

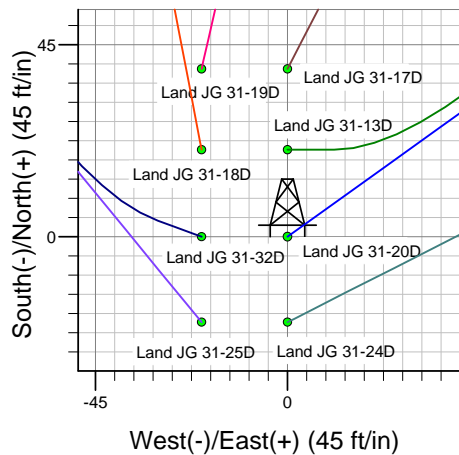
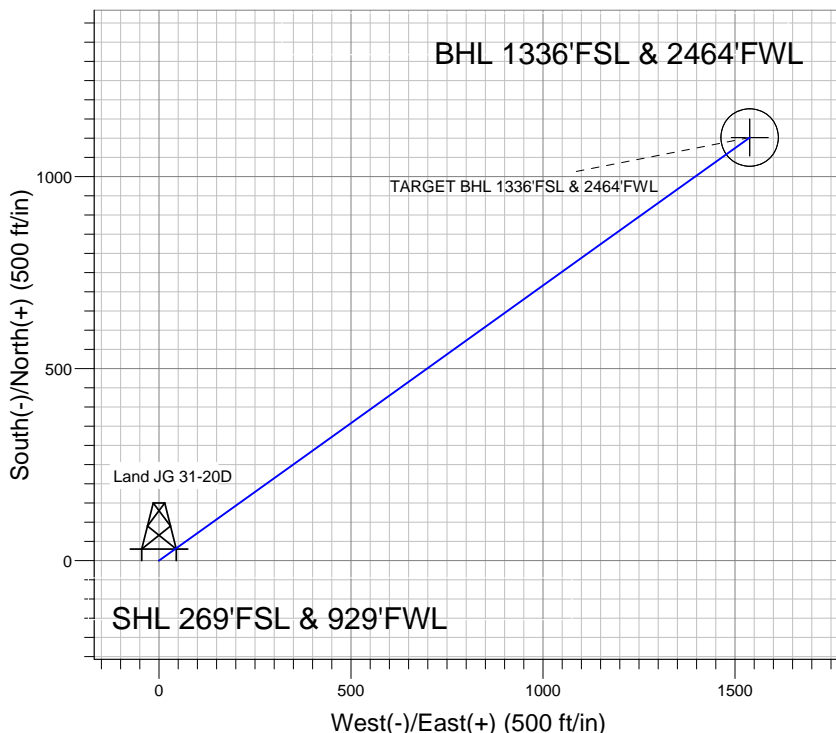
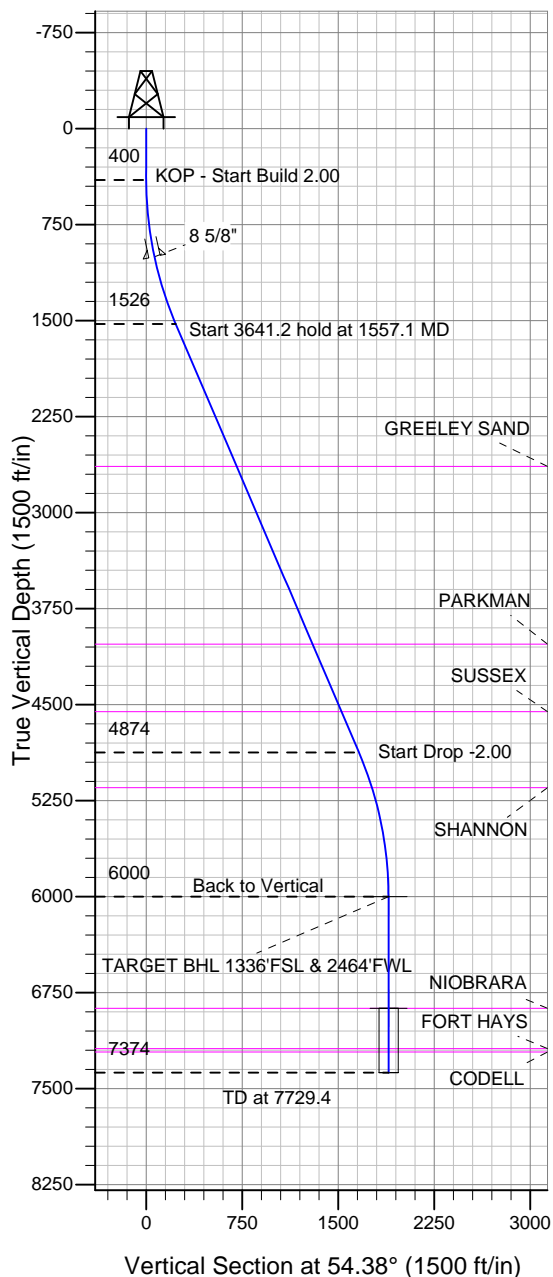
### Well Name: Land JG 31-20D

Surface Location: Land JG (East) Pad Sec.31-T2N-R64W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

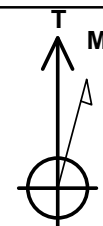
Ground Elevation: 4933.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1276259.64	3251988.79	40.088211	-104.599353	
Original Well Elev WELL @ 4947.0ft (Original Well Elev)						

## Great Western



Land JG (East) Pad Sec.31-T2N-R64W  
Land JG 31-20D  
Plan #1 (11-05-12)  
15:49, November 08 2012



Azimuths to True North  
Magnetic North: 8.56°

Magnetic Field  
Strength: 52837.5snT  
Dip Angle: 66.78°  
Date: 11/5/2012  
Model: IGRF2010

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1336'FSL & 2464'FWL	6000.0	1102.0	1538.0	40.091236	-104.593856	Point
TARGET CIRCLE 1336'FSL & 2464'FWL	6872.0	1102.0	1538.0	40.091236	-104.593856	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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1557.1	23.14	54.38	1525.9	134.3	187.4	2.00	54.38	230.5	
4	5198.3	23.14	54.38	4874.1	967.8	1350.6	0.00	0.00	1661.6	
5	6355.4	0.00	0.00	6000.0	1102.0	1538.0	2.00	180.00	1892.1	TARGET BHL 1336'FSL & 2464'FWL
6	7729.4	0.00	0.00	7374.0	1102.0	1538.0	0.00	0.00	1892.1	



## **Great Western**

**SEC.31-T2N-R64W**

**Land JG (East) Pad Sec.31-T2N-R64W**

**Land JG 31-20D**

**Wellbore #1**

**Plan: Plan #1 (11-05-12)**

## **Standard Planning Report**

**08 November, 2012**

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,557.1	23.14	54.38	1,525.9	134.3	187.4	2.00	2.00	0.00	54.38	
5,198.3	23.14	54.38	4,874.1	967.8	1,350.6	0.00	0.00	0.00	0.00	
6,355.4	0.00	0.00	6,000.0	1,102.0	1,538.0	2.00	-2.00	0.00	180.00	TARGET BHL 1336
7,729.4	0.00	0.00	7,374.0	1,102.0	1,538.0	0.00	0.00	0.00	0.00	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Company:</b>	Great Western	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Project:</b>	SEC.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (11-05-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
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
<b>KOP - Start Build 2.00</b>									
440.0	0.80	54.38	440.0	0.2	0.2	0.3	2.00	2.00	0.00
480.0	1.60	54.38	480.0	0.7	0.9	1.1	2.00	2.00	0.00
520.0	2.40	54.38	520.0	1.5	2.0	2.5	2.00	2.00	0.00
560.0	3.20	54.38	559.9	2.6	3.6	4.5	2.00	2.00	0.00
600.0	4.00	54.38	599.8	4.1	5.7	7.0	2.00	2.00	0.00
640.0	4.80	54.38	639.7	5.9	8.2	10.0	2.00	2.00	0.00
680.0	5.60	54.38	679.6	8.0	11.1	13.7	2.00	2.00	0.00
720.0	6.40	54.38	719.3	10.4	14.5	17.9	2.00	2.00	0.00
760.0	7.20	54.38	759.1	13.2	18.4	22.6	2.00	2.00	0.00
800.0	8.00	54.38	798.7	16.2	22.7	27.9	2.00	2.00	0.00
840.0	8.80	54.38	838.3	19.6	27.4	33.7	2.00	2.00	0.00
880.0	9.60	54.38	877.8	23.4	32.6	40.1	2.00	2.00	0.00
920.0	10.40	54.38	917.1	27.4	38.3	47.1	2.00	2.00	0.00
960.0	11.20	54.38	956.4	31.8	44.3	54.6	2.00	2.00	0.00
1,000.0	12.00	54.38	995.6	36.5	50.9	62.6	2.00	2.00	0.00
1,004.5	12.09	54.38	1,000.0	37.0	51.6	63.5	2.00	2.00	0.00
<b>8 5/8"</b>									
1,040.0	12.80	54.38	1,034.7	41.5	57.9	71.2	2.00	2.00	0.00
1,080.0	13.60	54.38	1,073.6	46.8	65.3	80.3	2.00	2.00	0.00
1,120.0	14.40	54.38	1,112.4	52.4	73.2	90.0	2.00	2.00	0.00
1,160.0	15.20	54.38	1,151.1	58.4	81.5	100.2	2.00	2.00	0.00
1,200.0	16.00	54.38	1,189.6	64.6	90.2	111.0	2.00	2.00	0.00
1,240.0	16.80	54.38	1,228.0	71.2	99.4	122.3	2.00	2.00	0.00
1,280.0	17.60	54.38	1,266.2	78.1	109.0	134.1	2.00	2.00	0.00
1,320.0	18.40	54.38	1,304.3	85.3	119.1	146.5	2.00	2.00	0.00
1,360.0	19.20	54.38	1,342.1	92.8	129.5	159.3	2.00	2.00	0.00
1,400.0	20.00	54.38	1,379.8	100.6	140.4	172.8	2.00	2.00	0.00
1,440.0	20.80	54.38	1,417.3	108.7	151.8	186.7	2.00	2.00	0.00
1,480.0	21.60	54.38	1,454.6	117.2	163.5	201.2	2.00	2.00	0.00
1,520.0	22.40	54.38	1,491.7	125.9	175.7	216.2	2.00	2.00	0.00
1,557.1	23.14	54.38	1,525.9	134.3	187.4	230.5	2.00	2.00	0.00
<b>Start 3641.2 hold at 1557.1 MD</b>									
1,560.0	23.14	54.38	1,528.6	134.9	188.3	231.7	0.00	0.00	0.00
1,600.0	23.14	54.38	1,565.3	144.1	201.1	247.4	0.00	0.00	0.00
1,640.0	23.14	54.38	1,602.1	153.2	213.9	263.1	0.00	0.00	0.00
1,680.0	23.14	54.38	1,638.9	162.4	226.6	278.8	0.00	0.00	0.00
1,720.0	23.14	54.38	1,675.7	171.6	239.4	294.5	0.00	0.00	0.00
1,760.0	23.14	54.38	1,712.5	180.7	252.2	310.3	0.00	0.00	0.00
1,800.0	23.14	54.38	1,749.2	189.9	265.0	326.0	0.00	0.00	0.00
1,840.0	23.14	54.38	1,786.0	199.0	277.8	341.7	0.00	0.00	0.00
1,880.0	23.14	54.38	1,822.8	208.2	290.5	357.4	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Company:</b>	Great Western	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Project:</b>	SEC.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (11-05-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,920.0	23.14	54.38	1,859.6	217.3	303.3	373.1	0.00	0.00	0.00
1,960.0	23.14	54.38	1,896.4	226.5	316.1	388.9	0.00	0.00	0.00
2,000.0	23.14	54.38	1,933.2	235.6	328.9	404.6	0.00	0.00	0.00
2,040.0	23.14	54.38	1,969.9	244.8	341.7	420.3	0.00	0.00	0.00
2,080.0	23.14	54.38	2,006.7	254.0	354.4	436.0	0.00	0.00	0.00
2,120.0	23.14	54.38	2,043.5	263.1	367.2	451.7	0.00	0.00	0.00
2,160.0	23.14	54.38	2,080.3	272.3	380.0	467.5	0.00	0.00	0.00
2,200.0	23.14	54.38	2,117.1	281.4	392.8	483.2	0.00	0.00	0.00
2,240.0	23.14	54.38	2,153.8	290.6	405.5	498.9	0.00	0.00	0.00
2,280.0	23.14	54.38	2,190.6	299.7	418.3	514.6	0.00	0.00	0.00
2,320.0	23.14	54.38	2,227.4	308.9	431.1	530.3	0.00	0.00	0.00
2,360.0	23.14	54.38	2,264.2	318.1	443.9	546.1	0.00	0.00	0.00
2,400.0	23.14	54.38	2,301.0	327.2	456.7	561.8	0.00	0.00	0.00
2,440.0	23.14	54.38	2,337.8	336.4	469.4	577.5	0.00	0.00	0.00
2,480.0	23.14	54.38	2,374.5	345.5	482.2	593.2	0.00	0.00	0.00
2,520.0	23.14	54.38	2,411.3	354.7	495.0	609.0	0.00	0.00	0.00
2,560.0	23.14	54.38	2,448.1	363.8	507.8	624.7	0.00	0.00	0.00
2,600.0	23.14	54.38	2,484.9	373.0	520.6	640.4	0.00	0.00	0.00
2,640.0	23.14	54.38	2,521.7	382.2	533.3	656.1	0.00	0.00	0.00
2,680.0	23.14	54.38	2,558.4	391.3	546.1	671.8	0.00	0.00	0.00
2,720.0	23.14	54.38	2,595.2	400.5	558.9	687.6	0.00	0.00	0.00
2,760.0	23.14	54.38	2,632.0	409.6	571.7	703.3	0.00	0.00	0.00
2,767.6	23.14	54.38	2,639.0	411.4	574.1	706.3	0.00	0.00	0.00
GREELEY SAND									
2,800.0	23.14	54.38	2,668.8	418.8	584.4	719.0	0.00	0.00	0.00
2,840.0	23.14	54.38	2,705.6	427.9	597.2	734.7	0.00	0.00	0.00
2,880.0	23.14	54.38	2,742.3	437.1	610.0	750.4	0.00	0.00	0.00
2,920.0	23.14	54.38	2,779.1	446.2	622.8	766.2	0.00	0.00	0.00
2,960.0	23.14	54.38	2,815.9	455.4	635.6	781.9	0.00	0.00	0.00
3,000.0	23.14	54.38	2,852.7	464.6	648.3	797.6	0.00	0.00	0.00
3,040.0	23.14	54.38	2,889.5	473.7	661.1	813.3	0.00	0.00	0.00
3,080.0	23.14	54.38	2,926.3	482.9	673.9	829.0	0.00	0.00	0.00
3,120.0	23.14	54.38	2,963.0	492.0	686.7	844.8	0.00	0.00	0.00
3,160.0	23.14	54.38	2,999.8	501.2	699.5	860.5	0.00	0.00	0.00
3,200.0	23.14	54.38	3,036.6	510.3	712.2	876.2	0.00	0.00	0.00
3,240.0	23.14	54.38	3,073.4	519.5	725.0	891.9	0.00	0.00	0.00
3,280.0	23.14	54.38	3,110.2	528.7	737.8	907.6	0.00	0.00	0.00
3,320.0	23.14	54.38	3,146.9	537.8	750.6	923.4	0.00	0.00	0.00
3,360.0	23.14	54.38	3,183.7	547.0	763.3	939.1	0.00	0.00	0.00
3,400.0	23.14	54.38	3,220.5	556.1	776.1	954.8	0.00	0.00	0.00
3,440.0	23.14	54.38	3,257.3	565.3	788.9	970.5	0.00	0.00	0.00
3,480.0	23.14	54.38	3,294.1	574.4	801.7	986.2	0.00	0.00	0.00
3,520.0	23.14	54.38	3,330.8	583.6	814.5	1,002.0	0.00	0.00	0.00
3,560.0	23.14	54.38	3,367.6	592.7	827.2	1,017.7	0.00	0.00	0.00
3,600.0	23.14	54.38	3,404.4	601.9	840.0	1,033.4	0.00	0.00	0.00
3,640.0	23.14	54.38	3,441.2	611.1	852.8	1,049.1	0.00	0.00	0.00
3,680.0	23.14	54.38	3,478.0	620.2	865.6	1,064.8	0.00	0.00	0.00
3,720.0	23.14	54.38	3,514.8	629.4	878.4	1,080.6	0.00	0.00	0.00
3,760.0	23.14	54.38	3,551.5	638.5	891.1	1,096.3	0.00	0.00	0.00
3,800.0	23.14	54.38	3,588.3	647.7	903.9	1,112.0	0.00	0.00	0.00
3,840.0	23.14	54.38	3,625.1	656.8	916.7	1,127.7	0.00	0.00	0.00
3,880.0	23.14	54.38	3,661.9	666.0	929.5	1,143.4	0.00	0.00	0.00
3,920.0	23.14	54.38	3,698.7	675.2	942.2	1,159.2	0.00	0.00	0.00
3,960.0	23.14	54.38	3,735.4	684.3	955.0	1,174.9	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Company:</b>	Great Western	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Project:</b>	SEC.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (11-05-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,000.0	23.14	54.38	3,772.2	693.5	967.8	1,190.6	0.00	0.00	0.00
4,040.0	23.14	54.38	3,809.0	702.6	980.6	1,206.3	0.00	0.00	0.00
4,080.0	23.14	54.38	3,845.8	711.8	993.4	1,222.1	0.00	0.00	0.00
4,120.0	23.14	54.38	3,882.6	720.9	1,006.1	1,237.8	0.00	0.00	0.00
4,160.0	23.14	54.38	3,919.3	730.1	1,018.9	1,253.5	0.00	0.00	0.00
4,200.0	23.14	54.38	3,956.1	739.3	1,031.7	1,269.2	0.00	0.00	0.00
4,240.0	23.14	54.38	3,992.9	748.4	1,044.5	1,284.9	0.00	0.00	0.00
4,278.2	23.14	54.38	4,028.0	757.1	1,056.7	1,299.9	0.00	0.00	0.00
<b>PARKMAN</b>									
4,280.0	23.14	54.38	4,029.7	757.6	1,057.3	1,300.7	0.00	0.00	0.00
4,320.0	23.14	54.38	4,066.5	766.7	1,070.0	1,316.4	0.00	0.00	0.00
4,360.0	23.14	54.38	4,103.3	775.9	1,082.8	1,332.1	0.00	0.00	0.00
4,400.0	23.14	54.38	4,140.0	785.0	1,095.6	1,347.8	0.00	0.00	0.00
4,440.0	23.14	54.38	4,176.8	794.2	1,108.4	1,363.5	0.00	0.00	0.00
4,480.0	23.14	54.38	4,213.6	803.3	1,121.2	1,379.3	0.00	0.00	0.00
4,520.0	23.14	54.38	4,250.4	812.5	1,133.9	1,395.0	0.00	0.00	0.00
4,560.0	23.14	54.38	4,287.2	821.7	1,146.7	1,410.7	0.00	0.00	0.00
4,600.0	23.14	54.38	4,323.9	830.8	1,159.5	1,426.4	0.00	0.00	0.00
4,640.0	23.14	54.38	4,360.7	840.0	1,172.3	1,442.1	0.00	0.00	0.00
4,680.0	23.14	54.38	4,397.5	849.1	1,185.0	1,457.9	0.00	0.00	0.00
4,720.0	23.14	54.38	4,434.3	858.3	1,197.8	1,473.6	0.00	0.00	0.00
4,760.0	23.14	54.38	4,471.1	867.4	1,210.6	1,489.3	0.00	0.00	0.00
4,800.0	23.14	54.38	4,507.8	876.6	1,223.4	1,505.0	0.00	0.00	0.00
4,840.0	23.14	54.38	4,544.6	885.8	1,236.2	1,520.7	0.00	0.00	0.00
4,850.2	23.14	54.38	4,554.0	888.1	1,239.4	1,524.7	0.00	0.00	0.00
<b>SUSSEX</b>									
4,880.0	23.14	54.38	4,581.4	894.9	1,248.9	1,536.5	0.00	0.00	0.00
4,920.0	23.14	54.38	4,618.2	904.1	1,261.7	1,552.2	0.00	0.00	0.00
4,960.0	23.14	54.38	4,655.0	913.2	1,274.5	1,567.9	0.00	0.00	0.00
5,000.0	23.14	54.38	4,691.8	922.4	1,287.3	1,583.6	0.00	0.00	0.00
5,040.0	23.14	54.38	4,728.5	931.5	1,300.1	1,599.3	0.00	0.00	0.00
5,080.0	23.14	54.38	4,765.3	940.7	1,312.8	1,615.1	0.00	0.00	0.00
5,120.0	23.14	54.38	4,802.1	949.8	1,325.6	1,630.8	0.00	0.00	0.00
5,160.0	23.14	54.38	4,838.9	959.0	1,338.4	1,646.5	0.00	0.00	0.00
5,198.3	23.14	54.38	4,874.1	967.8	1,350.6	1,661.6	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,200.0	23.11	54.38	4,875.7	968.2	1,351.2	1,662.2	2.00	-2.00	0.00
5,240.0	22.31	54.38	4,912.6	977.2	1,363.7	1,677.7	2.00	-2.00	0.00
5,280.0	21.51	54.38	4,949.7	985.8	1,375.9	1,692.6	2.00	-2.00	0.00
5,320.0	20.71	54.38	4,987.0	994.2	1,387.6	1,707.0	2.00	-2.00	0.00
5,360.0	19.91	54.38	5,024.5	1,002.3	1,398.8	1,720.9	2.00	-2.00	0.00
5,400.0	19.11	54.38	5,062.2	1,010.1	1,409.7	1,734.2	2.00	-2.00	0.00
5,440.0	18.31	54.38	5,100.1	1,017.6	1,420.1	1,747.1	2.00	-2.00	0.00
5,480.0	17.51	54.38	5,138.2	1,024.7	1,430.1	1,759.4	2.00	-2.00	0.00
5,490.3	17.30	54.38	5,148.0	1,026.5	1,432.6	1,762.5	2.00	-2.00	0.00
<b>SHANNON</b>									
5,520.0	16.71	54.38	5,176.4	1,031.6	1,439.7	1,771.1	2.00	-2.00	0.00
5,560.0	15.91	54.38	5,214.8	1,038.1	1,448.8	1,782.4	2.00	-2.00	0.00
5,600.0	15.11	54.38	5,253.3	1,044.4	1,457.5	1,793.1	2.00	-2.00	0.00
5,640.0	14.31	54.38	5,292.0	1,050.3	1,465.8	1,803.2	2.00	-2.00	0.00
5,680.0	13.51	54.38	5,330.8	1,055.9	1,473.6	1,812.8	2.00	-2.00	0.00
5,720.0	12.71	54.38	5,369.8	1,061.2	1,481.0	1,821.9	2.00	-2.00	0.00
5,760.0	11.91	54.38	5,408.9	1,066.1	1,487.9	1,830.4	2.00	-2.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Company:</b>	Great Western	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Project:</b>	SEC.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (11-05-12)		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
5,800.0	11.11	54.38	5,448.1	1,070.8	1,494.4	1,838.4	2.00	-2.00	0.00	
5,840.0	10.31	54.38	5,487.4	1,075.1	1,500.4	1,845.8	2.00	-2.00	0.00	
5,880.0	9.51	54.38	5,526.8	1,079.1	1,506.0	1,852.7	2.00	-2.00	0.00	
5,920.0	8.71	54.38	5,566.3	1,082.8	1,511.2	1,859.1	2.00	-2.00	0.00	
5,960.0	7.91	54.38	5,605.8	1,086.2	1,515.9	1,864.8	2.00	-2.00	0.00	
6,000.0	7.11	54.38	5,645.5	1,089.2	1,520.1	1,870.1	2.00	-2.00	0.00	
6,040.0	6.31	54.38	5,685.2	1,091.9	1,523.9	1,874.7	2.00	-2.00	0.00	
6,080.0	5.51	54.38	5,725.0	1,094.3	1,527.3	1,878.9	2.00	-2.00	0.00	
6,120.0	4.71	54.38	5,764.9	1,096.4	1,530.1	1,882.4	2.00	-2.00	0.00	
6,160.0	3.91	54.38	5,804.7	1,098.2	1,532.6	1,885.4	2.00	-2.00	0.00	
6,200.0	3.11	54.38	5,844.7	1,099.6	1,534.6	1,887.9	2.00	-2.00	0.00	
6,240.0	2.31	54.38	5,884.6	1,100.7	1,536.1	1,889.8	2.00	-2.00	0.00	
6,280.0	1.51	54.38	5,924.6	1,101.5	1,537.2	1,891.1	2.00	-2.00	0.00	
6,320.0	0.71	54.38	5,964.6	1,101.9	1,537.8	1,891.9	2.00	-2.00	0.00	
6,355.4	0.00	0.00	6,000.0	1,102.0	1,538.0	1,892.1	2.00	-2.00	-153.57	
<b>Back to Vertical - TARGET BHL 1336'FSL &amp; 2464'FWL</b>										
6,360.0	0.00	0.00	6,004.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,400.0	0.00	0.00	6,044.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,440.0	0.00	0.00	6,084.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,480.0	0.00	0.00	6,124.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,520.0	0.00	0.00	6,164.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,560.0	0.00	0.00	6,204.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,600.0	0.00	0.00	6,244.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,640.0	0.00	0.00	6,284.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,680.0	0.00	0.00	6,324.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,720.0	0.00	0.00	6,364.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,760.0	0.00	0.00	6,404.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,800.0	0.00	0.00	6,444.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,840.0	0.00	0.00	6,484.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,880.0	0.00	0.00	6,524.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,920.0	0.00	0.00	6,564.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
6,960.0	0.00	0.00	6,604.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,000.0	0.00	0.00	6,644.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,040.0	0.00	0.00	6,684.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,080.0	0.00	0.00	6,724.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,120.0	0.00	0.00	6,764.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,160.0	0.00	0.00	6,804.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,200.0	0.00	0.00	6,844.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,227.4	0.00	0.00	6,872.0	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
<b>NOBRARA - TARGET CIRCLE 1336'FSL &amp; 2464'FWL</b>										
7,240.0	0.00	0.00	6,884.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,280.0	0.00	0.00	6,924.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,320.0	0.00	0.00	6,964.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,360.0	0.00	0.00	7,004.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,400.0	0.00	0.00	7,044.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,440.0	0.00	0.00	7,084.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,480.0	0.00	0.00	7,124.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,520.0	0.00	0.00	7,164.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,542.4	0.00	0.00	7,187.0	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
<b>FORT HAYS</b>										
7,560.0	0.00	0.00	7,204.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
7,569.4	0.00	0.00	7,214.0	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00	
<b>CODELL</b>										

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Company:</b>	Great Western	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Project:</b>	SEC.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (11-05-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,600.0	0.00	0.00	7,244.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00
7,640.0	0.00	0.00	7,284.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00
7,680.0	0.00	0.00	7,324.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00
7,720.0	0.00	0.00	7,364.6	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00
7,729.4	0.00	0.00	7,374.0	1,102.0	1,538.0	1,892.1	0.00	0.00	0.00
TD at 7729.4									

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	
	- Shape								Latitude Longitude
TARGET CIRCLE 1336'F	- plan hits target center - Circle (radius 75.0)	0.00	0.00	6,872.0	1,102.0	1,538.0	1,277,377.20	3,253,515.46	40.091236 -104.593856
TARGET BHL 1336'F	- plan hits target center - Point	0.00	0.00	6,000.0	1,102.0	1,538.0	1,277,377.20	3,253,515.46	40.091236 -104.593856

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
1,004.5	1,000.0	8 5/8"	8-5/8	12-1/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,767.6	2,639.0	GREELEY SAND		0.00	
4,278.2	4,028.0	PARKMAN		0.00	
4,850.2	4,554.0	SUSSEX		0.00	
5,490.3	5,148.0	SHANNON		0.00	
7,227.4	6,872.0	NIOBRARA		0.00	
7,542.4	7,187.0	FORT HAYS		0.00	
7,569.4	7,214.0	CODELL		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
400.0	400.0	0.0	0.0	KOP - Start Build 2.00
1,557.1	1,525.9	134.3	187.4	Start 3641.2 hold at 1557.1 MD
5,198.3	4,874.1	967.8	1,350.6	Start Drop -2.00
6,355.4	6,000.0	1,102.0	1,538.0	Back to Vertical
7,729.4	7,374.0	1,102.0	1,538.0	TD at 7729.4





## **Great Western**

**SEC.31-T2N-R64W**

**Land JG (East) Pad Sec.31-T2N-R64W**

**Land JG 31-20D**

**Wellbore #1**

**Plan #1 (11-05-12)**

## **Anticollision Report**

**08 November, 2012**

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Project:</b>	SEC.31-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Reference Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-05-12)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (11-05-12)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b> 11/8/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	7,729.4	Plan #1 (11-05-12) (Wellbore #1)	MWD	MWD - Standard

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (ft)</b>	<b>Offset Measured Depth (ft)</b>	<b>Distance Between Centres (ft)</b>	<b>Distance Between Ellipses (ft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
Land JG (East) Pad Sec.31-T2N-R64W						
Land JG 31-13D - Wellbore #1 - Plan #1 (11-05-12)	200.0	200.0	20.4	19.7	30.248	CC
Land JG 31-13D - Wellbore #1 - Plan #1 (11-05-12)	300.0	300.0	20.5	19.4	18.375	ES
Land JG 31-13D - Wellbore #1 - Plan #1 (11-05-12)	1,600.0	1,578.2	82.7	72.2	7.888	SF
Land JG 31-24D - Wellbore #1 - Plan #1 (11-05-12)	400.0	400.0	20.0	18.5	12.735	CC, ES
Land JG 31-24D - Wellbore #1 - Plan #1 (11-05-12)	600.0	599.8	24.8	22.3	10.027	SF
Land JG (West) Pad Sec.31-T2N-R64W						
Land JG 31-18D - Wellbore #1 - Plan #1 (11-07-12)	400.0	400.0	28.7	27.1	18.221	CC
Land JG 31-18D - Wellbore #1 - Plan #1 (11-07-12)	500.0	500.0	29.0	27.0	14.369	ES
Land JG 31-18D - Wellbore #1 - Plan #1 (11-07-12)	700.0	698.8	35.7	32.7	12.207	SF
Land JG 31-25D - Wellbore #1 - Plan #1 (11-07-12)	400.0	400.0	28.4	26.8	18.061	CC, ES
Land JG 31-25D - Wellbore #1 - Plan #1 (11-07-12)	600.0	599.8	35.3	32.9	14.306	SF
Land JG 31-32D - Wellbore #1 - Plan #1 (11-07-12)	200.0	200.0	20.1	19.5	29.877	CC, ES
Land JG 31-32D - Wellbore #1 - Plan #1 (11-07-12)	400.0	398.4	26.8	25.2	17.101	SF

Offset Design												Offset Site Error:	0.0 ft
Land JG (East) Pad Sec.31-T2N-R64W - Land JG 31-13D - Wellbore #1 - Plan #1 (11-05-12)												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	20.4	0.0	20.4				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	20.4	0.0	20.4	20.2	0.22	90.744	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	20.4	0.0	20.4	19.7	0.67	30.248	CC
227.6	227.6	227.6	227.6	0.4	0.4	0.37	20.4	0.1	20.4	19.6	0.80	25.626	
300.0	300.0	300.0	299.9	0.6	0.6	4.89	20.4	1.7	20.5	19.4	1.11	18.375	ES
400.0	400.0	399.7	399.5	0.8	0.8	18.83	20.4	7.0	21.6	20.0	1.56	13.819	
500.0	500.0	498.9	498.4	1.0	1.0	-19.21	20.8	15.3	24.2	22.2	2.02	11.985	
600.0	599.8	597.8	596.8	1.2	1.3	-9.62	23.9	25.3	28.1	25.6	2.47	11.347	
700.0	699.5	696.8	694.9	1.5	1.6	-5.68	30.1	36.6	32.1	29.2	2.93	10.972	
800.0	798.7	795.7	792.5	1.7	1.9	-5.49	39.5	49.2	35.9	32.5	3.38	10.593	
900.0	897.5	894.4	889.4	2.0	2.3	-7.96	51.9	63.2	39.3	35.4	3.86	10.172	
1,000.0	995.6	993.0	985.6	2.4	2.7	-12.47	67.4	78.3	42.6	38.2	4.37	9.738	
1,100.0	1,093.1	1,091.3	1,080.8	2.8	3.1	-18.55	85.9	94.8	46.1	41.2	4.95	9.316	
1,200.0	1,189.6	1,189.4	1,174.8	3.3	3.6	-25.74	107.4	112.4	50.4	44.7	5.65	8.914	

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

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Project:</b>	SEC.31-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Reference Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-05-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Land JG (East) Pad Sec.31-T2N-R64W - Land JG 31-13D - 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		
1,300.0	1,285.3	1,287.2	1,267.7	3.8	4.2	-33.49	131.8	131.1	55.8	49.3	6.53	8.540		
1,400.0	1,379.8	1,384.6	1,359.1	4.4	4.8	-41.22	158.9	151.0	62.8	55.2	7.64	8.221		
1,500.0	1,473.2	1,481.6	1,448.9	5.1	5.5	-48.49	188.9	171.9	71.6	62.7	8.96	7.993		
1,557.1	1,525.9	1,536.8	1,499.5	5.5	5.9	-52.31	207.2	184.4	77.6	67.8	9.81	7.906		
1,600.0	1,565.3	1,578.2	1,537.2	5.8	6.2	-54.90	221.5	193.9	82.7	72.2	10.48	7.888 SF		
1,700.0	1,657.3	1,674.3	1,623.5	6.6	7.0	-59.15	256.6	216.8	97.2	85.1	12.01	8.086		
1,800.0	1,749.2	1,769.6	1,707.9	7.4	7.8	-61.43	294.2	240.6	114.8	101.3	13.50	8.508		
1,900.0	1,841.2	1,864.6	1,790.5	8.1	8.7	-62.37	334.1	265.3	135.3	120.4	14.93	9.064		
2,000.0	1,933.2	1,962.3	1,874.9	8.9	9.6	-62.86	376.1	291.0	156.7	140.3	16.37	9.572		
2,100.0	2,025.1	2,060.0	1,959.2	9.7	10.6	-63.24	418.0	316.7	178.1	160.3	17.82	9.995		
2,200.0	2,117.1	2,157.7	2,043.6	10.5	11.5	-63.53	460.0	342.4	199.5	180.3	19.27	10.352		
2,300.0	2,209.0	2,255.3	2,128.0	11.3	12.5	-63.77	501.9	368.1	220.9	200.2	20.73	10.656		
2,400.0	2,301.0	2,353.0	2,212.4	12.1	13.4	-63.96	543.9	393.9	242.4	220.2	22.20	10.919		
2,500.0	2,392.9	2,450.7	2,296.8	12.9	14.4	-64.13	585.8	419.6	263.8	240.1	23.66	11.148		
2,600.0	2,484.9	2,548.4	2,381.1	13.7	15.3	-64.27	627.8	445.3	285.2	260.1	25.13	11.348		
2,700.0	2,576.8	2,646.1	2,465.5	14.5	16.3	-64.39	669.7	471.0	306.6	280.0	26.60	11.526		
2,800.0	2,668.8	2,743.7	2,549.9	15.3	17.2	-64.49	711.7	496.7	328.1	300.0	28.08	11.684		
2,900.0	2,760.7	2,841.4	2,634.3	16.1	18.2	-64.58	753.6	522.4	349.5	319.9	29.55	11.826		
3,000.0	2,852.7	2,939.1	2,718.7	16.9	19.1	-64.66	795.6	548.1	370.9	339.9	31.03	11.954		
3,100.0	2,944.6	3,036.8	2,803.0	17.7	20.1	-64.73	837.5	573.8	392.4	359.9	32.51	12.070		
3,200.0	3,036.6	3,134.4	2,887.4	18.5	21.1	-64.80	879.5	599.5	413.8	379.8	33.99	12.175		
3,300.0	3,128.5	3,232.1	2,971.8	19.3	22.0	-64.86	921.4	625.3	435.2	399.8	35.47	12.271		
3,400.0	3,220.5	3,329.8	3,056.2	20.1	23.0	-64.91	963.4	651.0	456.7	419.7	36.95	12.360		
3,500.0	3,312.5	3,427.5	3,140.6	20.9	24.0	-64.96	1,005.3	676.7	478.1	439.7	38.43	12.441		
3,600.0	3,404.4	3,525.1	3,224.9	21.7	24.9	-65.00	1,047.3	702.4	499.5	459.6	39.91	12.516		
3,700.0	3,496.4	3,622.8	3,309.3	22.5	25.9	-65.04	1,089.2	728.1	520.9	479.6	41.39	12.585		
3,800.0	3,588.3	3,720.5	3,393.7	23.3	26.9	-65.08	1,131.2	753.8	542.4	499.5	42.88	12.650		
3,900.0	3,680.3	3,818.2	3,478.1	24.1	27.8	-65.11	1,173.1	779.5	563.8	519.5	44.36	12.710		
4,000.0	3,772.2	3,915.8	3,562.4	24.9	28.8	-65.14	1,215.1	805.2	585.2	539.4	45.85	12.766		
4,100.0	3,864.2	4,013.5	3,646.8	25.7	29.8	-65.17	1,257.0	830.9	606.7	559.3	47.33	12.818		
4,200.0	3,956.1	4,111.2	3,731.2	26.5	30.7	-65.20	1,299.0	856.7	628.1	579.3	48.82	12.867		
4,300.0	4,048.1	4,208.9	3,815.6	27.3	31.7	-65.23	1,340.9	882.4	649.5	599.2	50.30	12.913		
4,400.0	4,140.0	4,306.5	3,900.0	28.2	32.6	-65.25	1,382.9	908.1	671.0	619.2	51.79	12.957		
4,500.0	4,232.0	4,404.2	3,984.3	29.0	33.6	-65.27	1,424.8	933.8	692.4	639.1	53.27	12.998		
4,600.0	4,323.9	4,501.9	4,068.7	29.8	34.6	-65.29	1,466.8	959.5	713.8	659.1	54.76	13.036		
4,700.0	4,415.9	4,599.6	4,153.1	30.6	35.6	-65.31	1,508.7	985.2	735.3	679.0	56.25	13.073		
4,800.0	4,507.8	4,697.2	4,237.5	31.4	36.5	-65.33	1,550.7	1,010.9	756.7	699.0	57.73	13.107		
4,900.0	4,599.8	4,794.9	4,321.9	32.2	37.5	-65.35	1,592.6	1,036.6	778.1	718.9	59.22	13.140		
5,000.0	4,691.8	4,892.6	4,406.2	33.0	38.5	-65.37	1,634.6	1,062.3	799.6	738.9	60.71	13.171		
5,100.0	4,783.7	4,990.3	4,490.6	33.8	39.4	-65.38	1,676.5	1,088.1	821.0	758.8	62.19	13.201		
5,198.3	4,874.1	5,086.3	4,573.6	34.6	40.4	-65.40	1,717.8	1,113.3	842.1	778.4	63.66	13.229		
5,200.0	4,875.7	5,087.9	4,575.0	34.6	40.4	-65.41	1,718.5	1,113.8	842.4	778.8	63.68	13.229		
5,300.0	4,968.3	5,185.4	4,659.2	35.2	41.4	-65.72	1,760.3	1,139.4	864.6	799.5	65.07	13.287		
5,400.0	5,062.2	5,282.5	4,743.1	35.8	42.3	-65.86	1,802.0	1,165.0	888.2	821.9	66.32	13.393		
5,500.0	5,157.2	5,379.0	4,826.5	36.3	43.3	-65.84	1,843.5	1,190.4	913.2	845.8	67.43	13.544		
5,600.0	5,253.3	5,474.9	4,909.3	36.8	44.2	-65.68	1,884.7	1,215.6	939.7	871.3	68.39	13.739		
5,700.0	5,350.3	5,570.0	4,991.4	37.2	45.2	-65.40	1,925.5	1,240.7	967.7	898.4	69.23	13.978		
5,800.0	5,448.1	5,664.2	5,072.8	37.6	46.1	-65.01	1,965.9	1,265.4	997.3	927.3	69.93	14.262		
5,900.0	5,546.5	5,757.4	5,153.3	37.9	47.0	-64.54	2,006.0	1,290.0	1,028.6	958.1	70.51	14.589		
6,000.0	5,645.5	5,849.4	5,232.8	38.1	47.9	-64.00	2,045.5	1,314.2	1,061.7	990.7	70.97	14.960		
6,100.0	5,744.9	5,940.3	5,311.3	38.3	48.8	-63.41	2,084.5	1,338.1	1,096.7	1,025.4	71.32	15.377		
6,200.0	5,844.7	6,046.7	5,403.5	38.5	49.8	-62.54	2,129.8	1,365.9	1,133.4	1,061.9	71.44	15.865		

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

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Project:</b>	SEC.31-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Reference Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-05-12)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Land JG (East) Pad Sec.31-T2N-R64W - Land JG 31-13D - Wellbore #1 - Plan #1 (11-05-12)												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,300.0	5,944.6	6,179.7	5,521.0	38.6	50.7	-61.34	2,182.8	1,398.4	1,169.4	1,098.1	71.26	16.411	
6,355.4	6,000.0	6,255.0	5,588.9	38.7	51.2	-6.31	2,210.7	1,415.5	1,188.8	1,117.7	71.11	16.718	
6,400.0	6,044.6	6,316.8	5,645.2	38.7	51.6	-5.52	2,232.5	1,428.8	1,203.9	1,133.1	70.81	17.001	
6,500.0	6,144.6	6,459.7	5,777.3	38.8	52.5	-3.93	2,278.8	1,457.2	1,235.4	1,165.1	70.24	17.588	
6,600.0	6,244.6	6,608.2	5,917.4	38.8	53.3	-2.58	2,320.9	1,483.0	1,263.2	1,193.4	69.79	18.100	
6,700.0	6,344.6	6,761.9	6,064.7	38.9	54.0	-1.47	2,357.9	1,505.7	1,287.1	1,217.6	69.46	18.531	
6,800.0	6,444.6	6,920.0	6,218.7	39.0	54.6	-0.59	2,388.9	1,524.7	1,306.6	1,237.4	69.24	18.870	
6,900.0	6,544.6	7,081.9	6,378.0	39.1	55.1	0.07	2,413.1	1,539.5	1,321.6	1,252.4	69.14	19.114	
7,000.0	6,644.6	7,246.6	6,541.5	39.1	55.5	0.51	2,429.8	1,549.7	1,331.8	1,262.6	69.15	19.260	
7,100.0	6,744.6	7,412.9	6,707.5	39.2	55.7	0.73	2,438.4	1,555.0	1,337.0	1,267.8	69.26	19.305	
7,200.0	6,844.6	7,550.0	6,844.6	39.3	55.8	0.76	2,439.7	1,555.8	1,337.8	1,268.4	69.44	19.265	
7,300.0	6,944.6	7,650.0	6,944.6	39.4	55.9	0.76	2,439.7	1,555.8	1,337.8	1,268.2	69.62	19.216	
7,400.0	7,044.6	7,750.0	7,044.6	39.5	55.9	0.76	2,439.7	1,555.8	1,337.8	1,268.0	69.80	19.165	
7,500.0	7,144.6	7,850.0	7,144.6	39.6	56.0	0.76	2,439.7	1,555.8	1,337.8	1,267.8	69.99	19.114	
7,600.0	7,244.6	7,950.0	7,244.6	39.6	56.0	0.76	2,439.7	1,555.8	1,337.8	1,267.6	70.18	19.062	
7,700.0	7,344.6	8,050.0	7,344.6	39.7	56.1	0.76	2,439.7	1,555.8	1,337.8	1,267.4	70.37	19.011	
7,729.4	7,374.0	8,079.4	7,374.0	39.8	56.1	0.76	2,439.7	1,555.8	1,337.8	1,267.4	70.43	18.995	

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Project:</b>	SEC.31-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Reference Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-05-12)	<b>Offset TVD Reference:</b>	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	-180.00	-20.0	0.0	20.0					
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-20.0	0.0	20.0	19.8	0.22	89.142		
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-20.0	0.0	20.0	19.4	0.67	29.714		
300.0	300.0	300.0	300.0	0.6	0.6	-180.00	-20.0	0.0	20.0	18.9	1.12	17.828		
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-20.0	0.0	20.0	18.5	1.57	12.735 CC, ES		
500.0	500.0	500.0	500.0	1.0	1.0	129.46	-20.0	0.0	21.1	19.1	2.02	10.447		
600.0	599.8	599.8	599.8	1.2	1.2	138.80	-20.0	0.0	24.8	22.3	2.47	10.027 SF		
700.0	699.5	700.3	700.3	1.5	1.5	147.09	-19.2	1.6	30.5	27.6	2.92	10.461		
800.0	798.7	800.9	800.8	1.7	1.7	151.94	-16.8	6.3	37.0	33.6	3.37	10.987		
900.0	897.5	901.9	901.3	2.0	1.9	154.70	-12.8	14.2	43.9	40.0	3.83	11.454		
1,000.0	995.6	1,003.0	1,001.7	2.4	2.2	156.15	-7.2	25.2	51.0	46.7	4.31	11.828		
1,100.0	1,093.1	1,104.4	1,101.8	2.8	2.5	156.75	0.0	39.5	58.4	53.6	4.83	12.099		
1,200.0	1,189.6	1,205.9	1,201.4	3.3	2.8	156.77	8.9	56.9	66.0	60.6	5.38	12.267		
1,300.0	1,285.3	1,305.6	1,298.9	3.8	3.2	157.02	18.4	75.8	75.1	69.2	5.97	12.596		
1,400.0	1,379.8	1,404.9	1,395.8	4.4	3.6	158.07	27.9	94.5	87.5	80.9	6.55	13.349		
1,500.0	1,473.2	1,503.6	1,492.3	5.1	4.0	159.52	37.4	113.2	103.1	95.9	7.13	14.450		
1,557.1	1,525.9	1,559.7	1,547.2	5.5	4.2	160.41	42.8	123.8	113.4	106.0	7.46	15.209		
1,600.0	1,565.3	1,601.8	1,588.3	5.8	4.4	161.10	46.8	131.7	121.7	113.9	7.72	15.755		
1,700.0	1,657.3	1,699.9	1,684.2	6.6	4.8	162.38	56.2	150.3	140.9	132.5	8.34	16.891		
1,800.0	1,749.2	1,798.0	1,780.0	7.4	5.3	163.36	65.6	168.8	160.1	151.2	8.96	17.861		
1,900.0	1,841.2	1,896.1	1,875.9	8.1	5.7	164.13	75.0	187.3	179.4	169.8	9.60	18.697		
2,000.0	1,933.2	1,994.2	1,971.8	8.9	6.1	164.75	84.4	205.9	198.7	188.5	10.23	19.423		
2,100.0	2,025.1	2,092.3	2,067.6	9.7	6.6	165.26	93.8	224.4	218.1	207.2	10.87	20.059		
2,200.0	2,117.1	2,190.4	2,163.5	10.5	7.0	165.68	103.2	242.9	237.4	225.9	11.51	20.620		
2,300.0	2,209.0	2,288.5	2,259.4	11.3	7.4	166.05	112.6	261.5	256.8	244.6	12.16	21.117		
2,400.0	2,301.0	2,386.6	2,355.3	12.1	7.9	166.36	122.0	280.0	276.1	263.3	12.81	21.562		
2,500.0	2,392.9	2,484.7	2,451.1	12.9	8.3	166.63	131.4	298.6	295.5	282.0	13.46	21.961		
2,600.0	2,484.9	2,582.8	2,547.0	13.7	8.8	166.86	140.9	317.1	314.9	300.8	14.11	22.321		
2,700.0	2,576.8	2,680.9	2,642.9	14.5	9.2	167.07	150.3	335.6	334.3	319.5	14.76	22.647		
2,800.0	2,668.8	2,779.0	2,738.7	15.3	9.7	167.26	159.7	354.2	353.6	338.2	15.41	22.944		
2,900.0	2,760.7	2,877.0	2,834.6	16.1	10.1	167.43	169.1	372.7	373.0	357.0	16.07	23.216		
3,000.0	2,852.7	2,975.1	2,930.5	16.9	10.6	167.58	178.5	391.2	392.4	375.7	16.72	23.465		
3,100.0	2,944.6	3,073.2	3,026.3	17.7	11.0	167.72	187.9	409.8	411.8	394.4	17.38	23.695		
3,200.0	3,036.6	3,171.3	3,122.2	18.5	11.4	167.84	197.3	428.3	431.2	413.2	18.04	23.906		
3,300.0	3,128.5	3,269.4	3,218.1	19.3	11.9	167.95	206.7	446.8	450.6	431.9	18.70	24.102		
3,400.0	3,220.5	3,367.5	3,313.9	20.1	12.3	168.06	216.1	465.4	470.0	450.7	19.35	24.284		
3,500.0	3,312.5	3,465.6	3,409.8	20.9	12.8	168.15	225.5	483.9	489.4	469.4	20.01	24.454		
3,600.0	3,404.4	3,563.7	3,505.7	21.7	13.2	168.24	234.9	502.5	508.8	488.1	20.67	24.612		
3,700.0	3,496.4	3,661.8	3,601.5	22.5	13.7	168.32	244.3	521.0	528.2	506.9	21.33	24.760		
3,800.0	3,588.3	3,759.9	3,697.4	23.3	14.1	168.40	253.7	539.5	547.6	525.6	21.99	24.898		
3,900.0	3,680.3	3,858.0	3,793.3	24.1	14.6	168.47	263.1	558.1	567.0	544.4	22.66	25.028		
4,000.0	3,772.2	3,956.1	3,889.2	24.9	15.0	168.54	272.5	576.6	586.4	563.1	23.32	25.150		
4,100.0	3,864.2	4,054.2	3,985.0	25.7	15.5	168.60	281.9	595.1	605.8	581.9	23.98	25.266		
4,200.0	3,956.1	4,152.3	4,080.9	26.5	15.9	168.66	291.3	613.7	625.3	600.6	24.64	25.374		
4,300.0	4,048.1	4,250.4	4,176.8	27.3	16.4	168.71	300.7	632.2	644.7	619.4	25.30	25.477		
4,400.0	4,140.0	4,348.5	4,272.6	28.2	16.8	168.76	310.1	650.7	664.1	638.1	25.97	25.574		
4,500.0	4,232.0	4,446.6	4,368.5	29.0	17.3	168.81	319.5	669.3	683.5	656.9	26.63	25.667		
4,600.0	4,323.9	4,544.7	4,464.4	29.8	17.7	168.86	329.0	687.8	702.9	675.6	27.29	25.754		
4,700.0	4,415.9	4,642.8	4,560.2	30.6	18.2	168.90	338.4	706.4	722.3	694.3	27.96	25.837		
4,800.0	4,507.8	4,740.9	4,656.1	31.4	18.6	168.94	347.8	724.9	741.7	713.1	28.62	25.916		
4,900.0	4,599.8	4,839.0	4,752.0	32.2	19.1	168.98	357.2	743.4	761.1	731.8	29.28	25.992		
5,000.0	4,691.8	4,937.1	4,847.8	33.0	19.5	169.02	366.6	762.0	780.5	750.6	29.95	26.064		

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

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Project:</b>	SEC.31-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Reference Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-05-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Land JG (East) Pad Sec.31-T2N-R64W - Land JG 31-24D - 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	
5,100.0	4,783.7	5,035.2	4,943.7	33.8	20.0	169.06	376.0	780.5	799.9	769.3	30.61	26.133	
5,198.3	4,874.1	5,131.6	5,038.0	34.6	20.4	169.09	385.2	798.7	819.0	787.8	31.26	26.197	
5,200.0	4,875.7	5,133.3	5,039.6	34.6	20.4	169.09	385.4	799.0	819.4	788.1	31.28	26.197	
5,300.0	4,968.3	5,222.2	5,126.6	35.2	20.8	169.17	393.8	815.7	837.3	805.4	31.92	26.232	
5,400.0	5,062.2	5,300.0	5,203.0	35.8	21.1	169.25	400.4	828.6	853.9	821.5	32.44	26.320	
5,500.0	5,157.2	5,376.2	5,278.2	36.3	21.3	169.34	405.9	839.5	869.7	836.8	32.91	26.430	
5,600.0	5,253.3	5,452.9	5,354.2	36.8	21.5	169.43	410.6	848.7	884.6	851.3	33.31	26.557	
5,700.0	5,350.3	5,529.4	5,430.3	37.2	21.7	169.53	414.3	856.0	898.6	865.0	33.65	26.703	
5,800.0	5,448.1	5,600.0	5,500.6	37.6	21.8	169.63	416.9	861.2	911.7	877.8	33.92	26.875	
5,900.0	5,546.5	5,681.9	5,582.4	37.9	22.0	169.74	419.0	865.2	923.9	889.7	34.15	27.055	
6,000.0	5,645.5	5,757.9	5,658.4	38.1	22.1	169.86	419.9	867.1	935.2	900.9	34.31	27.260	
6,100.0	5,744.9	5,844.5	5,744.9	38.3	22.2	169.99	420.1	867.4	945.3	910.8	34.42	27.460	
6,200.0	5,844.7	5,944.2	5,844.7	38.5	22.3	170.08	420.1	867.4	952.3	917.8	34.53	27.579	
6,300.0	5,944.6	6,044.2	5,944.6	38.6	22.4	170.13	420.1	867.4	956.0	921.3	34.61	27.621	
6,355.4	6,000.0	6,099.6	6,000.0	38.7	22.5	-135.48	420.1	867.4	956.5	921.8	34.64	27.613	
6,400.0	6,044.6	6,144.2	6,044.6	38.7	22.5	-135.48	420.1	867.4	956.5	921.7	34.78	27.504	
6,500.0	6,144.6	6,244.2	6,144.6	38.8	22.7	-135.48	420.1	867.4	956.5	921.4	35.10	27.253	
6,600.0	6,244.6	6,344.2	6,244.6	38.8	22.8	-135.48	420.1	867.4	956.5	921.1	35.42	27.006	
6,700.0	6,344.6	6,444.2	6,344.6	38.9	22.9	-135.48	420.1	867.4	956.5	920.7	35.74	26.761	
6,800.0	6,444.6	6,544.2	6,444.6	39.0	23.0	-135.48	420.1	867.4	956.5	920.4	36.07	26.518	
6,900.0	6,544.6	6,644.2	6,544.6	39.1	23.2	-135.48	420.1	867.4	956.5	920.1	36.40	26.278	
7,000.0	6,644.6	6,744.2	6,644.6	39.1	23.3	-135.48	420.1	867.4	956.5	919.8	36.73	26.040	
7,100.0	6,744.6	6,844.2	6,744.6	39.2	23.5	-135.48	420.1	867.4	956.5	919.4	37.07	25.805	
7,200.0	6,844.6	6,944.2	6,844.6	39.3	23.6	-135.48	420.1	867.4	956.5	919.1	37.40	25.573	
7,300.0	6,944.6	7,044.2	6,944.6	39.4	23.7	-135.48	420.1	867.4	956.5	918.7	37.74	25.343	
7,400.0	7,044.6	7,144.2	7,044.6	39.5	23.9	-135.48	420.1	867.4	956.5	918.4	38.08	25.115	
7,500.0	7,144.6	7,244.2	7,144.6	39.6	24.0	-135.48	420.1	867.4	956.5	918.1	38.43	24.891	
7,600.0	7,244.6	7,344.2	7,244.6	39.6	24.2	-135.48	420.1	867.4	956.5	917.7	38.77	24.669	
7,700.0	7,344.6	7,444.2	7,344.6	39.7	24.3	-135.48	420.1	867.4	956.5	917.4	39.12	24.450	
7,729.4	7,374.0	7,473.6	7,374.0	39.8	24.3	-135.48	420.1	867.4	956.5	917.3	39.22	24.386	

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Project:</b>	SEC.31-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Reference Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-05-12)	<b>Offset TVD Reference:</b>	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	-44.65	20.4	-20.1	28.7					
100.0	100.0	100.0	100.0	0.1	0.1	-44.65	20.4	-20.1	28.7	28.4	0.22	127.546		
200.0	200.0	200.0	200.0	0.3	0.3	-44.65	20.4	-20.1	28.7	28.0	0.67	42.515		
300.0	300.0	300.0	300.0	0.6	0.6	-44.65	20.4	-20.1	28.7	27.5	1.12	25.509		
400.0	400.0	400.0	400.0	0.8	0.8	-44.65	20.4	-20.1	28.7	27.1	1.57	18.221 CC		
500.0	500.0	500.0	500.0	1.0	1.0	-102.42	20.4	-20.1	29.0	27.0	2.02	14.369 ES		
600.0	599.8	599.8	599.8	1.2	1.2	-112.01	20.4	-20.1	30.6	28.1	2.46	12.399		
700.0	699.5	698.8	698.8	1.5	1.5	-122.88	22.1	-20.5	35.7	32.7	2.92	12.207 SF		
800.0	798.7	797.5	797.4	1.7	1.7	-130.11	27.1	-21.4	45.4	42.0	3.39	13.384		
900.0	897.5	895.8	895.3	2.0	1.9	-133.93	35.4	-23.0	59.3	55.4	3.89	15.243		
1,000.0	995.6	993.5	992.2	2.4	2.2	-135.57	46.9	-25.2	76.9	72.5	4.42	17.383		
1,100.0	1,093.1	1,090.3	1,087.9	2.8	2.4	-136.00	61.5	-28.0	98.1	93.1	5.01	19.568		
1,200.0	1,189.6	1,186.0	1,182.0	3.3	2.8	-135.78	79.1	-31.4	122.7	117.0	5.67	21.656		
1,300.0	1,285.3	1,280.6	1,274.2	3.8	3.1	-135.22	99.4	-35.3	150.7	144.3	6.40	23.567		
1,400.0	1,379.8	1,373.9	1,364.5	4.4	3.5	-134.48	122.4	-39.7	182.1	174.9	7.21	25.264		
1,500.0	1,473.2	1,465.6	1,452.5	5.1	3.9	-133.65	147.9	-44.6	216.8	208.6	8.11	26.743		
1,557.1	1,525.9	1,517.3	1,501.7	5.5	4.2	-133.15	163.4	-47.6	238.0	229.3	8.65	27.502		
1,600.0	1,565.3	1,555.9	1,538.2	5.8	4.4	-132.98	175.6	-49.9	254.4	245.3	9.09	27.981		
1,700.0	1,657.3	1,645.1	1,622.1	6.6	5.0	-132.26	205.5	-55.6	293.4	283.2	10.16	28.872		
1,800.0	1,749.2	1,734.1	1,704.7	7.4	5.5	-131.23	237.9	-61.8	333.3	322.0	11.29	29.517		
1,900.0	1,841.2	1,825.4	1,789.2	8.1	6.1	-130.26	271.9	-68.4	373.7	361.2	12.47	29.956		
2,000.0	1,933.2	1,916.7	1,873.7	8.9	6.8	-129.48	305.9	-74.9	414.1	400.5	13.67	30.290		
2,100.0	2,025.1	2,008.0	1,958.2	9.7	7.4	-128.84	340.0	-81.4	454.6	439.7	14.88	30.549		
2,200.0	2,117.1	2,099.4	2,042.7	10.5	8.1	-128.30	374.0	-87.9	495.1	479.0	16.10	30.753		
2,300.0	2,209.0	2,190.7	2,127.2	11.3	8.7	-127.85	408.0	-94.5	535.7	518.4	17.33	30.917		
2,400.0	2,301.0	2,282.0	2,211.8	12.1	9.4	-127.45	442.0	-101.0	576.3	557.7	18.56	31.050		
2,500.0	2,392.9	2,373.4	2,296.3	12.9	10.0	-127.11	476.0	-107.5	616.9	597.1	19.80	31.160		
2,600.0	2,484.9	2,464.7	2,380.8	13.7	10.7	-126.82	510.0	-114.0	657.5	636.4	21.04	31.252		
2,700.0	2,576.8	2,556.0	2,465.3	14.5	11.4	-126.55	544.0	-120.5	698.1	675.8	22.28	31.330		
2,800.0	2,668.8	2,647.4	2,549.8	15.3	12.0	-126.32	578.0	-127.1	738.8	715.2	23.53	31.397		
2,900.0	2,760.7	2,738.7	2,634.3	16.1	12.7	-126.11	612.0	-133.6	779.4	754.6	24.78	31.454		
3,000.0	2,852.7	2,830.0	2,718.8	16.9	13.4	-125.92	646.1	-140.1	820.1	794.0	26.03	31.504		
3,100.0	2,944.6	2,921.3	2,803.3	17.7	14.1	-125.75	680.1	-146.6	860.7	833.4	27.28	31.547		
3,200.0	3,036.6	3,012.7	2,887.8	18.5	14.7	-125.59	714.1	-153.1	901.4	872.8	28.54	31.585		
3,300.0	3,128.5	3,104.0	2,972.3	19.3	15.4	-125.45	748.1	-159.7	942.1	912.3	29.80	31.618		
3,400.0	3,220.5	3,195.3	3,056.9	20.1	16.1	-125.32	782.1	-166.2	982.7	951.7	31.05	31.648		
3,500.0	3,312.5	3,286.7	3,141.4	20.9	16.8	-125.20	816.1	-172.7	1,023.4	991.1	32.31	31.674		
3,600.0	3,404.4	3,378.0	3,225.9	21.7	17.4	-125.09	850.1	-179.2	1,064.1	1,030.5	33.57	31.698		
3,700.0	3,496.4	3,469.3	3,310.4	22.5	18.1	-124.98	884.1	-185.7	1,104.8	1,070.0	34.83	31.719		
3,800.0	3,588.3	3,560.7	3,394.9	23.3	18.8	-124.89	918.1	-192.3	1,145.5	1,109.4	36.09	31.738		
3,900.0	3,680.3	3,652.0	3,479.4	24.1	19.5	-124.80	952.2	-198.8	1,186.2	1,148.8	37.35	31.756		
4,000.0	3,772.2	3,743.3	3,563.9	24.9	20.1	-124.71	986.2	-205.3	1,226.9	1,188.3	38.62	31.772		
4,100.0	3,864.2	3,834.7	3,648.4	25.7	20.8	-124.64	1,020.2	-211.8	1,267.6	1,227.7	39.88	31.786		
4,200.0	3,956.1	3,926.0	3,732.9	26.5	21.5	-124.56	1,054.2	-218.3	1,308.3	1,267.1	41.14	31.799		
4,300.0	4,048.1	4,017.3	3,817.4	27.3	22.2	-124.50	1,088.2	-224.9	1,349.0	1,306.6	42.41	31.811		
4,400.0	4,140.0	4,108.6	3,902.0	28.2	22.9	-124.43	1,122.2	-231.4	1,389.7	1,346.0	43.67	31.822		
4,500.0	4,232.0	4,200.0	3,986.5	29.0	23.5	-124.37	1,156.2	-237.9	1,430.4	1,385.5	44.93	31.833		
4,600.0	4,323.9	4,291.3	4,071.0	29.8	24.2	-124.31	1,190.2	-244.4	1,471.1	1,424.9	46.20	31.842		
4,700.0	4,415.9	4,382.6	4,155.5	30.6	24.9	-124.26	1,224.2	-250.9	1,511.8	1,464.3	47.47	31.851		
4,800.0	4,507.8	4,474.0	4,240.0	31.4	25.6	-124.21	1,258.3	-257.5	1,552.5	1,503.8	48.73	31.859		
4,900.0	4,599.8	4,565.3	4,324.5	32.2	26.3	-124.16	1,292.3	-264.0	1,593.2	1,543.2	50.00	31.866		
5,000.0	4,691.8	4,656.6	4,409.0	33.0	26.9	-124.11	1,326.3	-270.5	1,633.9	1,582.7	51.26	31.873		

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



<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Project:</b>	SEC.31-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Reference Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-05-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Land JG (West) Pad Sec.31-T2N-R64W - Land JG 31-18D - Wellbore #1 - Plan #1 (11-07-12)										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				
5,100.0	4,783.7	4,748.0	4,493.5	33.8	27.6	-124.07	1,360.3	-277.0	1,674.6	1,622.1	52.53	31.880				
5,198.3	4,874.1	4,837.7	4,576.6	34.6	28.3	-124.03	1,393.7	-283.4	1,714.7	1,660.9	53.78	31.886				
5,200.0	4,875.7	4,839.3	4,578.0	34.6	28.3	-124.04	1,394.3	-283.5	1,715.4	1,661.6	53.80	31.885				
5,300.0	4,968.3	4,931.0	4,662.9	35.2	29.0	-124.66	1,428.4	-290.1	1,755.1	1,700.1	55.05	31.881				
5,400.0	5,062.2	5,023.3	4,748.3	35.8	29.7	-125.14	1,462.8	-296.7	1,793.1	1,736.8	56.28	31.862				
5,500.0	5,157.2	5,116.2	4,834.3	36.3	30.4	-125.50	1,497.4	-303.3	1,829.2	1,771.8	57.47	31.831				
5,600.0	5,253.3	5,212.8	4,923.7	36.8	31.1	-125.72	1,533.4	-310.2	1,863.5	1,804.9	58.63	31.784				
5,700.0	5,350.3	5,349.6	5,051.7	37.2	31.9	-125.73	1,580.9	-319.3	1,894.7	1,834.9	59.86	31.653				
5,800.0	5,448.1	5,490.2	5,185.4	37.6	32.6	-125.74	1,623.3	-327.5	1,921.8	1,860.9	60.92	31.545				
5,900.0	5,546.5	5,634.0	5,324.2	37.9	33.2	-125.74	1,660.1	-334.5	1,944.7	1,882.9	61.86	31.437				
6,000.0	5,645.5	5,780.6	5,467.5	38.1	33.7	-125.73	1,690.5	-340.3	1,963.3	1,900.6	62.67	31.326				
6,100.0	5,744.9	5,929.6	5,614.5	38.3	34.2	-125.73	1,713.9	-344.8	1,977.3	1,914.0	63.34	31.220				
6,200.0	5,844.7	6,080.2	5,764.3	38.5	34.5	-125.72	1,730.0	-347.9	1,986.9	1,923.0	63.85	31.117				
6,300.0	5,944.6	6,232.0	5,915.7	38.6	34.7	-125.72	1,738.3	-349.5	1,991.7	1,927.5	64.21	31.021				
6,355.4	6,000.0	6,316.2	6,000.0	38.7	34.8	-71.34	1,739.5	-349.7	1,992.5	1,928.1	64.34	30.968				
6,400.0	6,044.6	6,360.8	6,044.6	38.7	34.8	-71.34	1,739.5	-349.7	1,992.5	1,928.1	64.41	30.933				
6,500.0	6,144.6	6,460.8	6,144.6	38.8	34.9	-71.34	1,739.5	-349.7	1,992.5	1,927.9	64.58	30.854				
6,600.0	6,244.6	6,560.8	6,244.6	38.8	35.0	-71.34	1,739.5	-349.7	1,992.5	1,927.7	64.75	30.773				
6,700.0	6,344.6	6,660.8	6,344.6	38.9	35.1	-71.34	1,739.5	-349.7	1,992.5	1,927.5	64.92	30.692				
6,800.0	6,444.6	6,760.8	6,444.6	39.0	35.1	-71.34	1,739.5	-349.7	1,992.5	1,927.4	65.09	30.609				
6,900.0	6,544.6	6,860.8	6,544.6	39.1	35.2	-71.34	1,739.5	-349.7	1,992.5	1,927.2	65.27	30.526				
7,000.0	6,644.6	6,960.8	6,644.6	39.1	35.3	-71.34	1,739.5	-349.7	1,992.5	1,927.0	65.45	30.442				
7,100.0	6,744.6	7,060.8	6,744.6	39.2	35.4	-71.34	1,739.5	-349.7	1,992.5	1,926.8	65.63	30.358				
7,200.0	6,844.6	7,160.8	6,844.6	39.3	35.5	-71.34	1,739.5	-349.7	1,992.5	1,926.6	65.82	30.272				
7,300.0	6,944.6	7,260.8	6,944.6	39.4	35.6	-71.34	1,739.5	-349.7	1,992.5	1,926.5	66.01	30.186				
7,400.0	7,044.6	7,360.8	7,044.6	39.5	35.7	-71.34	1,739.5	-349.7	1,992.5	1,926.3	66.20	30.099				
7,500.0	7,144.6	7,460.8	7,144.6	39.6	35.8	-71.34	1,739.5	-349.7	1,992.5	1,926.1	66.39	30.012				
7,600.0	7,244.6	7,560.8	7,244.6	39.6	35.8	-71.34	1,739.5	-349.7	1,992.5	1,925.9	66.58	29.924				
7,700.0	7,344.6	7,660.8	7,344.6	39.7	35.9	-71.34	1,739.5	-349.7	1,992.5	1,925.7	66.78	29.836				
7,729.4	7,374.0	7,690.2	7,374.0	39.8	36.0	-71.34	1,739.5	-349.7	1,992.5	1,925.6	66.84	29.810				



<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Project:</b>	SEC.31-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Reference Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-05-12)	<b>Offset TVD Reference:</b>	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	-134.85	-20.0	-20.1	28.4					
100.0	100.0	100.0	100.0	0.1	0.1	-134.85	-20.0	-20.1	28.4	28.2	0.22	126.425		
200.0	200.0	200.0	200.0	0.3	0.3	-134.85	-20.0	-20.1	28.4	27.7	0.67	42.142		
300.0	300.0	300.0	300.0	0.6	0.6	-134.85	-20.0	-20.1	28.4	27.3	1.12	25.285		
400.0	400.0	400.0	400.0	0.8	0.8	-134.85	-20.0	-20.1	28.4	26.8	1.57	18.061 CC, ES		
500.0	500.0	500.0	500.0	1.0	1.0	171.30	-20.0	-20.1	30.1	28.1	2.02	14.912		
600.0	599.8	599.8	599.8	1.2	1.2	172.57	-20.0	-20.1	35.3	32.9	2.47	14.306 SF		
700.0	699.5	699.5	699.5	1.5	1.5	174.02	-20.0	-20.1	44.0	41.1	2.92	15.068		
800.0	798.7	798.7	798.7	1.7	1.7	175.30	-20.0	-20.1	56.1	52.7	3.37	16.657		
900.0	897.5	897.5	897.5	2.0	1.9	176.30	-20.0	-20.1	71.7	67.9	3.82	18.779		
1,000.0	995.6	995.6	995.6	2.4	2.1	177.06	-20.0	-20.1	90.8	86.5	4.27	21.260		
1,100.0	1,093.1	1,093.1	1,093.1	2.8	2.3	177.62	-20.0	-20.1	113.2	108.5	4.72	23.991		
1,200.0	1,189.6	1,189.6	1,189.6	3.3	2.6	178.05	-20.0	-20.1	139.1	133.9	5.17	26.898		
1,300.0	1,285.3	1,285.3	1,285.3	3.8	2.8	178.37	-20.0	-20.1	168.3	162.7	5.62	29.930		
1,400.0	1,379.8	1,379.8	1,379.8	4.4	3.0	178.62	-20.0	-20.1	200.9	194.8	6.08	33.052		
1,500.0	1,473.2	1,473.2	1,473.2	5.1	3.2	178.81	-20.0	-20.1	236.7	230.2	6.53	36.236		
1,557.1	1,525.9	1,525.8	1,525.8	5.5	3.3	178.93	-20.0	-20.2	258.6	251.8	6.79	38.082		
1,600.0	1,565.3	1,565.0	1,565.0	5.8	3.4	179.14	-19.5	-20.6	275.5	268.5	7.01	39.328		
1,700.0	1,657.3	1,656.3	1,656.2	6.6	3.6	179.94	-16.7	-22.8	315.0	307.5	7.51	41.956		
1,800.0	1,749.2	1,747.0	1,746.7	7.4	3.8	-178.93	-11.8	-26.9	354.8	346.8	8.02	44.247		
1,900.0	1,841.2	1,837.1	1,836.4	8.1	4.0	-177.59	-4.7	-32.7	394.9	386.4	8.54	46.230		
2,000.0	1,933.2	1,926.4	1,924.8	8.9	4.2	-176.10	4.4	-40.2	435.6	426.5	9.09	47.929		
2,100.0	2,025.1	2,014.8	2,012.1	9.7	4.5	-174.51	15.6	-49.4	476.9	467.3	9.66	49.366		
2,200.0	2,117.1	2,104.9	2,100.7	10.5	4.7	-173.00	27.9	-59.5	518.7	508.5	10.27	50.515		
2,300.0	2,209.0	2,194.9	2,189.3	11.3	5.0	-171.71	40.3	-69.6	560.8	549.9	10.90	51.462		
2,400.0	2,301.0	2,285.0	2,277.9	12.1	5.3	-170.60	52.6	-79.8	603.1	591.5	11.54	52.246		
2,500.0	2,392.9	2,375.0	2,366.6	12.9	5.6	-169.64	64.9	-89.9	645.5	633.3	12.21	52.885		
2,600.0	2,484.9	2,465.1	2,455.2	13.7	5.9	-168.79	77.3	-100.0	688.0	675.2	12.88	53.425		
2,700.0	2,576.8	2,555.1	2,543.8	14.5	6.2	-168.04	89.6	-110.1	730.7	717.2	13.56	53.876		
2,800.0	2,668.8	2,645.2	2,632.4	15.3	6.5	-167.37	101.9	-120.2	773.5	759.2	14.26	54.257		
2,900.0	2,760.7	2,735.2	2,721.1	16.1	6.8	-166.77	114.2	-130.3	816.3	801.4	14.96	54.580		
3,000.0	2,852.7	2,825.3	2,809.7	16.9	7.1	-166.23	126.6	-140.4	859.2	843.6	15.66	54.855		
3,100.0	2,944.6	2,915.3	2,898.3	17.7	7.4	-165.75	138.9	-150.5	902.2	885.8	16.38	55.091		
3,200.0	3,036.6	3,005.3	2,986.9	18.5	7.8	-165.30	151.2	-160.7	945.2	928.1	17.09	55.294		
3,300.0	3,128.5	3,095.4	3,075.6	19.3	8.1	-164.90	163.5	-170.8	988.2	970.4	17.82	55.469		
3,400.0	3,220.5	3,185.4	3,164.2	20.1	8.4	-164.52	175.9	-180.9	1,031.3	1,012.8	18.54	55.620		
3,500.0	3,312.5	3,275.5	3,252.8	20.9	8.8	-164.18	188.2	-191.0	1,074.5	1,055.2	19.27	55.752		
3,600.0	3,404.4	3,365.5	3,341.4	21.7	9.1	-163.87	200.5	-201.1	1,117.6	1,097.6	20.00	55.868		
3,700.0	3,496.4	3,455.6	3,430.0	22.5	9.4	-163.57	212.8	-211.2	1,160.8	1,140.0	20.74	55.970		
3,800.0	3,588.3	3,545.6	3,518.7	23.3	9.8	-163.30	225.2	-221.3	1,204.0	1,182.5	21.48	56.059		
3,900.0	3,680.3	3,635.7	3,607.3	24.1	10.1	-163.05	237.5	-231.5	1,247.2	1,225.0	22.22	56.138		
4,000.0	3,772.2	3,725.7	3,695.9	24.9	10.5	-162.82	249.8	-241.6	1,290.4	1,267.5	22.96	56.209		
4,100.0	3,864.2	3,815.8	3,784.5	25.7	10.8	-162.59	262.1	-251.7	1,333.7	1,310.0	23.70	56.271		
4,200.0	3,956.1	3,905.8	3,873.2	26.5	11.2	-162.39	274.5	-261.8	1,377.0	1,352.5	24.45	56.326		
4,300.0	4,048.1	3,995.8	3,961.8	27.3	11.5	-162.19	286.8	-271.9	1,420.3	1,395.1	25.19	56.375		
4,400.0	4,140.0	4,085.9	4,050.4	28.2	11.8	-162.01	299.1	-282.0	1,463.6	1,437.6	25.94	56.419		
4,500.0	4,232.0	4,175.9	4,139.0	29.0	12.2	-161.84	311.4	-292.1	1,506.9	1,480.2	26.69	56.458		
4,600.0	4,323.9	4,266.0	4,227.6	29.8	12.5	-161.68	323.8	-302.3	1,550.2	1,522.7	27.44	56.493		
4,700.0	4,415.9	4,356.0	4,316.3	30.6	12.9	-161.52	336.1	-312.4	1,593.5	1,565.3	28.19	56.525		
4,800.0	4,507.8	4,446.1	4,404.9	31.4	13.2	-161.38	348.4	-322.5	1,636.8	1,607.9	28.94	56.553		
4,900.0	4,599.8	4,536.3	4,493.7	32.2	13.6	-161.24	360.8	-332.6	1,680.2	1,650.5	29.70	56.577		
5,000.0	4,691.8	4,651.1	4,607.1	33.0	13.9	-161.15	374.7	-344.0	1,722.9	1,692.4	30.45	56.585		

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

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Project:</b>	SEC.31-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Reference Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-05-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Land JG (West) Pad Sec.31-T2N-R64W - Land JG 31-25D - Wellbore #1 - Plan #1 (11-07-12)											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				
5,100.0	4,783.7	4,767.5	4,722.7	33.8	14.2	-161.23	385.2	-352.7	1,764.3	1,733.2	31.12	56.700				
5,198.3	4,874.1	4,883.1	4,837.9	34.6	14.5	-161.45	392.1	-358.3	1,803.7	1,772.0	31.71	56.887				
5,200.0	4,875.7	4,885.1	4,839.9	34.6	14.5	-161.46	392.2	-358.4	1,804.3	1,772.6	31.72	56.887				
5,300.0	4,968.3	5,004.4	4,959.1	35.2	14.7	-162.05	395.4	-361.0	1,841.5	1,809.2	32.32	56.977				
5,400.0	5,062.2	5,107.5	5,062.2	35.8	14.8	-162.61	395.6	-361.2	1,874.5	1,841.7	32.84	57.084				
5,500.0	5,157.2	5,202.5	5,157.2	36.3	15.0	-163.07	395.6	-361.2	1,904.3	1,871.0	33.33	57.133				
5,600.0	5,253.3	5,298.6	5,253.3	36.8	15.1	-163.47	395.6	-361.2	1,931.0	1,897.2	33.79	57.145				
5,700.0	5,350.3	5,395.6	5,350.3	37.2	15.3	-163.80	395.6	-361.2	1,954.4	1,920.2	34.21	57.123				
5,800.0	5,448.1	5,493.3	5,448.1	37.6	15.5	-164.09	395.6	-361.2	1,974.6	1,940.0	34.60	57.070				
5,900.0	5,546.5	5,591.8	5,546.5	37.9	15.6	-164.32	395.6	-361.2	1,991.5	1,956.6	34.95	56.989				
6,000.0	5,645.5	5,690.8	5,645.5	38.1	15.8	-164.50	395.6	-361.2	2,005.1	1,969.9	35.25	56.881				
6,100.0	5,744.9	5,790.2	5,744.9	38.3	16.0	-164.64	395.6	-361.2	2,015.4	1,979.9	35.52	56.747				
6,200.0	5,844.7	5,889.9	5,844.7	38.5	16.2	-164.73	395.6	-361.2	2,022.3	1,986.5	35.74	56.587				
6,300.0	5,944.6	5,989.9	5,944.6	38.6	16.3	-164.77	395.6	-361.2	2,025.8	1,989.9	35.92	56.401				
6,355.4	6,000.0	6,045.3	6,000.0	38.7	16.4	-110.40	395.6	-361.2	2,026.3	1,990.3	36.00	56.284				
6,400.0	6,044.6	6,089.9	6,044.6	38.7	16.5	-110.40	395.6	-361.2	2,026.3	1,990.2	36.14	56.073				
6,500.0	6,144.6	6,189.9	6,144.6	38.8	16.7	-110.40	395.6	-361.2	2,026.3	1,989.9	36.45	55.596				
6,600.0	6,244.6	6,289.9	6,244.6	38.8	16.9	-110.40	395.6	-361.2	2,026.3	1,989.6	36.76	55.122				
6,700.0	6,344.6	6,389.9	6,344.6	38.9	17.0	-110.40	395.6	-361.2	2,026.3	1,989.3	37.08	54.653				
6,800.0	6,444.6	6,489.9	6,444.6	39.0	17.2	-110.40	395.6	-361.2	2,026.3	1,989.0	37.40	54.188				
6,900.0	6,544.6	6,589.9	6,544.6	39.1	17.4	-110.40	395.6	-361.2	2,026.3	1,988.6	37.72	53.726				
7,000.0	6,644.6	6,689.9	6,644.6	39.1	17.6	-110.40	395.6	-361.2	2,026.3	1,988.3	38.04	53.270				
7,100.0	6,744.6	6,789.9	6,744.6	39.2	17.8	-110.40	395.6	-361.2	2,026.3	1,988.0	38.37	52.817				
7,200.0	6,844.6	6,889.9	6,844.6	39.3	18.0	-110.40	395.6	-361.2	2,026.3	1,987.7	38.69	52.369				
7,300.0	6,944.6	6,989.9	6,944.6	39.4	18.1	-110.40	395.6	-361.2	2,026.3	1,987.3	39.02	51.925				
7,400.0	7,044.6	7,089.9	7,044.6	39.5	18.3	-110.40	395.6	-361.2	2,026.3	1,987.0	39.36	51.486				
7,500.0	7,144.6	7,189.9	7,144.6	39.6	18.5	-110.40	395.6	-361.2	2,026.3	1,986.7	39.69	51.052				
7,600.0	7,244.6	7,289.9	7,244.6	39.6	18.7	-110.40	395.6	-361.2	2,026.3	1,986.3	40.03	50.622				
7,700.0	7,344.6	7,389.9	7,344.6	39.7	18.9	-110.40	395.6	-361.2	2,026.3	1,986.0	40.37	50.196				
7,729.4	7,374.0	7,419.3	7,374.0	39.8	19.0	-110.40	395.6	-361.2	2,026.3	1,985.9	40.47	50.072				

<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Project:</b>	SEC.31-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Reference Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-05-12)	<b>Offset TVD Reference:</b>	Offset Datum

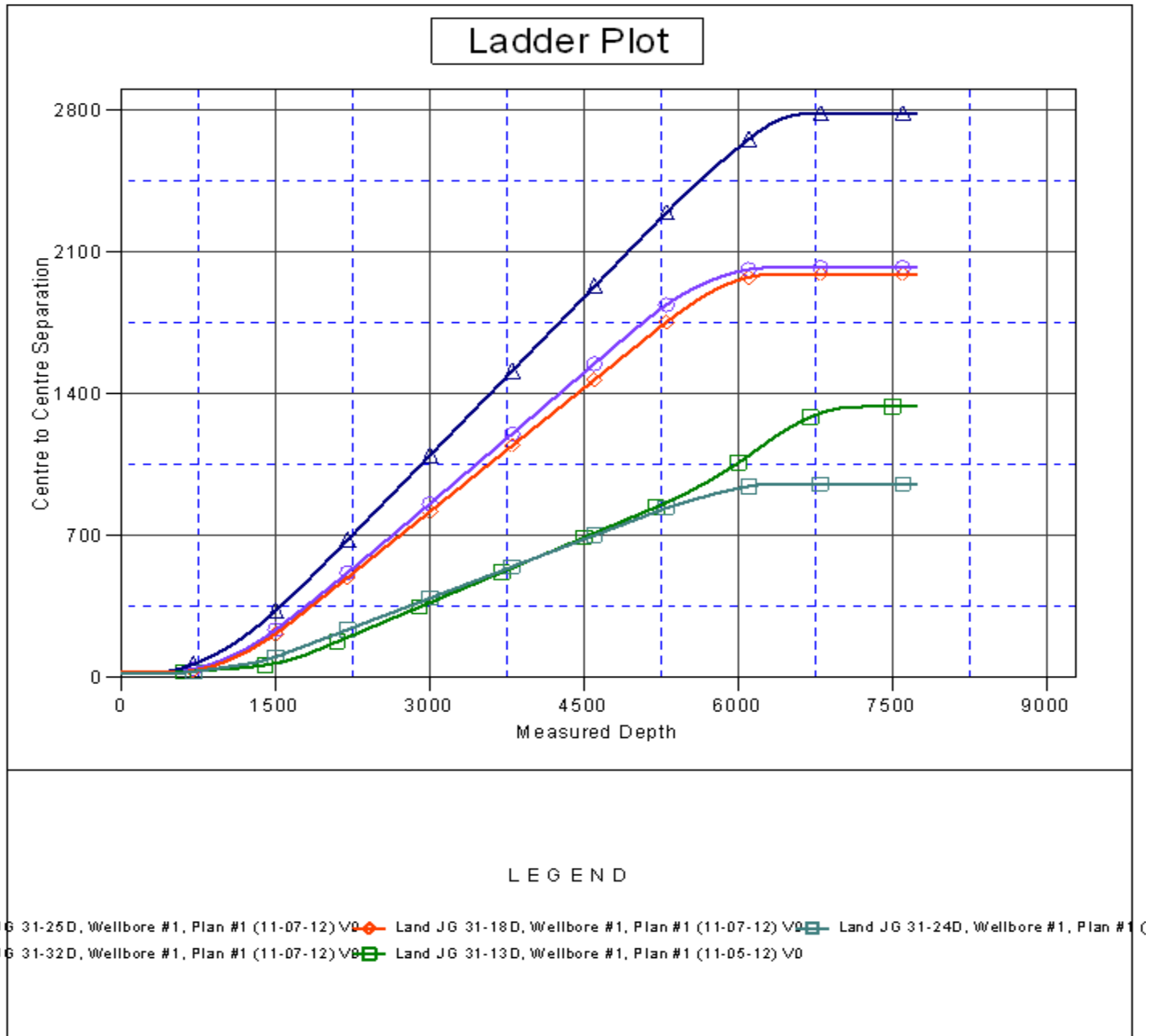
Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	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	-90.01	0.0	-20.1	20.1					
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	0.0	-20.1	20.1	19.9	0.22	89.630		
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	0.0	-20.1	20.1	19.5	0.67	29.877 CC, ES		
300.0	300.0	299.3	299.3	0.6	0.6	-88.46	0.6	-21.8	21.8	20.7	1.12	19.517		
400.0	400.0	398.4	398.2	0.8	0.8	-84.96	2.3	-26.6	26.8	25.2	1.56	17.101 SF		
500.0	500.0	497.2	496.7	1.0	1.0	-137.07	5.5	-34.3	36.2	34.2	2.03	17.803		
600.0	599.8	595.8	594.7	1.2	1.3	-135.12	11.7	-43.1	49.6	47.1	2.49	19.931		
700.0	699.5	693.6	691.6	1.5	1.6	-133.30	21.1	-52.4	66.7	63.8	2.97	22.505		
800.0	798.7	790.4	787.0	1.7	1.9	-131.74	33.6	-62.3	87.5	84.0	3.47	25.209		
900.0	897.5	886.0	880.8	2.0	2.3	-130.42	49.1	-72.7	111.9	107.9	4.02	27.834		
1,000.0	995.6	980.3	972.7	2.4	2.7	-129.28	67.3	-83.5	139.8	135.2	4.62	30.249		
1,100.0	1,093.1	1,073.0	1,062.4	2.8	3.1	-128.26	88.2	-94.7	171.1	165.9	5.28	32.384		
1,200.0	1,189.6	1,164.2	1,149.7	3.3	3.6	-127.34	111.4	-106.3	205.9	199.8	6.02	34.219		
1,300.0	1,285.3	1,253.6	1,234.6	3.8	4.1	-126.49	136.9	-118.1	243.9	237.0	6.82	35.747		
1,400.0	1,379.8	1,341.2	1,316.9	4.4	4.7	-125.67	164.3	-130.1	285.0	277.3	7.69	37.040		
1,500.0	1,473.2	1,426.8	1,396.4	5.1	5.3	-124.87	193.6	-142.3	329.2	320.5	8.64	38.079		
1,557.1	1,525.9	1,474.8	1,440.6	5.5	5.6	-124.41	211.0	-149.4	355.8	346.5	9.22	38.587		
1,600.0	1,565.3	1,510.5	1,473.3	5.8	5.9	-124.41	224.4	-154.7	376.2	366.5	9.68	38.878		
1,700.0	1,657.3	1,592.9	1,547.9	6.6	6.5	-124.18	256.9	-167.2	424.6	413.8	10.78	39.401		
1,800.0	1,749.2	1,674.0	1,620.4	7.4	7.2	-123.71	291.0	-179.9	474.1	462.2	11.92	39.782		
1,900.0	1,841.2	1,753.7	1,690.7	8.1	7.9	-123.08	326.4	-192.7	524.7	511.6	13.09	40.096		
2,000.0	1,933.2	1,835.7	1,761.9	8.9	8.7	-122.33	364.6	-206.2	576.4	562.1	14.30	40.305		
2,100.0	2,025.1	1,920.9	1,835.9	9.7	9.5	-121.65	404.6	-220.2	628.3	612.7	15.55	40.408		
2,200.0	2,117.1	2,006.2	1,910.0	10.5	10.3	-121.07	444.5	-234.3	680.2	663.4	16.80	40.477		
2,300.0	2,209.0	2,091.5	1,984.0	11.3	11.2	-120.58	484.5	-248.3	732.2	714.1	18.07	40.520		
2,400.0	2,301.0	2,176.8	2,058.0	12.1	12.0	-120.15	524.4	-262.4	784.2	764.9	19.34	40.547		
2,500.0	2,392.9	2,262.0	2,132.0	12.9	12.8	-119.77	564.4	-276.5	836.3	815.6	20.62	40.563		
2,600.0	2,484.9	2,347.3	2,206.0	13.7	13.6	-119.44	604.3	-290.5	888.3	866.4	21.90	40.571		
2,700.0	2,576.8	2,432.6	2,280.0	14.5	14.5	-119.14	644.3	-304.6	940.4	917.2	23.18	40.573		
2,800.0	2,668.8	2,517.8	2,354.0	15.3	15.3	-118.88	684.2	-318.6	992.5	968.0	24.46	40.571		
2,900.0	2,760.7	2,603.1	2,428.0	16.1	16.1	-118.64	724.2	-332.7	1,044.6	1,018.9	25.75	40.567		
3,000.0	2,852.7	2,688.4	2,502.0	16.9	17.0	-118.42	764.1	-346.7	1,096.7	1,069.7	27.04	40.559		
3,100.0	2,944.6	2,773.6	2,576.0	17.7	17.8	-118.23	804.1	-360.8	1,148.9	1,120.6	28.33	40.550		
3,200.0	3,036.6	2,858.9	2,650.0	18.5	18.6	-118.05	844.0	-374.8	1,201.0	1,171.4	29.63	40.540		
3,300.0	3,128.5	2,944.2	2,724.0	19.3	19.5	-117.88	884.0	-388.9	1,253.2	1,222.3	30.92	40.530		
3,400.0	3,220.5	3,029.4	2,798.0	20.1	20.3	-117.73	924.0	-402.9	1,305.4	1,273.1	32.22	40.519		
3,500.0	3,312.5	3,114.7	2,872.0	20.9	21.1	-117.59	963.9	-417.0	1,357.5	1,324.0	33.51	40.508		
3,600.0	3,404.4	3,200.0	2,946.1	21.7	22.0	-117.46	1,003.9	-431.0	1,409.7	1,374.9	34.81	40.496		
3,700.0	3,496.4	3,285.3	3,020.1	22.5	22.8	-117.34	1,043.8	-445.1	1,461.9	1,425.8	36.11	40.485		
3,800.0	3,588.3	3,370.5	3,094.1	23.3	23.7	-117.23	1,083.8	-459.1	1,514.1	1,476.6	37.41	40.473		
3,900.0	3,680.3	3,455.8	3,168.1	24.1	24.5	-117.13	1,123.7	-473.2	1,566.2	1,527.5	38.71	40.462		
4,000.0	3,772.2	3,541.1	3,242.1	24.9	25.3	-117.03	1,163.7	-487.2	1,618.4	1,578.4	40.01	40.451		
4,100.0	3,864.2	3,626.3	3,316.1	25.7	26.2	-116.94	1,203.6	-501.3	1,670.6	1,629.3	41.31	40.440		
4,200.0	3,956.1	3,711.6	3,390.1	26.5	27.0	-116.85	1,243.6	-515.4	1,722.8	1,680.2	42.61	40.430		
4,300.0	4,048.1	3,796.9	3,464.1	27.3	27.9	-116.77	1,283.5	-529.4	1,775.0	1,731.1	43.92	40.419		
4,400.0	4,140.0	3,882.1	3,538.1	28.2	28.7	-116.70	1,323.5	-543.5	1,827.2	1,782.0	45.22	40.409		
4,500.0	4,232.0	3,967.4	3,612.1	29.0	29.6	-116.62	1,363.4	-557.5	1,879.4	1,832.9	46.52	40.399		
4,600.0	4,323.9	4,052.7	3,686.1	29.8	30.4	-116.56	1,403.4	-571.6	1,931.6	1,883.8	47.82	40.390		
4,700.0	4,415.9	4,137.9	3,760.1	30.6	31.2	-116.49	1,443.3	-585.6	1,983.8	1,934.7	49.13	40.380		
4,800.0	4,507.8	4,223.2	3,834.1	31.4	32.1	-116.43	1,483.3	-599.7	2,036.0	1,985.6	50.43	40.371		
4,900.0	4,599.8	4,308.5	3,908.1	32.2	32.9	-116.37	1,523.3	-613.7	2,088.3	2,036.5	51.74	40.362		
5,000.0	4,691.8	4,393.7	3,982.2	33.0	33.8	-116.32	1,563.2	-627.8	2,140.5	2,087.4	53.04	40.354		

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



<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Project:</b>	SEC.31-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Reference Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-05-12)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4947.0ft (Original Well Elev) Coordinates are relative to: Land JG 31-20D  
 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°



<b>Company:</b>	Great Western	<b>Local Co-ordinate Reference:</b>	Well Land JG 31-20D
<b>Project:</b>	SEC.31-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Reference Site:</b>	Land JG (East) Pad Sec.31-T2N-R64W	<b>MD Reference:</b>	WELL @ 4947.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Land JG 31-20D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-05-12)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4947.0ft (Original Well Elev) Coordinates are relative to: Land JG 31-20D  
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°

