

ENSIGN

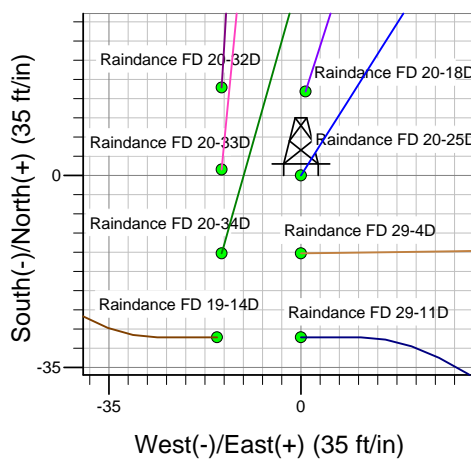
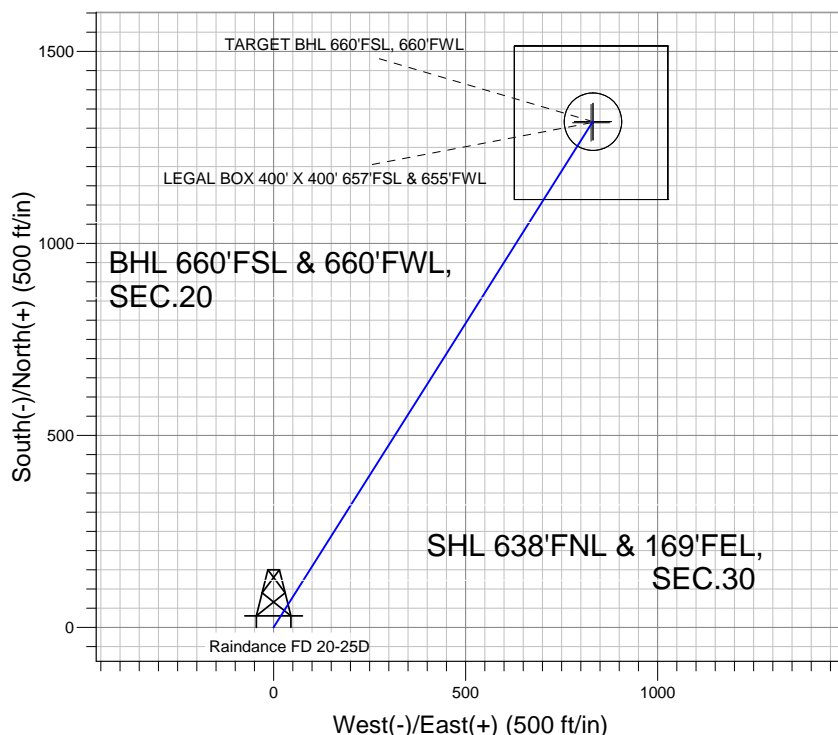
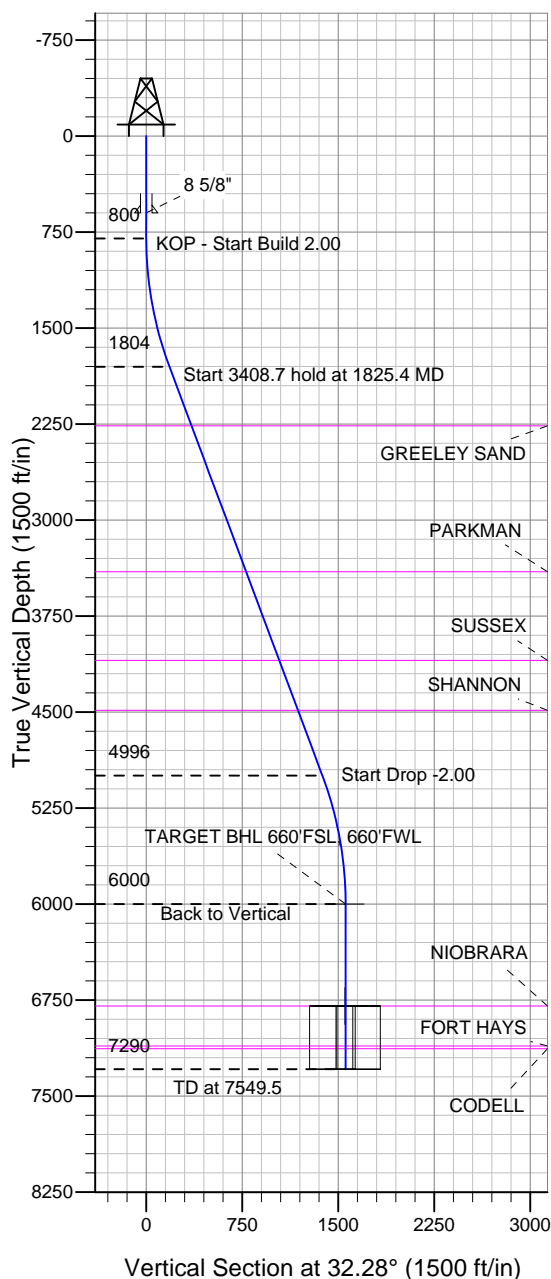
Directional

Well Name: Raindance FD 20-25D

Surface Location: Raindance FD East Row Pad Sec.30-T6N-R67W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4782.6

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1412113.32	3159417.82	40.463239	-104.927067	
Original Well Elev WELL @ 4796.6ft (Original Well Elev)						

Great Western



Raindance FD East Row Pad Sec.30-T6N-R67W
 Raindance FD 20-25D
 Plan #1 (10-18-12)
 13:33, October 30 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 660'FSL, 660'FWL	6000.0	1316.7	831.7	40.466853	-104.924078	Point
LEGAL BOX 400' X 400' 657'FSL & 655'FWL	6797.0	1313.7	826.7	40.466845	-104.924096	Rectangle (Sides: L400.0 W400.0)
TARGET CIRCLE 660'FSL & 660'FWL	6797.0	1316.7	831.7	40.466853	-104.924078	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	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1825.4	20.51	32.28	1803.6	153.5	97.0	2.00	32.28	181.6	
4	5234.1	20.51	32.28	4996.4	1163.2	734.7	0.00	0.00	1375.8	
5	6259.5	0.00	0.00	6000.0	1316.7	831.7	2.00	180.00	1557.3	TARGET BHL 660'FSL, 660'FWL
6	7549.5	0.00	0.00	7290.0	1316.7	831.7	0.00	0.00	1557.3	



Great Western

SEC.30-T6N-R67W

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

Raindance FD 20-25D

Wellbore #1

Plan: Plan #1 (10-18-12)

Standard Planning Report

30 October, 2012

Database:	Landmark	Local Co-ordinate Reference:	Well Raindance FD 20-25D
Company:	Great Western	TVD Reference:	WELL @ 4796.6ft (Original Well Elev)
Project:	SEC.30-T6N-R67W	MD Reference:	WELL @ 4796.6ft (Original Well Elev)
Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	North Reference:	True
Well:	Raindance FD 20-25D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-18-12)		

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			Latitude:			40.463281		
From:			Lat/Long			Easting:			3,159,418.55 ft			Longitude:			-104.927064		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.37 °		

Well	Raindance FD 20-25D					
Well Position	+N/-S	-15.3 ft	Northing:	1,412,113.32 ft	Latitude:	40.463239
	+E/-W	-0.8 ft	Easting:	3,159,417.82 ft	Longitude:	-104.927067
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,782.6 ft

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 #1 (10-18-12)			
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	32.28

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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,825.4	20.51	32.28	1,803.6	153.5	97.0	2.00	2.00	0.00	32.28	
5,234.1	20.51	32.28	4,996.4	1,163.2	734.7	0.00	0.00	0.00	0.00	
6,259.5	0.00	0.00	6,000.0	1,316.7	831.7	2.00	-2.00	0.00	180.00	TARGET BHL 660'I
7,549.5	0.00	0.00	7,290.0	1,316.7	831.7	0.00	0.00	0.00	0.00	

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Company:	Great Western	TVD Reference:	WELL @ 4796.6ft (Original Well Elev)
Project:	SEC.30-T6N-R67W	MD Reference:	WELL @ 4796.6ft (Original Well Elev)
Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	North Reference:	True
Well:	Raindance FD 20-25D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-18-12)		

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
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
840.0	0.80	32.28	840.0	0.2	0.1	0.3	2.00	2.00	0.00
880.0	1.60	32.28	880.0	0.9	0.6	1.1	2.00	2.00	0.00
920.0	2.40	32.28	920.0	2.1	1.3	2.5	2.00	2.00	0.00
960.0	3.20	32.28	959.9	3.8	2.4	4.5	2.00	2.00	0.00
1,000.0	4.00	32.28	999.8	5.9	3.7	7.0	2.00	2.00	0.00
1,040.0	4.80	32.28	1,039.7	8.5	5.4	10.0	2.00	2.00	0.00
1,080.0	5.60	32.28	1,079.6	11.6	7.3	13.7	2.00	2.00	0.00
1,120.0	6.40	32.28	1,119.3	15.1	9.5	17.9	2.00	2.00	0.00
1,160.0	7.20	32.28	1,159.1	19.1	12.1	22.6	2.00	2.00	0.00
1,200.0	8.00	32.28	1,198.7	23.6	14.9	27.9	2.00	2.00	0.00
1,240.0	8.80	32.28	1,238.3	28.5	18.0	33.7	2.00	2.00	0.00
1,280.0	9.60	32.28	1,277.8	33.9	21.4	40.1	2.00	2.00	0.00
1,320.0	10.40	32.28	1,317.1	39.8	25.1	47.1	2.00	2.00	0.00
1,360.0	11.20	32.28	1,356.4	46.1	29.1	54.6	2.00	2.00	0.00
1,400.0	12.00	32.28	1,395.6	52.9	33.4	62.6	2.00	2.00	0.00
1,440.0	12.80	32.28	1,434.7	60.2	38.0	71.2	2.00	2.00	0.00
1,480.0	13.60	32.28	1,473.6	67.9	42.9	80.3	2.00	2.00	0.00
1,520.0	14.40	32.28	1,512.4	76.1	48.1	90.0	2.00	2.00	0.00
1,560.0	15.20	32.28	1,551.1	84.7	53.5	100.2	2.00	2.00	0.00
1,600.0	16.00	32.28	1,589.6	93.8	59.3	111.0	2.00	2.00	0.00
1,640.0	16.80	32.28	1,628.0	103.4	65.3	122.3	2.00	2.00	0.00
1,680.0	17.60	32.28	1,666.2	113.4	71.6	134.1	2.00	2.00	0.00
1,720.0	18.40	32.28	1,704.3	123.8	78.2	146.5	2.00	2.00	0.00
1,760.0	19.20	32.28	1,742.1	134.7	85.1	159.3	2.00	2.00	0.00
1,800.0	20.00	32.28	1,779.8	146.1	92.3	172.8	2.00	2.00	0.00
1,825.4	20.51	32.28	1,803.6	153.5	97.0	181.6	2.00	2.00	0.00
Start 3408.7 hold at 1825.4 MD									
1,840.0	20.51	32.28	1,817.3	157.8	99.7	186.7	0.00	0.00	0.00
1,880.0	20.51	32.28	1,854.8	169.7	107.2	200.7	0.00	0.00	0.00
1,920.0	20.51	32.28	1,892.2	181.5	114.7	214.7	0.00	0.00	0.00

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Project:	SEC.30-T6N-R67W	MD Reference:	WELL @ 4796.6ft (Original Well Elev)
Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	North Reference:	True
Well:	Raindance FD 20-25D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-18-12)		

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)
1,960.0	20.51	32.28	1,929.7	193.4	122.1	228.7	0.00	0.00	0.00
2,000.0	20.51	32.28	1,967.2	205.2	129.6	242.7	0.00	0.00	0.00
2,040.0	20.51	32.28	2,004.6	217.1	137.1	256.7	0.00	0.00	0.00
2,080.0	20.51	32.28	2,042.1	228.9	144.6	270.8	0.00	0.00	0.00
2,120.0	20.51	32.28	2,079.6	240.8	152.1	284.8	0.00	0.00	0.00
2,160.0	20.51	32.28	2,117.0	252.6	159.6	298.8	0.00	0.00	0.00
2,200.0	20.51	32.28	2,154.5	264.5	167.0	312.8	0.00	0.00	0.00
2,240.0	20.51	32.28	2,192.0	276.3	174.5	326.8	0.00	0.00	0.00
2,280.0	20.51	32.28	2,229.4	288.2	182.0	340.8	0.00	0.00	0.00
2,315.8	20.51	32.28	2,263.0	298.8	188.7	353.4	0.00	0.00	0.00
GREELEY SAND									
2,320.0	20.51	32.28	2,266.9	300.0	189.5	354.8	0.00	0.00	0.00
2,360.0	20.51	32.28	2,304.4	311.8	197.0	368.9	0.00	0.00	0.00
2,400.0	20.51	32.28	2,341.8	323.7	204.5	382.9	0.00	0.00	0.00
2,440.0	20.51	32.28	2,379.3	335.5	211.9	396.9	0.00	0.00	0.00
2,480.0	20.51	32.28	2,416.8	347.4	219.4	410.9	0.00	0.00	0.00
2,520.0	20.51	32.28	2,454.2	359.2	226.9	424.9	0.00	0.00	0.00
2,560.0	20.51	32.28	2,491.7	371.1	234.4	438.9	0.00	0.00	0.00
2,600.0	20.51	32.28	2,529.2	382.9	241.9	452.9	0.00	0.00	0.00
2,640.0	20.51	32.28	2,566.6	394.8	249.4	466.9	0.00	0.00	0.00
2,680.0	20.51	32.28	2,604.1	406.6	256.9	481.0	0.00	0.00	0.00
2,720.0	20.51	32.28	2,641.5	418.5	264.3	495.0	0.00	0.00	0.00
2,760.0	20.51	32.28	2,679.0	430.3	271.8	509.0	0.00	0.00	0.00
2,800.0	20.51	32.28	2,716.5	442.2	279.3	523.0	0.00	0.00	0.00
2,840.0	20.51	32.28	2,753.9	454.0	286.8	537.0	0.00	0.00	0.00
2,880.0	20.51	32.28	2,791.4	465.9	294.3	551.0	0.00	0.00	0.00
2,920.0	20.51	32.28	2,828.9	477.7	301.8	565.0	0.00	0.00	0.00
2,960.0	20.51	32.28	2,866.3	489.6	309.2	579.1	0.00	0.00	0.00
3,000.0	20.51	32.28	2,903.8	501.4	316.7	593.1	0.00	0.00	0.00
3,040.0	20.51	32.28	2,941.3	513.3	324.2	607.1	0.00	0.00	0.00
3,080.0	20.51	32.28	2,978.7	525.1	331.7	621.1	0.00	0.00	0.00
3,120.0	20.51	32.28	3,016.2	537.0	339.2	635.1	0.00	0.00	0.00
3,160.0	20.51	32.28	3,053.7	548.8	346.7	649.1	0.00	0.00	0.00
3,200.0	20.51	32.28	3,091.1	560.7	354.1	663.1	0.00	0.00	0.00
3,240.0	20.51	32.28	3,128.6	572.5	361.6	677.1	0.00	0.00	0.00
3,280.0	20.51	32.28	3,166.1	584.3	369.1	691.2	0.00	0.00	0.00
3,320.0	20.51	32.28	3,203.5	596.2	376.6	705.2	0.00	0.00	0.00
3,360.0	20.51	32.28	3,241.0	608.0	384.1	719.2	0.00	0.00	0.00
3,400.0	20.51	32.28	3,278.5	619.9	391.6	733.2	0.00	0.00	0.00
3,440.0	20.51	32.28	3,315.9	631.7	399.0	747.2	0.00	0.00	0.00
3,480.0	20.51	32.28	3,353.4	643.6	406.5	761.2	0.00	0.00	0.00
3,520.0	20.51	32.28	3,390.8	655.4	414.0	775.2	0.00	0.00	0.00
3,534.0	20.51	32.28	3,404.0	659.6	416.6	780.2	0.00	0.00	0.00
PARKMAN									
3,560.0	20.51	32.28	3,428.3	667.3	421.5	789.3	0.00	0.00	0.00
3,600.0	20.51	32.28	3,465.8	679.1	429.0	803.3	0.00	0.00	0.00
3,640.0	20.51	32.28	3,503.2	691.0	436.5	817.3	0.00	0.00	0.00
3,680.0	20.51	32.28	3,540.7	702.8	443.9	831.3	0.00	0.00	0.00
3,720.0	20.51	32.28	3,578.2	714.7	451.4	845.3	0.00	0.00	0.00
3,760.0	20.51	32.28	3,615.6	726.5	458.9	859.3	0.00	0.00	0.00
3,800.0	20.51	32.28	3,653.1	738.4	466.4	873.3	0.00	0.00	0.00
3,840.0	20.51	32.28	3,690.6	750.2	473.9	887.4	0.00	0.00	0.00
3,880.0	20.51	32.28	3,728.0	762.1	481.4	901.4	0.00	0.00	0.00

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Project:	SEC.30-T6N-R67W	MD Reference:	WELL @ 4796.6ft (Original Well Elev)
Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	North Reference:	True
Well:	Raindance FD 20-25D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-18-12)		

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	20.51	32.28	3,765.5	773.9	488.8	915.4	0.00	0.00	0.00
3,960.0	20.51	32.28	3,803.0	785.8	496.3	929.4	0.00	0.00	0.00
4,000.0	20.51	32.28	3,840.4	797.6	503.8	943.4	0.00	0.00	0.00
4,040.0	20.51	32.28	3,877.9	809.5	511.3	957.4	0.00	0.00	0.00
4,080.0	20.51	32.28	3,915.4	821.3	518.8	971.4	0.00	0.00	0.00
4,120.0	20.51	32.28	3,952.8	833.2	526.3	985.4	0.00	0.00	0.00
4,160.0	20.51	32.28	3,990.3	845.0	533.8	999.5	0.00	0.00	0.00
4,200.0	20.51	32.28	4,027.8	856.8	541.2	1,013.5	0.00	0.00	0.00
4,240.0	20.51	32.28	4,065.2	868.7	548.7	1,027.5	0.00	0.00	0.00
4,273.9	20.51	32.28	4,097.0	878.7	555.1	1,039.4	0.00	0.00	0.00
SUSSEX									
4,280.0	20.51	32.28	4,102.7	880.5	556.2	1,041.5	0.00	0.00	0.00
4,320.0	20.51	32.28	4,140.1	892.4	563.7	1,055.5	0.00	0.00	0.00
4,360.0	20.51	32.28	4,177.6	904.2	571.2	1,069.5	0.00	0.00	0.00
4,400.0	20.51	32.28	4,215.1	916.1	578.7	1,083.5	0.00	0.00	0.00
4,440.0	20.51	32.28	4,252.5	927.9	586.1	1,097.6	0.00	0.00	0.00
4,480.0	20.51	32.28	4,290.0	939.8	593.6	1,111.6	0.00	0.00	0.00
4,520.0	20.51	32.28	4,327.5	951.6	601.1	1,125.6	0.00	0.00	0.00
4,560.0	20.51	32.28	4,364.9	963.5	608.6	1,139.6	0.00	0.00	0.00
4,600.0	20.51	32.28	4,402.4	975.3	616.1	1,153.6	0.00	0.00	0.00
4,640.0	20.51	32.28	4,439.9	987.2	623.6	1,167.6	0.00	0.00	0.00
4,680.0	20.51	32.28	4,477.3	999.0	631.0	1,181.6	0.00	0.00	0.00
4,690.3	20.51	32.28	4,487.0	1,002.1	633.0	1,185.3	0.00	0.00	0.00
SHANNON									
4,720.0	20.51	32.28	4,514.8	1,010.9	638.5	1,195.6	0.00	0.00	0.00
4,760.0	20.51	32.28	4,552.3	1,022.7	646.0	1,209.7	0.00	0.00	0.00
4,800.0	20.51	32.28	4,589.7	1,034.6	653.5	1,223.7	0.00	0.00	0.00
4,840.0	20.51	32.28	4,627.2	1,046.4	661.0	1,237.7	0.00	0.00	0.00
4,880.0	20.51	32.28	4,664.7	1,058.3	668.5	1,251.7	0.00	0.00	0.00
4,920.0	20.51	32.28	4,702.1	1,070.1	675.9	1,265.7	0.00	0.00	0.00
4,960.0	20.51	32.28	4,739.6	1,082.0	683.4	1,279.7	0.00	0.00	0.00
5,000.0	20.51	32.28	4,777.0	1,093.8	690.9	1,293.7	0.00	0.00	0.00
5,040.0	20.51	32.28	4,814.5	1,105.7	698.4	1,307.8	0.00	0.00	0.00
5,080.0	20.51	32.28	4,852.0	1,117.5	705.9	1,321.8	0.00	0.00	0.00
5,120.0	20.51	32.28	4,889.4	1,129.3	713.4	1,335.8	0.00	0.00	0.00
5,160.0	20.51	32.28	4,926.9	1,141.2	720.8	1,349.8	0.00	0.00	0.00
5,200.0	20.51	32.28	4,964.4	1,153.0	728.3	1,363.8	0.00	0.00	0.00
5,234.1	20.51	32.28	4,996.4	1,163.2	734.7	1,375.8	0.00	0.00	0.00
Start Drop -2.00									
5,240.0	20.39	32.28	5,001.8	1,164.9	735.8	1,377.8	2.00	-2.00	0.00
5,280.0	19.59	32.28	5,039.4	1,176.5	743.1	1,391.5	2.00	-2.00	0.00
5,320.0	18.79	32.28	5,077.2	1,187.6	750.1	1,404.6	2.00	-2.00	0.00
5,360.0	17.99	32.28	5,115.2	1,198.2	756.9	1,417.3	2.00	-2.00	0.00
5,400.0	17.19	32.28	5,153.3	1,208.5	763.3	1,429.3	2.00	-2.00	0.00
5,440.0	16.39	32.28	5,191.6	1,218.2	769.5	1,440.9	2.00	-2.00	0.00
5,480.0	15.59	32.28	5,230.0	1,227.5	775.4	1,451.9	2.00	-2.00	0.00
5,520.0	14.79	32.28	5,268.6	1,236.4	781.0	1,462.4	2.00	-2.00	0.00
5,560.0	13.99	32.28	5,307.4	1,244.8	786.3	1,472.3	2.00	-2.00	0.00
5,600.0	13.19	32.28	5,346.3	1,252.8	791.3	1,481.7	2.00	-2.00	0.00
5,640.0	12.39	32.28	5,385.3	1,260.2	796.0	1,490.6	2.00	-2.00	0.00
5,680.0	11.59	32.28	5,424.4	1,267.3	800.5	1,498.9	2.00	-2.00	0.00
5,720.0	10.79	32.28	5,463.6	1,273.8	804.6	1,506.7	2.00	-2.00	0.00
5,760.0	9.99	32.28	5,503.0	1,279.9	808.5	1,513.9	2.00	-2.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Raindance FD 20-25D
Company:	Great Western	TVD Reference:	WELL @ 4796.6ft (Original Well Elev)
Project:	SEC.30-T6N-R67W	MD Reference:	WELL @ 4796.6ft (Original Well Elev)
Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	North Reference:	True
Well:	Raindance FD 20-25D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-18-12)		

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)
5,800.0	9.19	32.28	5,542.4	1,285.6	812.0	1,520.6	2.00	-2.00	0.00
5,840.0	8.39	32.28	5,582.0	1,290.7	815.3	1,526.7	2.00	-2.00	0.00
5,880.0	7.59	32.28	5,621.6	1,295.4	818.3	1,532.2	2.00	-2.00	0.00
5,920.0	6.79	32.28	5,661.2	1,299.7	820.9	1,537.2	2.00	-2.00	0.00
5,960.0	5.99	32.28	5,701.0	1,303.4	823.3	1,541.7	2.00	-2.00	0.00
6,000.0	5.19	32.28	5,740.8	1,306.7	825.4	1,545.6	2.00	-2.00	0.00
6,040.0	4.39	32.28	5,780.7	1,309.6	827.2	1,548.9	2.00	-2.00	0.00
6,080.0	3.59	32.28	5,820.6	1,311.9	828.7	1,551.7	2.00	-2.00	0.00
6,120.0	2.79	32.28	5,860.5	1,313.8	829.9	1,553.9	2.00	-2.00	0.00
6,160.0	1.99	32.28	5,900.5	1,315.2	830.8	1,555.6	2.00	-2.00	0.00
6,200.0	1.19	32.28	5,940.5	1,316.1	831.3	1,556.7	2.00	-2.00	0.00
6,240.0	0.39	32.28	5,980.5	1,316.6	831.6	1,557.3	2.00	-2.00	0.00
6,259.5	0.00	0.00	6,000.0	1,316.7	831.7	1,557.3	2.00	-2.00	-165.16
Back to Vertical - TARGET BHL 660'FSL, 660'FWL									
6,280.0	0.00	0.00	6,020.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,320.0	0.00	0.00	6,060.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,360.0	0.00	0.00	6,100.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,400.0	0.00	0.00	6,140.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,440.0	0.00	0.00	6,180.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,480.0	0.00	0.00	6,220.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,520.0	0.00	0.00	6,260.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,560.0	0.00	0.00	6,300.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,600.0	0.00	0.00	6,340.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,640.0	0.00	0.00	6,380.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,680.0	0.00	0.00	6,420.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,720.0	0.00	0.00	6,460.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,760.0	0.00	0.00	6,500.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,800.0	0.00	0.00	6,540.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,840.0	0.00	0.00	6,580.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,880.0	0.00	0.00	6,620.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,920.0	0.00	0.00	6,660.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
6,960.0	0.00	0.00	6,700.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,000.0	0.00	0.00	6,740.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,040.0	0.00	0.00	6,780.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,056.5	0.00	0.00	6,797.0	1,316.7	831.7	1,557.3	0.00	0.00	0.00
NOBRARA - LEGAL BOX 400' X 400' 657'FSL & 655'FWL - TARGET CIRCLE 660'FSL & 660'FWL									
7,080.0	0.00	0.00	6,820.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,120.0	0.00	0.00	6,860.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,160.0	0.00	0.00	6,900.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,200.0	0.00	0.00	6,940.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,240.0	0.00	0.00	6,980.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,280.0	0.00	0.00	7,020.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,320.0	0.00	0.00	7,060.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,360.0	0.00	0.00	7,100.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,367.5	0.00	0.00	7,108.0	1,316.7	831.7	1,557.3	0.00	0.00	0.00
FORT HAYS									
7,389.5	0.00	0.00	7,130.0	1,316.7	831.7	1,557.3	0.00	0.00	0.00
CODELL									
7,400.0	0.00	0.00	7,140.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,440.0	0.00	0.00	7,180.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,480.0	0.00	0.00	7,220.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,520.0	0.00	0.00	7,260.5	1,316.7	831.7	1,557.3	0.00	0.00	0.00
7,549.5	0.00	0.00	7,290.0	1,316.7	831.7	1,557.3	0.00	0.00	0.00



Great Western

SEC.30-T6N-R67W

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

Raindance FD 20-25D

Wellbore #1

Plan #1 (10-18-12)

Anticollision Report

30 October, 2012

Raindance FD East Row Pad Sec.30-T6N-R67W - Raindance FD 20-18D - 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					Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	+E/-W	Between Centres	Between Ellipses	Minimum Separation		Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)			
1,600.0	1,589.6	1,530.8	1,483.5	4.0	6.5	-21.15	304.6	92.8	238.2	230.7	7.54	31.603		
1,700.0	1,685.3	1,622.8	1,565.0	4.5	7.3	-22.02	345.1	105.6	258.1	249.9	8.18	31.571		
1,800.0	1,779.8	1,721.0	1,651.8	5.0	8.2	-23.07	389.1	119.6	275.8	266.9	8.89	31.040		
1,825.4	1,803.6	1,746.1	1,673.9	5.2	8.4	-23.36	400.3	123.2	279.9	270.8	9.08	30.835		
1,900.0	1,873.5	1,819.6	1,738.8	5.6	9.0	-24.28	433.2	133.6	291.4	281.7	9.68	30.111		
2,000.0	1,967.2	1,918.2	1,825.9	6.2	9.9	-25.40	477.3	147.7	307.0	296.5	10.51	29.196		
2,100.0	2,060.8	2,016.8	1,912.9	6.9	10.8	-26.42	521.5	161.7	322.7	311.3	11.38	28.349		
2,200.0	2,154.5	2,115.4	2,000.0	7.5	11.7	-27.34	565.6	175.7	338.4	326.2	12.28	27.568		
2,300.0	2,248.2	2,214.1	2,087.0	8.2	12.6	-28.18	609.8	189.8	354.3	341.1	13.19	26.852		
2,400.0	2,341.8	2,312.7	2,174.1	8.8	13.4	-28.95	653.9	203.8	370.2	356.1	14.13	26.195		
2,500.0	2,435.5	2,411.3	2,261.1	9.5	14.3	-29.66	698.1	217.8	386.2	371.1	15.09	25.594		
2,600.0	2,529.2	2,509.9	2,348.2	10.2	15.2	-30.31	742.2	231.9	402.2	386.2	16.06	25.043		
2,700.0	2,622.8	2,608.5	2,435.2	10.8	16.1	-30.91	786.4	245.9	418.3	401.3	17.05	24.538		
2,800.0	2,716.5	2,707.1	2,522.3	11.5	17.0	-31.46	830.5	259.9	434.4	416.4	18.05	24.073		
2,900.0	2,810.1	2,805.7	2,609.3	12.2	17.9	-31.98	874.6	273.9	450.6	431.5	19.06	23.647		
3,000.0	2,903.8	2,904.3	2,696.4	12.9	18.8	-32.46	918.8	288.0	466.8	446.7	20.07	23.253		
3,100.0	2,997.5	3,002.9	2,783.4	13.6	19.7	-32.91	962.9	302.0	483.0	461.9	21.10	22.890		
3,200.0	3,091.1	3,101.5	2,870.5	14.3	20.6	-33.32	1,007.1	316.0	499.2	477.1	22.14	22.553		
3,300.0	3,184.8	3,200.1	2,957.5	14.9	21.4	-33.72	1,051.2	330.1	515.5	492.3	23.18	22.242		
3,400.0	3,278.5	3,298.7	3,044.6	15.6	22.3	-34.08	1,095.4	344.1	531.8	507.6	24.23	21.952		
3,500.0	3,372.1	3,397.3	3,131.6	16.3	23.2	-34.43	1,139.5	358.1	548.1	522.9	25.28	21.682		
3,600.0	3,465.8	3,496.0	3,218.7	17.0	24.1	-34.76	1,183.7	372.1	564.5	538.1	26.34	21.431		
3,700.0	3,559.4	3,594.6	3,305.7	17.7	25.0	-35.07	1,227.8	386.2	580.8	553.4	27.40	21.196		
3,800.0	3,653.1	3,693.2	3,392.8	18.4	25.9	-35.36	1,271.9	400.2	597.2	568.7	28.47	20.976		
3,900.0	3,746.8	3,791.8	3,479.8	19.1	26.8	-35.63	1,316.1	414.2	613.6	584.0	29.54	20.769		
4,000.0	3,840.4	3,890.4	3,566.9	19.8	27.7	-35.89	1,360.2	428.3	630.0	599.3	30.62	20.575		
4,100.0	3,934.1	3,989.0	3,653.9	20.5	28.6	-36.14	1,404.4	442.3	646.4	614.7	31.70	20.393		
4,200.0	4,027.8	4,087.6	3,741.0	21.2	29.5	-36.38	1,448.5	456.3	662.8	630.0	32.78	20.221		
4,300.0	4,121.4	4,186.2	3,828.0	21.9	30.4	-36.60	1,492.7	470.4	679.2	645.3	33.86	20.059		
4,400.0	4,215.1	4,284.8	3,915.1	22.6	31.3	-36.82	1,536.8	484.4	695.6	660.7	34.95	19.906		
4,500.0	4,308.7	4,383.4	4,002.2	23.3	32.2	-37.02	1,580.9	498.4	712.1	676.1	36.04	19.761		
4,600.0	4,402.4	4,482.0	4,089.2	23.9	33.1	-37.21	1,625.1	512.4	728.5	691.4	37.13	19.623		
4,700.0	4,496.1	4,580.6	4,176.3	24.6	34.0	-37.40	1,669.2	526.5	745.0	706.8	38.22	19.493		
4,800.0	4,589.7	4,679.2	4,263.3	25.3	34.9	-37.58	1,713.4	540.5	761.5	722.2	39.31	19.369		
4,900.0	4,683.4	4,777.8	4,350.4	26.0	35.7	-37.75	1,757.5	554.5	778.0	737.5	40.41	19.251		
5,000.0	4,777.0	4,876.5	4,437.4	26.7	36.6	-37.91	1,801.7	568.6	794.4	752.9	41.51	19.139		
5,100.0	4,870.7	4,975.1	4,524.5	27.4	37.5	-38.07	1,845.8	582.6	810.9	768.3	42.61	19.032		
5,200.0	4,964.4	5,073.7	4,611.5	28.1	38.4	-38.22	1,890.0	596.6	827.4	783.7	43.71	18.930		
5,234.1	4,996.4	5,107.3	4,641.2	28.4	38.7	-38.27	1,905.0	601.4	833.1	789.0	44.09	18.896		
5,300.0	5,058.3	5,172.2	4,698.5	28.8	39.3	-38.48	1,934.1	610.6	844.5	799.7	44.78	18.860		
5,400.0	5,153.3	5,270.2	4,785.0	29.2	40.2	-38.70	1,978.0	624.6	864.1	818.4	45.68	18.915		
5,500.0	5,249.3	5,367.7	4,871.1	29.7	41.1	-38.81	2,021.6	638.5	886.4	839.9	46.49	19.068		
5,600.0	5,346.3	5,464.4	4,956.5	30.1	42.0	-38.83	2,064.9	652.2	911.3	864.2	47.18	19.316		
5,700.0	5,444.0	5,560.3	5,041.1	30.5	42.8	-38.76	2,107.8	665.9	938.9	891.2	47.77	19.655		
5,800.0	5,542.4	5,655.2	5,124.9	30.8	43.7	-38.62	2,150.3	679.4	969.2	920.9	48.26	20.082		
5,900.0	5,641.4	5,749.1	5,207.7	31.1	44.6	-38.43	2,192.3	692.7	1,002.2	953.5	48.66	20.596		
6,000.0	5,740.8	5,841.7	5,289.5	31.3	45.4	-38.19	2,233.8	705.9	1,037.8	988.8	48.96	21.195		
6,100.0	5,840.5	5,933.1	5,370.2	31.5	46.2	-37.92	2,274.7	718.9	1,076.1	1,027.0	49.19	21.878		
6,200.0	5,940.5	6,023.0	5,449.6	31.6	47.0	-37.63	2,315.0	731.7	1,117.2	1,067.9	49.33	22.645		
6,259.5	6,000.0	6,104.3	5,521.8	31.6	47.7	-4.90	2,350.5	743.0	1,142.3	1,093.0	49.30	23.172		
6,300.0	6,040.5	6,162.7	5,574.3	31.7	48.1	-4.38	2,374.8	750.7	1,158.9	1,109.7	49.19	23.561		

Company:	Great Western	Local Co-ordinate Reference:	Well Raindance FD 20-25D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.6ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-25D	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 (10-18-12)	Offset TVD Reference:	Offset Datum

Offset Design										Raindance FD East Row Pad Sec.30-T6N-R67W - Raindance FD 20-18D - 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 +N/-S	Offset Wellbore Centre +E/-W	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)					
6,400.0	6,140.5	6,311.9	5,710.8	31.8	49.0	-3.22	2,432.3	769.0	1,197.0	1,148.0	49.03	24.414				
6,500.0	6,240.5	6,467.8	5,856.6	31.9	49.8	-2.25	2,485.0	785.7	1,230.5	1,181.5	48.99	25.120				
6,600.0	6,340.5	6,629.9	6,011.0	31.9	50.6	-1.47	2,531.7	800.6	1,259.2	1,210.2	49.05	25.675				
6,700.0	6,440.5	6,797.4	6,173.3	32.0	51.3	-0.85	2,571.2	813.1	1,282.7	1,233.5	49.18	26.079				
6,800.0	6,540.5	6,969.3	6,342.1	32.1	51.8	-0.39	2,602.2	823.0	1,300.7	1,251.3	49.38	26.341				
6,900.0	6,640.5	7,144.7	6,516.0	32.2	52.2	-0.08	2,623.9	829.9	1,313.1	1,263.5	49.62	26.461				
7,000.0	6,740.5	7,322.3	6,693.1	32.3	52.5	0.08	2,635.4	833.5	1,319.6	1,269.7	49.90	26.444				
7,100.0	6,840.5	7,469.3	6,840.1	32.4	52.6	0.11	2,637.3	834.1	1,320.6	1,270.5	50.18	26.320				
7,200.0	6,940.5	7,569.3	6,940.1	32.5	52.7	0.11	2,637.3	834.1	1,320.6	1,270.2	50.43	26.190				
7,300.0	7,040.5	7,669.3	7,040.1	32.6	52.8	0.11	2,637.3	834.1	1,320.6	1,270.0	50.68	26.059				
7,400.0	7,140.5	7,769.3	7,140.1	32.7	52.8	0.11	2,637.3	834.1	1,320.6	1,269.7	50.94	25.928				
7,500.0	7,240.5	7,869.3	7,240.1	32.8	52.9	0.11	2,637.3	834.1	1,320.6	1,269.5	51.20	25.796				
7,532.8	7,273.3	7,902.1	7,272.9	32.8	52.9	0.11	2,637.3	834.1	1,320.6	1,269.4	51.28	25.753				
7,549.5	7,290.0	7,918.2	7,289.0	32.9	52.9	0.11	2,637.3	834.1	1,320.7	1,269.3	51.32	25.732				

Company:	Great Western	Local Co-ordinate Reference:	Well Raindance FD 20-25D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.6ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-25D	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 (10-18-12)	Offset TVD Reference:	Offset Datum

Offset Design Raindance FD East Row Pad Sec.30-T6N-R67W - Raindance FD 29-4D - Wellbore #1 - Plan #1 (10-18)													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)	+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	-180.00	-180.00	-14.2	0.0	14.2	14.2	0.00	N/A	
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-180.00	-14.2	0.0	14.2	14.0	0.22	63.196	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-180.00	-14.2	0.0	14.2	13.5	0.67	21.065	
300.0	300.0	300.0	300.0	0.6	0.6	-180.00	-180.00	-14.2	0.0	14.2	13.1	1.12	12.639	
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-180.00	-14.2	0.0	14.2	12.6	1.57	9.028	
500.0	500.0	500.0	500.0	1.0	1.0	-180.00	-180.00	-14.2	0.0	14.2	12.2	2.02	7.022	
600.0	600.0	600.0	600.0	1.2	1.2	-180.00	-180.00	-14.2	0.0	14.2	11.7	2.47	5.745	
700.0	700.0	700.0	700.0	1.5	1.5	-180.00	-180.00	-14.2	0.0	14.2	11.3	2.92	4.861	
800.0	800.0	800.0	800.0	1.7	1.7	-180.00	-180.00	-14.2	0.0	14.2	10.8	3.37	4.213 CC, ES	
900.0	900.0	900.0	900.0	1.9	1.9	151.11	151.11	-14.2	0.0	15.7	11.9	3.82	4.113 SF	
1,000.0	999.8	999.8	999.8	2.1	2.1	158.17	158.17	-14.2	0.0	20.4	16.2	4.27	4.794	
1,100.0	1,099.5	1,099.7	1,099.7	2.4	2.3	161.25	161.25	-14.2	1.7	28.2	23.5	4.70	6.014	
1,200.0	1,198.7	1,199.5	1,199.3	2.6	2.6	159.49	159.49	-14.1	6.9	38.5	33.4	5.12	7.518	
1,300.0	1,297.5	1,298.9	1,298.3	2.9	2.8	156.05	156.05	-14.0	15.6	51.4	45.8	5.57	9.222	
1,400.0	1,395.6	1,397.8	1,396.6	3.2	3.0	152.29	152.29	-13.8	27.6	67.0	61.0	6.05	11.069	
1,500.0	1,493.1	1,496.2	1,493.7	3.6	3.3	148.75	148.75	-13.6	42.9	85.6	79.0	6.59	12.987	
1,600.0	1,589.6	1,593.8	1,589.5	4.0	3.6	145.58	145.58	-13.4	61.3	107.2	100.0	7.20	14.898	
1,700.0	1,685.3	1,690.6	1,684.4	4.5	3.9	143.68	143.68	-13.1	80.9	131.8	123.9	7.86	16.773	
1,800.0	1,779.8	1,786.8	1,778.6	5.0	4.3	143.03	143.03	-12.8	100.3	159.1	150.6	8.55	18.609	
1,825.4	1,803.6	1,811.1	1,802.4	5.2	4.4	143.03	143.03	-12.8	105.2	166.5	157.7	8.73	19.069	
1,900.0	1,873.5	1,882.4	1,872.2	5.6	4.6	143.20	143.20	-12.6	119.6	188.4	179.1	9.30	20.265	
2,000.0	1,967.2	1,978.0	1,965.9	6.2	5.0	143.41	143.41	-12.3	139.0	217.7	207.7	10.07	21.613	
2,100.0	2,060.8	2,073.6	2,059.5	6.9	5.4	143.57	143.57	-12.0	158.3	247.1	236.2	10.87	22.728	
2,200.0	2,154.5	2,169.2	2,153.1	7.5	5.8	143.70	143.70	-11.8	177.6	276.4	264.8	11.68	23.659	
2,300.0	2,248.2	2,264.8	2,246.7	8.2	6.2	143.80	143.80	-11.5	196.9	305.8	293.3	12.51	24.445	
2,400.0	2,341.8	2,360.4	2,340.3	8.8	6.6	143.88	143.88	-11.3	216.3	335.2	321.8	13.35	25.114	
2,500.0	2,435.5	2,456.0	2,434.0	9.5	7.0	143.95	143.95	-11.0	235.6	364.5	350.3	14.19	25.690	
2,600.0	2,529.2	2,551.6	2,527.6	10.2	7.4	144.01	144.01	-10.7	254.9	393.9	378.8	15.04	26.189	
2,700.0	2,622.8	2,647.2	2,621.2	10.8	7.8	144.07	144.07	-10.5	274.2	423.2	407.3	15.90	26.625	
2,800.0	2,716.5	2,742.8	2,714.8	11.5	8.2	144.11	144.11	-10.2	293.5	452.6	435.8	16.76	27.009	
2,900.0	2,810.1	2,838.4	2,808.4	12.2	8.6	144.15	144.15	-9.9	312.9	482.0	464.3	17.62	27.348	
3,000.0	2,903.8	2,934.0	2,902.0	12.9	9.0	144.19	144.19	-9.7	332.2	511.3	492.8	18.49	27.651	
3,100.0	2,997.5	3,029.6	2,995.7	13.6	9.4	144.22	144.22	-9.4	351.5	540.7	521.3	19.36	27.921	
3,200.0	3,091.1	3,125.1	3,089.3	14.3	9.8	144.24	144.24	-9.1	370.8	570.0	549.8	20.24	28.165	
3,300.0	3,184.8	3,220.7	3,182.9	14.9	10.3	144.27	144.27	-8.9	390.2	599.4	578.3	21.12	28.385	
3,400.0	3,278.5	3,316.3	3,276.5	15.6	10.7	144.29	144.29	-8.6	409.5	628.8	606.8	22.00	28.585	
3,500.0	3,372.1	3,411.9	3,370.1	16.3	11.1	144.31	144.31	-8.4	428.8	658.1	635.2	22.88	28.767	
3,600.0	3,465.8	3,507.5	3,463.8	17.0	11.5	144.33	144.33	-8.1	448.1	687.5	663.7	23.76	28.934	
3,700.0	3,559.4	3,603.1	3,557.4	17.7	11.9	144.35	144.35	-7.8	467.5	716.9	692.2	24.65	29.086	
3,800.0	3,653.1	3,698.7	3,651.0	18.4	12.4	144.37	144.37	-7.6	486.8	746.2	720.7	25.53	29.227	
3,900.0	3,746.8	3,794.3	3,744.6	19.1	12.8	144.38	144.38	-7.3	506.1	775.6	749.2	26.42	29.357	
4,000.0	3,840.4	3,889.9	3,838.2	19.8	13.2	144.39	144.39	-7.0	525.4	804.9	777.6	27.31	29.477	
4,100.0	3,934.1	3,985.5	3,931.9	20.5	13.6	144.41	144.41	-6.8	544.7	834.3	806.1	28.20	29.589	
4,200.0	4,027.8	4,081.1	4,025.5	21.2	14.1	144.42	144.42	-6.5	564.1	863.7	834.6	29.09	29.693	
4,300.0	4,121.4	4,176.7	4,119.1	21.9	14.5	144.43	144.43	-6.2	583.4	893.0	863.0	29.98	29.790	
4,400.0	4,215.1	4,272.2	4,212.7	22.6	14.9	144.44	144.44	-6.0	602.7	922.4	891.5	30.87	29.881	
4,500.0	4,308.7	4,367.8	4,306.3	23.3	15.3	144.45	144.45	-5.7	622.0	951.7	920.0	31.76	29.965	
4,600.0	4,402.4	4,463.4	4,399.9	23.9	15.8	144.46	144.46	-5.4	641.4	981.1	948.5	32.65	30.045	
4,700.0	4,496.1	4,559.0	4,493.6	24.6	16.2	144.47	144.47	-5.2	660.7	1,010.5	976.9	33.55	30.120	
4,800.0	4,589.7	4,654.6	4,587.2	25.3	16.6	144.48	144.48	-4.9	680.0	1,039.8	1,005.4	34.44	30.190	
4,900.0	4,683.4	4,750.2	4,680.8	26.0	17.0	144.48	144.48	-4.7	699.3	1,069.2	1,033.9	35.34	30.257	

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 20-25D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.6ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-25D	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 (10-18-12)	Offset TVD Reference:	Offset Datum

Offset Design Raindance FD East Row Pad Sec.30-T6N-R67W - Raindance FD 29-4D - Wellbore #1 - Plan #1 (10-18)													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	4,777.0	4,845.8	4,774.4	26.7	17.5	144.49	-4.4	718.7	1,098.6	1,062.3	36.23	30.319		
5,100.0	4,870.7	4,941.4	4,868.0	27.4	17.9	144.50	-4.1	738.0	1,127.9	1,090.8	37.13	30.379		
5,200.0	4,964.4	5,037.0	4,961.7	28.1	18.3	144.51	-3.9	757.3	1,157.3	1,119.3	38.02	30.435		
5,234.1	4,996.4	5,069.6	4,993.6	28.4	18.5	144.51	-3.8	763.9	1,167.3	1,129.0	38.33	30.453		
5,300.0	5,058.3	5,132.9	5,055.7	28.8	18.7	144.73	-3.6	776.5	1,186.0	1,147.2	38.89	30.496		
5,400.0	5,153.3	5,229.9	5,151.2	29.2	19.0	145.07	-3.4	793.3	1,212.2	1,172.6	39.59	30.617		
5,500.0	5,249.3	5,327.6	5,247.9	29.7	19.3	145.43	-3.2	806.9	1,235.6	1,195.3	40.21	30.730		
5,600.0	5,346.3	5,425.7	5,345.5	30.1	19.5	145.82	-3.0	817.3	1,256.1	1,215.3	40.73	30.839		
5,700.0	5,444.0	5,524.3	5,443.8	30.5	19.7	146.23	-3.0	824.4	1,273.7	1,232.6	41.16	30.947		
5,800.0	5,542.4	5,623.0	5,542.5	30.8	19.8	146.67	-2.9	828.1	1,288.6	1,247.1	41.49	31.055		
5,900.0	5,641.4	5,722.0	5,641.4	31.1	19.9	147.12	-2.9	828.7	1,300.5	1,258.8	41.74	31.155		
6,000.0	5,740.8	5,821.4	5,740.8	31.3	20.1	147.47	-2.9	828.7	1,309.6	1,267.7	41.97	31.204		
6,100.0	5,840.5	5,921.1	5,840.5	31.5	20.2	147.71	-2.9	828.7	1,315.8	1,273.6	42.17	31.200		
6,200.0	5,940.5	6,021.1	5,940.5	31.6	20.3	147.83	-2.9	828.7	1,319.0	1,276.7	42.35	31.144		
6,259.5	6,000.0	6,080.6	6,000.0	31.6	20.4	-179.87	-2.9	828.7	1,319.6	1,277.1	42.45	31.085		
6,300.0	6,040.5	6,121.1	6,040.5	31.7	20.5	-179.87	-2.9	828.7	1,319.6	1,277.0	42.55	31.010		
6,400.0	6,140.5	6,221.1	6,140.5	31.8	20.6	-179.87	-2.9	828.7	1,319.6	1,276.7	42.82	30.817		
6,500.0	6,240.5	6,321.1	6,240.5	31.9	20.8	-179.87	-2.9	828.7	1,319.6	1,276.5	43.09	30.624		
6,600.0	6,340.5	6,421.1	6,340.5	31.9	20.9	-179.87	-2.9	828.7	1,319.6	1,276.2	43.36	30.431		
6,700.0	6,440.5	6,521.1	6,440.5	32.0	21.0	-179.87	-2.9	828.7	1,319.6	1,275.9	43.64	30.238		
6,800.0	6,540.5	6,621.1	6,540.5	32.1	21.2	-179.87	-2.9	828.7	1,319.6	1,275.6	43.92	30.046		
6,900.0	6,640.5	6,721.1	6,640.5	32.2	21.3	-179.87	-2.9	828.7	1,319.6	1,275.4	44.20	29.855		
7,000.0	6,740.5	6,821.1	6,740.5	32.3	21.5	-179.87	-2.9	828.7	1,319.6	1,275.1	44.48	29.664		
7,100.0	6,840.5	6,921.1	6,840.5	32.4	21.6	-179.87	-2.9	828.7	1,319.6	1,274.8	44.77	29.474		
7,200.0	6,940.5	7,021.1	6,940.5	32.5	21.8	-179.87	-2.9	828.7	1,319.6	1,274.5	45.06	29.284		
7,300.0	7,040.5	7,121.1	7,040.5	32.6	21.9	-179.87	-2.9	828.7	1,319.6	1,274.2	45.35	29.095		
7,400.0	7,140.5	7,221.1	7,140.5	32.7	22.1	-179.87	-2.9	828.7	1,319.6	1,273.9	45.65	28.907		
7,500.0	7,240.5	7,321.1	7,240.5	32.8	22.2	-179.87	-2.9	828.7	1,319.6	1,273.6	45.95	28.720		
7,549.5	7,290.0	7,370.6	7,290.0	32.9	22.3	-179.87	-2.9	828.7	1,319.6	1,273.5	46.09	28.628		

Company:	Great Western	Local Co-ordinate Reference:	Well Rainsance FD 20-25D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.6ft (Original Well Elev)
Reference Site:	Rainsance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rainsance FD 20-25D	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 (10-18-12)	Offset TVD Reference:	Offset Datum

Offset 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	
0.0	0.0	0.0	0.0	0.0	0.0	-85.68	1.1	-14.5	14.5	14.5	0.00	N/A		
100.0	100.0	99.3	99.3	0.1	0.1	-85.68	1.1	-14.5	14.5	14.3	0.22	64.786		
200.0	200.0	199.3	199.3	0.3	0.3	-85.68	1.1	-14.5	14.5	13.8	0.67	21.570		
300.0	300.0	299.3	299.3	0.6	0.6	-85.68	1.1	-14.5	14.5	13.4	1.12	12.930		
400.0	400.0	399.3	399.3	0.8	0.8	-85.68	1.1	-14.5	14.5	12.9	1.57	9.232		
442.1	442.1	441.4	441.4	0.9	0.9	-84.50	1.4	-14.4	14.5	12.7	1.76	8.238 CC		
500.0	500.0	499.3	499.3	1.0	1.0	-78.91	2.8	-14.3	14.6	12.6	2.02	7.213 ES		
600.0	600.0	599.0	598.8	1.2	1.2	-60.00	8.0	-13.8	15.9	13.5	2.47	6.452 SF		
700.0	700.0	698.2	697.7	1.5	1.5	-38.14	16.5	-13.0	21.1	18.1	2.94	7.181		
800.0	800.0	796.8	795.5	1.7	1.7	-22.63	28.4	-11.8	31.0	27.6	3.42	9.074		
900.0	900.0	894.6	892.2	1.9	2.0	-47.13	43.5	-10.4	44.1	40.2	3.86	11.410		
1,000.0	999.8	991.9	987.7	2.1	2.4	-44.26	61.7	-8.6	58.3	54.0	4.33	13.473		
1,100.0	1,099.5	1,088.7	1,082.1	2.4	2.8	-43.56	83.1	-6.6	73.3	68.5	4.81	15.248		
1,200.0	1,198.7	1,184.8	1,175.1	2.6	3.2	-43.92	107.4	-4.2	89.0	83.7	5.31	16.750		
1,300.0	1,297.5	1,280.4	1,266.6	2.9	3.7	-44.85	134.7	-1.6	105.4	99.5	5.86	17.995		
1,400.0	1,395.6	1,375.3	1,356.6	3.2	4.2	-46.08	164.8	1.3	122.5	116.1	6.45	18.988		
1,500.0	1,493.1	1,469.6	1,444.9	3.6	4.8	-47.48	197.5	4.5	140.4	133.3	7.11	19.744		
1,600.0	1,589.6	1,563.2	1,531.5	4.0	5.4	-48.96	233.0	7.9	159.0	151.2	7.85	20.262		
1,700.0	1,685.3	1,659.0	1,619.1	4.5	6.1	-50.58	271.6	11.6	178.1	169.4	8.69	20.492		
1,800.0	1,779.8	1,757.2	1,708.7	5.0	6.9	-52.65	311.5	15.4	195.6	185.9	9.67	20.232		
1,825.4	1,803.6	1,782.1	1,731.5	5.2	7.1	-53.25	321.7	16.4	199.7	189.8	9.94	20.102		
1,900.0	1,873.5	1,855.4	1,798.4	5.6	7.6	-55.11	351.5	19.3	211.9	201.1	10.77	19.666		
2,000.0	1,967.2	1,953.7	1,888.1	6.2	8.4	-57.29	391.5	23.1	228.4	216.5	11.94	19.130		
2,100.0	2,060.8	2,052.0	1,977.8	6.9	9.1	-59.18	431.4	27.0	245.3	232.1	13.15	18.651		
2,200.0	2,154.5	2,150.3	2,067.4	7.5	9.9	-60.83	471.4	30.8	262.4	248.0	14.39	18.228		
2,300.0	2,248.2	2,248.5	2,157.1	8.2	10.7	-62.27	511.4	34.7	279.6	264.0	15.66	17.856		
2,400.0	2,341.8	2,346.8	2,246.8	8.8	11.4	-63.55	551.3	38.5	297.0	280.1	16.95	17.529		
2,500.0	2,435.5	2,445.1	2,336.5	9.5	12.2	-64.68	591.3	42.4	314.6	296.3	18.25	17.241		
2,600.0	2,529.2	2,543.3	2,426.2	10.2	13.0	-65.70	631.2	46.2	332.3	312.7	19.56	16.986		
2,700.0	2,622.8	2,641.6	2,515.9	10.8	13.7	-66.61	671.2	50.1	350.0	329.1	20.88	16.760		
2,800.0	2,716.5	2,739.9	2,605.6	11.5	14.5	-67.43	711.2	53.9	367.8	345.6	22.21	16.559		
2,900.0	2,810.1	2,838.1	2,695.3	12.2	15.3	-68.18	751.1	57.8	385.7	362.2	23.55	16.379		
3,000.0	2,903.8	2,936.4	2,785.0	12.9	16.0	-68.87	791.1	61.6	403.7	378.8	24.89	16.218		
3,100.0	2,997.5	3,034.7	2,874.7	13.6	16.8	-69.49	831.1	65.5	421.7	395.4	26.24	16.072		
3,200.0	3,091.1	3,132.9	2,964.4	14.3	17.6	-70.06	871.0	69.3	439.7	412.1	27.59	15.940		
3,300.0	3,184.8	3,231.2	3,054.1	14.9	18.4	-70.59	911.0	73.2	457.8	428.8	28.94	15.819		
3,400.0	3,278.5	3,329.5	3,143.7	15.6	19.1	-71.08	950.9	77.0	475.9	445.6	30.29	15.710		
3,500.0	3,372.1	3,427.7	3,233.4	16.3	19.9	-71.53	990.9	80.9	494.1	462.4	31.65	15.610		
3,600.0	3,465.8	3,526.0	3,323.1	17.0	20.7	-71.95	1,030.9	84.7	512.2	479.2	33.01	15.517		
3,700.0	3,559.4	3,624.3	3,412.8	17.7	21.5	-72.34	1,070.8	88.6	530.4	496.1	34.37	15.433		
3,800.0	3,653.1	3,722.5	3,502.5	18.4	22.2	-72.71	1,110.8	92.4	548.7	512.9	35.73	15.354		
3,900.0	3,746.8	3,820.8	3,592.2	19.1	23.0	-73.05	1,150.8	96.3	566.9	529.8	37.10	15.282		
4,000.0	3,840.4	3,919.1	3,681.9	19.8	23.8	-73.37	1,190.7	100.1	585.2	546.7	38.46	15.214		
4,100.0	3,934.1	4,017.3	3,771.6	20.5	24.6	-73.67	1,230.7	104.0	603.4	563.6	39.83	15.152		
4,200.0	4,027.8	4,115.6	3,861.3	21.2	25.4	-73.95	1,270.6	107.8	621.7	580.5	41.19	15.093		
4,300.0	4,121.4	4,213.9	3,951.0	21.9	26.1	-74.22	1,310.6	111.7	640.0	597.5	42.56	15.038		
4,400.0	4,215.1	4,312.1	4,040.7	22.6	26.9	-74.47	1,350.6	115.5	658.4	614.4	43.93	14.987		
4,500.0	4,308.7	4,410.4	4,130.4	23.3	27.7	-74.71	1,390.5	119.4	676.7	631.4	45.30	14.939		
4,600.0	4,402.4	4,508.7	4,220.0	23.9	28.5	-74.94	1,430.5	123.2	695.0	648.4	46.67	14.894		
4,700.0	4,496.1	4,606.9	4,309.7	24.6	29.2	-75.15	1,470.5	127.1	713.4	665.4	48.04	14.851		
4,800.0	4,589.7	4,705.2	4,399.4	25.3	30.0	-75.36	1,510.4	130.9	731.8	682.4	49.41	14.811		

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 20-25D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.6ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-25D	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 (10-18-12)	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	
4,900.0	4,683.4	4,803.5	4,489.1	26.0	30.8	-75.55	1,550.4	134.8	750.1	699.4	50.78	14.773		
5,000.0	4,777.0	4,901.7	4,578.8	26.7	31.6	-75.73	1,590.3	138.6	768.5	716.4	52.15	14.737		
5,100.0	4,870.7	5,000.0	4,668.5	27.4	32.4	-75.91	1,630.3	142.5	786.9	733.4	53.52	14.703		
5,200.0	4,964.4	5,098.3	4,758.2	28.1	33.1	-76.08	1,670.3	146.3	805.3	750.4	54.89	14.671		
5,234.1	4,996.4	5,131.8	4,788.8	28.4	33.4	-76.13	1,683.9	147.6	811.6	756.2	55.36	14.661		
5,300.0	5,058.3	5,200.9	4,851.9	28.8	33.9	-76.44	1,711.9	150.3	823.8	767.6	56.25	14.646		
5,400.0	5,153.3	5,321.1	4,963.0	29.2	34.6	-76.83	1,757.6	154.7	841.3	783.9	57.40	14.657		
5,500.0	5,249.3	5,442.2	5,076.8	29.7	35.2	-77.17	1,798.8	158.7	857.1	798.6	58.47	14.659		
5,600.0	5,346.3	5,564.1	5,193.0	30.1	35.8	-77.47	1,835.4	162.2	871.0	811.5	59.43	14.655		
5,700.0	5,444.0	5,686.7	5,311.3	30.5	36.3	-77.72	1,867.3	165.3	883.0	822.7	60.29	14.644		
5,800.0	5,542.4	5,809.9	5,431.6	30.8	36.8	-77.93	1,894.2	167.9	893.0	832.0	61.05	14.629		
5,900.0	5,641.4	5,933.7	5,553.4	31.1	37.2	-78.09	1,916.1	170.0	901.2	839.5	61.69	14.610		
6,000.0	5,740.8	6,057.9	5,676.4	31.3	37.5	-78.22	1,932.7	171.6	907.4	845.2	62.21	14.586		
6,100.0	5,840.5	6,182.4	5,800.4	31.5	37.8	-78.30	1,944.0	172.7	911.6	849.0	62.62	14.558		
6,200.0	5,940.5	6,307.0	5,924.9	31.6	37.9	-78.34	1,949.9	173.2	913.8	850.9	62.91	14.526		
6,259.5	6,000.0	6,381.3	5,999.1	31.6	38.0	-46.07	1,950.9	173.3	914.2	851.1	63.02	14.505		
6,300.0	6,040.5	6,421.9	6,039.8	31.7	38.0	-46.07	1,950.9	173.3	914.2	851.1	63.09	14.489		
6,400.0	6,140.5	6,521.9	6,139.8	31.8	38.1	-46.07	1,950.9	173.3	914.2	850.9	63.27	14.450		
6,500.0	6,240.5	6,621.9	6,239.8	31.9	38.2	-46.07	1,950.9	173.3	914.2	850.7	63.44	14.409		
6,600.0	6,340.5	6,721.9	6,339.8	31.9	38.2	-46.07	1,950.9	173.3	914.2	850.5	63.62	14.369		
6,700.0	6,440.5	6,821.9	6,439.8	32.0	38.3	-46.07	1,950.9	173.3	914.2	850.4	63.80	14.328		
6,800.0	6,540.5	6,921.9	6,539.8	32.1	38.4	-46.07	1,950.9	173.3	914.2	850.2	63.99	14.286		
6,900.0	6,640.5	7,021.9	6,639.8	32.2	38.5	-46.07	1,950.9	173.3	914.2	850.0	64.18	14.245		
7,000.0	6,740.5	7,121.9	6,739.8	32.3	38.5	-46.07	1,950.9	173.3	914.2	849.8	64.37	14.203		
7,100.0	6,840.5	7,221.9	6,839.8	32.4	38.6	-46.07	1,950.9	173.3	914.2	849.6	64.56	14.160		
7,200.0	6,940.5	7,321.9	6,939.8	32.5	38.7	-46.07	1,950.9	173.3	914.2	849.4	64.75	14.118		
7,300.0	7,040.5	7,421.9	7,039.8	32.6	38.8	-46.07	1,950.9	173.3	914.2	849.2	64.95	14.075		
7,400.0	7,140.5	7,521.9	7,139.8	32.7	38.9	-46.07	1,950.9	173.3	914.2	849.0	65.15	14.031		
7,500.0	7,240.5	7,621.9	7,239.8	32.8	38.9	-46.07	1,950.9	173.3	914.2	848.8	65.35	13.988		
7,531.1	7,271.5	7,653.0	7,270.8	32.8	39.0	-46.07	1,950.9	173.3	914.2	848.7	65.42	13.974		
7,549.5	7,290.0	7,666.2	7,284.0	32.9	39.0	-46.07	1,950.9	173.3	914.2	848.7	65.45	13.968		

Company:	Great Western	Local Co-ordinate Reference:	Well Raindance FD 20-25D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.6ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-25D	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 (10-18-12)	Offset TVD Reference:	Offset Datum

Offset Design Raindance FD West Row Pad Sec.30-T6N-R67W - Raindance FD 20-34D - 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	Semi Major Axis	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	-134.49	-134.49	-14.2	-14.5	20.3	20.3	0.00	N/A	
100.0	100.0	100.1	100.1	0.1	0.1	-134.49	-134.49	-14.2	-14.5	20.3	20.1	0.22	90.146	
200.0	200.0	200.1	200.1	0.3	0.3	-134.49	-134.49	-14.2	-14.5	20.3	19.6	0.67	30.069	
300.0	300.0	300.1	300.1	0.6	0.6	-134.49	-134.49	-14.2	-14.5	20.3	19.2	1.12	18.044	
400.0	400.0	400.1	400.1	0.8	0.8	-134.49	-134.49	-14.2	-14.5	20.3	18.7	1.57	12.889	
500.0	500.0	500.1	500.1	1.0	1.0	-134.49	-134.49	-14.2	-14.5	20.3	18.3	2.02	10.025	
600.0	600.0	600.1	600.1	1.2	1.2	-134.49	-134.49	-14.2	-14.5	20.3	17.8	2.47	8.203	
700.0	700.0	700.1	700.1	1.5	1.5	-134.49	-134.49	-14.2	-14.5	20.3	17.4	2.92	6.941	
800.0	800.0	800.1	800.1	1.7	1.7	-134.49	-134.49	-14.2	-14.5	20.3	16.9	3.37	6.015 CC, ES	
900.0	900.0	900.1	900.1	1.9	1.9	-167.80	-167.80	-14.2	-14.5	22.0	18.2	3.82	5.756 SF	
1,000.0	999.8	999.9	999.9	2.1	2.1	-170.12	-170.12	-14.2	-14.5	27.1	22.9	4.26	6.362	
1,100.0	1,099.5	1,099.6	1,099.6	2.4	2.4	-172.49	-172.49	-14.2	-14.5	35.7	31.0	4.70	7.597	
1,200.0	1,198.7	1,198.8	1,198.8	2.6	2.6	-174.38	-174.38	-14.2	-14.5	47.8	42.7	5.14	9.305	
1,300.0	1,297.5	1,297.6	1,297.6	2.9	2.8	-175.74	-175.74	-14.2	-14.5	63.4	57.9	5.58	11.375	
1,400.0	1,395.6	1,395.7	1,395.7	3.2	3.0	-176.70	-176.70	-14.2	-14.5	82.5	76.5	6.01	13.730	
1,500.0	1,493.1	1,493.2	1,493.2	3.6	3.2	-177.39	-177.39	-14.2	-14.5	104.9	98.5	6.43	16.310	
1,600.0	1,589.6	1,593.8	1,593.8	4.0	3.5	-177.68	-177.68	-12.7	-14.1	129.4	122.5	6.86	18.861	
1,700.0	1,685.3	1,695.5	1,695.5	4.5	3.7	-177.49	-177.49	-7.8	-12.7	154.0	146.7	7.28	21.145	
1,800.0	1,779.8	1,798.0	1,797.4	5.0	3.9	-177.01	-177.01	0.7	-10.3	178.8	171.0	7.71	23.178	
1,825.4	1,803.6	1,824.1	1,823.4	5.2	4.0	-176.85	-176.85	3.4	-9.5	185.1	177.2	7.82	23.654	
1,900.0	1,873.5	1,901.6	1,900.2	5.6	4.2	-176.34	-176.34	12.8	-6.8	202.6	194.5	8.20	24.717	
2,000.0	1,967.2	2,006.7	2,004.0	6.2	4.4	-175.47	-175.47	28.8	-2.3	223.3	214.6	8.72	25.607	
2,100.0	2,060.8	2,107.5	2,103.1	6.9	4.7	-174.53	-174.53	46.8	2.8	241.5	232.2	9.26	26.084	
2,200.0	2,154.5	2,205.8	2,199.7	7.5	5.0	-173.73	-173.73	64.6	7.8	259.5	249.7	9.81	26.459	
2,300.0	2,248.2	2,304.1	2,296.2	8.2	5.3	-173.03	-173.03	82.4	12.9	277.5	267.1	10.37	26.771	
2,400.0	2,341.8	2,402.4	2,392.8	8.8	5.6	-172.42	-172.42	100.1	17.9	295.6	284.7	10.94	27.025	
2,500.0	2,435.5	2,500.8	2,489.4	9.5	6.0	-171.88	-171.88	117.9	22.9	313.7	302.2	11.52	27.234	
2,600.0	2,529.2	2,599.1	2,585.9	10.2	6.3	-171.40	-171.40	135.7	28.0	331.8	319.7	12.11	27.405	
2,700.0	2,622.8	2,697.4	2,682.5	10.8	6.7	-170.96	-170.96	153.5	33.0	350.0	337.3	12.71	27.546	
2,800.0	2,716.5	2,795.7	2,779.0	11.5	7.0	-170.57	-170.57	171.2	38.0	368.1	354.8	13.31	27.661	
2,900.0	2,810.1	2,894.0	2,875.6	12.2	7.4	-170.22	-170.22	189.0	43.1	386.3	372.4	13.92	27.755	
3,000.0	2,903.8	2,992.3	2,972.1	12.9	7.7	-169.90	-169.90	206.8	48.1	404.5	390.0	14.53	27.831	
3,100.0	2,997.5	3,090.6	3,068.7	13.6	8.1	-169.60	-169.60	224.5	53.1	422.7	407.6	15.15	27.894	
3,200.0	3,091.1	3,188.9	3,165.2	14.3	8.5	-169.33	-169.33	242.3	58.1	440.9	425.2	15.78	27.944	
3,300.0	3,184.8	3,287.2	3,261.8	14.9	8.9	-169.09	-169.09	260.1	63.2	459.2	442.8	16.41	27.984	
3,400.0	3,278.5	3,385.5	3,358.4	15.6	9.2	-168.86	-168.86	277.9	68.2	477.4	460.4	17.04	28.016	
3,500.0	3,372.1	3,483.8	3,454.9	16.3	9.6	-168.64	-168.64	295.6	73.2	495.6	478.0	17.68	28.041	
3,600.0	3,465.8	3,582.1	3,551.5	17.0	10.0	-168.45	-168.45	313.4	78.3	513.9	495.6	18.31	28.060	
3,700.0	3,559.4	3,680.4	3,648.0	17.7	10.4	-168.26	-168.26	331.2	83.3	532.1	513.2	18.96	28.074	
3,800.0	3,653.1	3,778.7	3,744.6	18.4	10.8	-168.09	-168.09	348.9	88.3	550.4	530.8	19.60	28.084	
3,900.0	3,746.8	3,877.0	3,841.1	19.1	11.1	-167.93	-167.93	366.7	93.4	568.7	548.4	20.24	28.090	
4,000.0	3,840.4	3,975.3	3,937.7	19.8	11.5	-167.78	-167.78	384.5	98.4	586.9	566.0	20.89	28.093	
4,100.0	3,934.1	4,073.7	4,034.2	20.5	11.9	-167.64	-167.64	402.3	103.4	605.2	583.7	21.54	28.094	
4,200.0	4,027.8	4,172.0	4,130.8	21.2	12.3	-167.50	-167.50	420.0	108.4	623.5	601.3	22.19	28.093	
4,300.0	4,121.4	4,270.3	4,227.4	21.9	12.7	-167.38	-167.38	437.8	113.5	641.7	618.9	22.85	28.090	
4,400.0	4,215.1	4,368.6	4,323.9	22.6	13.1	-167.26	-167.26	455.6	118.5	660.0	636.5	23.50	28.085	
4,500.0	4,308.7	4,466.9	4,420.5	23.3	13.5	-167.15	-167.15	473.4	123.5	678.3	654.1	24.16	28.079	
4,600.0	4,402.4	4,565.2	4,517.0	23.9	13.9	-167.04	-167.04	491.1	128.6	696.6	671.8	24.81	28.073	
4,700.0	4,496.1	4,663.5	4,613.6	24.6	14.3	-166.94	-166.94	508.9	133.6	714.9	689.4	25.47	28.065	
4,800.0	4,589.7	4,761.8	4,710.1	25.3	14.7	-166.84	-166.84	526.7	138.6	733.2	707.0	26.13	28.056	
4,900.0	4,683.4	4,860.1	4,806.7	26.0	15.1	-166.75	-166.75	544.4	143.7	751.4	724.7	26.79	28.047	

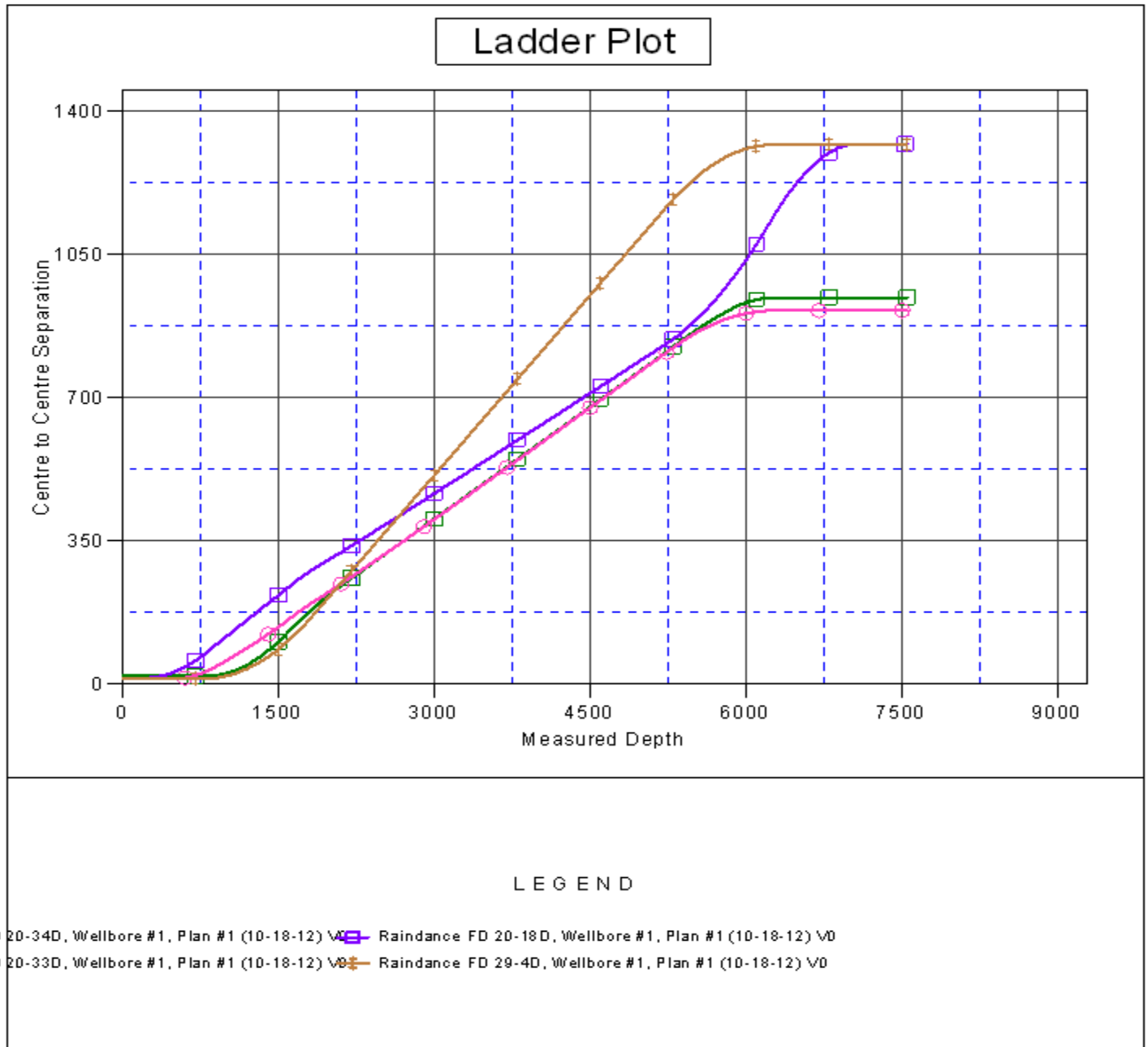
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Great Western	Local Co-ordinate Reference:	Well Raindance FD 20-25D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.6ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-25D	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 (10-18-12)	Offset TVD Reference:	Offset Datum

Offset Design Raindance FD West Row Pad Sec.30-T6N-R67W - Raindance FD 20-34D - 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	4,777.0	4,958.4	4,903.2	26.7	15.5	-166.67	562.2	148.7	769.7	742.3	27.45	28.038		
5,100.0	4,870.7	5,056.7	4,999.8	27.4	15.9	-166.58	580.0	153.7	788.0	759.9	28.12	28.028		
5,200.0	4,964.4	5,148.1	5,089.6	28.1	16.2	-166.51	596.4	158.4	806.5	777.7	28.75	28.055		
5,234.1	4,996.4	5,175.0	5,116.0	28.4	16.3	-166.51	600.9	159.6	813.1	784.2	28.94	28.097		
5,300.0	5,058.3	5,226.7	5,167.1	28.8	16.5	-166.57	608.8	161.9	826.1	796.7	29.34	28.157		
5,400.0	5,153.3	5,300.0	5,239.7	29.2	16.7	-166.68	618.6	164.7	844.9	815.0	29.85	28.302		
5,500.0	5,249.3	5,383.1	5,322.3	29.7	16.9	-166.82	627.5	167.2	862.6	832.3	30.32	28.447		
5,600.0	5,346.3	5,461.0	5,399.9	30.1	17.0	-166.97	633.7	168.9	879.4	848.7	30.73	28.620		
5,700.0	5,444.0	5,538.7	5,477.5	30.5	17.2	-167.14	638.0	170.1	895.2	864.1	31.07	28.811		
5,800.0	5,542.4	5,616.3	5,555.0	30.8	17.3	-167.33	640.1	170.8	909.9	878.6	31.36	29.020		
5,900.0	5,641.4	5,702.8	5,641.5	31.1	17.4	-167.55	640.5	170.8	923.5	891.9	31.60	29.223		
6,000.0	5,740.8	5,802.2	5,740.9	31.3	17.6	-167.74	640.5	170.8	934.0	902.1	31.85	29.326		
6,100.0	5,840.5	5,901.9	5,840.6	31.5	17.7	-167.86	640.5	170.8	941.1	909.1	32.07	29.351		
6,200.0	5,940.5	6,001.8	5,940.6	31.6	17.9	-167.93	640.5	170.8	944.9	912.6	32.25	29.299		
6,259.5	6,000.0	6,061.4	6,000.1	31.6	18.0	-135.66	640.5	170.8	945.5	913.1	32.34	29.232		
6,300.0	6,040.5	6,101.8	6,040.6	31.7	18.0	-135.66	640.5	170.8	945.5	913.0	32.48	29.110		
6,400.0	6,140.5	6,201.8	6,140.6	31.8	18.2	-135.66	640.5	170.8	945.5	912.6	32.83	28.800		
6,500.0	6,240.5	6,301.8	6,240.6	31.9	18.4	-135.66	640.5	170.8	945.5	912.3	33.18	28.495		
6,600.0	6,340.5	6,401.8	6,340.6	31.9	18.5	-135.66	640.5	170.8	945.5	911.9	33.53	28.194		
6,700.0	6,440.5	6,501.8	6,440.6	32.0	18.7	-135.66	640.5	170.8	945.5	911.6	33.89	27.898		
6,800.0	6,540.5	6,601.8	6,540.6	32.1	18.9	-135.66	640.5	170.8	945.5	911.2	34.25	27.606		
6,900.0	6,640.5	6,701.8	6,640.6	32.2	19.0	-135.66	640.5	170.8	945.5	910.9	34.61	27.319		
7,000.0	6,740.5	6,801.8	6,740.6	32.3	19.2	-135.66	640.5	170.8	945.5	910.5	34.97	27.036		
7,100.0	6,840.5	6,901.8	6,840.6	32.4	19.4	-135.66	640.5	170.8	945.5	910.1	35.34	26.757		
7,200.0	6,940.5	7,001.8	6,940.6	32.5	19.5	-135.66	640.5	170.8	945.5	909.8	35.70	26.483		
7,300.0	7,040.5	7,101.8	7,040.6	32.6	19.7	-135.66	640.5	170.8	945.5	909.4	36.07	26.213		
7,400.0	7,140.5	7,201.8	7,140.6	32.7	19.9	-135.66	640.5	170.8	945.5	909.0	36.44	25.947		
7,500.0	7,240.5	7,301.8	7,240.6	32.8	20.0	-135.66	640.5	170.8	945.5	908.7	36.81	25.685		
7,549.5	7,290.0	7,351.4	7,290.1	32.9	20.1	-135.66	640.5	170.8	945.5	908.5	36.99	25.557		

Company:	Great Western	Local Co-ordinate Reference:	Well Raindance FD 20-25D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.6ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-25D	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 (10-18-12)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4796.6ft (Original Well Elev) Coordinates are relative to: Raindance FD 20-25D
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 20-25D
Project:	SEC.30-T6N-R67W	TVD Reference:	WELL @ 4796.6ft (Original Well Elev)
Reference Site:	Raindance FD East Row Pad Sec.30-T6N-R67W	MD Reference:	WELL @ 4796.6ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Raindance FD 20-25D	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 (10-18-12)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4796.6ft (Original Well Elev) Coordinates are relative to: Raindance FD 20-25D
 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°

