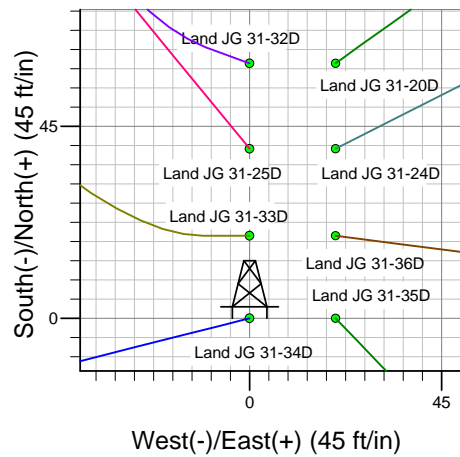
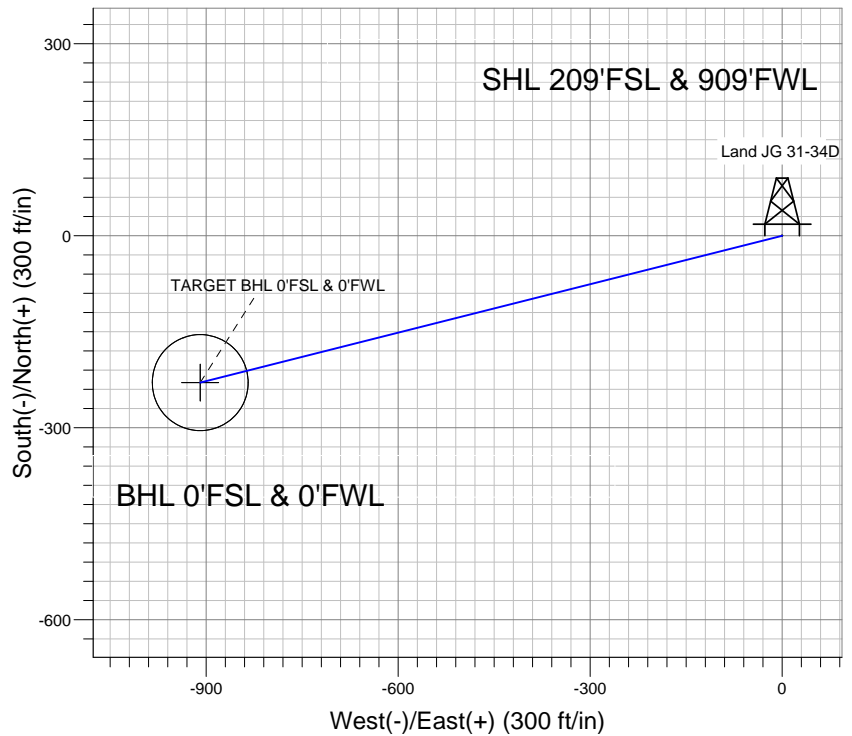
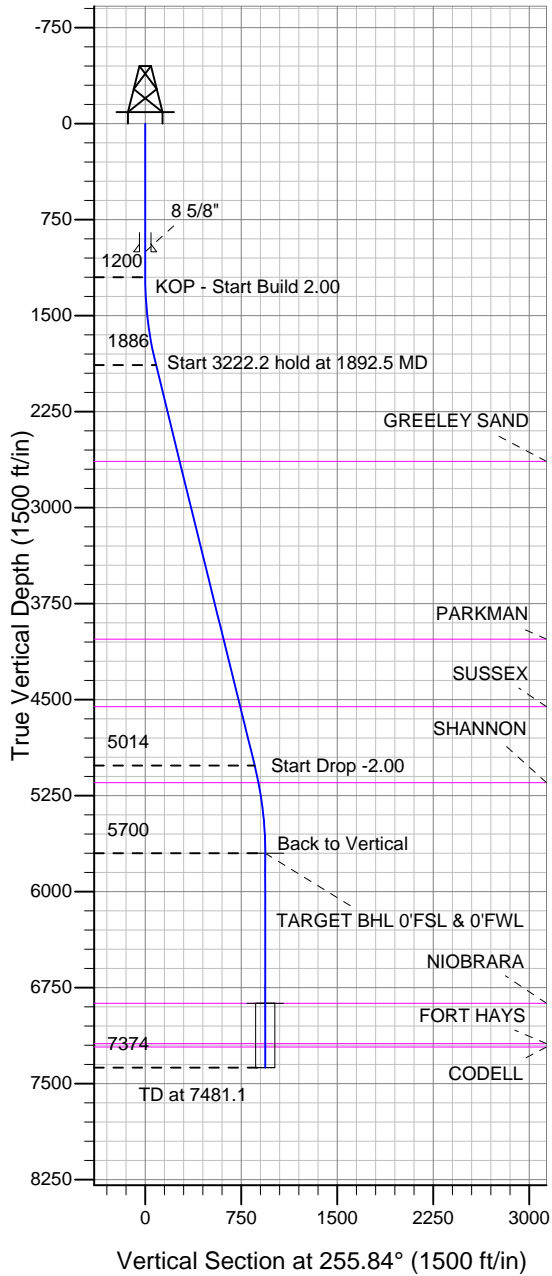


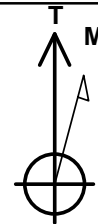
Well Name: Land JG 31-34D

Surface Location: Land JG (West) Pad Sec.31-T2N-R64W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4933.0
 +N/-S 0.0 +E/-W 0.0 Northing 1276199.68 Easting 3251969.25 Latitude 40.088047 Longitude -104.599425 Slot
 Original Well Elev WELL @ 4947.0ft (Original Well Elev)

Great Western



Land JG (West) Pad Sec.31-T2N-R64W
 Land JG 31-34D
 Plan #1 (11-07-12)
 8:56, November 09 2012



Azimuths to True North
 Magnetic North: 8.56°

Magnetic Field
 Strength: 52836.8snT
 Dip Angle: 66.78°
 Date: 11/7/2012
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 0'FSL & 0'FWL	5700.0	-229.5	-909.4	40.087417	-104.602675	Point
TARGET CIRCLE 0'FSL & 0'FWL	6872.0	-229.5	-909.4	40.087417	-104.602675	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	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1892.5	13.85	255.84	1885.8	-20.4	-80.8	2.00	255.84	83.3	
4	5114.6	13.85	255.84	5014.2	-209.1	-828.6	0.00	0.00	854.6	
5	5807.1	0.00	0.00	5700.0	-229.5	-909.4	2.00	180.00	937.9	TARGET BHL 0'FSL & 0'FWL
6	7481.1	0.00	0.00	7374.0	-229.5	-909.4	0.00	0.00	937.9	



Great Western

SEC.31-T2N-R64W

Land JG (West) Pad Sec.31-T2N-R64W

Land JG 31-34D

Wellbore #1

Plan: Plan #1 (11-07-12)

Standard Planning Report

09 November, 2012

Database:	Landmark	Local Co-ordinate Reference:	Well Land JG 31-34D
Company:	Great Western	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Project:	SEC.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site:	Land JG (West) Pad Sec.31-T2N-R64W	North Reference:	True
Well:	Land JG 31-34D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-07-12)		

Project	SEC.31-T2N-R64W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Land JG (West) Pad Sec.31-T2N-R64W				
Site Position:		Northing:	1,276,199.70ft	Latitude:	40.088047
From:	Lat/Long	Easting:	3,251,969.25ft	Longitude:	-104.599425
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.58 °

Well	Land JG 31-34D					
Well Position	+N/-S	0.0 ft	Northing:	1,276,199.68 ft	Latitude:	40.088047
	+E/-W	0.0 ft	Easting:	3,251,969.25 ft	Longitude:	-104.599425
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,933.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/7/2012	8.56	66.78	52,837

Design	Plan #1 (11-07-12)			
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	255.84

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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,892.5	13.85	255.84	1,885.8	-20.4	-80.8	2.00	2.00	0.00	255.84	
5,114.6	13.85	255.84	5,014.2	-209.1	-828.6	0.00	0.00	0.00	0.00	
5,807.1	0.00	0.00	5,700.0	-229.5	-909.4	2.00	-2.00	0.00	180.00	TARGET BHL 0'FS
7,481.1	0.00	0.00	7,374.0	-229.5	-909.4	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Land JG 31-34D
Company:	Great Western	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Project:	SEC.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site:	Land JG (West) Pad Sec.31-T2N-R64W	North Reference:	True
Well:	Land JG 31-34D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-07-12)		

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
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
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
1,040.0	0.00	0.00	1,040.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.00	0.00	1,080.0	0.0	0.0	0.0	0.00	0.00	0.00
1,120.0	0.00	0.00	1,120.0	0.0	0.0	0.0	0.00	0.00	0.00
1,160.0	0.00	0.00	1,160.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
1,240.0	0.80	255.84	1,240.0	-0.1	-0.3	0.3	2.00	2.00	0.00
1,280.0	1.60	255.84	1,280.0	-0.3	-1.1	1.1	2.00	2.00	0.00
1,320.0	2.40	255.84	1,320.0	-0.6	-2.4	2.5	2.00	2.00	0.00
1,360.0	3.20	255.84	1,359.9	-1.1	-4.3	4.5	2.00	2.00	0.00
1,400.0	4.00	255.84	1,399.8	-1.7	-6.8	7.0	2.00	2.00	0.00
1,440.0	4.80	255.84	1,439.7	-2.5	-9.7	10.0	2.00	2.00	0.00
1,480.0	5.60	255.84	1,479.6	-3.3	-13.3	13.7	2.00	2.00	0.00
1,520.0	6.40	255.84	1,519.3	-4.4	-17.3	17.9	2.00	2.00	0.00
1,560.0	7.20	255.84	1,559.1	-5.5	-21.9	22.6	2.00	2.00	0.00
1,600.0	8.00	255.84	1,598.7	-6.8	-27.0	27.9	2.00	2.00	0.00
1,640.0	8.80	255.84	1,638.3	-8.3	-32.7	33.7	2.00	2.00	0.00
1,680.0	9.60	255.84	1,677.8	-9.8	-38.9	40.1	2.00	2.00	0.00
1,720.0	10.40	255.84	1,717.1	-11.5	-45.6	47.1	2.00	2.00	0.00
1,760.0	11.20	255.84	1,756.4	-13.3	-52.9	54.6	2.00	2.00	0.00
1,800.0	12.00	255.84	1,795.6	-15.3	-60.7	62.6	2.00	2.00	0.00
1,840.0	12.80	255.84	1,834.7	-17.4	-69.0	71.2	2.00	2.00	0.00
1,880.0	13.60	255.84	1,873.6	-19.7	-77.9	80.3	2.00	2.00	0.00
1,892.5	13.85	255.84	1,885.8	-20.4	-80.8	83.3	2.00	2.00	0.00
Start 3222.2 hold at 1892.5 MD									
1,920.0	13.85	255.84	1,912.5	-22.0	-87.1	89.9	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Land JG 31-34D
Company:	Great Western	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Project:	SEC.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site:	Land JG (West) Pad Sec.31-T2N-R64W	North Reference:	True
Well:	Land JG 31-34D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-07-12)		

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	13.85	255.84	1,951.3	-24.3	-96.4	99.4	0.00	0.00	0.00
2,000.0	13.85	255.84	1,990.2	-26.7	-105.7	109.0	0.00	0.00	0.00
2,040.0	13.85	255.84	2,029.0	-29.0	-115.0	118.6	0.00	0.00	0.00
2,080.0	13.85	255.84	2,067.8	-31.4	-124.3	128.2	0.00	0.00	0.00
2,120.0	13.85	255.84	2,106.7	-33.7	-133.6	137.7	0.00	0.00	0.00
2,160.0	13.85	255.84	2,145.5	-36.0	-142.8	147.3	0.00	0.00	0.00
2,200.0	13.85	255.84	2,184.3	-38.4	-152.1	156.9	0.00	0.00	0.00
2,240.0	13.85	255.84	2,223.2	-40.7	-161.4	166.5	0.00	0.00	0.00
2,280.0	13.85	255.84	2,262.0	-43.1	-170.7	176.0	0.00	0.00	0.00
2,320.0	13.85	255.84	2,300.8	-45.4	-180.0	185.6	0.00	0.00	0.00
2,360.0	13.85	255.84	2,339.7	-47.8	-189.3	195.2	0.00	0.00	0.00
2,400.0	13.85	255.84	2,378.5	-50.1	-198.5	204.8	0.00	0.00	0.00
2,440.0	13.85	255.84	2,417.4	-52.4	-207.8	214.3	0.00	0.00	0.00
2,480.0	13.85	255.84	2,456.2	-54.8	-217.1	223.9	0.00	0.00	0.00
2,520.0	13.85	255.84	2,495.0	-57.1	-226.4	233.5	0.00	0.00	0.00
2,560.0	13.85	255.84	2,533.9	-59.5	-235.7	243.1	0.00	0.00	0.00
2,600.0	13.85	255.84	2,572.7	-61.8	-245.0	252.6	0.00	0.00	0.00
2,640.0	13.85	255.84	2,611.5	-64.2	-254.3	262.2	0.00	0.00	0.00
2,668.3	13.85	255.84	2,639.0	-65.8	-260.8	269.0	0.00	0.00	0.00
GREELEY SAND									
2,680.0	13.85	255.84	2,650.4	-66.5	-263.5	271.8	0.00	0.00	0.00
2,720.0	13.85	255.84	2,689.2	-68.8	-272.8	281.4	0.00	0.00	0.00
2,760.0	13.85	255.84	2,728.1	-71.2	-282.1	290.9	0.00	0.00	0.00
2,800.0	13.85	255.84	2,766.9	-73.5	-291.4	300.5	0.00	0.00	0.00
2,840.0	13.85	255.84	2,805.7	-75.9	-300.7	310.1	0.00	0.00	0.00
2,880.0	13.85	255.84	2,844.6	-78.2	-310.0	319.7	0.00	0.00	0.00
2,920.0	13.85	255.84	2,883.4	-80.6	-319.2	329.2	0.00	0.00	0.00
2,960.0	13.85	255.84	2,922.2	-82.9	-328.5	338.8	0.00	0.00	0.00
3,000.0	13.85	255.84	2,961.1	-85.2	-337.8	348.4	0.00	0.00	0.00
3,040.0	13.85	255.84	2,999.9	-87.6	-347.1	358.0	0.00	0.00	0.00
3,080.0	13.85	255.84	3,038.8	-89.9	-356.4	367.5	0.00	0.00	0.00
3,120.0	13.85	255.84	3,077.6	-92.3	-365.7	377.1	0.00	0.00	0.00
3,160.0	13.85	255.84	3,116.4	-94.6	-374.9	386.7	0.00	0.00	0.00
3,200.0	13.85	255.84	3,155.3	-97.0	-384.2	396.3	0.00	0.00	0.00
3,240.0	13.85	255.84	3,194.1	-99.3	-393.5	405.8	0.00	0.00	0.00
3,280.0	13.85	255.84	3,232.9	-101.6	-402.8	415.4	0.00	0.00	0.00
3,320.0	13.85	255.84	3,271.8	-104.0	-412.1	425.0	0.00	0.00	0.00
3,360.0	13.85	255.84	3,310.6	-106.3	-421.4	434.6	0.00	0.00	0.00
3,400.0	13.85	255.84	3,349.4	-108.7	-430.6	444.1	0.00	0.00	0.00
3,440.0	13.85	255.84	3,388.3	-111.0	-439.9	453.7	0.00	0.00	0.00
3,480.0	13.85	255.84	3,427.1	-113.4	-449.2	463.3	0.00	0.00	0.00
3,520.0	13.85	255.84	3,466.0	-115.7	-458.5	472.9	0.00	0.00	0.00
3,560.0	13.85	255.84	3,504.8	-118.0	-467.8	482.4	0.00	0.00	0.00
3,600.0	13.85	255.84	3,543.6	-120.4	-477.1	492.0	0.00	0.00	0.00
3,640.0	13.85	255.84	3,582.5	-122.7	-486.4	501.6	0.00	0.00	0.00
3,680.0	13.85	255.84	3,621.3	-125.1	-495.6	511.2	0.00	0.00	0.00
3,720.0	13.85	255.84	3,660.1	-127.4	-504.9	520.7	0.00	0.00	0.00
3,760.0	13.85	255.84	3,699.0	-129.8	-514.2	530.3	0.00	0.00	0.00
3,800.0	13.85	255.84	3,737.8	-132.1	-523.5	539.9	0.00	0.00	0.00
3,840.0	13.85	255.84	3,776.7	-134.4	-532.8	549.5	0.00	0.00	0.00
3,880.0	13.85	255.84	3,815.5	-136.8	-542.1	559.0	0.00	0.00	0.00
3,920.0	13.85	255.84	3,854.3	-139.1	-551.3	568.6	0.00	0.00	0.00
3,960.0	13.85	255.84	3,893.2	-141.5	-560.6	578.2	0.00	0.00	0.00
4,000.0	13.85	255.84	3,932.0	-143.8	-569.9	587.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Land JG 31-34D
Company:	Great Western	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Project:	SEC.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site:	Land JG (West) Pad Sec.31-T2N-R64W	North Reference:	True
Well:	Land JG 31-34D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-07-12)		

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)
4,040.0	13.85	255.84	3,970.8	-146.2	-579.2	597.3	0.00	0.00	0.00
4,080.0	13.85	255.84	4,009.7	-148.5	-588.5	606.9	0.00	0.00	0.00
4,098.9	13.85	255.84	4,028.0	-149.6	-592.9	611.4	0.00	0.00	0.00
PARKMAN									
4,120.0	13.85	255.84	4,048.5	-150.8	-597.8	616.5	0.00	0.00	0.00
4,160.0	13.85	255.84	4,087.4	-153.2	-607.0	626.1	0.00	0.00	0.00
4,200.0	13.85	255.84	4,126.2	-155.5	-616.3	635.6	0.00	0.00	0.00
4,240.0	13.85	255.84	4,165.0	-157.9	-625.6	645.2	0.00	0.00	0.00
4,280.0	13.85	255.84	4,203.9	-160.2	-634.9	654.8	0.00	0.00	0.00
4,320.0	13.85	255.84	4,242.7	-162.5	-644.2	664.4	0.00	0.00	0.00
4,360.0	13.85	255.84	4,281.5	-164.9	-653.5	673.9	0.00	0.00	0.00
4,400.0	13.85	255.84	4,320.4	-167.2	-662.7	683.5	0.00	0.00	0.00
4,440.0	13.85	255.84	4,359.2	-169.6	-672.0	693.1	0.00	0.00	0.00
4,480.0	13.85	255.84	4,398.1	-171.9	-681.3	702.7	0.00	0.00	0.00
4,520.0	13.85	255.84	4,436.9	-174.3	-690.6	712.2	0.00	0.00	0.00
4,560.0	13.85	255.84	4,475.7	-176.6	-699.9	721.8	0.00	0.00	0.00
4,600.0	13.85	255.84	4,514.6	-178.9	-709.2	731.4	0.00	0.00	0.00
4,640.0	13.85	255.84	4,553.4	-181.3	-718.5	741.0	0.00	0.00	0.00
4,640.6	13.85	255.84	4,554.0	-181.3	-718.6	741.1	0.00	0.00	0.00
SUSSEX									
4,680.0	13.85	255.84	4,592.2	-183.6	-727.7	750.5	0.00	0.00	0.00
4,720.0	13.85	255.84	4,631.1	-186.0	-737.0	760.1	0.00	0.00	0.00
4,760.0	13.85	255.84	4,669.9	-188.3	-746.3	769.7	0.00	0.00	0.00
4,800.0	13.85	255.84	4,708.7	-190.7	-755.6	779.3	0.00	0.00	0.00
4,840.0	13.85	255.84	4,747.6	-193.0	-764.9	788.8	0.00	0.00	0.00
4,880.0	13.85	255.84	4,786.4	-195.3	-774.2	798.4	0.00	0.00	0.00
4,920.0	13.85	255.84	4,825.3	-197.7	-783.4	808.0	0.00	0.00	0.00
4,960.0	13.85	255.84	4,864.1	-200.0	-792.7	817.6	0.00	0.00	0.00
5,000.0	13.85	255.84	4,902.9	-202.4	-802.0	827.1	0.00	0.00	0.00
5,040.0	13.85	255.84	4,941.8	-204.7	-811.3	836.7	0.00	0.00	0.00
5,080.0	13.85	255.84	4,980.6	-207.1	-820.6	846.3	0.00	0.00	0.00
5,114.6	13.85	255.84	5,014.2	-209.1	-828.6	854.6	0.00	0.00	0.00
Start Drop -2.00									
5,120.0	13.74	255.84	5,019.4	-209.4	-829.9	855.9	2.00	-2.00	0.00
5,160.0	12.94	255.84	5,058.4	-211.7	-838.8	865.1	2.00	-2.00	0.00
5,200.0	12.14	255.84	5,097.4	-213.8	-847.2	873.8	2.00	-2.00	0.00
5,240.0	11.34	255.84	5,136.6	-215.8	-855.1	881.9	2.00	-2.00	0.00
5,251.6	11.11	255.84	5,148.0	-216.3	-857.3	884.2	2.00	-2.00	0.00
SHANNON									
5,280.0	10.54	255.84	5,175.8	-217.6	-862.5	889.5	2.00	-2.00	0.00
5,320.0	9.74	255.84	5,215.2	-219.4	-869.3	896.6	2.00	-2.00	0.00
5,360.0	8.94	255.84	5,254.7	-220.9	-875.6	903.1	2.00	-2.00	0.00
5,400.0	8.14	255.84	5,294.2	-222.4	-881.4	909.0	2.00	-2.00	0.00
5,440.0	7.34	255.84	5,333.9	-223.7	-886.6	914.4	2.00	-2.00	0.00
5,480.0	6.54	255.84	5,373.6	-224.9	-891.3	919.2	2.00	-2.00	0.00
5,520.0	5.74	255.84	5,413.4	-225.9	-895.4	923.5	2.00	-2.00	0.00
5,560.0	4.94	255.84	5,453.2	-226.9	-899.0	927.2	2.00	-2.00	0.00
5,600.0	4.14	255.84	5,493.1	-227.6	-902.1	930.4	2.00	-2.00	0.00
5,640.0	3.34	255.84	5,533.0	-228.3	-904.6	933.0	2.00	-2.00	0.00
5,680.0	2.54	255.84	5,572.9	-228.8	-906.6	935.1	2.00	-2.00	0.00
5,720.0	1.74	255.84	5,612.9	-229.1	-908.1	936.5	2.00	-2.00	0.00
5,760.0	0.94	255.84	5,652.9	-229.4	-909.0	937.5	2.00	-2.00	0.00
5,800.0	0.14	255.84	5,692.9	-229.5	-909.4	937.9	2.00	-2.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Land JG 31-34D
Company:	Great Western	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Project:	SEC.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site:	Land JG (West) Pad Sec.31-T2N-R64W	North Reference:	True
Well:	Land JG 31-34D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-07-12)		

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)
5,807.1	0.00	0.00	5,700.0	-229.5	-909.4	937.9	2.00	-2.00	1,462.17
Back to Vertical - TARGET BHL 0'FSL & 0'FWL									
5,840.0	0.00	0.00	5,732.9	-229.5	-909.4	937.9	0.00	0.00	0.00
5,880.0	0.00	0.00	5,772.9	-229.5	-909.4	937.9	0.00	0.00	0.00
5,920.0	0.00	0.00	5,812.9	-229.5	-909.4	937.9	0.00	0.00	0.00
5,960.0	0.00	0.00	5,852.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,000.0	0.00	0.00	5,892.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,040.0	0.00	0.00	5,932.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,080.0	0.00	0.00	5,972.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,120.0	0.00	0.00	6,012.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,160.0	0.00	0.00	6,052.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,200.0	0.00	0.00	6,092.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,240.0	0.00	0.00	6,132.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,280.0	0.00	0.00	6,172.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,320.0	0.00	0.00	6,212.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,360.0	0.00	0.00	6,252.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,400.0	0.00	0.00	6,292.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,440.0	0.00	0.00	6,332.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,480.0	0.00	0.00	6,372.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,520.0	0.00	0.00	6,412.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,560.0	0.00	0.00	6,452.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,600.0	0.00	0.00	6,492.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,640.0	0.00	0.00	6,532.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,680.0	0.00	0.00	6,572.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,720.0	0.00	0.00	6,612.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,760.0	0.00	0.00	6,652.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,800.0	0.00	0.00	6,692.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,840.0	0.00	0.00	6,732.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,880.0	0.00	0.00	6,772.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,920.0	0.00	0.00	6,812.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,960.0	0.00	0.00	6,852.9	-229.5	-909.4	937.9	0.00	0.00	0.00
6,979.1	0.00	0.00	6,872.0	-229.5	-909.4	937.9	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 0'FSL & 0'FWL									
7,000.0	0.00	0.00	6,892.9	-229.5	-909.4	937.9	0.00	0.00	0.00
7,040.0	0.00	0.00	6,932.9	-229.5	-909.4	937.9	0.00	0.00	0.00
7,080.0	0.00	0.00	6,972.9	-229.5	-909.4	937.9	0.00	0.00	0.00
7,120.0	0.00	0.00	7,012.9	-229.5	-909.4	937.9	0.00	0.00	0.00
7,160.0	0.00	0.00	7,052.9	-229.5	-909.4	937.9	0.00	0.00	0.00
7,200.0	0.00	0.00	7,092.9	-229.5	-909.4	937.9	0.00	0.00	0.00
7,240.0	0.00	0.00	7,132.9	-229.5	-909.4	937.9	0.00	0.00	0.00
7,280.0	0.00	0.00	7,172.9	-229.5	-909.4	937.9	0.00	0.00	0.00
7,294.1	0.00	0.00	7,187.0	-229.5	-909.4	937.9	0.00	0.00	0.00
FORT HAYS									
7,320.0	0.00	0.00	7,212.9	-229.5	-909.4	937.9	0.00	0.00	0.00
7,321.1	0.00	0.00	7,214.0	-229.5	-909.4	937.9	0.00	0.00	0.00
CODELL									
7,360.0	0.00	0.00	7,252.9	-229.5	-909.4	937.9	0.00	0.00	0.00
7,400.0	0.00	0.00	7,292.9	-229.5	-909.4	937.9	0.00	0.00	0.00
7,440.0	0.00	0.00	7,332.9	-229.5	-909.4	937.9	0.00	0.00	0.00
7,480.0	0.00	0.00	7,372.9	-229.5	-909.4	937.9	0.00	0.00	0.00
7,481.1	0.00	0.00	7,374.0	-229.5	-909.4	937.9	0.00	0.00	0.00
TD at 7481.1									

Database:	Landmark	Local Co-ordinate Reference:	Well Land JG 31-34D
Company:	Great Western	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Project:	SEC.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site:	Land JG (West) Pad Sec.31-T2N-R64W	North Reference:	True
Well:	Land JG 31-34D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-07-12)		

Targets										
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
TARGET CIRCLE 0'F	- plan hits target center - Circle (radius 75.0)	0.00	0.00	6,872.0	-229.5	-909.4	1,275,961.00	3,251,062.30	40.087417	-104.602675
TARGET BHL 0'FSL {	- plan hits target center - Point	0.00	0.00	5,700.0	-229.5	-909.4	1,275,961.00	3,251,062.30	40.087417	-104.602675

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
1,000.0	1,000.0	8 5/8"	8-5/8	12-1/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,668.3	2,639.0	GREELEY SAND		0.00		
4,098.9	4,028.0	PARKMAN		0.00		
4,640.6	4,554.0	SUSSEX		0.00		
5,251.6	5,148.0	SHANNON		0.00		
6,979.1	6,872.0	NIOBRARA		0.00		
7,294.1	7,187.0	FORT HAYS		0.00		
7,321.1	7,214.0	CODELL		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,200.0	1,200.0	0.0	0.0	KOP - Start Build 2.00	
1,892.5	1,885.8	-20.4	-80.8	Start 3222.2 hold at 1892.5 MD	
5,114.6	5,014.2	-209.1	-828.6	Start Drop -2.00	
5,807.1	5,700.0	-229.5	-909.4	Back to Vertical	
7,481.1	7,374.0	-229.5	-909.4	TD at 7481.1	



Directional

Great Western

SEC.31-T2N-R64W

Land JG (West) Pad Sec.31-T2N-R64W

Land JG 31-34D

Wellbore #1

Plan #1 (11-07-12)

Anticollision Report

09 November, 2012

Company:	Great Western	Local Co-ordinate Reference:	Well Land JG 31-34D
Project:	SEC.31-T2N-R64W	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Reference Site:	Land JG (West) Pad Sec.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Land JG 31-34D	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 (11-07-12)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (11-07-12)		
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	11/9/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	7,481.1	Plan #1 (11-07-12) (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
Offet Well - Wellbore - Design						
Land JG (East) Pad Sec.31-T2N-R64W						
Land JG 31-35D - Wellbore #1 - Plan #1 (11-05-12)	1,200.0	1,200.0	20.1	15.0	3.897	CC, ES, SF
Land JG 31-36D - Wellbore #1 - Plan #1 (11-05-12)	400.0	400.0	27.9	26.3	17.739	CC, ES
Land JG 31-36D - Wellbore #1 - Plan #1 (11-05-12)	600.0	598.5	32.7	30.3	13.395	SF
Land JG (West) Pad Sec.31-T2N-R64W						
Land JG 31-33D - Wellbore #1 - Plan #1 (11-07-12)	400.0	400.0	19.3	17.7	12.277	CC
Land JG 31-33D - Wellbore #1 - Plan #1 (11-07-12)	500.0	500.0	19.4	17.4	9.644	ES
Land JG 31-33D - Wellbore #1 - Plan #1 (11-07-12)	600.0	599.7	20.5	18.1	8.387	SF

Offset Design													Land JG (East) Pad Sec.31-T2N-R64W - Land JG 31-35D - Wellbore #1 - Plan #1 (11-05-12)	Offset Site Error:	0.0ft
Survey Program: 0-MWD														Offset Well Error:	0.0ft
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			
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	20.1	20.1						
100.0	100.0	100.0	100.0	0.1	0.1	89.99	0.0	20.1	20.1	19.9	0.22	89.630			
200.0	200.0	200.0	200.0	0.3	0.3	89.99	0.0	20.1	20.1	19.5	0.67	29.877			
300.0	300.0	300.0	300.0	0.6	0.6	89.99	0.0	20.1	20.1	19.0	1.12	17.926			
400.0	400.0	400.0	400.0	0.8	0.8	89.99	0.0	20.1	20.1	18.6	1.57	12.804			
500.0	500.0	500.0	500.0	1.0	1.0	89.99	0.0	20.1	20.1	18.1	2.02	9.959			
600.0	600.0	600.0	600.0	1.2	1.2	89.99	0.0	20.1	20.1	17.7	2.47	8.148			
700.0	700.0	700.0	700.0	1.5	1.5	89.99	0.0	20.1	20.1	17.2	2.92	6.895			
800.0	800.0	800.0	800.0	1.7	1.7	89.99	0.0	20.1	20.1	16.8	3.37	5.975			
900.0	900.0	900.0	900.0	1.9	1.9	89.99	0.0	20.1	20.1	16.3	3.82	5.272			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.99	0.0	20.1	20.1	15.9	4.27	4.717			
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	89.99	0.0	20.1	20.1	15.4	4.72	4.268			
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	89.99	0.0	20.1	20.1	15.0	5.17	3.897	CC, ES, SF		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-166.96	0.0	20.1	21.8	16.2	5.60	3.900			
1,400.0	1,399.8	1,399.8	1,399.8	3.0	3.0	-169.45	0.0	20.1	27.0	21.0	6.01	4.486			
1,500.0	1,499.5	1,499.5	1,499.5	3.2	3.3	-172.00	0.0	20.1	35.6	29.1	6.42	5.540			
1,600.0	1,598.7	1,598.7	1,598.7	3.4	3.5	-174.01	0.0	20.1	47.7	40.8	6.83	6.982			
1,700.0	1,697.5	1,697.5	1,697.5	3.7	3.7	-175.47	0.0	20.1	63.2	56.0	7.23	8.748			
1,800.0	1,795.6	1,795.6	1,795.6	4.0	3.9	-176.49	0.0	20.1	82.3	74.7	7.63	10.786			
1,892.5	1,885.8	1,885.8	1,885.8	4.3	4.1	-177.18	0.0	20.1	102.9	94.9	7.99	12.878			

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 Land JG 31-34D
Project:	SEC.31-T2N-R64W	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Reference Site:	Land JG (West) Pad Sec.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Land JG 31-34D	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 (11-07-12)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Land JG (East) Pad Sec.31-T2N-R64W - Land JG 31-35D - Wellbore #1 - Plan #1 (11-05-12)		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				
1,900.0	1,893.1	1,893.1	1,893.1	4.3	4.1	-177.22	0.0	20.1	104.7	96.7	8.03	13.049				
2,000.0	1,990.2	1,990.2	1,990.2	4.7	4.4	-177.74	0.0	20.1	128.7	120.2	8.47	15.192				
2,100.0	2,087.2	2,084.9	2,084.8	5.2	4.6	-177.67	-0.9	21.0	153.3	144.4	8.89	17.233				
2,200.0	2,184.3	2,178.4	2,178.3	5.6	4.7	-176.76	-4.0	24.0	179.5	170.2	9.31	19.294				
2,300.0	2,281.4	2,270.8	2,270.4	6.0	4.9	-175.37	-9.2	29.0	207.6	197.9	9.73	21.346				
2,400.0	2,378.5	2,362.0	2,361.0	6.5	5.1	-173.70	-16.5	35.9	237.5	227.4	10.16	23.381				
2,500.0	2,475.6	2,451.6	2,449.8	7.0	5.3	-171.91	-25.6	44.7	269.4	258.8	10.61	25.394				
2,600.0	2,572.7	2,542.2	2,539.1	7.4	5.5	-170.06	-36.7	55.4	303.3	292.2	11.08	27.360				
2,700.0	2,669.8	2,635.8	2,631.2	7.9	5.7	-168.47	-48.5	66.7	337.6	326.0	11.58	29.160				
2,800.0	2,766.9	2,729.3	2,723.2	8.4	6.0	-167.16	-60.3	78.0	372.2	360.1	12.09	30.790				
2,900.0	2,864.0	2,822.8	2,815.3	8.9	6.3	-166.08	-72.1	89.3	406.9	394.3	12.60	32.280				
3,000.0	2,961.1	2,916.4	2,907.4	9.4	6.5	-165.17	-83.9	100.6	441.7	428.5	13.13	33.631				
3,100.0	3,058.2	3,009.9	2,999.5	9.9	6.8	-164.39	-95.7	111.9	476.5	462.9	13.67	34.862				
3,200.0	3,155.3	3,103.4	3,091.6	10.4	7.1	-163.71	-107.5	123.2	511.5	497.3	14.21	35.985				
3,300.0	3,252.4	3,197.0	3,183.7	10.9	7.4	-163.13	-119.3	134.5	546.5	531.7	14.77	37.011				
3,400.0	3,349.4	3,290.5	3,275.8	11.4	7.7	-162.61	-131.1	145.8	581.6	566.2	15.32	37.951				
3,500.0	3,446.5	3,384.0	3,367.9	11.9	8.1	-162.15	-142.9	157.1	616.6	600.8	15.89	38.815				
3,600.0	3,543.6	3,477.6	3,460.0	12.4	8.4	-161.74	-154.7	168.4	651.8	635.3	16.45	39.610				
3,700.0	3,640.7	3,571.1	3,552.1	12.9	8.7	-161.37	-166.5	179.7	686.9	669.9	17.03	40.343				
3,800.0	3,737.8	3,675.1	3,654.5	13.4	9.1	-161.04	-179.2	191.9	721.8	704.1	17.62	40.964				
3,900.0	3,834.9	3,792.0	3,770.4	13.9	9.4	-160.92	-190.6	202.9	754.2	735.9	18.21	41.421				
4,000.0	3,932.0	3,911.4	3,889.2	14.4	9.7	-161.05	-198.7	210.6	783.6	764.9	18.77	41.751				
4,100.0	4,029.1	4,032.7	4,010.4	14.9	9.9	-161.43	-203.3	215.0	810.2	790.8	19.31	41.964				
4,200.0	4,126.2	4,148.5	4,126.2	15.5	10.1	-161.99	-204.3	216.0	833.8	814.0	19.80	42.100				
4,300.0	4,223.3	4,245.6	4,223.3	16.0	10.3	-162.48	-204.3	216.0	856.6	836.4	20.27	42.260				
4,400.0	4,320.4	4,342.7	4,320.4	16.5	10.5	-162.95	-204.3	216.0	879.5	858.8	20.74	42.408				
4,500.0	4,417.5	4,439.8	4,417.5	17.0	10.7	-163.40	-204.3	216.0	902.5	881.3	21.21	42.551				
4,600.0	4,514.6	4,536.9	4,514.6	17.5	10.9	-163.82	-204.3	216.0	925.5	903.8	21.68	42.690				
4,700.0	4,611.7	4,634.0	4,611.7	18.0	11.1	-164.22	-204.3	216.0	948.6	926.4	22.15	42.824				
4,800.0	4,708.7	4,731.1	4,708.7	18.5	11.2	-164.60	-204.3	216.0	971.7	949.1	22.62	42.954				
4,900.0	4,805.8	4,828.2	4,805.8	19.1	11.4	-164.97	-204.3	216.0	994.8	971.7	23.09	43.080				
5,000.0	4,902.9	4,925.3	4,902.9	19.6	11.6	-165.32	-204.3	216.0	1,018.0	994.5	23.56	43.201				
5,100.0	5,000.0	5,022.3	5,000.0	20.1	11.8	-165.65	-204.3	216.0	1,041.2	1,017.2	24.04	43.319				
5,114.6	5,014.2	5,036.6	5,014.2	20.2	11.8	-165.70	-204.3	216.0	1,044.6	1,020.5	24.11	43.335				
5,200.0	5,097.4	5,119.7	5,097.4	20.5	12.0	-166.05	-204.3	216.0	1,063.3	1,038.7	24.56	43.294				
5,300.0	5,195.5	5,217.8	5,195.5	20.9	12.2	-166.38	-204.3	216.0	1,082.1	1,057.0	25.04	43.213				
5,400.0	5,294.2	5,316.6	5,294.2	21.2	12.4	-166.65	-204.3	216.0	1,097.5	1,072.0	25.49	43.052				
5,500.0	5,393.5	5,415.8	5,393.5	21.4	12.6	-166.85	-204.3	216.0	1,109.6	1,083.7	25.92	42.818				
5,600.0	5,493.1	5,515.4	5,493.1	21.6	12.8	-167.00	-204.3	216.0	1,118.4	1,092.1	26.31	42.513				
5,700.0	5,592.9	5,615.2	5,592.9	21.8	13.0	-167.09	-204.3	216.0	1,123.7	1,097.0	26.66	42.142				
5,807.1	5,700.0	5,722.3	5,700.0	21.9	13.2	88.72	-204.3	216.0	1,125.7	1,098.6	27.02	41.662				
5,900.0	5,792.9	5,815.2	5,792.9	22.0	13.4	88.72	-204.3	216.0	1,125.7	1,098.3	27.37	41.127				
6,000.0	5,892.9	5,915.2	5,892.9	22.1	13.6	88.72	-204.3	216.0	1,125.7	1,097.9	27.75	40.562				
6,100.0	5,992.9	6,015.2	5,992.9	22.3	13.8	88.72	-204.3	216.0	1,125.7	1,097.5	28.13	40.010				
6,200.0	6,092.9	6,115.2	6,092.9	22.4	14.0	88.72	-204.3	216.0	1,125.7	1,097.1	28.52	39.470				
6,300.0	6,192.9	6,215.2	6,192.9	22.5	14.2	88.72	-204.3	216.0	1,125.7	1,096.8	28.91	38.942				
6,400.0	6,292.9	6,315.2	6,292.9	22.6	14.4	88.72	-204.3	216.0	1,125.7	1,096.4	29.29	38.426				
6,500.0	6,392.9	6,415.2	6,392.9	22.8	14.6	88.72	-204.3	216.0	1,125.7	1,096.0	29.68	37.921				
6,600.0	6,492.9	6,515.2	6,492.9	22.9	14.8	88.72	-204.3	216.0	1,125.7	1,095.6	30.08	37.427				
6,700.0	6,592.9	6,615.2	6,592.9	23.0	15.0	88.72	-204.3	216.0	1,125.7	1,095.2	30.47	36.944				
6,800.0	6,692.9	6,715.2	6,692.9	23.2	15.2	88.72	-204.3	216.0	1,125.7	1,094.8	30.86	36.472				
6,900.0	6,792.9	6,815.2	6,792.9	23.3	15.4	88.72	-204.3	216.0	1,125.7	1,094.4	31.26	36.009				

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 Land JG 31-34D
Project:	SEC.31-T2N-R64W	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Reference Site:	Land JG (West) Pad Sec.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Land JG 31-34D	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 (11-07-12)	Offset TVD Reference:	Offset Datum

Offset Design													Land JG (East) Pad Sec.31-T2N-R64W - Land JG 31-35D - Wellbore #1 - Plan #1 (11-05-12)	Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth (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			
7,000.0	6,892.9	6,915.2	6,892.9	23.4	15.6	88.72	-204.3	216.0	1,125.7	1,094.0	31.66	35.557			
7,100.0	6,992.9	7,015.2	6,992.9	23.6	15.9	88.72	-204.3	216.0	1,125.7	1,093.6	32.06	35.115			
7,200.0	7,092.9	7,115.2	7,092.9	23.7	16.1	88.72	-204.3	216.0	1,125.7	1,093.2	32.46	34.682			
7,300.0	7,192.9	7,215.2	7,192.9	23.8	16.3	88.72	-204.3	216.0	1,125.7	1,092.8	32.86	34.259			
7,400.0	7,292.9	7,315.2	7,292.9	24.0	16.5	88.72	-204.3	216.0	1,125.7	1,092.4	33.26	33.844			
7,481.1	7,374.0	7,396.3	7,374.0	24.1	16.7	88.72	-204.3	216.0	1,125.7	1,092.1	33.59	33.514			

Company:	Great Western	Local Co-ordinate Reference:	Well Land JG 31-34D
Project:	SEC.31-T2N-R64W	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Reference Site:	Land JG (West) Pad Sec.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Land JG 31-34D	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 (11-07-12)	Offset TVD Reference:	Offset Datum

Offset Design													Land JG (East) Pad Sec.31-T2N-R64W - Land JG 31-36D - Wellbore #1 - Plan #1 (11-05-12)	Offset Site Error:	0.0ft
Survey Program: 0-MWD														Offset Well Error:	0.0ft
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			
0.0	0.0	0.0	0.0	0.0	0.0	46.20	19.3	20.1	27.9						
100.0	100.0	100.0	100.0	0.1	0.1	46.20	19.3	20.1	27.9	27.7	0.22	124.173			
200.0	200.0	200.0	200.0	0.3	0.3	46.20	19.3	20.1	27.9	27.2	0.67	41.391			
300.0	300.0	300.0	300.0	0.6	0.6	46.20	19.3	20.1	27.9	26.8	1.12	24.835			
400.0	400.0	400.0	400.0	0.8	0.8	46.20	19.3	20.1	27.9	26.3	1.57	17.739	CC, ES		
500.0	500.0	499.4	499.3	1.0	1.0	48.85	19.1	21.9	29.0	27.0	2.01	14.457			
600.0	600.0	598.5	598.3	1.2	1.2	55.62	18.4	27.0	32.7	30.3	2.44	13.395	SF		
700.0	700.0	697.1	696.6	1.5	1.4	63.88	17.4	35.4	39.6	36.7	2.90	13.667			
800.0	800.0	795.0	793.8	1.7	1.7	71.38	15.9	47.1	50.1	46.7	3.38	14.813			
900.0	900.0	892.1	889.6	1.9	2.0	77.29	14.0	62.0	64.4	60.4	3.91	16.465			
1,000.0	1,000.0	988.0	983.8	2.1	2.3	81.66	11.7	79.8	82.2	77.8	4.48	18.359			
1,100.0	1,100.0	1,082.5	1,076.1	2.4	2.7	84.84	9.1	100.4	103.6	98.5	5.10	20.326			
1,200.0	1,200.0	1,175.6	1,166.2	2.6	3.2	87.18	6.1	123.7	128.3	122.6	5.76	22.267			
1,300.0	1,300.0	1,266.6	1,253.4	2.8	3.7	-166.93	2.8	149.2	157.9	152.3	5.66	27.880			
1,400.0	1,399.8	1,354.7	1,337.1	3.0	4.2	-165.80	-0.6	176.5	193.7	187.6	6.10	31.742			
1,500.0	1,499.5	1,446.2	1,423.6	3.2	4.8	-165.08	-4.4	206.1	234.0	227.4	6.53	35.823			
1,600.0	1,598.7	1,536.3	1,508.8	3.4	5.4	-164.68	-8.2	235.3	277.3	270.4	6.95	39.894			
1,700.0	1,697.5	1,624.9	1,592.5	3.7	6.0	-164.48	-11.8	264.0	323.7	316.3	7.36	43.969			
1,800.0	1,795.6	1,711.9	1,674.7	4.0	6.5	-164.40	-15.4	292.1	373.0	365.2	7.76	48.037			
1,892.5	1,885.8	1,790.8	1,749.3	4.3	7.1	-164.38	-18.7	317.7	421.2	413.0	8.13	51.793			
1,900.0	1,893.1	1,797.2	1,755.3	4.3	7.1	-164.41	-18.9	319.8	425.2	417.0	8.17	52.068			
2,000.0	1,990.2	1,881.7	1,835.2	4.7	7.7	-164.71	-22.4	347.1	478.6	470.0	8.63	55.458			
2,100.0	2,087.2	1,966.2	1,915.1	5.2	8.3	-164.95	-25.9	374.5	532.1	523.0	9.10	58.440			
2,200.0	2,184.3	2,050.7	1,995.0	5.6	8.8	-165.15	-29.4	401.8	585.5	575.9	9.59	61.075			
2,300.0	2,281.4	2,135.2	2,074.8	6.0	9.4	-165.31	-32.9	429.2	639.0	628.9	10.08	63.414			
2,400.0	2,378.5	2,219.7	2,154.7	6.5	10.0	-165.45	-36.4	456.6	692.4	681.8	10.57	65.499			
2,500.0	2,475.6	2,304.2	2,234.6	7.0	10.6	-165.57	-39.9	483.9	745.9	734.8	11.07	67.366			
2,600.0	2,572.7	2,388.7	2,314.5	7.4	11.2	-165.67	-43.4	511.3	799.3	787.8	11.58	69.044			
2,700.0	2,669.8	2,473.2	2,394.3	7.9	11.7	-165.76	-46.9	538.6	852.8	840.7	12.09	70.559			
2,800.0	2,766.9	2,557.7	2,474.2	8.4	12.3	-165.84	-50.4	566.0	906.3	893.7	12.60	71.932			
2,900.0	2,864.0	2,642.2	2,554.1	8.9	12.9	-165.91	-53.9	593.4	959.7	946.6	13.11	73.181			
3,000.0	2,961.1	2,726.7	2,633.9	9.4	13.5	-165.98	-57.4	620.7	1,013.2	999.6	13.63	74.321			
3,100.0	3,058.2	2,811.2	2,713.8	9.9	14.1	-166.03	-60.8	648.1	1,066.7	1,052.5	14.15	75.364			
3,200.0	3,155.3	2,895.7	2,793.7	10.4	14.7	-166.08	-64.3	675.4	1,120.1	1,105.5	14.68	76.323			
3,300.0	3,252.4	2,980.2	2,873.6	10.9	15.2	-166.13	-67.8	702.8	1,173.6	1,158.4	15.20	77.205			
3,400.0	3,349.4	3,064.7	2,953.4	11.4	15.8	-166.17	-71.3	730.2	1,227.1	1,211.3	15.73	78.020			
3,500.0	3,446.5	3,149.2	3,033.3	11.9	16.4	-166.21	-74.8	757.5	1,280.5	1,264.3	16.26	78.774			
3,600.0	3,543.6	3,233.7	3,113.2	12.4	17.0	-166.25	-78.3	784.9	1,334.0	1,317.2	16.79	79.475			
3,700.0	3,640.7	3,318.2	3,193.1	12.9	17.6	-166.28	-81.8	812.3	1,387.5	1,370.2	17.32	80.126			
3,800.0	3,737.8	3,402.7	3,272.9	13.4	18.2	-166.31	-85.3	839.6	1,441.0	1,423.1	17.85	80.733			
3,900.0	3,834.9	3,487.2	3,352.8	13.9	18.8	-166.34	-88.8	867.0	1,494.4	1,476.0	18.38	81.300			
4,000.0	3,932.0	3,571.7	3,432.7	14.4	19.4	-166.37	-92.3	894.3	1,547.9	1,529.0	18.92	81.830			
4,100.0	4,029.1	3,656.2	3,512.5	14.9	19.9	-166.39	-95.8	921.7	1,601.4	1,581.9	19.45	82.327			
4,200.0	4,126.2	3,740.7	3,592.4	15.5	20.5	-166.42	-99.3	949.1	1,654.8	1,634.9	19.99	82.794			
4,300.0	4,223.3	3,825.2	3,672.3	16.0	21.1	-166.44	-102.8	976.4	1,708.3	1,687.8	20.52	83.233			
4,400.0	4,320.4	3,909.7	3,752.2	16.5	21.7	-166.46	-106.3	1,003.8	1,761.8	1,740.7	21.06	83.647			
4,500.0	4,417.5	3,994.2	3,832.0	17.0	22.3	-166.48	-109.8	1,031.1	1,815.3	1,793.7	21.60	84.037			
4,600.0	4,514.6	4,078.7	3,911.9	17.5	22.9	-166.49	-113.2	1,058.5	1,868.7	1,846.6	22.14	84.405			
4,700.0	4,611.7	4,163.2	3,991.8	18.0	23.5	-166.51	-116.7	1,085.9	1,922.2	1,899.5	22.68	84.753			
4,800.0	4,708.7	4,247.7	4,071.6	18.5	24.1	-166.53	-120.2	1,113.2	1,975.7	1,952.5	23.22	85.083			
4,900.0	4,805.8	4,332.2	4,151.5	19.1	24.6	-166.54	-123.7	1,140.6	2,029.2	2,005.4	23.76	85.396			
5,000.0	4,902.9	4,416.7	4,231.4	19.6	25.2	-166.56	-127.2	1,167.9	2,082.6	2,058.3	24.30	85.693			

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 Land JG 31-34D
Project:	SEC.31-T2N-R64W	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Reference Site:	Land JG (West) Pad Sec.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Land JG 31-34D	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 (11-07-12)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Land JG (East) Pad Sec.31-T2N-R64W - Land JG 31-36D - Wellbore #1 - Plan #1 (11-05-12)		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				
5,100.0	5,000.0	4,501.2	4,311.3	20.1	25.8	-166.57	-130.7	1,195.3	2,136.1	2,111.3	24.85	85.975				
5,114.6	5,014.2	4,513.6	4,323.0	20.2	25.9	-166.57	-131.2	1,199.3	2,143.9	2,119.0	24.93	86.015				
5,200.0	5,097.4	4,586.3	4,391.8	20.5	26.4	-166.82	-134.2	1,222.9	2,188.5	2,163.0	25.56	85.633				
5,300.0	5,195.5	4,673.2	4,473.9	20.9	27.0	-167.05	-137.8	1,251.0	2,238.0	2,211.8	26.25	85.258				
5,400.0	5,294.2	4,761.7	4,557.5	21.2	27.6	-167.25	-141.5	1,279.7	2,284.6	2,257.7	26.92	84.872				
5,500.0	5,393.5	4,851.7	4,642.6	21.4	28.3	-167.40	-145.2	1,308.8	2,328.1	2,300.5	27.56	84.481				
5,600.0	5,493.1	4,943.1	4,729.0	21.6	28.9	-167.51	-149.0	1,338.4	2,368.5	2,340.4	28.17	84.090				
5,700.0	5,592.9	5,035.8	4,816.6	21.8	29.5	-167.59	-152.8	1,368.4	2,405.8	2,377.1	28.74	83.701				
5,807.1	5,700.0	5,401.3	5,167.1	21.9	31.4	88.47	-165.8	1,470.4	2,439.5	2,409.6	29.95	81.445				
5,900.0	5,792.9	5,993.2	5,753.8	22.0	32.7	88.72	-174.7	1,540.2	2,450.5	2,419.3	31.20	78.555				
6,000.0	5,892.9	6,132.3	5,892.9	22.1	32.8	88.72	-174.8	1,540.6	2,450.6	2,419.0	31.57	77.629				
6,100.0	5,992.9	6,232.3	5,992.9	22.3	32.9	88.72	-174.8	1,540.6	2,450.6	2,418.7	31.89	76.849				
6,200.0	6,092.9	6,332.3	6,092.9	22.4	33.0	88.72	-174.8	1,540.6	2,450.6	2,418.4	32.21	76.077				
6,300.0	6,192.9	6,432.3	6,192.9	22.5	33.1	88.72	-174.8	1,540.6	2,450.6	2,418.0	32.54	75.313				
6,400.0	6,292.9	6,532.3	6,292.9	22.6	33.2	88.72	-174.8	1,540.6	2,450.6	2,417.7	32.87	74.559				
6,500.0	6,392.9	6,632.3	6,392.9	22.8	33.3	88.72	-174.8	1,540.6	2,450.6	2,417.4	33.20	73.813				
6,600.0	6,492.9	6,732.3	6,492.9	22.9	33.4	88.72	-174.8	1,540.6	2,450.6	2,417.1	33.54	73.075				
6,700.0	6,592.9	6,832.3	6,592.9	23.0	33.5	88.72	-174.8	1,540.6	2,450.6	2,416.7	33.87	72.347				
6,800.0	6,692.9	6,932.3	6,692.9	23.2	33.6	88.72	-174.8	1,540.6	2,450.6	2,416.4	34.21	71.628				
6,900.0	6,792.9	7,032.3	6,792.9	23.3	33.7	88.72	-174.8	1,540.6	2,450.6	2,416.0	34.56	70.918				
7,000.0	6,892.9	7,132.3	6,892.9	23.4	33.7	88.72	-174.8	1,540.6	2,450.6	2,415.7	34.90	70.218				
7,100.0	6,992.9	7,232.3	6,992.9	23.6	33.8	88.72	-174.8	1,540.6	2,450.6	2,415.3	35.25	69.526				
7,200.0	7,092.9	7,332.3	7,092.9	23.7	33.9	88.72	-174.8	1,540.6	2,450.6	2,415.0	35.60	68.843				
7,300.0	7,192.9	7,432.3	7,192.9	23.8	34.0	88.72	-174.8	1,540.6	2,450.6	2,414.6	35.95	68.170				
7,400.0	7,292.9	7,532.3	7,292.9	24.0	34.1	88.72	-174.8	1,540.6	2,450.6	2,414.3	36.30	67.506				
7,481.1	7,374.0	7,613.5	7,374.0	24.1	34.2	88.72	-174.8	1,540.6	2,450.6	2,414.0	36.59	66.974				

Company:	Great Western	Local Co-ordinate Reference:	Well Land JG 31-34D
Project:	SEC.31-T2N-R64W	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Reference Site:	Land JG (West) Pad Sec.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Land JG 31-34D	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 (11-07-12)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference				Offset			Semi Major Axis			Distance			Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
0.0	0.0	0.0	0.0	0.0	0.0	0.00	19.3	0.0	19.3	19.3	0.00	N/A			
100.0	100.0	100.0	100.0	0.1	0.1	0.00	19.3	0.0	19.3	19.1	0.22	85.938			
200.0	200.0	200.0	200.0	0.3	0.3	0.00	19.3	0.0	19.3	18.6	0.67	28.646			
300.0	300.0	300.0	300.0	0.6	0.6	0.00	19.3	0.0	19.3	18.2	1.12	17.188			
400.0	400.0	400.0	400.0	0.8	0.8	0.00	19.3	0.0	19.3	17.7	1.57	12.277 CC			
427.6	427.6	427.6	427.6	0.8	0.8	-0.40	19.3	-0.1	19.3	17.6	1.69	11.401			
500.0	500.0	500.0	499.9	1.0	1.0	-5.16	19.3	-1.7	19.4	17.4	2.01	9.644 ES			
600.0	600.0	599.7	599.5	1.2	1.2	-19.80	19.3	-7.0	20.5	18.1	2.45	8.387 SF			
700.0	700.0	698.8	698.2	1.5	1.4	-37.87	19.7	-15.3	25.0	22.1	2.90	8.633			
800.0	800.0	797.3	796.2	1.7	1.7	-47.94	22.8	-25.2	34.2	30.9	3.36	10.184			
900.0	900.0	895.2	893.3	1.9	2.0	-51.57	28.9	-36.4	47.0	43.2	3.85	12.216			
1,000.0	1,000.0	992.3	989.1	2.1	2.3	-52.11	38.0	-48.8	62.8	58.5	4.37	14.390			
1,100.0	1,100.0	1,088.4	1,083.5	2.4	2.6	-51.30	50.0	-62.4	81.6	76.7	4.92	16.588			
1,200.0	1,200.0	1,183.2	1,176.1	2.6	3.0	-49.97	64.6	-76.9	103.3	97.8	5.51	18.748			
1,300.0	1,300.0	1,276.9	1,266.8	2.8	3.4	55.92	81.9	-92.5	126.9	121.3	5.66	22.422			
1,400.0	1,399.8	1,369.3	1,355.6	3.0	3.9	58.49	101.6	-108.9	151.9	145.7	6.11	24.868			
1,500.0	1,499.5	1,462.8	1,444.7	3.2	4.4	61.50	123.9	-126.6	178.1	171.5	6.58	27.061			
1,600.0	1,598.7	1,558.8	1,536.0	3.4	4.9	64.61	147.1	-144.8	203.7	196.6	7.09	28.749			
1,700.0	1,697.5	1,654.7	1,627.3	3.7	5.5	67.73	170.3	-163.0	228.6	221.0	7.64	29.931			
1,800.0	1,795.6	1,750.5	1,718.4	4.0	6.1	70.89	193.5	-181.2	253.2	244.9	8.26	30.657			
1,892.5	1,885.8	1,838.8	1,802.4	4.3	6.6	73.83	214.9	-198.0	275.8	266.9	8.90	30.976			
1,900.0	1,893.1	1,846.0	1,809.3	4.3	6.6	74.11	216.6	-199.4	277.6	268.7	8.96	30.987			
2,000.0	1,990.2	1,941.4	1,900.0	4.7	7.2	77.46	239.7	-217.5	302.7	292.9	9.74	31.088			
2,100.0	2,087.2	2,036.8	1,990.8	5.2	7.8	80.30	262.8	-235.6	328.5	318.0	10.55	31.133			
2,200.0	2,184.3	2,132.1	2,081.5	5.6	8.4	82.74	285.9	-253.8	355.1	343.7	11.40	31.143			
2,300.0	2,281.4	2,227.5	2,172.2	6.0	9.0	84.83	309.0	-271.9	382.2	369.9	12.27	31.133			
2,400.0	2,378.5	2,322.9	2,263.0	6.5	9.6	86.66	332.1	-290.0	409.6	396.5	13.17	31.114			
2,500.0	2,475.6	2,418.2	2,353.7	7.0	10.2	88.25	355.2	-308.1	437.5	423.4	14.07	31.091			
2,600.0	2,572.7	2,513.6	2,444.5	7.4	10.8	89.66	378.3	-326.3	465.6	450.6	14.99	31.066			
2,700.0	2,669.8	2,609.0	2,535.2	7.9	11.4	90.90	401.4	-344.4	493.9	478.0	15.91	31.043			
2,800.0	2,766.9	2,704.4	2,625.9	8.4	12.0	92.02	424.5	-362.5	522.5	505.6	16.84	31.021			
2,900.0	2,864.0	2,799.7	2,716.7	8.9	12.6	93.01	447.6	-380.6	551.1	533.4	17.78	31.001			
3,000.0	2,961.1	2,895.1	2,807.4	9.4	13.2	93.91	470.7	-398.8	580.0	561.3	18.72	30.983			
3,100.0	3,058.2	2,990.5	2,898.2	9.9	13.8	94.73	493.8	-416.9	608.9	589.3	19.66	30.968			
3,200.0	3,155.3	3,085.8	2,988.9	10.4	14.4	95.47	516.9	-435.0	638.0	617.4	20.61	30.955			
3,300.0	3,252.4	3,181.2	3,079.6	10.9	15.0	96.15	540.0	-453.1	667.1	645.6	21.56	30.943			
3,400.0	3,349.4	3,276.6	3,170.4	11.4	15.6	96.77	563.1	-471.3	696.4	673.9	22.51	30.934			
3,500.0	3,446.5	3,371.9	3,261.1	11.9	16.2	97.34	586.2	-489.4	725.7	702.2	23.47	30.926			
3,600.0	3,543.6	3,467.3	3,351.9	12.4	16.8	97.87	609.3	-507.5	755.0	730.6	24.42	30.919			
3,700.0	3,640.7	3,562.7	3,442.6	12.9	17.4	98.35	632.3	-525.6	784.4	759.1	25.38	30.913			
3,800.0	3,737.8	3,658.1	3,533.3	13.4	18.0	98.81	655.4	-543.8	813.9	787.6	26.33	30.908			
3,900.0	3,834.9	3,753.4	3,624.1	13.9	18.6	99.23	678.5	-561.9	843.4	816.1	27.29	30.904			
4,000.0	3,932.0	3,848.8	3,714.8	14.4	19.2	99.62	701.6	-580.0	872.9	844.7	28.25	30.901			
4,100.0	4,029.1	3,944.2	3,805.6	14.9	19.8	99.99	724.7	-598.1	902.5	873.3	29.21	30.899			
4,200.0	4,126.2	4,039.5	3,896.3	15.5	20.4	100.33	747.8	-616.3	932.1	902.0	30.17	30.897			
4,300.0	4,223.3	4,134.9	3,987.0	16.0	21.0	100.65	770.9	-634.4	961.8	930.6	31.13	30.895			
4,400.0	4,320.4	4,230.3	4,077.8	16.5	21.6	100.95	794.0	-652.5	991.4	959.3	32.09	30.894			
4,500.0	4,417.5	4,325.7	4,168.5	17.0	22.2	101.24	817.1	-670.6	1,021.1	988.1	33.05	30.894			
4,600.0	4,514.6	4,421.0	4,259.3	17.5	22.8	101.51	840.2	-688.8	1,050.8	1,016.8	34.02	30.893			
4,700.0	4,611.7	4,516.4	4,350.0	18.0	23.4	101.76	863.3	-706.9	1,080.6	1,045.6	34.98	30.893			
4,800.0	4,708.7	4,611.8	4,440.7	18.5	24.0	102.01	886.4	-725.0	1,110.3	1,074.4	35.94	30.893			
4,900.0	4,805.8	4,707.1	4,531.5	19.1	24.6	102.23	909.5	-743.1	1,140.1	1,103.2	36.90	30.894			

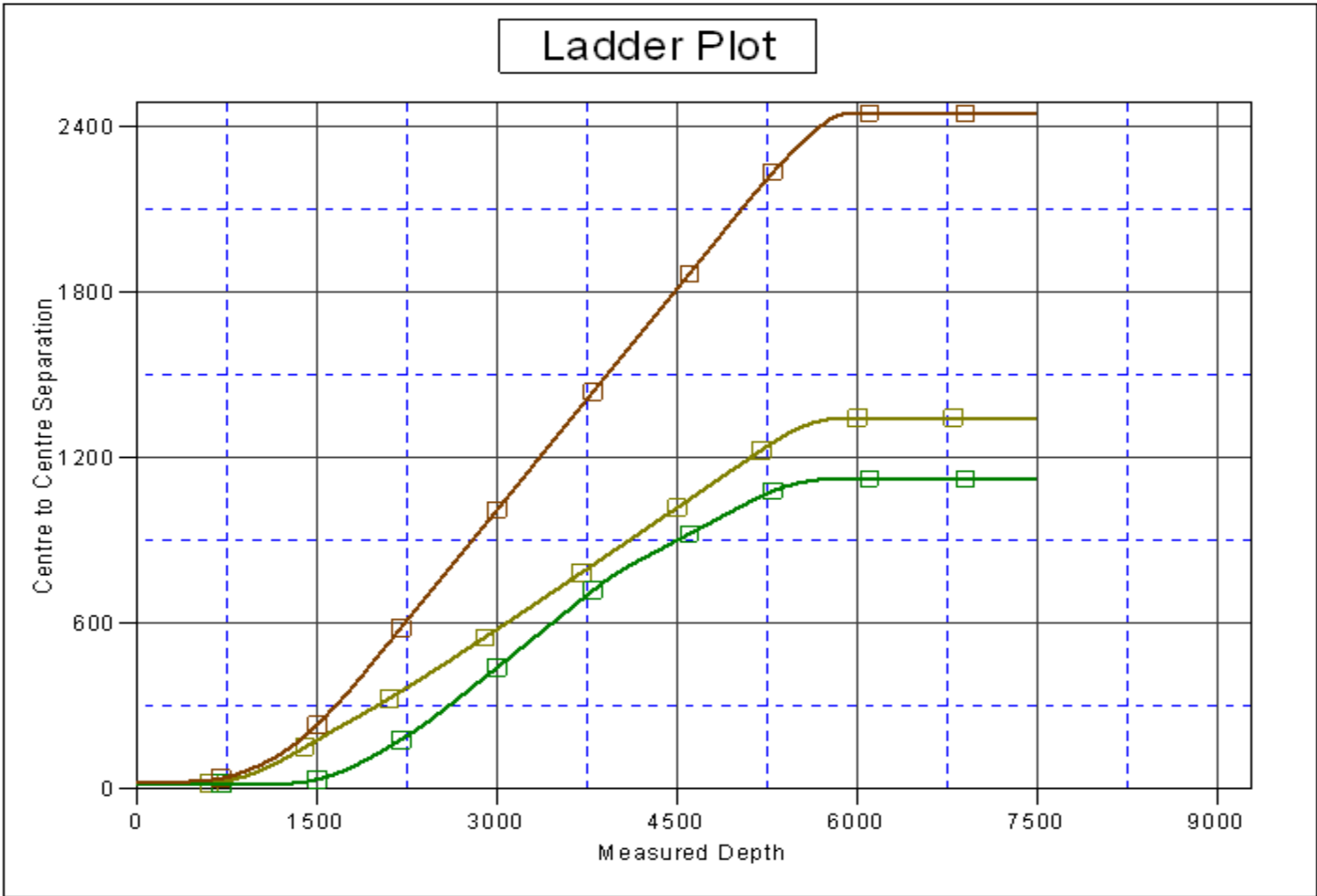
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Great Western	Local Co-ordinate Reference:	Well Land JG 31-34D
Project:	SEC.31-T2N-R64W	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Reference Site:	Land JG (West) Pad Sec.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Land JG 31-34D	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 (11-07-12)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Land JG (West) Pad Sec.31-T2N-R64W - Land JG 31-33D - Wellbore #1 - Plan #1 (11-07-12)		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				
5,000.0	4,902.9	4,802.5	4,622.2	19.6	25.2	102.45	932.6	-761.3	1,169.9	1,132.0	37.87	30.894				
5,100.0	5,000.0	4,897.9	4,713.0	20.1	25.8	102.66	955.7	-779.4	1,199.7	1,160.8	38.83	30.895				
5,114.6	5,014.2	4,911.9	4,726.2	20.2	25.9	102.69	959.1	-782.0	1,204.0	1,165.0	38.97	30.895				
5,200.0	5,097.4	4,993.4	4,803.8	20.5	26.4	103.31	978.8	-797.5	1,229.2	1,189.4	39.84	30.857				
5,300.0	5,195.5	5,089.1	4,894.9	20.9	27.0	103.86	1,002.0	-815.7	1,258.0	1,217.2	40.73	30.887				
5,400.0	5,294.2	5,223.4	5,023.3	21.2	27.8	104.20	1,032.9	-840.0	1,284.9	1,243.3	41.64	30.859				
5,500.0	5,393.5	5,373.8	5,169.1	21.4	28.4	104.40	1,062.0	-862.8	1,307.2	1,264.8	42.42	30.819				
5,600.0	5,493.1	5,527.2	5,319.5	21.6	28.9	104.51	1,085.4	-881.2	1,324.6	1,281.5	43.07	30.753				
5,700.0	5,592.9	5,683.0	5,473.7	21.8	29.3	104.51	1,102.7	-894.7	1,337.0	1,293.4	43.60	30.662				
5,807.1	5,700.0	5,851.6	5,641.7	21.9	29.6	0.25	1,113.9	-903.5	1,344.6	1,300.6	44.03	30.541				
5,900.0	5,792.9	5,998.7	5,788.7	22.0	29.8	0.13	1,117.3	-906.2	1,346.8	1,302.5	44.29	30.406				
6,000.0	5,892.9	6,102.8	5,892.9	22.1	29.9	0.13	1,117.3	-906.2	1,346.8	1,302.3	44.53	30.243				
6,100.0	5,992.9	6,202.8	5,992.9	22.3	30.0	0.13	1,117.3	-906.2	1,346.8	1,302.0	44.78	30.076				
6,200.0	6,092.9	6,302.8	6,092.9	22.4	30.1	0.13	1,117.3	-906.2	1,346.8	1,301.8	45.03	29.908				
6,300.0	6,192.9	6,402.8	6,192.9	22.5	30.2	0.13	1,117.3	-906.2	1,346.8	1,301.5	45.29	29.740				
6,400.0	6,292.9	6,502.8	6,292.9	22.6	30.3	0.13	1,117.3	-906.2	1,346.8	1,301.2	45.54	29.572				
6,500.0	6,392.9	6,602.8	6,392.9	22.8	30.4	0.13	1,117.3	-906.2	1,346.8	1,301.0	45.80	29.404				
6,600.0	6,492.9	6,702.8	6,492.9	22.9	30.5	0.13	1,117.3	-906.2	1,346.8	1,300.7	46.07	29.236				
6,700.0	6,592.9	6,802.8	6,592.9	23.0	30.6	0.13	1,117.3	-906.2	1,346.8	1,300.5	46.33	29.068				
6,800.0	6,692.9	6,902.8	6,692.9	23.2	30.7	0.13	1,117.3	-906.2	1,346.8	1,300.2	46.60	28.900				
6,900.0	6,792.9	7,002.8	6,792.9	23.3	30.8	0.13	1,117.3	-906.2	1,346.8	1,299.9	46.87	28.732				
7,000.0	6,892.9	7,102.8	6,892.9	23.4	30.9	0.13	1,117.3	-906.2	1,346.8	1,299.6	47.15	28.565				
7,100.0	6,992.9	7,202.8	6,992.9	23.6	31.0	0.13	1,117.3	-906.2	1,346.8	1,299.4	47.43	28.398				
7,200.0	7,092.9	7,302.8	7,092.9	23.7	31.1	0.13	1,117.3	-906.2	1,346.8	1,299.1	47.71	28.232				
7,300.0	7,192.9	7,402.8	7,192.9	23.8	31.2	0.13	1,117.3	-906.2	1,346.8	1,298.8	47.99	28.066				
7,400.0	7,292.9	7,502.8	7,292.9	24.0	31.3	0.13	1,117.3	-906.2	1,346.8	1,298.5	48.27	27.900				
7,481.1	7,374.0	7,584.0	7,374.0	24.1	31.4	0.13	1,117.3	-906.2	1,346.8	1,298.3	48.51	27.766				

Company:	Great Western	Local Co-ordinate Reference:	Well Land JG 31-34D
Project:	SEC.31-T2N-R64W	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Reference Site:	Land JG (West) Pad Sec.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Land JG 31-34D	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 (11-07-12)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4947.0ft (Original Well Elev) Coordinates are relative to: Land JG 31-34D
 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: 0.58°

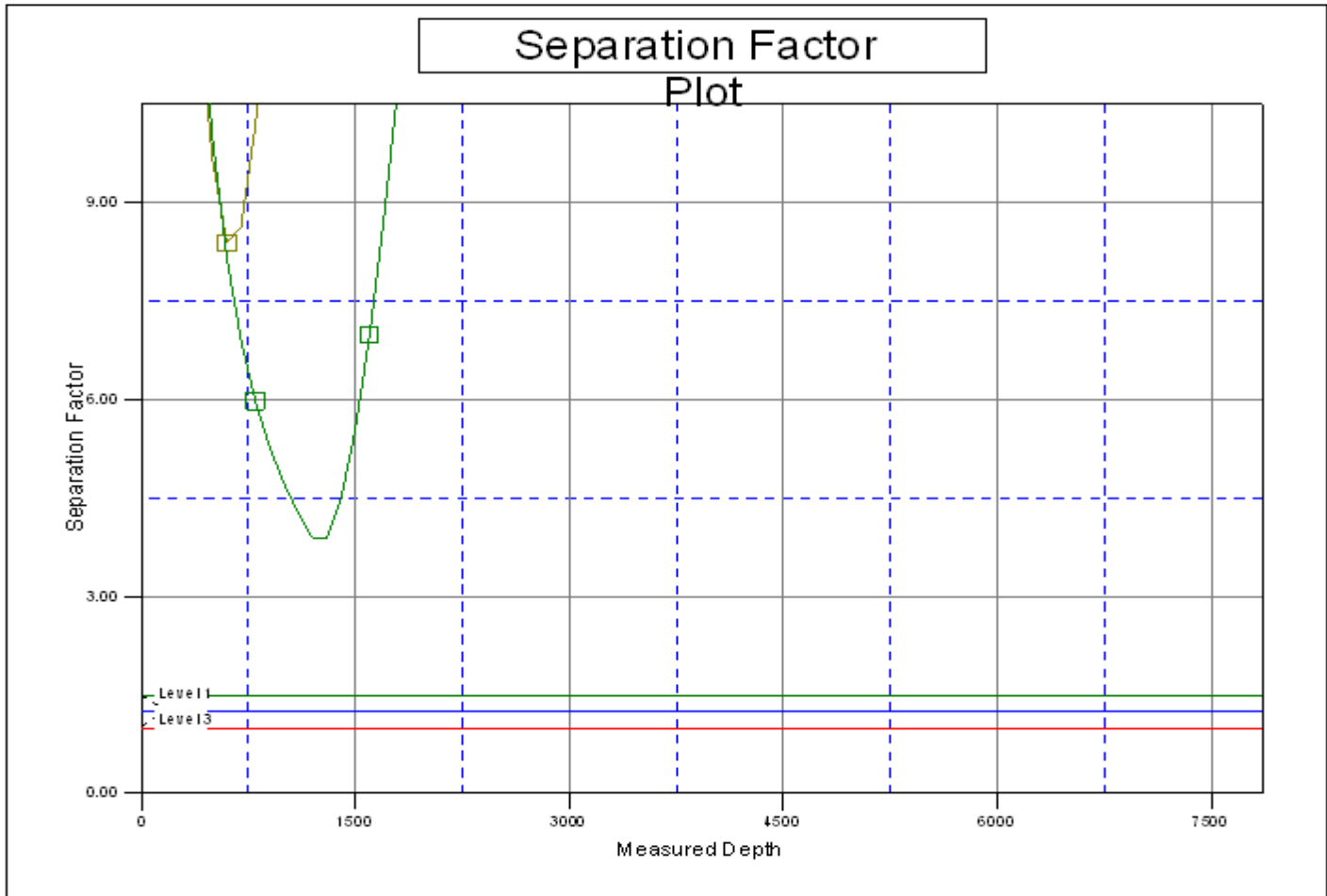


LEGEND

JG 31-33D, Wellbore #1, Plan #1 (11-07-12) V8 ■ Land JG 31-35D, Wellbore #1, Plan #1 (11-05-12) V8 ■ Land JG 31-36D, Wellbore #1, Plan #1 (11-07-12) V8 ■

Company:	Great Western	Local Co-ordinate Reference:	Well Land JG 31-34D
Project:	SEC.31-T2N-R64W	TVD Reference:	WELL @ 4947.0ft (Original Well Elev)
Reference Site:	Land JG (West) Pad Sec.31-T2N-R64W	MD Reference:	WELL @ 4947.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Land JG 31-34D	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 (11-07-12)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4947.0ft (Original Well Elev) Coordinates are relative to: Land JG 31-34D
 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: 0.58°



LEGEND

JG 31-33D, Wellbore #1, Plan #1 (11-07-12) VB Land JG 31-35D, Wellbore #1, Plan #1 (11-05-12) VB Land JG 31-36D, Wellbore #1, Plan #1 (11-07-12) VB