,975.2	26.6	34.1	-179.90	-1,127.1	-1,117.5	1,319.5	1,265.8	53.65	24.594	

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

Company:	Great Western	Local Co-ordinate Reference:	Well Campbell JF 17-6D
Project:	SEC.17-T2N-R65W	TVD Reference:	WELL @ 4930.0ft (Original Well Elev)
Reference Site:	Campbell JF 17-6D Pad Sec.17-T2N-R65W	MD Reference:	WELL @ 4930.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Campbell JF 17-6D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-04-12)	Offset TVD Reference:	Offset Datum

Offset Design Campbell JF 17-6D Pad Sec.17-T2N-R65W - Campbell JF 17-13D - Wellbore #1 - Plan #1 (10-04-12)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,200.0	7,075.2	7,330.5	7,075.2	26.7	34.2	-179.90	-1,127.1	-1,117.5	1,319.5	1,265.6	53.89	24.486	
7,300.0	7,175.2	7,430.5	7,175.2	26.8	34.3	-179.90	-1,127.1	-1,117.5	1,319.5	1,265.4	54.13	24.377	
7,400.0	7,275.2	7,530.5	7,275.2	26.9	34.3	-179.90	-1,127.1	-1,117.5	1,319.5	1,265.1	54.37	24.268	
7,500.0	7,375.2	7,630.5	7,375.2	27.1	34.4	-179.90	-1,127.1	-1,117.5	1,319.5	1,264.9	54.62	24.159	
7,553.8	7,429.0	7,684.3	7,429.0	27.1	34.5	-179.90	-1,127.1	-1,117.5	1,319.5	1,264.7	54.75	24.101	

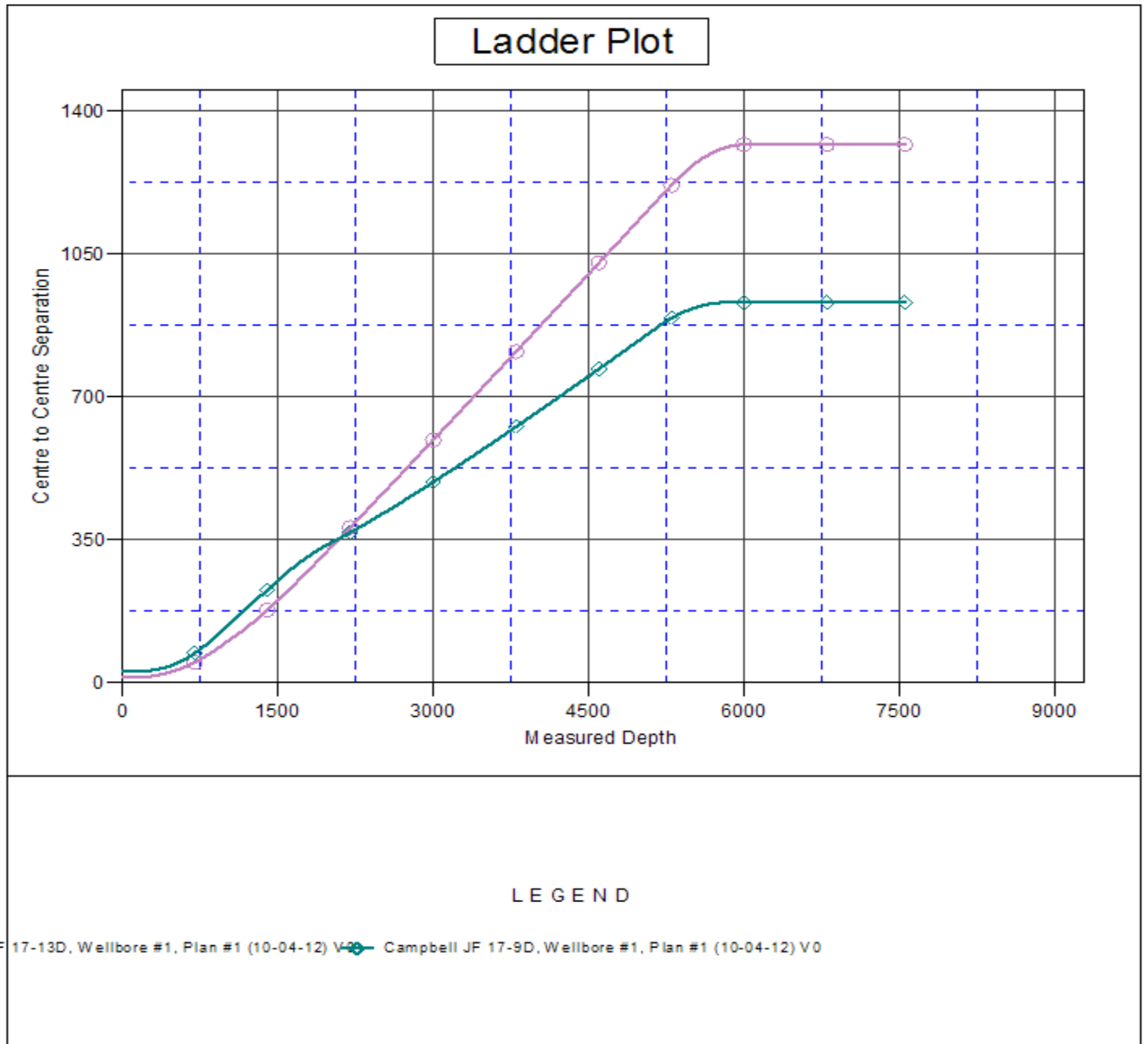
Campbell JF 17-6D Pad Sec.17-T2N-R65W - Campbell JF 17-9D - Wellbore #1 - Plan #1 (10-04-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	90.05	0.0	29.6	29.6					
100.0	100.0	100.0	100.0	0.1	0.1	90.05	0.0	29.6	29.6	29.4	0.22	131.852		
200.0	200.0	200.0	200.0	0.3	0.3	90.05	0.0	29.6	29.6	29.0	0.67	43.951	CC, ES	
300.0	300.0	300.0	300.0	0.6	0.6	170.79	0.0	29.6	31.4	30.2	1.12	27.954		
400.0	399.8	399.8	399.8	0.8	0.8	172.09	0.0	29.6	36.5	35.0	1.57	23.239		
500.0	499.5	499.5	499.5	1.0	1.0	173.59	0.0	29.6	45.2	43.2	2.03	22.286	SF	
600.0	598.7	598.7	598.7	1.3	1.2	174.93	0.0	29.6	57.3	54.8	2.49	23.059		
700.0	697.5	697.5	697.5	1.7	1.5	176.00	0.0	29.6	72.9	70.0	2.95	24.751		
800.0	795.6	795.6	795.6	2.0	1.7	176.80	0.0	29.6	91.9	88.5	3.41	26.982		
858.2	852.4	852.4	852.4	2.3	1.8	177.18	0.0	29.6	104.6	100.9	3.68	28.444		
900.0	893.1	893.1	893.1	2.5	1.9	177.41	0.0	29.6	114.1	110.2	3.87	29.478		
1,000.0	990.5	990.5	990.5	3.0	2.1	177.84	0.0	29.6	136.9	132.5	4.34	31.545		
1,100.0	1,087.9	1,087.9	1,087.9	3.4	2.3	178.15	0.0	29.6	159.6	154.8	4.81	33.178		
1,200.0	1,185.2	1,185.2	1,185.2	3.9	2.6	178.38	0.0	29.6	182.4	177.1	5.29	34.498		
1,300.0	1,282.6	1,282.6	1,282.6	4.4	2.8	178.56	0.0	29.6	205.2	199.4	5.77	35.585		
1,400.0	1,380.0	1,380.0	1,380.0	4.9	3.0	178.71	0.0	29.6	227.9	221.7	6.25	36.494		
1,500.0	1,477.4	1,477.4	1,477.4	5.4	3.2	178.82	0.0	29.6	250.7	244.0	6.73	37.265		
1,600.0	1,574.7	1,579.3	1,579.3	5.9	3.4	179.11	-0.8	28.8	272.8	265.6	7.20	37.896		
1,700.0	1,672.1	1,683.4	1,683.2	6.3	3.6	179.94	-4.1	25.4	292.9	285.3	7.65	38.270		
1,800.0	1,769.5	1,788.0	1,787.5	6.8	3.8	-178.76	-10.0	19.2	311.0	302.9	8.12	38.299		
1,900.0	1,866.8	1,892.9	1,891.6	7.3	4.0	-177.05	-18.7	10.2	327.2	318.6	8.61	37.989		
2,000.0	1,964.2	1,997.8	1,995.3	7.8	4.3	-174.96	-29.9	-1.5	341.7	332.5	9.14	37.365		
2,100.0	2,061.6	2,098.4	2,094.1	8.3	4.6	-172.72	-42.7	-14.8	355.1	345.4	9.72	36.549		
2,200.0	2,159.0	2,196.5	2,190.6	8.8	4.8	-170.66	-55.4	-27.9	368.9	358.6	10.32	35.742		
2,300.0	2,256.3	2,294.7	2,287.1	9.3	5.1	-168.74	-68.0	-41.1	383.2	372.2	10.96	34.962		
2,400.0	2,353.7	2,392.9	2,383.6	9.8	5.5	-166.97	-80.7	-54.3	397.8	386.2	11.63	34.218		
2,500.0	2,451.1	2,491.1	2,480.0	10.3	5.8	-165.32	-93.3	-67.4	412.8	400.5	12.32	33.516		
2,600.0	2,548.5	2,589.3	2,576.5	10.8	6.1	-163.78	-106.0	-80.6	428.1	415.1	13.03	32.859		
2,700.0	2,645.8	2,687.5	2,673.0	11.3	6.5	-162.35	-118.6	-93.8	443.7	430.0	13.76	32.488		
2,800.0	2,743.2	2,785.6	2,769.4	11.8	6.9	-161.02	-131.3	-106.9	459.6	445.1	14.51	31.682		
2,900.0	2,840.6	2,883.8	2,865.9	12.3	7.2	-159.77	-144.0	-120.1	475.6	460.4	15.27	31.159		
3,000.0	2,937.9	2,982.0	2,962.4	12.8	7.6	-158.61	-156.6	-133.3	491.9	475.9	16.04	30.676		
3,100.0	3,035.3	3,080.2	3,058.9	13.3	8.0	-157.52	-169.3	-146.4	508.4	491.6	16.82	30.231		
3,200.0	3,132.7	3,178.4	3,155.3	13.8	8.4	-156.50	-181.9	-159.6	525.0	507.4	17.61	29.821		
3,300.0	3,230.1	3,276.6	3,251.8	14.3	8.7	-155.54	-194.6	-172.8	541.8	523.4	18.40	29.443		
3,400.0	3,327.4	3,374.7	3,348.3	14.8	9.1	-154.64	-207.2	-185.9	558.8	539.6	19.20	29.095		
3,500.0	3,424.8	3,472.9	3,444.7	15.3	9.5	-153.79	-219.9	-199.1	575.8	555.8	20.01	28.773		
3,600.0	3,522.2	3,571.1	3,541.2	15.8	9.9	-152.99	-232.5	-212.3	593.0	572.2	20.82	28.476		
3,700.0	3,619.6	3,669.3	3,637.7	16.3	10.3	-152.24	-245.2	-225.4	610.3	588.6	21.64	28.202		
3,800.0	3,716.9	3,767.5	3,734.1	16.8	10.7	-151.53	-257.9	-238.6	627.7	605.2	22.46	27.947		
3,900.0	3,814.3	3,865.7	3,830.6	17.3	11.1	-150.85	-270.5	-251.8	645.1	621.9	23.28	27.711		
4,000.0	3,911.7	3,963.8	3,927.1	17.8	11.5	-150.21	-283.2	-264.9	662.7	638.6	24.11	27.491		
4,100.0	4,009.0	4,062.0	4,023.6	18.3	11.9	-149.61	-295.8	-278.1	680.3	655.4	24.93	27.287		
4,200.0	4,106.4	4,160.2	4,120.0	18.8	12.3	-149.03	-308.5	-291.3	698.0	672.3	25.76	27.097		
4,300.0	4,203.8	4,258.4	4,216.5	19.2	12.7	-148.48	-321.1	-304.4	715.8	689.2	26.59	26.919		
4,400.0	4,301.2	4,356.6	4,313.0	19.7	13.1	-147.96	-333.8	-317.6	733.6	706.2	27.42	26.753		
4,500.0	4,398.5	4,454.8	4,409.4	20.2	13.5	-147.47	-346.4	-330.8	751.5	723.2	28.25	26.598		
4,600.0	4,495.9	4,552.9	4,505.9	20.7	13.9	-146.99	-359.1	-343.9	769.4	740.3	29.09	26.452		
4,700.0	4,593.3	4,651.1	4,602.4	21.2	14.3	-146.54	-371.8	-357.1	787.4	757.5	29.92	26.315		
4,800.0	4,690.6	4,749.3	4,698.8	21.7	14.7	-146.11	-384.4	-370.3	805.4	774.7	30.76	26.187		
4,900.0	4,788.0	4,847.5	4,795.3	22.2	15.1	-145.70	-397.1	-383.4	823.5	791.9	31.59	26.066		
5,000.0	4,885.4	4,945.7	4,891.8	22.7	15.5	-145.30	-409.7	-396.6	841.6	809.2	32.43	25.952		

Campbell JF 17-6D Pad Sec.17-T2N-R65W - Campbell JF 17-9D - Wellbore #1 - Plan #1 (10-04-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,100.0	4,982.8	5,043.9	4,988.3	23.2	15.9	-144.92	-422.4	-409.8	859.8	826.5	33.27	25.845		
5,166.6	5,047.6	5,109.2	5,052.5	23.6	16.2	-144.68	-430.8	-418.5	871.9	838.1	33.82	25.777		
5,200.0	5,080.2	5,141.9	5,084.6	23.7	16.3	-144.63	-435.0	-422.9	877.8	843.7	34.09	25.751		
5,300.0	5,178.2	5,239.8	5,181.1	24.0	16.7	-144.50	-446.0	-434.4	893.7	859.0	34.74	25.729		
5,400.0	5,276.8	5,338.2	5,278.7	24.3	16.9	-144.45	-454.8	-443.5	907.0	871.7	35.27	25.714		
5,500.0	5,375.9	5,437.0	5,377.1	24.6	17.1	-144.45	-461.4	-450.3	917.4	881.7	35.72	25.686		
5,600.0	5,475.5	5,536.2	5,476.1	24.8	17.3	-144.51	-465.5	-454.6	925.1	889.1	36.08	25.644		
5,700.0	5,575.3	5,635.6	5,575.4	24.9	17.5	-144.63	-467.3	-456.5	930.1	893.7	36.35	25.586		
5,800.0	5,675.2	5,735.4	5,675.2	25.1	17.6	-144.74	-467.4	-456.6	932.2	895.6	36.56	25.496		
5,824.8	5,700.0	5,760.1	5,700.0	25.1	17.6	135.05	-467.4	-456.6	932.3	895.7	36.61	25.463		
5,900.0	5,775.2	5,835.4	5,775.2	25.2	17.7	135.05	-467.4	-456.6	932.3	895.5	36.81	25.324		
6,000.0	5,875.2	5,935.4	5,875.2	25.3	17.9	135.05	-467.4	-456.6	932.3	895.2	37.09	25.135		
6,100.0	5,975.2	6,035.4	5,975.2	25.4	18.0	135.05	-467.4	-456.6	932.3	894.9	37.37	24.947		
6,200.0	6,075.2	6,135.4	6,075.2	25.5	18.2	135.05	-467.4	-456.6	932.3	894.6	37.65	24.759		
6,300.0	6,175.2	6,235.4	6,175.2	25.6	18.3	135.05	-467.4	-456.6	932.3	894.3	37.94	24.572		
6,400.0	6,275.2	6,335.4	6,275.2	25.7	18.5	135.05	-467.4	-456.6	932.3	894.0	38.23	24.386		
6,500.0	6,375.2	6,435.4	6,375.2	25.8	18.6	135.05	-467.4	-456.6	932.3	893.8	38.52	24.201		
6,600.0	6,475.2	6,535.4	6,475.2	26.0	18.8	135.05	-467.4	-456.6	932.3	893.5	38.82	24.016		
6,700.0	6,575.2	6,635.4	6,575.2	26.1	18.9	135.05	-467.4	-456.6	932.3	893.2	39.12	23.833		
6,800.0	6,675.2	6,735.4	6,675.2	26.2	19.1	135.05	-467.4	-456.6	932.3	892.9	39.42	23.651		
6,900.0	6,775.2	6,835.4	6,775.2	26.3	19.2	135.05	-467.4	-456.6	932.3	892.6	39.72	23.470		
7,000.0	6,875.2	6,935.4	6,875.2	26.4	19.4	135.05	-467.4	-456.6	932.3	892.2	40.03	23.290		
7,100.0	6,975.2	7,035.4	6,975.2	26.6	19.5	135.05	-467.4	-456.6	932.3	891.9	40.34	23.111		
7,200.0	7,075.2	7,135.4	7,075.2	26.7	19.7	135.05	-467.4	-456.6	932.3	891.6	40.65	22.934		
7,300.0	7,175.2	7,235.4	7,175.2	26.8	19.8	135.05	-467.4	-456.6	932.3	891.3	40.97	22.757		
7,400.0	7,275.2	7,335.4	7,275.2	26.9	20.0	135.05	-467.4	-456.6	932.3	891.0	41.28	22.582		
7,500.0	7,375.2	7,435.4	7,375.2	27.1	20.2	135.05	-467.4	-456.6	932.3	890.7	41.60	22.409		
7,553.8	7,429.0	7,489.1	7,429.0	27.1	20.3	135.05	-467.4	-456.6	932.3	890.5	41.78	22.316		

Company: Great Western
Project: SEC.17-T2N-R65W
Reference Site: Campbell JF 17-6D Pad Sec.17-T2N-R65W
Site Error: 0.0ft
Reference Well: Campbell JF 17-6D
Well Error: 0.0ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1 (10-04-12)

Local Co-ordinate Reference: Well Campbell JF 17-6D
TVD Reference: WELL @ 4930.0ft (Original Well Elev)
MD Reference: WELL @ 4930.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: Landmark
Offset TVD Reference: Offset Datum

Reference Depths are relative to WELL @ 4930.0ft (Original Well Elev) Coordinates are relative to: Campbell JF 17-6D
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.53°



Company:	Great Western	Local Co-ordinate Reference:	Well Campbell JF 17-6D
Project:	SEC.17-T2N-R65W	TVD Reference:	WELL @ 4930.0ft (Original Well Elev)
Reference Site:	Campbell JF 17-6D Pad Sec.17-T2N-R65W	MD Reference:	WELL @ 4930.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Campbell JF 17-6D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-04-12)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4930.0ft (Original Well Elev) Coordinates are relative to: Campbell JF 17-6D
 Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
 Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.53°

