

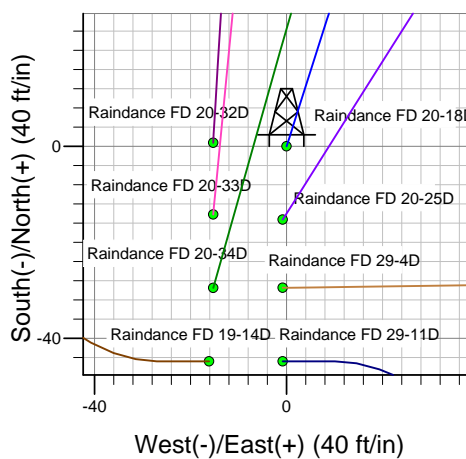
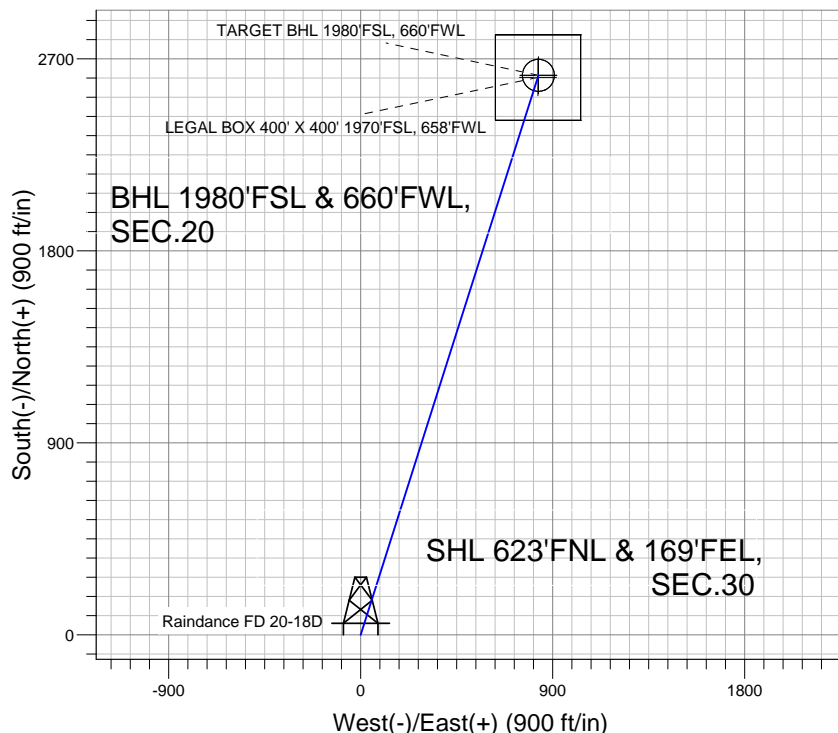
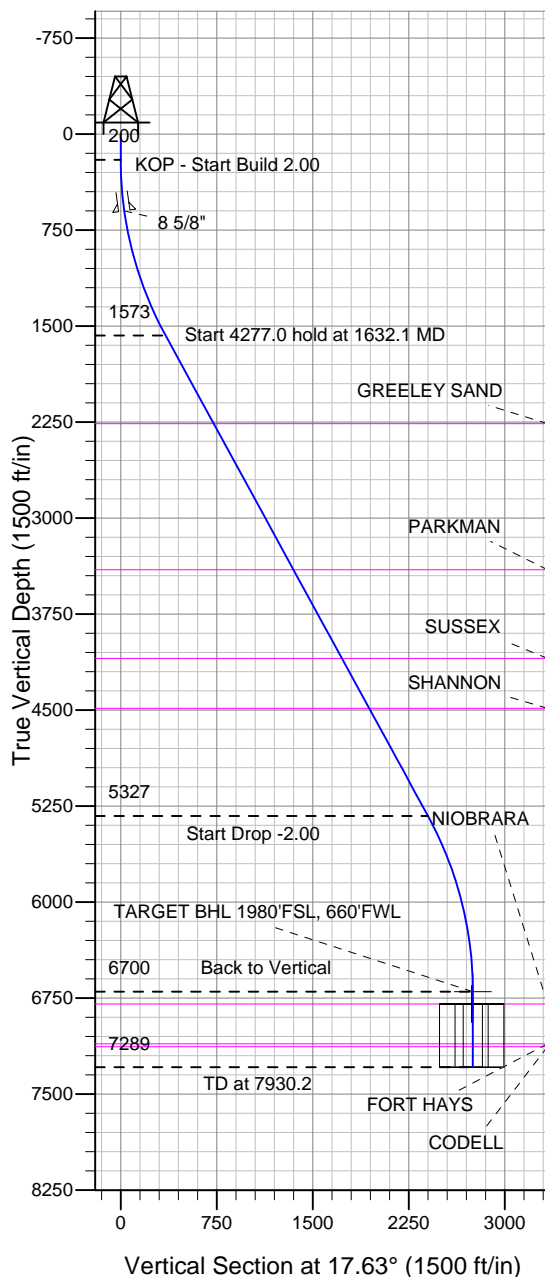
Well Name: Raindance FD 20-18D

Surface Location: Raindance FD East Row Pad Sec.30-T6N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4782.2

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1412128.63	3159418.55	40.463281	-104.927064	
Original Well Elev WELL @ 4796.2ft (Original Well Elev)						

Great Western



Raindance FD East Row Pad Sec.30-T6N-R67W
Raindance FD 20-18D
Plan #2 (11-05-12)
8:27, November 06 2012



Azimuths to True North
Magnetic North: 8.78°
Magnetic Field
Strength: 53005.9snT
Dip Angle: 67.03°
Date: 10/18/2012
Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1980'FSL, 660'FWL	6700.0	2622.0	833.3	40.470478	-104.924069	Point
LEGAL BOX 400' X 400' 1970'FSL, 658'FWL	6796.0	2612.0	831.3	40.470451	-104.924076	Rectangle (Sides: L400.0 W400.0)
TARGET CIRCLE 1980'FSL & 660'FWL	6796.0	2622.0	833.3	40.470478	-104.924069	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	1632.1	28.64	17.63	1573.2	334.1	106.2	2.00	17.63	350.6	
4	5909.1	28.64	17.63	5326.8	2287.9	727.1	0.00	0.00	2400.7	
5	7341.2	0.00	0.00	6700.0	2622.0	833.3	2.00	180.00	2751.2	TARGET BHL 1980'FSL, 660'FWL
6	7930.2	0.00	0.00	7289.0	2622.0	833.3	0.00	0.00	2751.2	



Great Western

SEC.30-T6N-R67W

Raindance FD East Row Pad Sec.30-T6N-R67W

Raindance FD 20-18D

Wellbore #1

Plan: Plan #2 (11-05-12)

Standard Planning Report

06 November, 2012

Database:	Landmark	Local Co-ordinate Reference:	Well Raindance FD 20-18D
Company:	Great Western	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Project:	SEC.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	North Reference:	True
Well:	Raindance FD 20-18D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (11-05-12)		

Project	SEC.30-T6N-R67W, Weld County, Colorado		
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	Raindance FD East Row Pad Sec.30-T6N-R67W		
Site Position:		Northing:	1,412,128.64 ft
From:	Lat/Long	Easting:	3,159,418.55 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.463281
		Longitude:	-104.927064
		Grid Convergence:	0.37 °

Well	Raindance FD 20-18D		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	0.0 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/18/2012	8.78	67.03	53,006

Design	Plan #2 (11-05-12)			
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	17.63

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	
1,632.1	28.64	17.63	1,573.2	334.1	106.2	2.00	2.00	0.00	17.63	
5,909.1	28.64	17.63	5,326.8	2,287.9	727.1	0.00	0.00	0.00	0.00	
7,341.2	0.00	0.00	6,700.0	2,622.0	833.3	2.00	-2.00	0.00	180.00	TARGET BHL 198C
7,930.2	0.00	0.00	7,289.0	2,622.0	833.3	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Raindance FD 20-18D
Company:	Great Western	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Project:	SEC.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	North Reference:	True
Well:	Raindance FD 20-18D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (11-05-12)		

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	17.63	240.0	0.3	0.1	0.3	2.00	2.00	0.00
280.0	1.60	17.63	280.0	1.1	0.3	1.1	2.00	2.00	0.00
320.0	2.40	17.63	320.0	2.4	0.8	2.5	2.00	2.00	0.00
360.0	3.20	17.63	359.9	4.3	1.4	4.5	2.00	2.00	0.00
400.0	4.00	17.63	399.8	6.7	2.1	7.0	2.00	2.00	0.00
440.0	4.80	17.63	439.7	9.6	3.0	10.0	2.00	2.00	0.00
480.0	5.60	17.63	479.6	13.0	4.1	13.7	2.00	2.00	0.00
520.0	6.40	17.63	519.3	17.0	5.4	17.9	2.00	2.00	0.00
560.0	7.20	17.63	559.1	21.5	6.8	22.6	2.00	2.00	0.00
600.0	8.00	17.63	598.7	26.6	8.4	27.9	2.00	2.00	0.00
601.3	8.03	17.63	600.0	26.7	8.5	28.1	2.00	2.00	0.00
8 5/8"									
640.0	8.80	17.63	638.3	32.1	10.2	33.7	2.00	2.00	0.00
680.0	9.60	17.63	677.8	38.2	12.2	40.1	2.00	2.00	0.00
720.0	10.40	17.63	717.1	44.9	14.3	47.1	2.00	2.00	0.00
760.0	11.20	17.63	756.4	52.0	16.5	54.6	2.00	2.00	0.00
800.0	12.00	17.63	795.6	59.7	19.0	62.6	2.00	2.00	0.00
840.0	12.80	17.63	834.7	67.8	21.6	71.2	2.00	2.00	0.00
880.0	13.60	17.63	873.6	76.6	24.3	80.3	2.00	2.00	0.00
920.0	14.40	17.63	912.4	85.8	27.3	90.0	2.00	2.00	0.00
960.0	15.20	17.63	951.1	95.5	30.4	100.2	2.00	2.00	0.00
1,000.0	16.00	17.63	989.6	105.8	33.6	111.0	2.00	2.00	0.00
1,040.0	16.80	17.63	1,028.0	116.5	37.0	122.3	2.00	2.00	0.00
1,080.0	17.60	17.63	1,066.2	127.8	40.6	134.1	2.00	2.00	0.00
1,120.0	18.40	17.63	1,104.3	139.6	44.4	146.5	2.00	2.00	0.00
1,160.0	19.20	17.63	1,142.1	151.9	48.3	159.3	2.00	2.00	0.00
1,200.0	20.00	17.63	1,179.8	164.7	52.3	172.8	2.00	2.00	0.00
1,240.0	20.80	17.63	1,217.3	177.9	56.6	186.7	2.00	2.00	0.00
1,280.0	21.60	17.63	1,254.6	191.7	60.9	201.2	2.00	2.00	0.00
1,320.0	22.40	17.63	1,291.7	206.0	65.5	216.2	2.00	2.00	0.00
1,360.0	23.20	17.63	1,328.6	220.8	70.2	231.7	2.00	2.00	0.00
1,400.0	24.00	17.63	1,365.2	236.0	75.0	247.7	2.00	2.00	0.00
1,440.0	24.80	17.63	1,401.6	251.8	80.0	264.2	2.00	2.00	0.00
1,480.0	25.60	17.63	1,437.8	268.0	85.2	281.2	2.00	2.00	0.00
1,520.0	26.40	17.63	1,473.8	284.7	90.5	298.8	2.00	2.00	0.00
1,560.0	27.20	17.63	1,509.5	301.9	96.0	316.8	2.00	2.00	0.00
1,600.0	28.00	17.63	1,544.9	319.6	101.6	335.3	2.00	2.00	0.00
1,632.1	28.64	17.63	1,573.2	334.1	106.2	350.6	2.00	2.00	0.00
Start 4277.0 hold at 1632.1 MD									
1,640.0	28.64	17.63	1,580.1	337.7	107.3	354.3	0.00	0.00	0.00
1,680.0	28.64	17.63	1,615.2	356.0	113.1	373.5	0.00	0.00	0.00
1,720.0	28.64	17.63	1,650.3	374.2	118.9	392.7	0.00	0.00	0.00
1,760.0	28.64	17.63	1,685.4	392.5	124.7	411.9	0.00	0.00	0.00
1,800.0	28.64	17.63	1,720.5	410.8	130.6	431.0	0.00	0.00	0.00
1,840.0	28.64	17.63	1,755.7	429.1	136.4	450.2	0.00	0.00	0.00
1,880.0	28.64	17.63	1,790.8	447.3	142.2	469.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Raindance FD 20-18D
Company:	Great Western	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Project:	SEC.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	North Reference:	True
Well:	Raindance FD 20-18D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (11-05-12)		

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	28.64	17.63	1,825.9	465.6	148.0	488.6	0.00	0.00	0.00
1,960.0	28.64	17.63	1,861.0	483.9	153.8	507.7	0.00	0.00	0.00
2,000.0	28.64	17.63	1,896.1	502.2	159.6	526.9	0.00	0.00	0.00
2,040.0	28.64	17.63	1,931.2	520.4	165.4	546.1	0.00	0.00	0.00
2,080.0	28.64	17.63	1,966.3	538.7	171.2	565.3	0.00	0.00	0.00
2,120.0	28.64	17.63	2,001.4	557.0	177.0	584.4	0.00	0.00	0.00
2,160.0	28.64	17.63	2,036.5	575.2	182.8	603.6	0.00	0.00	0.00
2,200.0	28.64	17.63	2,071.6	593.5	188.6	622.8	0.00	0.00	0.00
2,240.0	28.64	17.63	2,106.7	611.8	194.4	641.9	0.00	0.00	0.00
2,280.0	28.64	17.63	2,141.8	630.1	200.2	661.1	0.00	0.00	0.00
2,320.0	28.64	17.63	2,176.9	648.3	206.0	680.3	0.00	0.00	0.00
2,360.0	28.64	17.63	2,212.0	666.6	211.9	699.5	0.00	0.00	0.00
2,400.0	28.64	17.63	2,247.1	684.9	217.7	718.6	0.00	0.00	0.00
2,416.9	28.64	17.63	2,262.0	692.6	220.1	726.8	0.00	0.00	0.00
GREELEY SAND									
2,440.0	28.64	17.63	2,282.2	703.2	223.5	737.8	0.00	0.00	0.00
2,480.0	28.64	17.63	2,317.3	721.4	229.3	757.0	0.00	0.00	0.00
2,520.0	28.64	17.63	2,352.4	739.7	235.1	776.2	0.00	0.00	0.00
2,560.0	28.64	17.63	2,387.5	758.0	240.9	795.3	0.00	0.00	0.00
2,600.0	28.64	17.63	2,422.7	776.3	246.7	814.5	0.00	0.00	0.00
2,640.0	28.64	17.63	2,457.8	794.5	252.5	833.7	0.00	0.00	0.00
2,680.0	28.64	17.63	2,492.9	812.8	258.3	852.9	0.00	0.00	0.00
2,720.0	28.64	17.63	2,528.0	831.1	264.1	872.0	0.00	0.00	0.00
2,760.0	28.64	17.63	2,563.1	849.3	269.9	891.2	0.00	0.00	0.00
2,800.0	28.64	17.63	2,598.2	867.6	275.7	910.4	0.00	0.00	0.00
2,840.0	28.64	17.63	2,633.3	885.9	281.5	929.6	0.00	0.00	0.00
2,880.0	28.64	17.63	2,668.4	904.2	287.4	948.7	0.00	0.00	0.00
2,920.0	28.64	17.63	2,703.5	922.4	293.2	967.9	0.00	0.00	0.00
2,960.0	28.64	17.63	2,738.6	940.7	299.0	987.1	0.00	0.00	0.00
3,000.0	28.64	17.63	2,773.7	959.0	304.8	1,006.2	0.00	0.00	0.00
3,040.0	28.64	17.63	2,808.8	977.3	310.6	1,025.4	0.00	0.00	0.00
3,080.0	28.64	17.63	2,843.9	995.5	316.4	1,044.6	0.00	0.00	0.00
3,120.0	28.64	17.63	2,879.0	1,013.8	322.2	1,063.8	0.00	0.00	0.00
3,160.0	28.64	17.63	2,914.1	1,032.1	328.0	1,082.9	0.00	0.00	0.00
3,200.0	28.64	17.63	2,949.2	1,050.3	333.8	1,102.1	0.00	0.00	0.00
3,240.0	28.64	17.63	2,984.3	1,068.6	339.6	1,121.3	0.00	0.00	0.00
3,280.0	28.64	17.63	3,019.4	1,086.9	345.4	1,140.5	0.00	0.00	0.00
3,320.0	28.64	17.63	3,054.5	1,105.2	351.2	1,159.6	0.00	0.00	0.00
3,360.0	28.64	17.63	3,089.7	1,123.4	357.0	1,178.8	0.00	0.00	0.00
3,400.0	28.64	17.63	3,124.8	1,141.7	362.8	1,198.0	0.00	0.00	0.00
3,440.0	28.64	17.63	3,159.9	1,160.0	368.7	1,217.2	0.00	0.00	0.00
3,480.0	28.64	17.63	3,195.0	1,178.3	374.5	1,236.3	0.00	0.00	0.00
3,520.0	28.64	17.63	3,230.1	1,196.5	380.3	1,255.5	0.00	0.00	0.00
3,560.0	28.64	17.63	3,265.2	1,214.8	386.1	1,274.7	0.00	0.00	0.00
3,600.0	28.64	17.63	3,300.3	1,233.1	391.9	1,293.8	0.00	0.00	0.00
3,640.0	28.64	17.63	3,335.4	1,251.3	397.7	1,313.0	0.00	0.00	0.00
3,680.0	28.64	17.63	3,370.5	1,269.6	403.5	1,332.2	0.00	0.00	0.00
3,717.0	28.64	17.63	3,403.0	1,286.5	408.9	1,349.9	0.00	0.00	0.00
PARKMAN									
3,720.0	28.64	17.63	3,405.6	1,287.9	409.3	1,351.4	0.00	0.00	0.00
3,760.0	28.64	17.63	3,440.7	1,306.2	415.1	1,370.5	0.00	0.00	0.00
3,800.0	28.64	17.63	3,475.8	1,324.4	420.9	1,389.7	0.00	0.00	0.00
3,840.0	28.64	17.63	3,510.9	1,342.7	426.7	1,408.9	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Raindance FD 20-18D
Company:	Great Western	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Project:	SEC.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	North Reference:	True
Well:	Raindance FD 20-18D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (11-05-12)		

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)
3,880.0	28.64	17.63	3,546.0	1,361.0	432.5	1,428.1	0.00	0.00	0.00
3,920.0	28.64	17.63	3,581.1	1,379.3	438.3	1,447.2	0.00	0.00	0.00
3,960.0	28.64	17.63	3,616.2	1,397.5	444.2	1,466.4	0.00	0.00	0.00
4,000.0	28.64	17.63	3,651.3	1,415.8	450.0	1,485.6	0.00	0.00	0.00
4,040.0	28.64	17.63	3,686.4	1,434.1	455.8	1,504.8	0.00	0.00	0.00
4,080.0	28.64	17.63	3,721.5	1,452.3	461.6	1,523.9	0.00	0.00	0.00
4,120.0	28.64	17.63	3,756.7	1,470.6	467.4	1,543.1	0.00	0.00	0.00
4,160.0	28.64	17.63	3,791.8	1,488.9	473.2	1,562.3	0.00	0.00	0.00
4,200.0	28.64	17.63	3,826.9	1,507.2	479.0	1,581.5	0.00	0.00	0.00
4,240.0	28.64	17.63	3,862.0	1,525.4	484.8	1,600.6	0.00	0.00	0.00
4,280.0	28.64	17.63	3,897.1	1,543.7	490.6	1,619.8	0.00	0.00	0.00
4,320.0	28.64	17.63	3,932.2	1,562.0	496.4	1,639.0	0.00	0.00	0.00
4,360.0	28.64	17.63	3,967.3	1,580.3	502.2	1,658.1	0.00	0.00	0.00
4,400.0	28.64	17.63	4,002.4	1,598.5	508.0	1,677.3	0.00	0.00	0.00
4,440.0	28.64	17.63	4,037.5	1,616.8	513.8	1,696.5	0.00	0.00	0.00
4,480.0	28.64	17.63	4,072.6	1,635.1	519.6	1,715.7	0.00	0.00	0.00
4,506.7	28.64	17.63	4,096.0	1,647.3	523.5	1,728.4	0.00	0.00	0.00
SUSSEX									
4,520.0	28.64	17.63	4,107.7	1,653.4	525.5	1,734.8	0.00	0.00	0.00
4,560.0	28.64	17.63	4,142.8	1,671.6	531.3	1,754.0	0.00	0.00	0.00
4,600.0	28.64	17.63	4,177.9	1,689.9	537.1	1,773.2	0.00	0.00	0.00
4,640.0	28.64	17.63	4,213.0	1,708.2	542.9	1,792.4	0.00	0.00	0.00
4,680.0	28.64	17.63	4,248.1	1,726.4	548.7	1,811.5	0.00	0.00	0.00
4,720.0	28.64	17.63	4,283.2	1,744.7	554.5	1,830.7	0.00	0.00	0.00
4,760.0	28.64	17.63	4,318.3	1,763.0	560.3	1,849.9	0.00	0.00	0.00
4,800.0	28.64	17.63	4,353.4	1,781.3	566.1	1,869.1	0.00	0.00	0.00
4,840.0	28.64	17.63	4,388.5	1,799.5	571.9	1,888.2	0.00	0.00	0.00
4,880.0	28.64	17.63	4,423.6	1,817.8	577.7	1,907.4	0.00	0.00	0.00
4,920.0	28.64	17.63	4,458.8	1,836.1	583.5	1,926.6	0.00	0.00	0.00
4,951.0	28.64	17.63	4,486.0	1,850.3	588.0	1,941.5	0.00	0.00	0.00
SHANNON									
4,960.0	28.64	17.63	4,493.9	1,854.4	589.3	1,945.7	0.00	0.00	0.00
5,000.0	28.64	17.63	4,529.0	1,872.6	595.1	1,964.9	0.00	0.00	0.00
5,040.0	28.64	17.63	4,564.1	1,890.9	600.9	1,984.1	0.00	0.00	0.00
5,080.0	28.64	17.63	4,599.2	1,909.2	606.8	2,003.3	0.00	0.00	0.00
5,120.0	28.64	17.63	4,634.3	1,927.4	612.6	2,022.4	0.00	0.00	0.00
5,160.0	28.64	17.63	4,669.4	1,945.7	618.4	2,041.6	0.00	0.00	0.00
5,200.0	28.64	17.63	4,704.5	1,964.0	624.2	2,060.8	0.00	0.00	0.00
5,240.0	28.64	17.63	4,739.6	1,982.3	630.0	2,080.0	0.00	0.00	0.00
5,280.0	28.64	17.63	4,774.7	2,000.5	635.8	2,099.1	0.00	0.00	0.00
5,320.0	28.64	17.63	4,809.8	2,018.8	641.6	2,118.3	0.00	0.00	0.00
5,360.0	28.64	17.63	4,844.9	2,037.1	647.4	2,137.5	0.00	0.00	0.00
5,400.0	28.64	17.63	4,880.0	2,055.4	653.2	2,156.7	0.00	0.00	0.00
5,440.0	28.64	17.63	4,915.1	2,073.6	659.0	2,175.8	0.00	0.00	0.00
5,480.0	28.64	17.63	4,950.2	2,091.9	664.8	2,195.0	0.00	0.00	0.00
5,520.0	28.64	17.63	4,985.3	2,110.2	670.6	2,214.2	0.00	0.00	0.00
5,560.0	28.64	17.63	5,020.4	2,128.4	676.4	2,233.4	0.00	0.00	0.00
5,600.0	28.64	17.63	5,055.5	2,146.7	682.3	2,252.5	0.00	0.00	0.00
5,640.0	28.64	17.63	5,090.6	2,165.0	688.1	2,271.7	0.00	0.00	0.00
5,680.0	28.64	17.63	5,125.8	2,183.3	693.9	2,290.9	0.00	0.00	0.00
5,720.0	28.64	17.63	5,160.9	2,201.5	699.7	2,310.0	0.00	0.00	0.00
5,760.0	28.64	17.63	5,196.0	2,219.8	705.5	2,329.2	0.00	0.00	0.00
5,800.0	28.64	17.63	5,231.1	2,238.1	711.3	2,348.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Raindance FD 20-18D
Company:	Great Western	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Project:	SEC.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	North Reference:	True
Well:	Raindance FD 20-18D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (11-05-12)		

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)
5,840.0	28.64	17.63	5,266.2	2,256.4	717.1	2,367.6	0.00	0.00	0.00
5,880.0	28.64	17.63	5,301.3	2,274.6	722.9	2,386.7	0.00	0.00	0.00
5,909.1	28.64	17.63	5,326.8	2,287.9	727.1	2,400.7	0.00	0.00	0.00
Start Drop -2.00									
5,920.0	28.42	17.63	5,336.4	2,292.9	728.7	2,405.9	2.00	-2.00	0.00
5,960.0	27.62	17.63	5,371.7	2,310.8	734.4	2,424.7	2.00	-2.00	0.00
6,000.0	26.82	17.63	5,407.3	2,328.2	739.9	2,443.0	2.00	-2.00	0.00
6,040.0	26.02	17.63	5,443.1	2,345.2	745.3	2,460.8	2.00	-2.00	0.00
6,080.0	25.22	17.63	5,479.2	2,361.7	750.6	2,478.1	2.00	-2.00	0.00
6,120.0	24.42	17.63	5,515.5	2,377.7	755.7	2,494.9	2.00	-2.00	0.00
6,160.0	23.62	17.63	5,552.0	2,393.2	760.6	2,511.2	2.00	-2.00	0.00
6,200.0	22.82	17.63	5,588.8	2,408.2	765.4	2,526.9	2.00	-2.00	0.00
6,240.0	22.02	17.63	5,625.7	2,422.8	770.0	2,542.2	2.00	-2.00	0.00
6,280.0	21.22	17.63	5,662.9	2,436.8	774.5	2,556.9	2.00	-2.00	0.00
6,320.0	20.42	17.63	5,700.3	2,450.4	778.8	2,571.2	2.00	-2.00	0.00
6,360.0	19.62	17.63	5,737.9	2,463.4	782.9	2,584.8	2.00	-2.00	0.00
6,400.0	18.82	17.63	5,775.7	2,476.0	786.9	2,598.0	2.00	-2.00	0.00
6,440.0	18.02	17.63	5,813.6	2,488.0	790.7	2,610.7	2.00	-2.00	0.00
6,480.0	17.22	17.63	5,851.7	2,499.6	794.4	2,622.8	2.00	-2.00	0.00
6,520.0	16.42	17.63	5,890.0	2,510.6	797.9	2,634.3	2.00	-2.00	0.00
6,560.0	15.62	17.63	5,928.5	2,521.1	801.2	2,645.4	2.00	-2.00	0.00
6,600.0	14.82	17.63	5,967.1	2,531.1	804.4	2,655.9	2.00	-2.00	0.00
6,640.0	14.02	17.63	6,005.8	2,540.6	807.4	2,665.9	2.00	-2.00	0.00
6,680.0	13.22	17.63	6,044.7	2,549.6	810.3	2,675.3	2.00	-2.00	0.00
6,720.0	12.42	17.63	6,083.7	2,558.1	813.0	2,684.2	2.00	-2.00	0.00
6,760.0	11.62	17.63	6,122.8	2,566.0	815.5	2,692.5	2.00	-2.00	0.00
6,800.0	10.82	17.63	6,162.0	2,573.4	817.9	2,700.3	2.00	-2.00	0.00
6,840.0	10.02	17.63	6,201.4	2,580.3	820.1	2,707.5	2.00	-2.00	0.00
6,880.0	9.22	17.63	6,240.8	2,586.7	822.1	2,714.2	2.00	-2.00	0.00
6,920.0	8.42	17.63	6,280.3	2,592.6	823.9	2,720.3	2.00	-2.00	0.00
6,960.0	7.62	17.63	6,319.9	2,597.9	825.6	2,725.9	2.00	-2.00	0.00
7,000.0	6.82	17.63	6,359.6	2,602.7	827.2	2,730.9	2.00	-2.00	0.00
7,040.0	6.02	17.63	6,399.4	2,606.9	828.5	2,735.4	2.00	-2.00	0.00
7,080.0	5.22	17.63	6,439.2	2,610.7	829.7	2,739.3	2.00	-2.00	0.00
7,120.0	4.42	17.63	6,479.0	2,613.9	830.7	2,742.7	2.00	-2.00	0.00
7,160.0	3.62	17.63	6,518.9	2,616.5	831.6	2,745.5	2.00	-2.00	0.00
7,200.0	2.82	17.63	6,558.9	2,618.7	832.2	2,747.8	2.00	-2.00	0.00
7,240.0	2.02	17.63	6,598.8	2,620.3	832.8	2,749.5	2.00	-2.00	0.00
7,280.0	1.22	17.63	6,638.8	2,621.4	833.1	2,750.6	2.00	-2.00	0.00
7,320.0	0.42	17.63	6,678.8	2,621.9	833.3	2,751.2	2.00	-2.00	0.00
7,341.2	0.00	0.00	6,700.0	2,622.0	833.3	2,751.2	2.00	-2.00	0.00
Back to Vertical - TARGET BHL 1980'FSL, 660'FWL									
7,360.0	0.00	0.00	6,718.8	2,622.0	833.3	2,751.2	0.00	0.00	0.00
7,400.0	0.00	0.00	6,758.8	2,622.0	833.3	2,751.2	0.00	0.00	0.00
7,437.2	0.00	0.00	6,796.0	2,622.0	833.3	2,751.2	0.00	0.00	0.00
NIORARA - TARGET CIRCLE 1980'FSL & 660'FWL - LEGAL BOX 400' X 400' 1970'FSL, 658'FWL									
7,440.0	0.00	0.00	6,798.8	2,622.0	833.3	2,751.2	0.00	0.00	0.00
7,480.0	0.00	0.00	6,838.8	2,622.0	833.3	2,751.2	0.00	0.00	0.00
7,520.0	0.00	0.00	6,878.8	2,622.0	833.3	2,751.2	0.00	0.00	0.00
7,560.0	0.00	0.00	6,918.8	2,622.0	833.3	2,751.2	0.00	0.00	0.00
7,600.0	0.00	0.00	6,958.8	2,622.0	833.3	2,751.2	0.00	0.00	0.00
7,640.0	0.00	0.00	6,998.8	2,622.0	833.3	2,751.2	0.00	0.00	0.00
7,680.0	0.00	0.00	7,038.8	2,622.0	833.3	2,751.2	0.00	0.00	0.00

Formations						
	Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	2,416.9	2,262.0	GREELEY SAND		0.00	
	3,717.0	3,403.0	PARKMAN		0.00	
	4,506.7	4,096.0	SUSSEX		0.00	
	4,951.0	4,486.0	SHANNON		0.00	
	7,437.2	6,796.0	NIOBRARA		0.00	
	7,748.2	7,107.0	FORT HAYS		0.00	
	7,770.2	7,129.0	CODELL		0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Raindance FD 20-18D
Company:	Great Western	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Project:	SEC.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	North Reference:	True
Well:	Raindance FD 20-18D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (11-05-12)		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP - Start Build 2.00
1,632.1	1,573.2	334.1	106.2	Start 4277.0 hold at 1632.1 MD
5,909.1	5,326.8	2,287.9	727.1	Start Drop -2.00
7,341.2	6,700.0	2,622.0	833.3	Back to Vertical
7,930.2	7,289.0	2,622.0	833.3	TD at 7930.2



Great Western

SEC.30-T6N-R67W

Raindance FD East Row Pad Sec.30-T6N-R67W

Raindance FD 20-18D

Wellbore #1

Plan #2 (11-05-12)

Anticollision Report

06 November, 2012

Company:	Great Western	Local Co-ordinate Reference:	Well Raindance FD 20-18D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-18D	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 #2 (11-05-12)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (11-05-12)		
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 10,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	11/6/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	7,930.2	Plan #2 (11-05-12) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Raindance FD East Row Pad Sec.30-T6N-R67W						
Raindance FD 1-2H (Planned) - Wellbore #1 - Design #1	7,755.9	14,520.2	1,878.0	1,698.3	10.449	CC, ES, SF
Raindance FD 1-H (Planned) - Wellbore #1 - Design #1	7,567.8	14,923.6	1,260.5	1,081.0	7.024	CC, ES, SF
Raindance FD 20-25D - Wellbore #1 - Plan #1 (10-18-12)	200.0	200.4	15.3	14.6	22.696	CC, ES
Raindance FD 20-25D - Wellbore #1 - Plan #1 (10-18-12)	400.0	400.2	22.1	20.6	13.903	SF
Raindance FD West Row Pad Sec.30-T6N-R67W						
Raindance FD 20-32D - Wellbore #1 - Plan #2 (11-05-12)	200.0	200.1	15.3	14.6	22.714	CC
Raindance FD 20-32D - Wellbore #1 - Plan #2 (11-05-12)	300.0	300.1	15.8	14.6	14.022	ES
Raindance FD 20-32D - Wellbore #1 - Plan #2 (11-05-12)	1,800.0	1,793.0	122.7	105.1	6.961	SF
Raindance FD 20-33D - Wellbore #1 - Plan #1 (10-18-12)	200.0	199.7	20.9	20.2	31.001	CC, ES
Raindance FD 20-33D - Wellbore #1 - Plan #1 (10-18-12)	5,200.0	5,191.6	564.4	506.1	9.674	SF

Offset Design												
Raindance FD East Row Pad Sec.30-T6N-R67W - Raindance FD 1-2H (Planned) - Wellbore #1 - Design												
Survey Program: 0-MWD												
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
0.0	0.0	219.8	219.8	0.0	0.4	-151.69	-4,289.9	-2,310.7	4,872.6	4,872.2	0.38	N/A
100.0	100.0	319.8	319.8	0.1	0.6	-151.69	-4,289.9	-2,310.7	4,872.6	4,871.9	0.72	6,778.816
200.0	200.0	419.8	419.8	0.3	0.8	-151.69	-4,289.9	-2,310.7	4,872.6	4,871.5	1.17	4,170.576
300.0	300.0	519.8	519.8	0.6	1.1	-169.32	-4,289.9	-2,310.7	4,874.3	4,872.7	1.62	3,004.942
400.0	399.8	619.6	619.6	0.8	1.3	-169.31	-4,289.9	-2,310.7	4,879.5	4,877.4	2.08	2,347.456
500.0	499.5	719.3	719.3	1.0	1.5	-169.30	-4,289.9	-2,310.7	4,888.0	4,885.5	2.54	1,927.717
600.0	598.7	818.5	818.5	1.3	1.7	-169.28	-4,289.9	-2,310.7	4,900.0	4,897.0	2.99	1,636.574
700.0	697.5	917.3	917.3	1.6	1.9	-169.26	-4,289.9	-2,310.7	4,915.4	4,911.9	3.45	1,422.825
800.0	795.6	1,015.4	1,015.4	2.0	2.2	-169.23	-4,289.9	-2,310.7	4,934.2	4,930.2	3.92	1,259.269
900.0	893.1	1,112.9	1,112.9	2.4	2.4	-169.19	-4,289.9	-2,310.7	4,956.3	4,951.9	4.39	1,130.123
1,000.0	989.6	1,209.4	1,209.4	2.9	2.6	-169.15	-4,289.9	-2,310.7	4,981.7	4,976.9	4.86	1,025.616
1,100.0	1,085.3	1,305.1	1,305.1	3.5	2.8	-169.10	-4,289.9	-2,310.7	5,010.5	5,005.1	5.33	939.372
1,200.0	1,179.8	1,399.6	1,399.6	4.1	3.0	-169.04	-4,289.9	-2,310.7	5,042.5	5,036.7	5.82	867.054
1,300.0	1,273.2	1,549.3	1,549.2	4.7	3.4	-169.03	-4,289.4	-2,309.9	5,077.2	5,070.8	6.40	793.122
1,400.0	1,365.2	1,660.9	1,660.9	5.5	3.6	-168.99	-4,288.5	-2,308.3	5,114.4	5,107.5	6.92	739.292
1,500.0	1,455.8	1,752.1	1,752.1	6.2	3.8	-168.92	-4,287.7	-2,306.9	5,154.6	5,147.2	7.41	695.864

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 Raindance FD 20-18D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-18D	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 #2 (11-05-12)	Offset TVD Reference:	Offset Datum

Offset Design Raindance FD East Row Pad Sec.30-T6N-R67W - Raindance FD 1-2H (Planned) - Wellbore #1 - Desig													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
1,600.0	1,544.9	1,841.8	1,841.7	7.1	4.0	-168.84	-4,286.9	-2,305.6	5,198.0	5,190.1	7.90	657.577		
1,632.1	1,573.2	1,870.2	1,870.2	7.4	4.0	-168.81	-4,286.6	-2,305.1	5,212.6	5,204.5	8.07	646.258		
1,700.0	1,632.8	1,930.2	1,930.2	8.0	4.2	-168.89	-4,286.1	-2,304.2	5,243.8	5,235.3	8.45	620.489		
1,800.0	1,720.5	2,018.6	2,018.5	8.9	4.4	-169.00	-4,285.3	-2,302.9	5,289.7	5,280.7	9.02	586.244		
1,900.0	1,808.3	2,107.0	2,106.9	9.8	4.6	-169.10	-4,284.5	-2,301.6	5,335.7	5,326.1	9.60	555.828		
2,000.0	1,896.1	2,197.6	2,197.5	10.7	4.8	-169.19	-4,283.7	-2,300.3	5,381.7	5,371.9	10.18	526.412		
2,100.0	1,983.8	2,288.3	2,288.2	11.6	5.0	-169.28	-4,282.9	-2,299.0	5,427.7	5,417.9	10.76	497.006		
2,200.0	2,071.6	2,379.0	2,378.9	12.5	5.2	-169.37	-4,282.1	-2,298.2	5,473.7	5,463.9	11.34	467.600		
2,300.0	2,159.4	2,469.7	2,469.6	13.4	5.4	-169.46	-4,281.3	-2,297.4	5,519.7	5,509.9	11.92	438.194		
2,400.0	2,247.1	2,560.4	2,560.3	14.4	5.6	-169.55	-4,280.5	-2,296.6	5,565.7	5,555.9	12.50	408.788		
2,500.0	2,334.9	2,651.1	2,651.0	15.3	5.8	-169.64	-4,279.7	-2,295.8	5,611.7	5,601.9	13.08	379.382		
2,600.0	2,422.7	2,741.8	2,741.7	16.2	6.0	-169.73	-4,278.9	-2,295.0	5,657.7	5,647.9	13.66	349.976		
2,700.0	2,510.4	2,832.5	2,832.4	17.1	6.2	-169.82	-4,278.1	-2,294.2	5,703.7	5,693.9	14.24	320.570		
2,800.0	2,598.2	2,923.2	2,923.1	18.0	6.4	-169.91	-4,277.3	-2,293.4	5,749.7	5,739.9	14.82	291.164		
2,900.0	2,685.9	3,013.9	3,013.8	19.0	6.6	-169.99	-4,276.5	-2,292.6	5,795.7	5,785.9	15.40	261.758		
3,000.0	2,773.7	3,104.6	3,104.5	19.9	6.8	-170.08	-4,275.7	-2,291.8	5,841.7	5,831.9	15.98	232.352		
3,100.0	2,861.5	3,195.3	3,195.2	20.8	7.0	-170.17	-4,274.9	-2,291.0	5,887.7	5,877.9	16.56	202.946		
3,200.0	2,949.2	3,286.0	3,285.9	21.7	7.2	-170.26	-4,274.1	-2,290.2	5,933.7	5,923.9	17.14	173.540		
3,300.0	3,037.0	3,376.7	3,376.6	22.6	7.4	-170.35	-4,273.3	-2,289.4	5,979.7	5,969.9	17.72	144.134		
3,400.0	3,124.8	3,467.4	3,467.3	23.6	7.6	-170.44	-4,272.5	-2,288.6	6,025.7	6,015.9	18.30	114.728		
3,500.0	3,212.5	3,558.1	3,558.0	24.5	7.8	-170.53	-4,271.7	-2,287.8	6,071.7	6,061.9	18.88	85.322		
3,600.0	3,300.3	3,648.8	3,648.7	25.4	8.0	-170.62	-4,270.9	-2,287.0	6,117.7	6,107.9	19.46	55.916		
3,700.0	3,388.0	3,739.5	3,739.4	26.3	8.2	-170.71	-4,270.1	-2,286.2	6,163.7	6,153.9	20.04	26.510		
3,800.0	3,475.8	3,830.2	3,830.1	27.3	8.4	-170.80	-4,269.3	-2,285.4	6,209.7	6,199.9	20.62	0.104		
3,900.0	3,563.6	3,920.9	3,920.8	28.2	8.6	-170.89	-4,268.5	-2,284.6	6,255.7	6,245.9	21.20	-29.302		
4,000.0	3,651.3	4,011.6	4,011.5	29.1	8.8	-170.98	-4,267.7	-2,283.8	6,301.7	6,291.9	21.78	-59.896		
4,100.0	3,739.1	4,102.3	4,102.2	30.0	9.0	-171.07	-4,266.9	-2,283.0	6,347.7	6,337.9	22.36	-80.490		
4,200.0	3,826.9	4,193.0	4,192.9	31.0	9.2	-171.16	-4,266.1	-2,282.2	6,393.7	6,383.9	22.94	-111.084		
4,300.0	3,914.6	4,283.7	4,283.6	31.9	9.4	-171.25	-4,265.3	-2,281.4	6,439.7	6,429.9	23.52	-141.678		
4,400.0	4,002.4	4,374.4	4,374.3	32.8	9.6	-171.34	-4,264.5	-2,280.6	6,485.7	6,475.9	24.10	-172.272		
4,500.0	4,090.2	4,465.1	4,465.0	33.7	9.8	-171.43	-4,263.7	-2,279.8	6,531.7	6,521.9	24.68	-202.866		
4,600.0	4,177.9	4,555.8	4,555.7	34.7	10.0	-171.52	-4,262.9	-2,279.0	6,577.7	6,567.9	25.26	-233.460		
4,700.0	4,265.7	4,646.5	4,646.4	35.6	10.2	-171.61	-4,262.1	-2,278.2	6,623.7	6,613.9	25.84	-264.054		
4,800.0	4,353.4	4,737.2	4,737.1	36.5	10.4	-171.70	-4,261.3	-2,277.4	6,669.7	6,659.9	26.42	-294.648		
4,900.0	4,441.2	4,827.9	4,827.8	37.4	10.6	-171.79	-4,260.5	-2,276.6	6,715.7	6,705.9	27.00	-325.242		
5,000.0	4,529.0	4,918.6	4,918.5	38.4	10.8	-171.88	-4,259.7	-2,275.8	6,761.7	6,751.9	27.58	-355.836		
5,100.0	4,616.7	5,009.3	5,009.2	39.3	11.0	-171.97	-4,258.9	-2,275.0	6,807.7	6,797.9	28.16	-386.430		
5,200.0	4,704.5	5,100.0	5,100.0	40.2	11.2	-172.06	-4,258.1	-2,274.2	6,853.7	6,843.9	28.74	-417.024		
5,300.0	4,792.3	5,190.7	5,190.6	41.1	11.4	-172.15	-4,257.3	-2,273.4	6,899.7	6,889.9	29.32	-447.618		
5,400.0	4,880.0	5,281.4	5,281.3	42.1	11.6	-172.24	-4,256.5	-2,272.6	6,945.7	6,935.9	29.90	-478.212		
5,500.0	4,967.8	5,372.1	5,372.0	43.0	11.8	-172.33	-4,255.7	-2,271.8	6,991.7	6,981.9	30.48	-508.806		
5,600.0	5,055.5	5,462.8	5,462.7	43.9	12.0	-172.42	-4,254.9	-2,271.0	7,037.7	7,027.9	31.06	-539.400		
5,700.0	5,143.3	5,553.5	5,553.4	44.8	12.2	-172.51	-4,254.1	-2,270.2	7,083.7	7,073.9	31.64	-570.000		
5,800.0	5,231.1	5,644.2	5,644.1	45.8	12.4	-172.60	-4,253.3	-2,269.4	7,129.7	7,119.9	32.22	-600.600		
5,909.1	5,326.8	5,734.9	5,734.8	46.8	12.6	-172.69	-4,252.5	-2,268.6	7,175.7	7,165.9	32.80	-631.200		
6,000.0	5,407.3	5,825.6	5,825.5	47.5	12.8	-172.78	-4,251.7	-2,267.8	7,221.7	7,211.9	33.38	-661.800		
6,100.0	5,497.3	5,916.3	5,916.2	48.1	13.0	-172.87	-4,250.9	-2,267.0	7,267.7	7,257.9	33.96	-692.400		
6,200.0	5,588.8	6,007.0	6,006.9	48.7	13.2	-172.96	-4,250.1	-2,266.2	7,313.7	7,303.9	34.54	-723.000		
6,300.0	5,681.6	6,097.7	6,097.6	49.3	13.4	-173.05	-4,249.3	-2,265.4	7,359.7	7,349.9	35.12	-753.600		
6,400.0	5,775.7	6,188.4	6,188.3	49.8	13.6	-173.14	-4,248.5	-2,264.6	7,405.7	7,395.9	35.70	-784.200		
6,500.0	5,870.9	6,279.1	6,279.0	50.3	13.8	-173.23	-4,247.7	-2,263.8	7,451.7	7,441.9	36.28	-814.800		

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 Raindance FD 20-18D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-18D	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 #2 (11-05-12)	Offset TVD Reference:	Offset Datum

Offset Design Raindance FD East Row Pad Sec.30-T6N-R67W - Raindance FD 1-2H (Planned) - Wellbore #1 - Desig													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		
6,600.0	5,967.1	14,433.1	7,334.8	50.8	129.1	-115.25	2,534.9	-1,044.7	2,176.5	2,006.1	170.41	12.772		
6,700.0	6,064.2	14,455.6	7,334.7	51.2	129.5	-113.73	2,557.4	-1,044.7	2,133.1	1,960.5	172.57	12.361		
6,800.0	6,162.0	14,474.8	7,334.7	51.5	129.9	-112.35	2,576.6	-1,044.7	2,092.1	1,917.7	174.42	11.995		
6,900.0	6,260.6	14,490.7	7,334.6	51.8	130.2	-111.11	2,592.5	-1,044.7	2,053.8	1,877.9	175.97	11.672		
7,000.0	6,359.6	14,503.3	7,334.6	52.1	130.4	-110.02	2,605.2	-1,044.7	2,018.4	1,841.2	177.22	11.389		
7,100.0	6,459.1	14,512.7	7,334.5	52.3	130.6	-109.10	2,614.5	-1,044.7	1,986.3	1,808.1	178.21	11.146		
7,200.0	6,558.9	14,518.7	7,334.5	52.4	130.7	-108.35	2,620.5	-1,044.7	1,957.5	1,778.6	178.93	10.940		
7,300.0	6,658.8	14,521.4	7,334.5	52.5	130.7	-107.77	2,623.2	-1,044.7	1,932.5	1,753.0	179.41	10.771		
7,341.2	6,700.0	14,521.5	7,334.5	52.5	130.7	-89.96	2,623.4	-1,044.7	1,923.2	1,743.7	179.54	10.712		
7,400.0	6,758.8	14,521.4	7,334.5	52.6	130.7	-89.96	2,623.2	-1,044.7	1,911.4	1,731.9	179.57	10.645		
7,500.0	6,858.8	14,521.0	7,334.5	52.6	130.7	-89.97	2,622.9	-1,044.7	1,895.4	1,715.7	179.61	10.552		
7,600.0	6,958.8	14,520.7	7,334.5	52.7	130.7	-89.98	2,622.5	-1,044.7	1,884.5	1,704.8	179.66	10.489		
7,700.0	7,058.8	14,520.4	7,334.5	52.7	130.7	-89.99	2,622.2	-1,044.7	1,878.8	1,699.1	179.71	10.455		
7,755.9	7,114.7	14,520.2	7,334.5	52.8	130.7	-90.00	2,622.0	-1,044.7	1,878.0	1,698.3	179.73	10.449 CC, ES, SF		
7,800.0	7,158.8	14,520.0	7,334.5	52.8	130.7	-90.00	2,621.9	-1,044.7	1,878.5	1,698.8	179.75	10.450		
7,900.0	7,258.8	14,519.7	7,334.5	52.9	130.7	-90.01	2,621.5	-1,044.7	1,883.5	1,703.7	179.80	10.475		
7,930.2	7,289.0	14,519.6	7,334.5	52.9	130.7	-90.02	2,621.4	-1,044.7	1,886.1	1,706.2	179.82	10.489		

Company:	Great Western	Local Co-ordinate Reference:	Well Raindance FD 20-18D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-18D	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 #2 (11-05-12)	Offset TVD Reference:	Offset Datum

Offset Design Raindance FD East Row Pad Sec.30-T6N-R67W - Raindance FD 1-H (Planned) - Wellbore #1 - Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	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
0.0	0.0	219.8	219.8	0.0	0.4	-151.89		-4,289.9	-2,291.4	4,863.5	4,863.1	0.38	N/A	
100.0	100.0	319.8	319.8	0.1	0.6	-151.89		-4,289.9	-2,291.4	4,863.5	4,862.8	0.72	6,766.104	
200.0	200.0	419.8	419.8	0.3	0.8	-151.89		-4,289.9	-2,291.4	4,863.5	4,862.3	1.17	4,162.755	
300.0	300.0	519.8	519.8	0.6	1.1	-169.52		-4,289.9	-2,291.4	4,865.2	4,863.6	1.62	2,999.294	
400.0	399.8	619.6	619.6	0.8	1.3	-169.51		-4,289.9	-2,291.4	4,870.3	4,868.3	2.08	2,343.046	
500.0	499.5	719.3	719.3	1.0	1.5	-169.50		-4,289.9	-2,291.4	4,878.9	4,876.4	2.54	1,924.119	
600.0	598.7	818.5	818.5	1.3	1.7	-169.48		-4,289.9	-2,291.4	4,890.9	4,887.9	2.99	1,633.560	
700.0	697.5	917.3	917.3	1.6	1.9	-169.46		-4,289.9	-2,291.4	4,906.3	4,902.8	3.45	1,420.258	
800.0	795.6	1,015.4	1,015.4	2.0	2.2	-169.43		-4,289.9	-2,291.4	4,925.1	4,921.1	3.92	1,257.060	
900.0	893.1	1,112.9	1,112.9	2.4	2.4	-169.39		-4,289.9	-2,291.4	4,947.2	4,942.8	4.38	1,128.211	
1,000.0	989.6	1,209.4	1,209.4	2.9	2.6	-169.35		-4,289.9	-2,291.4	4,972.7	4,967.8	4.86	1,023.957	
1,100.0	1,085.3	1,305.1	1,305.1	3.5	2.8	-169.30		-4,289.9	-2,291.4	5,001.4	4,996.1	5.33	937.932	
1,200.0	1,179.8	1,399.6	1,399.6	4.1	3.0	-169.25		-4,289.9	-2,291.4	5,033.5	5,027.7	5.81	865.808	
1,300.0	1,273.2	1,522.1	1,522.1	4.7	3.3	-169.21		-4,289.9	-2,291.4	5,068.5	5,062.1	6.34	799.279	
1,400.0	1,365.2	1,633.0	1,633.0	5.5	3.5	-169.17		-4,289.9	-2,291.4	5,106.2	5,099.4	6.85	745.834	
1,500.0	1,455.8	1,723.9	1,723.9	6.2	3.7	-169.11		-4,289.9	-2,287.5	5,147.0	5,139.7	7.33	702.388	
1,600.0	1,544.9	1,813.3	1,813.3	7.1	3.9	-169.04		-4,289.9	-2,285.9	5,190.9	5,183.1	7.82	663.964	
1,632.1	1,573.2	1,841.7	1,841.6	7.4	3.9	-169.01		-4,289.9	-2,285.4	5,205.6	5,197.7	7.98	652.568	
1,700.0	1,632.8	1,901.5	1,901.4	8.0	4.1	-169.09		-4,289.9	-2,284.4	5,237.1	5,228.8	8.36	626.695	
1,800.0	1,720.5	12,722.3	7,150.7	8.9	94.2	-168.54		420.8	-427.2	5,240.1	5,198.8	41.26	127.004	
1,900.0	1,808.3	12,767.8	7,150.6	9.8	94.9	-168.09		466.3	-427.2	5,154.3	5,112.1	42.22	122.088	
2,000.0	1,896.1	12,813.4	7,150.5	10.7	95.7	-167.62		511.8	-427.2	5,068.7	5,025.5	43.22	117.267	
2,100.0	1,983.8	12,858.9	7,150.4	11.6	96.4	-167.14		557.3	-427.2	4,983.2	4,938.9	44.28	112.543	
2,200.0	2,071.6	12,904.4	7,150.3	12.5	97.2	-166.65		602.8	-427.2	4,897.8	4,852.4	45.38	107.925	
2,300.0	2,159.4	12,949.9	7,150.2	13.4	97.9	-166.14		648.4	-427.2	4,812.5	4,766.0	46.54	103.413	
2,400.0	2,247.1	12,995.4	7,150.1	14.4	98.7	-165.63		693.9	-427.2	4,727.4	4,679.7	47.74	99.016	
2,500.0	2,334.9	13,040.9	7,150.1	15.3	99.5	-165.09		739.4	-427.2	4,642.4	4,593.4	49.01	94.732	
2,600.0	2,422.7	13,086.4	7,150.0	16.2	100.2	-164.55		784.9	-427.2	4,557.6	4,507.3	50.32	90.566	
2,700.0	2,510.4	13,132.0	7,149.9	17.1	101.0	-163.98		830.4	-427.2	4,473.0	4,421.3	51.70	86.519	
2,800.0	2,598.2	13,177.5	7,149.8	18.0	101.8	-163.40		875.9	-427.2	4,388.5	4,335.4	53.13	82.593	
2,900.0	2,685.9	13,223.0	7,149.7	19.0	102.6	-162.81		921.4	-427.2	4,304.2	4,249.6	54.63	78.788	
3,000.0	2,773.7	13,268.5	7,149.6	19.9	103.3	-162.20		967.0	-427.2	4,220.1	4,163.9	56.19	75.105	
3,100.0	2,861.5	13,314.0	7,149.5	20.8	104.1	-161.57		1,012.5	-427.2	4,136.2	4,078.4	57.81	71.545	
3,200.0	2,949.2	13,359.5	7,149.4	21.7	104.9	-160.92		1,058.0	-427.2	4,052.5	3,993.0	59.50	68.105	
3,300.0	3,037.0	13,405.0	7,149.4	22.6	105.7	-160.26		1,103.5	-427.2	3,969.1	3,907.8	61.26	64.788	
3,400.0	3,124.8	13,450.6	7,149.3	23.6	106.4	-159.57		1,149.0	-427.2	3,885.9	3,822.8	63.09	61.591	
3,500.0	3,212.5	13,496.1	7,149.2	24.5	107.2	-158.87		1,194.5	-427.2	3,802.9	3,738.0	64.99	58.513	
3,600.0	3,300.3	13,541.6	7,149.1	25.4	108.0	-158.14		1,240.0	-427.2	3,720.3	3,653.3	66.97	55.553	
3,700.0	3,388.0	13,587.1	7,149.0	26.3	108.8	-157.40		1,285.6	-427.2	3,638.0	3,568.9	69.02	52.710	
3,800.0	3,475.8	13,632.6	7,148.9	27.3	109.6	-156.63		1,331.1	-427.2	3,555.9	3,484.8	71.15	49.980	
3,900.0	3,563.6	13,678.1	7,148.8	28.2	110.4	-155.84		1,376.6	-427.2	3,474.3	3,400.9	73.35	47.363	
4,000.0	3,651.3	13,723.6	7,148.7	29.1	111.2	-155.03		1,422.1	-427.2	3,393.0	3,317.3	75.64	44.856	
4,100.0	3,739.1	13,769.2	7,148.7	30.0	112.0	-154.19		1,467.6	-427.2	3,312.0	3,234.0	78.01	42.457	
4,200.0	3,826.9	13,814.7	7,148.6	31.0	112.8	-153.33		1,513.1	-427.2	3,231.6	3,151.1	80.46	40.163	
4,300.0	3,914.6	13,860.2	7,148.5	31.9	113.6	-152.44		1,558.6	-427.2	3,151.6	3,068.6	83.00	37.972	
4,400.0	4,002.4	13,905.7	7,148.4	32.8	114.4	-151.53		1,604.1	-427.2	3,072.0	2,986.4	85.62	35.881	
4,500.0	4,090.2	13,951.2	7,148.3	33.7	115.2	-150.59		1,649.7	-427.2	2,993.0	2,904.7	88.32	33.887	
4,600.0	4,177.9	13,996.7	7,148.2	34.7	116.0	-149.62		1,695.2	-427.2	2,914.6	2,823.5	91.12	31.988	
4,700.0	4,265.7	14,042.2	7,148.1	35.6	116.8	-148.63		1,740.7	-427.2	2,836.9	2,742.9	93.99	30.181	
4,800.0	4,353.4	14,087.7	7,148.0	36.5	117.6	-147.60		1,786.2	-427.2	2,759.8	2,662.8	96.96	28.463	
4,900.0	4,441.2	14,133.3	7,148.0	37.4	118.4	-146.55		1,831.7	-427.2	2,683.4	2,583.4	100.01	26.832	

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 Raindance FD 20-18D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-18D	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 #2 (11-05-12)	Offset TVD Reference:	Offset Datum

Offset Design Raindance FD East Row Pad Sec.30-T6N-R67W - Raindance FD 1-H (Planned) - Wellbore #1 - Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,000.0	4,529.0	14,178.8	7,147.9	38.4	119.2	-145.47	1,877.2	-427.2	2,607.9	2,504.7	103.14	25.284		
5,100.0	4,616.7	14,224.3	7,147.8	39.3	120.0	-144.35	1,922.7	-427.2	2,533.2	2,426.8	106.36	23.817		
5,200.0	4,704.5	14,269.8	7,147.7	40.2	120.8	-143.21	1,968.3	-427.2	2,459.5	2,349.8	109.66	22.428		
5,300.0	4,792.3	14,315.3	7,147.6	41.1	121.6	-142.04	2,013.8	-427.2	2,386.8	2,273.7	113.04	21.115		
5,400.0	4,880.0	14,360.8	7,147.5	42.1	122.4	-140.83	2,059.3	-427.2	2,315.2	2,198.8	116.49	19.875		
5,500.0	4,967.8	14,406.3	7,147.4	43.0	123.2	-139.60	2,104.8	-427.2	2,245.0	2,125.0	120.01	18.706		
5,600.0	5,055.5	14,451.9	7,147.3	43.9	124.0	-138.33	2,150.3	-427.2	2,176.1	2,052.5	123.60	17.605		
5,700.0	5,143.3	14,497.4	7,147.3	44.8	124.9	-137.03	2,195.8	-427.2	2,108.7	1,981.4	127.26	16.570		
5,800.0	5,231.1	14,542.9	7,147.2	45.8	125.7	-135.70	2,241.3	-427.2	2,042.9	1,912.0	130.97	15.599		
5,909.1	5,326.8	14,592.5	7,147.1	46.8	126.6	-134.22	2,291.0	-427.2	1,973.3	1,838.2	135.07	14.609		
6,000.0	5,407.3	14,632.7	7,147.0	47.5	127.3	-131.90	2,331.2	-427.2	1,916.3	1,776.3	140.08	13.680		
6,100.0	5,497.3	14,674.0	7,146.9	48.1	128.0	-129.33	2,372.5	-427.2	1,854.1	1,708.7	145.36	12.755		
6,200.0	5,588.8	14,712.4	7,146.8	48.7	128.7	-126.77	2,410.8	-427.2	1,792.5	1,642.1	150.41	11.918		
6,300.0	5,681.6	14,747.6	7,146.8	49.3	129.4	-124.24	2,446.1	-427.2	1,732.1	1,576.9	155.15	11.164		
6,400.0	5,775.7	14,779.7	7,146.7	49.8	129.9	-121.79	2,478.2	-427.2	1,673.1	1,513.6	159.52	10.489		
6,500.0	5,870.9	14,808.7	7,146.7	50.3	130.5	-119.44	2,507.2	-427.2	1,616.1	1,452.6	163.47	9.886		
6,600.0	5,967.1	14,834.5	7,146.6	50.8	130.9	-117.24	2,533.0	-427.2	1,561.4	1,394.4	166.96	9.352		
6,700.0	6,064.2	14,857.1	7,146.6	51.2	131.3	-115.20	2,555.6	-427.2	1,509.6	1,339.6	170.00	8.880		
6,800.0	6,162.0	14,876.4	7,146.5	51.5	131.7	-113.36	2,574.9	-427.2	1,461.1	1,288.6	172.57	8.467		
6,900.0	6,260.6	14,892.5	7,146.5	51.8	132.0	-111.74	2,591.0	-427.2	1,416.6	1,241.9	174.69	8.109		
7,000.0	6,359.6	14,905.3	7,146.5	52.1	132.2	-110.35	2,603.8	-427.2	1,376.6	1,200.2	176.39	7.804		
7,100.0	6,459.1	14,914.8	7,146.5	52.3	132.4	-109.22	2,613.2	-427.2	1,341.5	1,163.8	177.70	7.550		
7,200.0	6,558.9	14,920.9	7,146.4	52.4	132.5	-108.36	2,619.4	-427.2	1,312.0	1,133.4	178.63	7.345		
7,300.0	6,658.8	14,923.8	7,146.4	52.5	132.5	-107.77	2,622.2	-427.2	1,288.5	1,109.3	179.21	7.190		
7,341.2	6,700.0	14,924.0	7,146.4	52.5	132.5	-89.98	2,622.4	-427.2	1,280.7	1,101.4	179.35	7.141		
7,400.0	6,758.8	14,923.9	7,146.4	52.6	132.5	-89.99	2,622.3	-427.2	1,271.6	1,092.2	179.38	7.089		
7,500.0	6,858.8	14,923.7	7,146.4	52.6	132.5	-89.99	2,622.1	-427.2	1,262.3	1,082.9	179.42	7.035		
7,567.8	6,926.6	14,923.6	7,146.4	52.7	132.5	-90.00	2,622.0	-427.2	1,260.5	1,081.0	179.46	7.024 CC, ES, SF		
7,600.0	6,958.8	14,923.5	7,146.4	52.7	132.5	-90.00	2,621.9	-427.2	1,260.9	1,081.4	179.47	7.026		
7,700.0	7,058.8	14,923.3	7,146.4	52.7	132.5	-90.01	2,621.8	-427.2	1,267.4	1,087.9	179.52	7.060		
7,800.0	7,158.8	14,923.1	7,146.4	52.8	132.5	-90.02	2,621.6	-427.2	1,281.7	1,102.1	179.57	7.138		
7,900.0	7,258.8	14,922.9	7,146.4	52.9	132.5	-90.03	2,621.4	-427.2	1,303.5	1,123.9	179.62	7.257		
7,930.2	7,289.0	14,922.9	7,146.4	52.9	132.5	-90.03	2,621.3	-427.2	1,311.5	1,131.9	179.64	7.301		

Raindance FD East Row Pad Sec.30-T6N-R67W - Raindance FD 20-25D - Wellbore #1 - Plan #1 (10-1)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.0	0.0	0.4	0.4	0.0	0.0	-176.88	-15.3	-0.8	15.3	15.3	0.00	N/A		
100.0	100.0	100.4	100.4	0.1	0.1	-176.88	-15.3	-0.8	15.3	15.1	0.23	67.906		
200.0	200.0	200.4	200.4	0.3	0.3	-176.88	-15.3	-0.8	15.3	14.6	0.68	22.696 CC, ES		
300.0	300.0	300.4	300.4	0.6	0.6	166.96	-15.3	-0.8	17.0	15.9	1.13	15.037		
400.0	399.8	400.2	400.2	0.8	0.8	170.00	-15.3	-0.8	22.1	20.6	1.59	13.903 SF		
500.0	499.5	499.9	499.9	1.0	1.0	172.79	-15.3	-0.8	30.8	28.7	2.05	14.974		
600.0	598.7	599.1	599.1	1.3	1.2	174.81	-15.3	-0.8	42.9	40.4	2.52	17.041		
700.0	697.5	697.9	697.9	1.6	1.5	176.18	-15.3	-0.8	58.5	55.5	2.98	19.631		
800.0	795.6	796.0	796.0	2.0	1.7	177.10	-15.3	-0.8	77.5	74.1	3.44	22.520		
900.0	893.1	896.6	896.6	2.4	1.9	177.47	-13.9	0.0	98.5	94.6	3.90	25.224		
1,000.0	989.6	998.1	997.9	2.9	2.1	177.27	-9.5	2.8	119.6	115.2	4.36	27.396		
1,100.0	1,085.3	1,100.2	1,099.7	3.5	2.4	176.74	-2.0	7.6	140.8	135.9	4.84	29.097		
1,200.0	1,179.8	1,203.1	1,201.8	4.1	2.6	176.02	8.6	14.3	162.0	156.7	5.33	30.415		
1,300.0	1,273.2	1,306.7	1,304.0	4.7	2.9	175.15	22.5	23.0	183.4	177.5	5.84	31.409		
1,400.0	1,365.2	1,411.0	1,406.4	5.5	3.2	174.19	39.6	33.8	204.8	198.5	6.38	32.116		
1,500.0	1,455.8	1,516.0	1,508.5	6.2	3.6	173.15	59.9	46.7	226.4	219.4	6.95	32.561		
1,600.0	1,544.9	1,621.7	1,610.5	7.1	4.1	172.06	83.6	61.7	248.0	240.4	7.57	32.758		
1,632.1	1,573.2	1,655.8	1,643.1	7.4	4.3	171.70	92.0	66.9	255.0	247.2	7.78	32.768		
1,700.0	1,632.8	1,728.3	1,712.1	8.0	4.6	170.94	110.7	78.8	268.9	260.6	8.29	32.435		
1,800.0	1,720.5	1,835.1	1,812.8	8.9	5.2	169.69	141.1	97.9	286.8	277.7	9.08	31.568		
1,900.0	1,808.3	1,933.6	1,905.0	9.8	5.8	168.56	170.2	116.4	303.3	293.4	9.91	30.603		
2,000.0	1,896.1	2,032.0	1,997.2	10.7	6.4	167.54	199.4	134.8	320.0	309.3	10.77	29.707		
2,100.0	1,983.8	2,130.5	2,089.4	11.6	7.1	166.63	228.6	153.2	336.8	325.1	11.66	28.883		
2,200.0	2,071.6	2,228.9	2,181.6	12.5	7.7	165.80	257.7	171.6	353.6	341.1	12.57	28.129		
2,300.0	2,159.4	2,327.4	2,273.8	13.4	8.4	165.05	286.9	190.0	370.5	357.0	13.50	27.440		
2,400.0	2,247.1	2,425.8	2,366.0	14.4	9.0	164.36	316.0	208.5	387.5	373.1	14.45	26.812		
2,500.0	2,334.9	2,524.3	2,458.2	15.3	9.7	163.73	345.2	226.9	404.5	389.1	15.42	26.237		
2,600.0	2,422.7	2,622.7	2,550.4	16.2	10.3	163.15	374.4	245.3	421.6	405.2	16.40	25.712		
2,700.0	2,510.4	2,721.2	2,642.6	17.1	11.0	162.62	403.5	263.7	438.7	421.3	17.39	25.231		
2,800.0	2,598.2	2,819.6	2,734.8	18.0	11.7	162.13	432.7	282.1	455.8	437.4	18.39	24.789		
2,900.0	2,685.9	2,918.1	2,827.1	19.0	12.3	161.67	461.8	300.6	473.0	453.6	19.40	24.383		
3,000.0	2,773.7	3,016.5	2,919.3	19.9	13.0	161.24	491.0	319.0	490.2	469.8	20.42	24.009		
3,100.0	2,861.5	3,115.0	3,011.5	20.8	13.7	160.85	520.2	337.4	507.4	486.0	21.44	23.664		
3,200.0	2,949.2	3,213.4	3,103.7	21.7	14.4	160.47	549.3	355.8	524.6	502.2	22.47	23.344		
3,300.0	3,037.0	3,311.8	3,195.9	22.6	15.0	160.13	578.5	374.2	541.9	518.4	23.51	23.048		
3,400.0	3,124.8	3,410.3	3,288.1	23.6	15.7	159.80	607.6	392.7	559.2	534.6	24.55	22.773		
3,500.0	3,212.5	3,508.7	3,380.3	24.5	16.4	159.49	636.8	411.1	576.5	550.9	25.60	22.516		
3,600.0	3,300.3	3,607.2	3,472.5	25.4	17.1	159.21	666.0	429.5	593.8	567.1	26.65	22.277		
3,700.0	3,388.0	3,705.6	3,564.7	26.3	17.7	158.93	695.1	447.9	611.1	583.4	27.71	22.053		
3,800.0	3,475.8	3,804.1	3,656.9	27.3	18.4	158.68	724.3	466.3	628.4	599.6	28.77	21.843		
3,900.0	3,563.6	3,902.5	3,749.1	28.2	19.1	158.43	753.4	484.7	645.8	615.9	29.83	21.647		
4,000.0	3,651.3	4,001.0	3,841.3	29.1	19.8	158.20	782.6	503.2	663.1	632.2	30.90	21.462		
4,100.0	3,739.1	4,099.4	3,933.6	30.0	20.5	157.98	811.8	521.6	680.5	648.5	31.97	21.288		
4,200.0	3,826.9	4,197.9	4,025.8	31.0	21.2	157.78	840.9	540.0	697.9	664.8	33.04	21.124		
4,300.0	3,914.6	4,296.3	4,118.0	31.9	21.8	157.58	870.1	558.4	715.2	681.1	34.11	20.969		
4,400.0	4,002.4	4,394.8	4,210.2	32.8	22.5	157.39	899.2	576.8	732.6	697.5	35.19	20.822		
4,500.0	4,090.2	4,493.2	4,302.4	33.7	23.2	157.21	928.4	595.3	750.0	713.8	36.26	20.683		
4,600.0	4,177.9	4,591.7	4,394.6	34.7	23.9	157.04	957.6	613.7	767.4	730.1	37.34	20.552		
4,700.0	4,265.7	4,690.1	4,486.8	35.6	24.6	156.87	986.7	632.1	784.9	746.4	38.42	20.427		
4,800.0	4,353.4	4,788.6	4,579.0	36.5	25.3	156.72	1,015.9	650.5	802.3	762.8	39.51	20.308		
4,900.0	4,441.2	4,887.0	4,671.2	37.4	25.9	156.57	1,045.0	668.9	819.7	779.1	40.59	20.195		

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Company:	Great Western	Local Co-ordinate Reference:	Well Raindance FD 20-18D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-18D	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 #2 (11-05-12)	Offset TVD Reference:	Offset Datum

Offset Design Raindance FD East Row Pad Sec.30-T6N-R67W - Raindance FD 20-25D - Wellbore #1 - Plan #1 (10-1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,529.0	4,985.5	4,763.4	38.4	26.6	156.42	1,074.2	687.4	837.1	795.4	41.67	20.087	
5,100.0	4,616.7	5,083.9	4,855.6	39.3	27.3	156.28	1,103.4	705.8	854.6	811.8	42.76	19.985	
5,200.0	4,704.5	5,182.4	4,947.9	40.2	28.0	156.15	1,132.5	724.2	872.0	828.1	43.85	19.887	
5,300.0	4,792.3	5,271.6	5,031.5	41.1	28.6	156.05	1,158.8	740.8	889.7	844.8	44.86	19.834	
5,400.0	4,880.0	5,350.1	5,105.7	42.1	29.0	156.03	1,180.3	754.4	909.2	863.5	45.70	19.896	
5,500.0	4,967.8	5,427.9	5,180.0	43.0	29.4	156.10	1,200.0	766.8	930.9	884.4	46.46	20.036	
5,600.0	5,055.5	5,500.0	5,249.3	43.9	29.7	156.23	1,216.7	777.4	954.6	907.5	47.15	20.248	
5,700.0	5,143.3	5,580.8	5,327.6	44.8	30.0	156.45	1,233.7	788.1	980.4	932.7	47.78	20.520	
5,800.0	5,231.1	5,655.9	5,400.8	45.8	30.3	156.71	1,247.8	797.0	1,008.3	960.0	48.35	20.857	
5,909.1	5,326.8	5,736.4	5,479.8	46.8	30.6	157.06	1,261.1	805.4	1,041.0	992.1	48.90	21.290	
6,000.0	5,407.3	5,800.0	5,542.4	47.5	30.8	157.58	1,270.3	811.2	1,068.9	1,019.6	49.27	21.693	
6,100.0	5,497.3	5,875.7	5,617.3	48.1	31.0	158.15	1,279.7	817.1	1,098.5	1,048.9	49.59	22.153	
6,200.0	5,588.8	5,948.2	5,689.3	48.7	31.2	158.68	1,287.1	821.8	1,127.0	1,077.2	49.85	22.608	
6,300.0	5,681.6	6,020.5	5,761.2	49.3	31.3	159.18	1,292.9	825.5	1,154.5	1,104.4	50.06	23.062	
6,400.0	5,775.7	6,100.0	5,840.5	49.8	31.5	159.70	1,297.6	828.5	1,180.9	1,130.7	50.20	23.522	
6,500.0	5,870.9	6,164.1	5,904.6	50.3	31.5	160.13	1,300.0	830.0	1,206.1	1,155.8	50.29	23.981	
6,600.0	5,967.1	6,235.6	5,976.0	50.8	31.6	160.57	1,301.3	830.8	1,230.2	1,179.9	50.32	24.449	
6,700.0	6,064.2	6,324.1	6,064.6	51.2	31.7	161.05	1,301.4	830.8	1,252.7	1,202.4	50.27	24.918	
6,800.0	6,162.0	6,422.0	6,162.4	51.5	31.8	161.48	1,301.4	830.8	1,272.1	1,221.9	50.22	25.331	
6,900.0	6,260.6	6,520.5	6,261.0	51.8	31.9	161.82	1,301.4	830.8	1,288.4	1,238.2	50.16	25.684	
7,000.0	6,359.6	6,619.6	6,360.0	52.1	32.0	162.09	1,301.4	830.8	1,301.3	1,251.2	50.09	25.978	
7,100.0	6,459.1	6,719.0	6,459.5	52.3	32.1	162.28	1,301.4	830.8	1,311.0	1,261.0	50.01	26.212	
7,200.0	6,558.9	6,818.8	6,559.3	52.4	32.1	162.41	1,301.4	830.8	1,317.3	1,267.4	49.92	26.389	
7,300.0	6,658.8	6,918.8	6,659.2	52.5	32.2	162.47	1,301.4	830.8	1,320.4	1,270.6	49.81	26.507	
7,341.2	6,700.0	6,959.9	6,700.4	52.5	32.3	-179.89	1,301.4	830.8	1,320.6	1,270.9	49.76	26.539	
7,400.0	6,758.8	7,018.8	6,759.2	52.6	32.3	-179.89	1,301.4	830.8	1,320.6	1,270.7	49.90	26.464	
7,500.0	6,858.8	7,118.8	6,859.2	52.6	32.4	-179.89	1,301.4	830.8	1,320.6	1,270.5	50.15	26.333	
7,600.0	6,958.8	7,218.8	6,959.2	52.7	32.5	-179.89	1,301.4	830.8	1,320.6	1,270.2	50.40	26.201	
7,700.0	7,058.8	7,318.8	7,059.2	52.7	32.6	-179.89	1,301.4	830.8	1,320.6	1,270.0	50.66	26.069	
7,800.0	7,158.8	7,418.8	7,159.2	52.8	32.7	-179.89	1,301.4	830.8	1,320.6	1,269.7	50.92	25.938	
7,900.0	7,258.8	7,518.8	7,259.2	52.9	32.8	-179.89	1,301.4	830.8	1,320.6	1,269.5	51.18	25.806	
7,930.2	7,289.0	7,548.9	7,289.4	52.9	32.9	-179.89	1,301.4	830.8	1,320.6	1,269.4	51.25	25.766	

Company:	Great Western	Local Co-ordinate Reference:	Well Raindance FD 20-18D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-18D	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 #2 (11-05-12)	Offset TVD Reference:	Offset Datum

Offset Design Raindance FD West Row Pad Sec.30-T6N-R67W - Raindance FD 20-32D - Wellbore #1 - Plan #2 (11-0													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	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	0.1	0.1	0.0	0.0	-87.27	0.7	-15.3	15.3	15.3	0.00	N/A		
100.0	100.0	100.1	100.1	0.1	0.1	-87.27	0.7	-15.3	15.3	15.1	0.22	68.099		
200.0	200.0	200.1	200.1	0.3	0.3	-87.27	0.7	-15.3	15.3	14.6	0.67	22.715		
200.0	200.0	200.1	200.1	0.3	0.3	-87.27	0.7	-15.3	15.3	14.6	0.67	22.714 CC		
300.0	300.0	300.1	300.1	0.6	0.6	-104.67	2.5	-15.2	15.8	14.6	1.12	14.022 ES		
400.0	399.8	400.1	399.9	0.8	0.8	-104.06	7.7	-14.9	17.0	15.5	1.58	10.753		
500.0	499.5	500.1	499.5	1.0	1.0	-103.23	16.4	-14.4	19.2	17.1	2.08	9.211		
600.0	598.7	600.0	598.7	1.3	1.3	-102.34	28.6	-13.7	22.2	19.6	2.64	8.400		
700.0	697.5	699.9	697.4	1.6	1.6	-101.48	44.2	-12.8	26.1	22.8	3.29	7.939		
800.0	795.6	799.7	795.4	2.0	2.0	-100.72	63.2	-11.6	30.8	26.8	4.02	7.658		
900.0	893.1	899.5	892.6	2.4	2.4	-100.06	85.6	-10.3	36.4	31.5	4.87	7.476		
1,000.0	989.6	999.2	988.9	2.9	2.9	-99.50	111.3	-8.8	42.8	37.0	5.82	7.350		
1,100.0	1,085.3	1,098.8	1,084.1	3.5	3.5	-99.02	140.3	-7.1	50.1	43.2	6.90	7.257		
1,200.0	1,179.8	1,198.3	1,178.2	4.1	4.1	-98.61	172.6	-5.2	58.1	50.0	8.09	7.186		
1,300.0	1,273.2	1,297.7	1,271.1	4.7	4.7	-98.24	208.1	-3.2	67.0	57.6	9.40	7.130		
1,400.0	1,365.2	1,397.1	1,362.5	5.5	5.4	-97.92	246.8	-0.9	76.7	65.9	10.83	7.084		
1,500.0	1,455.8	1,496.2	1,452.5	6.2	6.2	-97.62	288.5	1.6	87.2	74.8	12.37	7.046		
1,600.0	1,544.9	1,595.3	1,540.8	7.1	7.0	-97.35	333.3	4.2	98.4	84.4	14.03	7.015		
1,632.1	1,573.2	1,627.1	1,568.8	7.4	7.3	-97.27	348.3	5.1	102.2	87.6	14.60	7.004		
1,700.0	1,632.8	1,694.3	1,627.4	8.0	7.9	-96.85	381.0	7.0	110.4	94.6	15.80	6.985		
1,800.0	1,720.5	1,793.0	1,712.1	8.9	8.9	-95.00	431.6	9.9	122.7	105.1	17.63	6.961 SF		
1,900.0	1,808.3	1,891.2	1,794.7	9.8	9.9	-92.07	484.8	13.0	135.7	116.2	19.47	6.969		
2,000.0	1,896.1	1,989.5	1,875.8	10.7	10.9	-88.63	540.2	16.3	149.7	128.4	21.30	7.026		
2,100.0	1,983.8	2,088.1	1,957.0	11.6	12.0	-85.69	596.1	19.6	164.1	141.0	23.09	7.108		
2,200.0	2,071.6	2,186.8	2,038.2	12.5	13.0	-83.22	652.0	22.8	179.0	154.1	24.84	7.203		
2,300.0	2,159.4	2,285.4	2,119.4	13.4	14.1	-81.14	707.8	26.1	194.1	167.5	26.57	7.303		
2,400.0	2,247.1	2,384.0	2,200.6	14.4	15.1	-79.36	763.7	29.4	209.4	181.1	28.28	7.403		
2,500.0	2,334.9	2,482.6	2,281.8	15.3	16.2	-77.82	819.5	32.7	224.8	194.9	29.97	7.501		
2,600.0	2,422.7	2,581.3	2,363.0	16.2	17.2	-76.48	875.4	35.9	240.5	208.8	31.66	7.596		
2,700.0	2,510.4	2,679.9	2,444.3	17.1	18.3	-75.30	931.3	39.2	256.2	222.9	33.33	7.687		
2,800.0	2,598.2	2,778.5	2,525.5	18.0	19.4	-74.26	987.1	42.5	272.0	237.0	34.99	7.773		
2,900.0	2,685.9	2,877.1	2,606.7	19.0	20.4	-73.34	1,043.0	45.7	287.9	251.3	36.66	7.855		
3,000.0	2,773.7	2,975.8	2,687.9	19.9	21.5	-72.51	1,098.9	49.0	303.9	265.6	38.31	7.932		
3,100.0	2,861.5	3,074.4	2,769.1	20.8	22.6	-71.76	1,154.7	52.3	319.9	280.0	39.96	8.005		
3,200.0	2,949.2	3,173.0	2,850.3	21.7	23.6	-71.08	1,210.6	55.6	336.0	294.4	41.61	8.074		
3,300.0	3,037.0	3,271.6	2,931.5	22.6	24.7	-70.47	1,266.4	58.8	352.1	308.9	43.26	8.140		
3,400.0	3,124.8	3,370.3	3,012.8	23.6	25.8	-69.91	1,322.3	62.1	368.3	323.4	44.91	8.201		
3,500.0	3,212.5	3,468.9	3,094.0	24.5	26.8	-69.40	1,378.2	65.4	384.5	337.9	46.55	8.259		
3,600.0	3,300.3	3,567.5	3,175.2	25.4	27.9	-68.93	1,434.0	68.6	400.7	352.5	48.19	8.314		
3,700.0	3,388.0	3,666.1	3,256.4	26.3	29.0	-68.49	1,489.9	71.9	416.9	367.1	49.83	8.366		
3,800.0	3,475.8	3,764.8	3,337.6	27.3	30.0	-68.09	1,545.7	75.2	433.2	381.7	51.47	8.416		
3,900.0	3,563.6	3,863.4	3,418.8	28.2	31.1	-67.72	1,601.6	78.5	449.4	396.3	53.11	8.462		
4,000.0	3,651.3	3,962.0	3,500.1	29.1	32.2	-67.37	1,657.5	81.7	465.7	411.0	54.75	8.507		
4,100.0	3,739.1	4,060.6	3,581.3	30.0	33.2	-67.05	1,713.3	85.0	482.0	425.7	56.39	8.549		
4,200.0	3,826.9	4,159.3	3,662.5	31.0	34.3	-66.74	1,769.2	88.3	498.4	440.3	58.02	8.589		
4,300.0	3,914.6	4,257.9	3,743.7	31.9	35.4	-66.46	1,825.0	91.5	514.7	455.0	59.66	8.627		
4,400.0	4,002.4	4,356.5	3,824.9	32.8	36.4	-66.20	1,880.9	94.8	531.1	469.8	61.30	8.664		
4,500.0	4,090.2	4,455.1	3,906.1	33.7	37.5	-65.95	1,936.8	98.1	547.4	484.5	62.93	8.698		
4,600.0	4,177.9	4,553.8	3,987.3	34.7	38.6	-65.71	1,992.6	101.4	563.8	499.2	64.57	8.732		
4,700.0	4,265.7	4,652.4	4,068.6	35.6	39.7	-65.49	2,048.5	104.6	580.2	514.0	66.20	8.763		
4,800.0	4,353.4	4,751.0	4,149.8	36.5	40.7	-65.28	2,104.3	107.9	596.5	528.7	67.84	8.794		

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 Raindance FD 20-18D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-18D	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 #2 (11-05-12)	Offset TVD Reference:	Offset Datum

Offset Design		Raindance FD West Row Pad Sec.30-T6N-R67W - Raindance FD 20-32D - Wellbore #1 - Plan #2 (11-0											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)			
4,900.0	4,441.2	4,849.6	4,231.0	37.4	41.8	-65.08	2,160.2	111.2	612.9	543.5	69.47	8.823		
5,000.0	4,529.0	4,948.3	4,312.2	38.4	42.9	-64.89	2,216.1	114.4	629.3	558.2	71.11	8.850		
5,100.0	4,616.7	5,046.9	4,393.4	39.3	43.9	-64.71	2,271.9	117.7	645.7	573.0	72.74	8.877		
5,200.0	4,704.5	5,145.5	4,474.6	40.2	45.0	-64.54	2,327.8	121.0	662.1	587.8	74.38	8.903		
5,300.0	4,792.3	5,244.2	4,555.8	41.1	46.1	-64.38	2,383.7	124.3	678.6	602.6	76.01	8.927		
5,400.0	4,880.0	5,342.8	4,637.1	42.1	47.1	-64.23	2,439.5	127.5	695.0	617.3	77.64	8.951		
5,500.0	4,967.8	5,441.4	4,718.3	43.0	48.2	-64.08	2,495.4	130.8	711.4	632.1	79.28	8.974		
5,600.0	5,055.5	5,540.0	4,799.5	43.9	49.3	-63.94	2,551.2	134.1	727.8	646.9	80.91	8.996		
5,700.0	5,143.3	5,638.7	4,880.7	44.8	50.4	-63.81	2,607.1	137.3	744.3	661.7	82.55	9.017		
5,800.0	5,231.1	5,737.3	4,961.9	45.8	51.4	-63.68	2,663.0	140.6	760.7	676.5	84.18	9.037		
5,909.1	5,326.8	5,844.9	5,050.5	46.8	52.6	-63.54	2,723.9	144.2	778.6	692.7	85.96	9.058		
6,000.0	5,407.3	5,947.1	5,135.2	47.5	53.5	-63.64	2,781.0	147.5	793.8	706.4	87.38	9.084		
6,100.0	5,497.3	6,066.9	5,236.9	48.1	54.5	-63.71	2,844.2	151.2	809.5	720.8	88.71	9.125		
6,200.0	5,588.8	6,187.5	5,341.9	48.7	55.3	-63.79	2,903.5	154.7	824.2	734.2	89.97	9.160		
6,300.0	5,681.6	6,308.8	5,449.9	49.3	56.2	-63.85	2,958.7	157.9	837.7	746.6	91.15	9.190		
6,400.0	5,775.7	6,430.9	5,560.8	49.8	57.0	-63.92	3,009.5	160.9	850.1	757.9	92.24	9.216		
6,500.0	5,870.9	6,553.6	5,674.4	50.3	57.7	-63.97	3,055.8	163.6	861.4	768.1	93.24	9.238		
6,600.0	5,967.1	6,676.8	5,790.4	50.8	58.3	-64.02	3,097.4	166.1	871.4	777.3	94.14	9.256		
6,700.0	6,064.2	6,800.6	5,908.6	51.2	58.9	-64.07	3,134.1	168.2	880.2	785.3	94.95	9.271		
6,800.0	6,162.0	6,924.9	6,028.7	51.5	59.4	-64.11	3,165.7	170.1	887.8	792.2	95.64	9.283		
6,900.0	6,260.6	7,049.6	6,150.6	51.8	59.9	-64.14	3,192.2	171.6	894.2	797.9	96.23	9.292		
7,000.0	6,359.6	7,174.6	6,273.7	52.1	60.3	-64.17	3,213.5	172.9	899.2	802.5	96.71	9.298		
7,100.0	6,459.1	7,299.9	6,398.0	52.3	60.6	-64.19	3,229.4	173.8	903.0	805.9	97.08	9.301		
7,200.0	6,558.9	7,425.3	6,523.0	52.4	60.8	-64.20	3,239.9	174.4	905.5	808.2	97.34	9.303		
7,300.0	6,658.8	7,550.9	6,648.4	52.5	60.9	-64.21	3,244.9	174.7	906.7	809.2	97.48	9.301		
7,341.2	6,700.0	7,602.6	6,700.1	52.5	60.9	-46.58	3,245.3	174.7	906.8	809.3	97.51	9.299		
7,400.0	6,758.8	7,661.4	6,758.9	52.6	61.0	-46.58	3,245.3	174.7	906.8	809.2	97.58	9.293		
7,500.0	6,858.8	7,761.4	6,858.9	52.6	61.0	-46.58	3,245.3	174.7	906.8	809.1	97.70	9.282		
7,600.0	6,958.8	7,861.4	6,958.9	52.7	61.1	-46.58	3,245.3	174.7	906.8	809.0	97.82	9.270		
7,700.0	7,058.8	7,961.4	7,058.9	52.7	61.1	-46.58	3,245.3	174.7	906.8	808.9	97.94	9.259		
7,800.0	7,158.8	8,061.4	7,158.9	52.8	61.2	-46.58	3,245.3	174.7	906.8	808.7	98.07	9.247		
7,900.0	7,258.8	8,161.4	7,258.9	52.9	61.2	-46.58	3,245.3	174.7	906.8	808.6	98.19	9.235		
7,915.1	7,273.9	8,176.5	7,274.0	52.9	61.2	-46.58	3,245.3	174.7	906.8	808.6	98.21	9.233		
7,930.2	7,289.0	8,181.5	7,279.0	52.9	61.2	-46.58	3,245.3	174.7	906.8	808.6	98.22	9.232		

Company:	Great Western	Local Co-ordinate Reference:	Well Raindance FD 20-18D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-18D	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 #2 (11-05-12)	Offset TVD Reference:	Offset Datum

Offset Design Raindance FD West Row Pad Sec.30-T6N-R67W - Raindance FD 20-33D - Wellbore #1 - Plan #1 (10-1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	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	-132.87	-14.2	-15.3	20.9					
100.0	100.0	99.7	99.7	0.1	0.1	-132.87	-14.2	-15.3	20.9	20.7	0.22	93.049		
200.0	200.0	199.7	199.7	0.3	0.3	-132.87	-14.2	-15.3	20.9	20.2	0.67	31.001 CC, ES		
300.0	300.0	299.7	299.7	0.6	0.6	-152.69	-14.2	-15.3	22.4	21.3	1.13	19.862		
400.0	399.8	399.5	399.5	0.8	0.8	-157.72	-14.2	-15.3	27.2	25.6	1.59	17.100		
500.0	499.5	500.2	500.2	1.0	1.0	-161.64	-12.5	-15.1	33.9	31.8	2.05	16.551		
600.0	598.7	601.1	600.9	1.3	1.2	-163.27	-7.2	-14.6	41.0	38.5	2.51	16.348		
700.0	697.5	702.2	701.6	1.6	1.5	-163.57	1.6	-13.8	48.3	45.3	2.98	16.236		
800.0	795.6	803.5	802.2	2.0	1.8	-163.05	14.0	-12.6	55.9	52.4	3.47	16.131		
900.0	893.1	905.1	902.4	2.4	2.1	-162.02	30.0	-11.0	63.7	59.7	3.99	15.990		
1,000.0	989.6	1,006.8	1,002.3	2.9	2.4	-160.64	49.5	-9.2	71.8	67.3	4.55	15.787		
1,100.0	1,085.3	1,108.7	1,101.5	3.5	2.8	-159.03	72.6	-6.9	80.2	75.1	5.17	15.507		
1,200.0	1,179.8	1,210.8	1,200.0	4.1	3.3	-157.28	99.2	-4.4	89.0	83.1	5.87	15.147		
1,300.0	1,273.2	1,313.1	1,297.7	4.7	3.8	-155.43	129.4	-1.5	98.0	91.4	6.66	14.711		
1,400.0	1,365.2	1,415.5	1,394.4	5.5	4.5	-153.52	163.1	1.8	107.5	99.9	7.56	14.212		
1,500.0	1,455.8	1,518.1	1,489.9	6.2	5.1	-151.59	200.2	5.4	117.4	108.8	8.57	13.686		
1,600.0	1,544.9	1,620.4	1,583.8	7.1	5.8	-149.68	240.6	9.2	127.7	117.9	9.71	13.144		
1,632.1	1,573.2	1,652.2	1,612.9	7.4	6.1	-149.18	253.6	10.5	131.3	121.2	10.09	13.016		
1,700.0	1,632.8	1,719.6	1,674.4	8.0	6.6	-148.36	281.0	13.1	139.4	128.5	10.92	12.768		
1,800.0	1,720.5	1,818.9	1,765.0	8.9	7.3	-147.32	321.3	17.0	151.3	139.2	12.16	12.439		
1,900.0	1,808.3	1,918.1	1,855.6	9.8	8.1	-146.44	361.7	20.9	163.3	149.9	13.44	12.153		
2,000.0	1,896.1	2,017.4	1,946.2	10.7	8.9	-145.67	402.1	24.8	175.3	160.6	14.73	11.904		
2,100.0	1,983.8	2,116.6	2,036.8	11.6	9.6	-145.00	442.4	28.7	187.3	171.3	16.03	11.685		
2,200.0	2,071.6	2,215.9	2,127.3	12.5	10.4	-144.41	482.8	32.6	199.4	182.0	17.35	11.493		
2,300.0	2,159.4	2,315.1	2,217.9	13.4	11.2	-143.89	523.1	36.5	211.5	192.8	18.68	11.324		
2,400.0	2,247.1	2,414.4	2,308.5	14.4	11.9	-143.43	563.5	40.3	223.6	203.6	20.01	11.173		
2,500.0	2,334.9	2,513.6	2,399.1	15.3	12.7	-143.01	603.9	44.2	235.7	214.3	21.35	11.038		
2,600.0	2,422.7	2,612.9	2,489.7	16.2	13.5	-142.64	644.2	48.1	247.8	225.1	22.70	10.918		
2,700.0	2,510.4	2,712.1	2,580.3	17.1	14.3	-142.30	684.6	52.0	259.9	235.9	24.05	10.809		
2,800.0	2,598.2	2,811.4	2,670.9	18.0	15.1	-141.99	725.0	55.9	272.1	246.7	25.40	10.710		
2,900.0	2,685.9	2,910.6	2,761.5	19.0	15.8	-141.70	765.3	59.8	284.2	257.4	26.76	10.621		
3,000.0	2,773.7	3,009.9	2,852.1	19.9	16.6	-141.44	805.7	63.7	296.3	268.2	28.12	10.539		
3,100.0	2,861.5	3,109.1	2,942.6	20.8	17.4	-141.20	846.0	67.6	308.5	279.0	29.48	10.464		
3,200.0	2,949.2	3,208.4	3,033.2	21.7	18.2	-140.98	886.4	71.4	320.7	289.8	30.85	10.395		
3,300.0	3,037.0	3,307.6	3,123.8	22.6	19.0	-140.77	926.8	75.3	332.8	300.6	32.21	10.332		
3,400.0	3,124.8	3,406.9	3,214.4	23.6	19.8	-140.58	967.1	79.2	345.0	311.4	33.58	10.273		
3,500.0	3,212.5	3,506.1	3,305.0	24.5	20.5	-140.40	1,007.5	83.1	357.2	322.2	34.95	10.218		
3,600.0	3,300.3	3,605.4	3,395.6	25.4	21.3	-140.24	1,047.9	87.0	369.3	333.0	36.32	10.168		
3,700.0	3,388.0	3,704.6	3,486.2	26.3	22.1	-140.08	1,088.2	90.9	381.5	343.8	37.70	10.121		
3,800.0	3,475.8	3,803.9	3,576.8	27.3	22.9	-139.94	1,128.6	94.8	393.7	354.6	39.07	10.077		
3,900.0	3,563.6	3,903.1	3,667.4	28.2	23.7	-139.80	1,168.9	98.7	405.9	365.4	40.44	10.035		
4,000.0	3,651.3	4,002.4	3,758.0	29.1	24.5	-139.67	1,209.3	102.5	418.1	376.2	41.82	9.997		
4,100.0	3,739.1	4,101.6	3,848.5	30.0	25.2	-139.55	1,249.7	106.4	430.2	387.0	43.20	9.960		
4,200.0	3,826.9	4,200.9	3,939.1	31.0	26.0	-139.43	1,290.0	110.3	442.4	397.9	44.57	9.926		
4,300.0	3,914.6	4,300.1	4,029.7	31.9	26.8	-139.32	1,330.4	114.2	454.6	408.7	45.95	9.894		
4,400.0	4,002.4	4,399.4	4,120.3	32.8	27.6	-139.22	1,370.8	118.1	466.8	419.5	47.33	9.863		
4,500.0	4,090.2	4,498.6	4,210.9	33.7	28.4	-139.12	1,411.1	122.0	479.0	430.3	48.71	9.834		
4,600.0	4,177.9	4,597.9	4,301.5	34.7	29.2	-139.03	1,451.5	125.9	491.2	441.1	50.09	9.807		
4,700.0	4,265.7	4,697.1	4,392.1	35.6	30.0	-138.94	1,491.8	129.8	503.4	451.9	51.47	9.781		
4,800.0	4,353.4	4,796.4	4,482.7	36.5	30.7	-138.85	1,532.2	133.6	515.6	462.7	52.85	9.756		
4,900.0	4,441.2	4,895.6	4,573.3	37.4	31.5	-138.77	1,572.6	137.5	527.8	473.6	54.23	9.733		

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

Raindance FD West Row Pad Sec.30-T6N-R67W - Raindance FD 20-33D - Wellbore #1 - Plan #1 (10-1)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,000.0	4,529.0	4,994.9	4,663.8	38.4	32.3	-138.70	1,612.9	141.4	540.0	484.4	55.61	9.710		
5,100.0	4,616.7	5,094.1	4,754.4	39.3	33.1	-138.62	1,653.3	145.3	552.2	495.2	56.99	9.689		
5,200.0	4,704.5	5,191.6	4,843.4	40.2	33.9	-138.56	1,692.9	149.1	564.4	506.1	58.34	9.674 SF		
5,300.0	4,792.3	5,279.9	4,924.7	41.1	34.4	-138.64	1,727.1	152.4	577.9	518.4	59.41	9.726		
5,400.0	4,880.0	5,367.6	5,006.5	42.1	34.9	-138.93	1,758.7	155.5	593.2	532.9	60.32	9.834		
5,500.0	4,967.8	5,454.7	5,088.6	43.0	35.3	-139.40	1,787.5	158.2	610.4	549.3	61.06	9.996		
5,600.0	5,055.5	5,540.8	5,170.7	43.9	35.7	-140.04	1,813.5	160.7	629.5	567.9	61.66	10.210		
5,700.0	5,143.3	5,625.9	5,252.5	44.8	36.1	-140.80	1,836.8	163.0	650.6	588.5	62.11	10.475		
5,800.0	5,231.1	5,709.9	5,333.9	45.8	36.4	-141.68	1,857.5	165.0	673.8	611.3	62.44	10.791		
5,909.1	5,326.8	5,800.0	5,421.8	46.8	36.8	-142.74	1,876.9	166.9	701.3	638.7	62.66	11.193		
6,000.0	5,407.3	5,874.3	5,494.8	47.5	37.0	-143.92	1,890.9	168.2	725.1	662.5	62.60	11.583		
6,100.0	5,497.3	5,955.5	5,574.9	48.1	37.3	-145.14	1,904.1	169.5	750.7	688.3	62.46	12.019		
6,200.0	5,588.8	6,036.3	5,655.0	48.7	37.5	-146.27	1,914.9	170.5	775.7	713.4	62.29	12.453		
6,300.0	5,681.6	6,116.6	5,734.8	49.3	37.6	-147.33	1,923.4	171.3	800.0	737.9	62.08	12.886		
6,400.0	5,775.7	6,200.0	5,818.0	49.8	37.8	-148.36	1,929.9	172.0	823.5	761.7	61.81	13.324		
6,500.0	5,870.9	6,276.0	5,893.9	50.3	37.9	-149.27	1,933.7	172.3	846.4	784.8	61.53	13.756		
6,600.0	5,967.1	6,355.1	5,972.9	50.8	38.0	-150.16	1,935.5	172.5	868.4	807.2	61.18	14.194		
6,700.0	6,064.2	6,446.0	6,063.9	51.2	38.0	-151.07	1,935.6	172.5	889.3	828.5	60.75	14.638		
6,800.0	6,162.0	6,543.9	6,161.7	51.5	38.1	-151.87	1,935.6	172.5	907.4	847.0	60.35	15.035		
6,900.0	6,260.6	6,642.4	6,260.3	51.8	38.2	-152.51	1,935.6	172.5	922.5	862.5	60.01	15.372		
7,000.0	6,359.6	6,741.5	6,359.3	52.1	38.2	-153.00	1,935.6	172.5	934.6	874.9	59.73	15.647		
7,100.0	6,459.1	6,841.0	6,458.8	52.3	38.3	-153.36	1,935.6	172.5	943.7	884.2	59.50	15.861		
7,200.0	6,558.9	6,940.7	6,558.6	52.4	38.4	-153.60	1,935.6	172.5	949.7	890.4	59.31	16.013		
7,300.0	6,658.8	7,040.7	6,658.5	52.5	38.5	-153.71	1,935.6	172.5	952.5	893.3	59.16	16.101		
7,341.2	6,700.0	7,081.9	6,699.7	52.5	38.5	-136.09	1,935.6	172.5	952.8	893.7	59.11	16.118		
7,400.0	6,758.8	7,140.7	6,758.5	52.6	38.5	-136.09	1,935.6	172.5	952.8	893.5	59.23	16.087		
7,500.0	6,858.8	7,240.7	6,858.5	52.6	38.6	-136.09	1,935.6	172.5	952.8	893.3	59.43	16.032		
7,600.0	6,958.8	7,340.7	6,958.5	52.7	38.7	-136.09	1,935.6	172.5	952.8	893.1	59.63	15.977		
7,700.0	7,058.8	7,440.7	7,058.5	52.7	38.8	-136.09	1,935.6	172.5	952.8	892.9	59.84	15.922		
7,800.0	7,158.8	7,540.7	7,158.5	52.8	38.9	-136.09	1,935.6	172.5	952.8	892.7	60.05	15.867		
7,900.0	7,258.8	7,640.7	7,258.5	52.9	39.0	-136.09	1,935.6	172.5	952.8	892.5	60.26	15.811		
7,918.3	7,277.1	7,659.0	7,276.8	52.9	39.0	-136.09	1,935.6	172.5	952.8	892.5	60.30	15.801		
7,930.2	7,289.0	7,666.2	7,284.0	52.9	39.0	-136.09	1,935.6	172.5	952.8	892.5	60.32	15.796		

Company:	Great Western	Local Co-ordinate Reference:	Well Raindance FD 20-18D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-18D	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 #2 (11-05-12)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4796.2ft (Original Well Elev) Coordinates are relative to: Raindance FD 20-18D
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 ° Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.37°



Company:	Great Western	Local Co-ordinate Reference:	Well Raindance FD 20-18D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.2ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.2ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-18D	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 #2 (11-05-12)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4796.2ft (Original Well Elev) Coordinates are relative to: Raindance FD 20-18D
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: 0.37°

