

Great Western

Well Name: **Spaur Brothers EH 31-219HN**

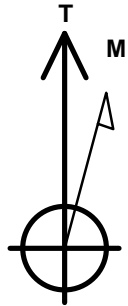
Surface Location: Spaur Brothers North Pad Sec.31-T7N-R63W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4762.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1437463.48	3286003.94	40.529683	-104.471103	
RKB - 16.5' WELL @ 4778.5ft (RKB - 16.5')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2496'FSL & 221'FEL	1.0	0.0	0.0	Point
BHL 2637'FSL & 470'FWL	6757.5	103.9	-4490.9	Point
Entry Pt. 2670'FSL & 460'FEL	6757.5	172.3	-239.4	Point



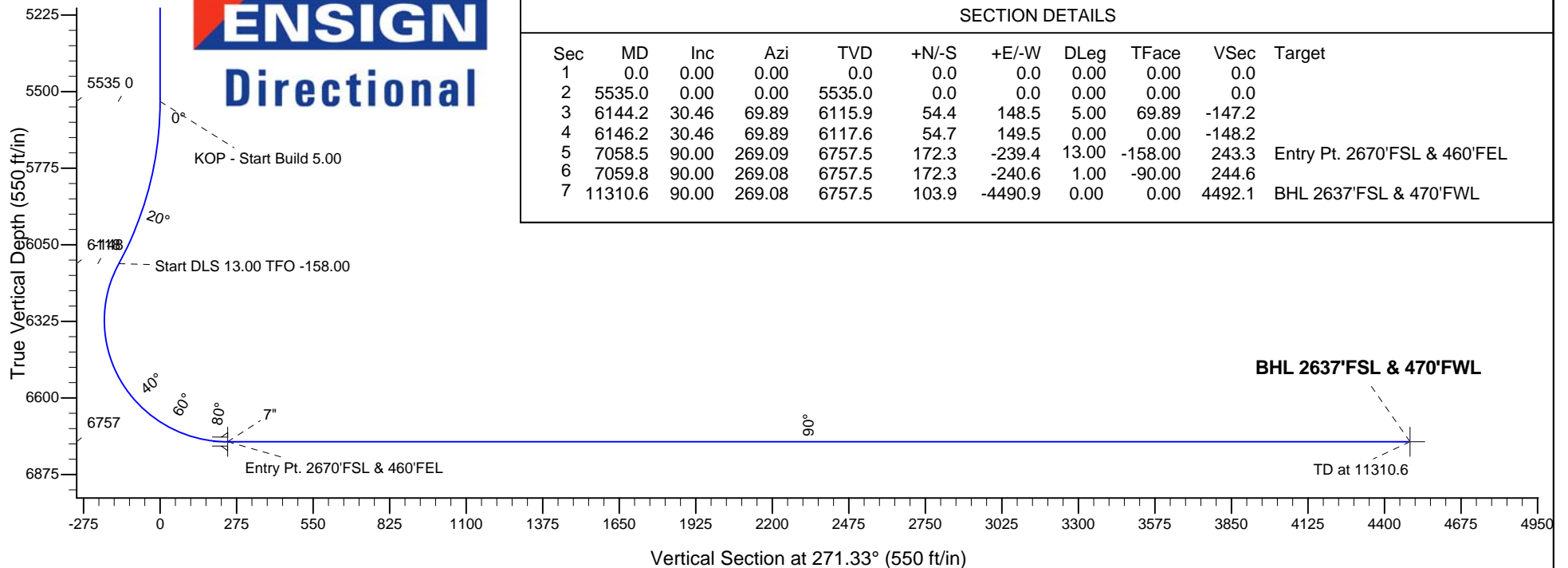
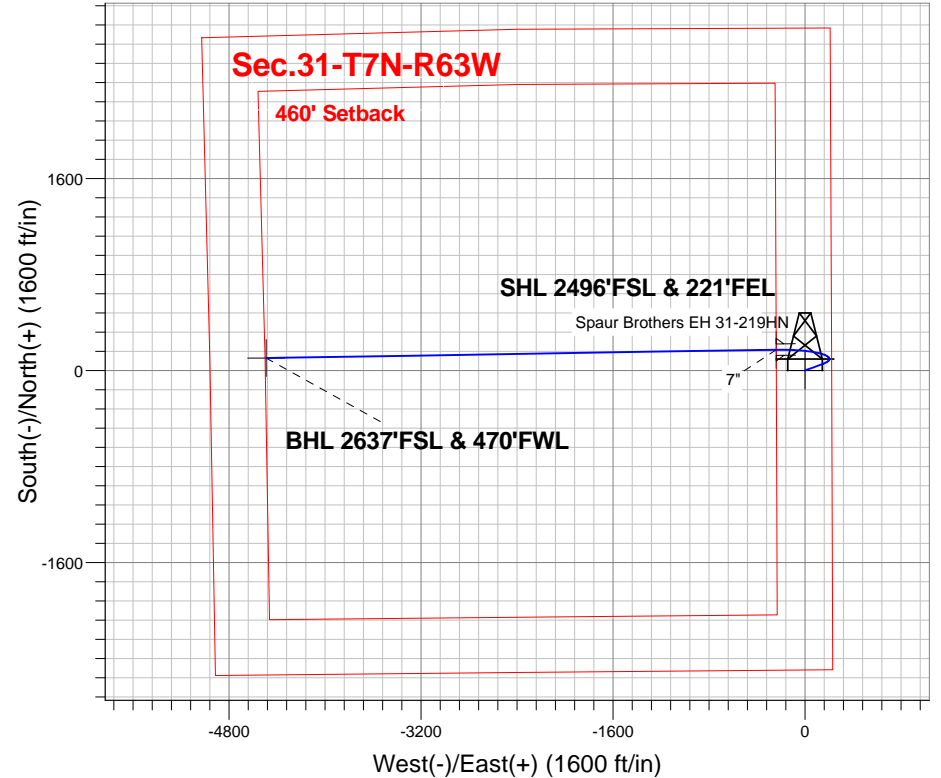
Azimuths to True North
Magnetic North: 8.40°

Magnetic Field
Strength: 52981.8snT
Dip Angle: 67.12°
Date: 10/23/2013
Model: IGRF2010

Spaur Brothers North Pad Sec.31-T7N-R63W
Spaur Brothers EH 31-219HN
Plan #1 (10-23-13)
10:28, October 24 2013

ANNOTATIONS

TVD	MD	Annotation
5535.0	5535.0	KOP - Start Build 5.00
6117.6	6146.2	Start DLS 13.00 TFO -158.00
6757.5	11310.6	TD at 11310.6





Great Western

SEC.31-T7N-R63W

Spaur Brothers North Pad Sec.31-T7N-R63W

Spaur Brothers EH 31-219HN

Wellbore #1

Plan: Plan #1 (10-23-13)

Standard Planning Report

24 October, 2013

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	
5,535.0	0.00	0.00	5,535.0	0.0	0.0	0.00	0.00	0.00	0.00	
6,144.2	30.46	69.89	6,115.9	54.4	148.5	5.00	5.00	0.00	69.89	
6,146.2	30.46	69.89	6,117.6	54.7	149.5	0.00	0.00	0.00	0.00	
7,058.5	90.00	269.09	6,757.5	172.3	-239.4	13.00	6.53	-17.63	-158.00	Entry Pt. 2670'FSL
7,059.8	90.00	269.08	6,757.5	172.3	-240.6	1.00	0.00	-1.00	-90.00	
11,310.6	90.00	269.08	6,757.5	103.9	-4,490.9	0.00	0.00	0.00	0.00	BHL 2637'FSL & 47

Database:	Landmark	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-219HN
Company:	Great Western	TVD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Project:	SEC.31-T7N-R63W	MD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Site:	Spaur Brothers North Pad Sec.31-T7N-R63W	North Reference:	True
Well:	Spaur Brothers EH 31-219HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-23-13)		

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
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 2496'FSL & 221'FEL									
100.0	0.00	0.00	100.0	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
300.0	0.00	0.00	300.0	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
500.0	0.00	0.00	500.0	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
700.0	0.00	0.00	700.0	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
900.0	0.00	0.00	900.0	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
1,100.0	0.00	0.00	1,100.0	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
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-219HN
Company:	Great Western	TVD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Project:	SEC.31-T7N-R63W	MD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Site:	Spaur Brothers North Pad Sec.31-T7N-R63W	North Reference:	True
Well:	Spaur Brothers EH 31-219HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-23-13)		

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)
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,535.0	0.00	0.00	5,535.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 5.00									
5,600.0	3.25	69.89	5,600.0	0.6	1.7	-1.7	5.00	5.00	0.00
5,700.0	8.25	69.89	5,699.4	4.1	11.1	-11.0	5.00	5.00	0.00
5,800.0	13.25	69.89	5,797.6	10.5	28.6	-28.4	5.00	5.00	0.00
5,900.0	18.25	69.89	5,893.9	19.8	54.1	-53.7	5.00	5.00	0.00
6,000.0	23.25	69.89	5,987.3	32.0	87.4	-86.6	5.00	5.00	0.00
6,100.0	28.25	69.89	6,077.4	46.9	128.2	-127.0	5.00	5.00	0.00
6,144.2	30.46	69.89	6,115.9	54.4	148.5	-147.2	5.00	5.00	0.00
6,146.2	30.46	69.89	6,117.6	54.7	149.5	-148.2	0.00	0.00	0.00
Start DLS 13.00 TFO -158.00									
6,200.0	24.10	63.48	6,165.4	64.3	172.1	-170.6	13.00	-11.81	-11.92
6,300.0	13.89	37.65	6,260.0	83.0	197.8	-195.9	13.00	-10.21	-25.83
6,400.0	11.79	337.07	6,357.9	102.0	201.2	-198.8	13.00	-2.11	-60.58
6,500.0	20.46	300.32	6,454.1	120.3	182.1	-179.2	13.00	8.67	-36.75
6,600.0	32.13	287.03	6,543.7	137.0	141.4	-138.2	13.00	11.67	-13.29
6,700.0	44.48	280.45	6,622.1	151.2	81.2	-77.7	13.00	12.36	-6.58
6,800.0	57.08	276.28	6,685.2	162.2	4.7	-1.0	13.00	12.60	-4.16
6,900.0	69.78	273.17	6,729.8	169.4	-84.2	88.1	13.00	12.70	-3.11
7,000.0	82.53	270.54	6,753.7	172.5	-181.0	185.0	13.00	12.75	-2.63
7,058.5	90.00	269.09	6,757.5	172.3	-239.4	243.3	12.99	12.76	-2.48
7" - Entry Pt. 2670°FSL & 460°FEL									
7,059.8	90.00	269.08	6,757.5	172.3	-240.6	244.6	1.08	0.25	-1.05
7,100.0	90.00	269.08	6,757.5	171.7	-280.9	284.8	0.00	0.00	0.00
7,200.0	90.00	269.08	6,757.5	170.1	-380.9	384.7	0.00	0.00	0.00
7,300.0	90.00	269.08	6,757.5	168.4	-480.9	484.6	0.00	0.00	0.00
7,400.0	90.00	269.08	6,757.5	166.8	-580.8	584.5	0.00	0.00	0.00
7,500.0	90.00	269.08	6,757.5	165.2	-680.8	684.5	0.00	0.00	0.00
7,600.0	90.00	269.08	6,757.5	163.6	-780.8	784.4	0.00	0.00	0.00
7,700.0	90.00	269.08	6,757.5	162.0	-880.8	884.3	0.00	0.00	0.00
7,800.0	90.00	269.08	6,757.5	160.4	-980.8	984.2	0.00	0.00	0.00
7,900.0	90.00	269.08	6,757.5	158.8	-1,080.8	1,084.2	0.00	0.00	0.00
8,000.0	90.00	269.08	6,757.5	157.2	-1,180.8	1,184.1	0.00	0.00	0.00
8,100.0	90.00	269.08	6,757.5	155.6	-1,280.7	1,284.0	0.00	0.00	0.00
8,200.0	90.00	269.08	6,757.5	154.0	-1,380.7	1,383.9	0.00	0.00	0.00
8,300.0	90.00	269.08	6,757.5	152.3	-1,480.7	1,483.8	0.00	0.00	0.00
8,400.0	90.00	269.08	6,757.5	150.7	-1,580.7	1,583.8	0.00	0.00	0.00
8,500.0	90.00	269.08	6,757.5	149.1	-1,680.7	1,683.7	0.00	0.00	0.00
8,600.0	90.00	269.08	6,757.5	147.5	-1,780.7	1,783.6	0.00	0.00	0.00
8,700.0	90.00	269.08	6,757.5	145.9	-1,880.7	1,883.5	0.00	0.00	0.00
8,800.0	90.00	269.08	6,757.5	144.3	-1,980.7	1,983.5	0.00	0.00	0.00
8,900.0	90.00	269.08	6,757.5	142.7	-2,080.6	2,083.4	0.00	0.00	0.00
9,000.0	90.00	269.08	6,757.5	141.1	-2,180.6	2,183.3	0.00	0.00	0.00
9,100.0	90.00	269.08	6,757.5	139.5	-2,280.6	2,283.2	0.00	0.00	0.00
9,200.0	90.00	269.08	6,757.5	137.9	-2,380.6	2,383.2	0.00	0.00	0.00
9,300.0	90.00	269.08	6,757.5	136.3	-2,480.6	2,483.1	0.00	0.00	0.00
9,400.0	90.00	269.08	6,757.5	134.6	-2,580.6	2,583.0	0.00	0.00	0.00
9,500.0	90.00	269.08	6,757.5	133.0	-2,680.6	2,682.9	0.00	0.00	0.00
9,600.0	90.00	269.08	6,757.5	131.4	-2,780.6	2,782.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-219HN
Company:	Great Western	TVD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Project:	SEC.31-T7N-R63W	MD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Site:	Spaur Brothers North Pad Sec.31-T7N-R63W	North Reference:	True
Well:	Spaur Brothers EH 31-219HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-23-13)		

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)	
9,700.0	90.00	269.08	6,757.5	129.8	-2,880.5	2,882.8	0.00	0.00	0.00	
9,800.0	90.00	269.08	6,757.5	128.2	-2,980.5	2,982.7	0.00	0.00	0.00	
9,900.0	90.00	269.08	6,757.5	126.6	-3,080.5	3,082.6	0.00	0.00	0.00	
10,000.0	90.00	269.08	6,757.5	125.0	-3,180.5	3,182.5	0.00	0.00	0.00	
10,100.0	90.00	269.08	6,757.5	123.4	-3,280.5	3,282.5	0.00	0.00	0.00	
10,200.0	90.00	269.08	6,757.5	121.8	-3,380.5	3,382.4	0.00	0.00	0.00	
10,300.0	90.00	269.08	6,757.5	120.2	-3,480.5	3,482.3	0.00	0.00	0.00	
10,400.0	90.00	269.08	6,757.5	118.5	-3,580.4	3,582.2	0.00	0.00	0.00	
10,500.0	90.00	269.08	6,757.5	116.9	-3,680.4	3,682.2	0.00	0.00	0.00	
10,600.0	90.00	269.08	6,757.5	115.3	-3,780.4	3,782.1	0.00	0.00	0.00	
10,700.0	90.00	269.08	6,757.5	113.7	-3,880.4	3,882.0	0.00	0.00	0.00	
10,800.0	90.00	269.08	6,757.5	112.1	-3,980.4	3,981.9	0.00	0.00	0.00	
10,900.0	90.00	269.08	6,757.5	110.5	-4,080.4	4,081.8	0.00	0.00	0.00	
11,000.0	90.00	269.08	6,757.5	108.9	-4,180.4	4,181.8	0.00	0.00	0.00	
11,100.0	90.00	269.08	6,757.5	107.3	-4,280.4	4,281.7	0.00	0.00	0.00	
11,200.0	90.00	269.08	6,757.5	105.7	-4,380.3	4,381.6	0.00	0.00	0.00	
11,300.0	90.00	269.08	6,757.5	104.1	-4,480.3	4,481.5	0.00	0.00	0.00	
11,310.6	90.00	269.08	6,757.5	103.9	-4,490.9	4,492.1	0.00	0.00	0.00	
BHL 2637'FSL & 470'FWL										

Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
- hit/miss target										
- Shape										
BHL 2637'FSL & 470'I	0.00	0.00	6,757.5	103.9	-4,490.9	1,437,515.25	3,281,512.27	40.529967	-104.487258	
- plan hits target center										
- Point										
SHL 2496'FSL & 221'I	0.00	0.00	1.0	0.0	0.0	1,437,463.49	3,286,003.94	40.529683	-104.471103	
- plan hits target center										
- Point										
Entry Pt. 2670'FSL & .	0.00	0.00	6,757.5	172.3	-239.4	1,437,633.02	3,285,762.56	40.530156	-104.471964	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,058.5	6,757.5	7"	7	7-1/2	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment	
5,535.0	5,535.0	0.0	0.0	KOP - Start Build 5.00	
6,146.2	6,117.6	54.7	149.5	Start DLS 13.00 TFO -158.00	
11,310.6	6,757.5	103.9	-4,490.9	TD at 11310.6	



Great Western

SEC.31-T7N-R63W

Spaur Brothers North Pad Sec.31-T7N-R63W

Spaur Brothers EH 31-219HN

Wellbore #1

Plan #1 (10-23-13)

Anticollision Report

24 October, 2013

Company:	Great Western	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-219HN
Project:	SEC.31-T7N-R63W	TVD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Reference Site:	Spaur Brothers North Pad Sec.31-T7N-R63W	MD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur Brothers EH 31-219HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-23-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-NS-GYRO-MS, 6840-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
2,200.0	2,200.0	2,200.0	2,200.0	5.7	5.7	-179.88	-30.2	-0.1	30.2	18.8	11.41	2.649		
2,300.0	2,300.0	2,300.0	2,300.0	6.0	6.0	-179.88	-30.2	-0.1	30.2	18.3	11.95	2.531		
2,400.0	2,400.0	2,400.0	2,400.0	6.2	6.2	-179.88	-30.2	-0.1	30.2	17.8	12.48	2.424		
2,500.0	2,500.0	2,500.0	2,500.0	6.5	6.5	-179.88	-30.2	-0.1	30.2	17.2	13.01	2.325		
2,600.0	2,600.0	2,600.0	2,600.0	6.8	6.8	-179.88	-30.2	-0.1	30.2	16.7	13.54	2.234		
2,700.0	2,700.0	2,700.0	2,700.0	7.0	7.0	-179.88	-30.2	-0.1	30.2	16.2	14.07	2.149		
2,800.0	2,800.0	2,800.0	2,800.0	7.3	7.3	-179.88	-30.2	-0.1	30.2	15.6	14.60	2.071		
2,900.0	2,900.0	2,900.0	2,900.0	7.6	7.6	-179.88	-30.2	-0.1	30.2	15.1	15.13	1.999		
3,000.0	3,000.0	3,000.0	3,000.0	7.8	7.8	-179.88	-30.2	-0.1	30.2	14.6	15.66	1.931		
3,100.0	3,100.0	3,100.0	3,100.0	8.1	8.1	-179.88	-30.2	-0.1	30.2	14.0	16.19	1.867		
3,200.0	3,200.0	3,200.0	3,200.0	8.4	8.4	-179.88	-30.2	-0.1	30.2	13.5	16.72	1.808		
3,300.0	3,300.0	3,300.0	3,300.0	8.6	8.6	-179.88	-30.2	-0.1	30.2	13.0	17.25	1.753		
3,400.0	3,400.0	3,400.0	3,400.0	8.9	8.9	-179.88	-30.2	-0.1	30.2	12.5	17.78	1.700		
3,500.0	3,500.0	3,500.0	3,500.0	9.2	9.2	-179.88	-30.2	-0.1	30.2	11.9	18.32	1.651		
3,600.0	3,600.0	3,600.0	3,600.0	9.4	9.4	-179.88	-30.2	-0.1	30.2	11.4	18.85	1.604		
3,700.0	3,700.0	3,700.0	3,700.0	9.7	9.7	-179.88	-30.2	-0.1	30.2	10.9	19.38	1.560		
3,800.0	3,800.0	3,800.0	3,800.0	10.0	10.0	-179.88	-30.2	-0.1	30.2	10.3	19.91	1.519		
3,900.0	3,900.0	3,900.0	3,900.0	10.2	10.2	-179.88	-30.2	-0.1	30.2	9.8	20.44	1.479 Level 3		
4,000.0	4,000.0	4,000.0	4,000.0	10.5	10.5	-179.88	-30.2	-0.1	30.2	9.3	20.97	1.442 Level 3		
4,100.0	4,100.0	4,100.0	4,100.0	10.8	10.8	-179.88	-30.2	-0.1	30.2	8.7	21.50	1.406 Level 3		
4,200.0	4,200.0	4,200.0	4,200.0	11.0	11.0	-179.88	-30.2	-0.1	30.2	8.2	22.03	1.372 Level 3		
4,300.0	4,300.0	4,300.0	4,300.0	11.3	11.3	-179.88	-30.2	-0.1	30.2	7.7	22.56	1.340 Level 3		
4,400.0	4,400.0	4,400.0	4,400.0	11.5	11.5	-179.88	-30.2	-0.1	30.2	7.1	23.09	1.309 Level 3		
4,500.0	4,500.0	4,500.0	4,500.0	11.8	11.8	-179.88	-30.2	-0.1	30.2	6.6	23.62	1.280 Level 3		
4,600.0	4,600.0	4,600.0	4,600.0	12.1	12.1	-179.88	-30.2	-0.1	30.2	6.1	24.16	1.252 Level 3		
4,700.0	4,700.0	4,700.0	4,700.0	12.3	12.3	-179.88	-30.2	-0.1	30.2	5.6	24.69	1.225 Level 2		
4,800.0	4,800.0	4,800.0	4,800.0	12.6	12.6	-179.88	-30.2	-0.1	30.2	5.0	25.22	1.199 Level 2		
4,900.0	4,900.0	4,900.0	4,900.0	12.9	12.9	-179.88	-30.2	-0.1	30.2	4.5	25.75	1.174 Level 2		
5,000.0	5,000.0	5,000.0	5,000.0	13.1	13.1	-179.88	-30.2	-0.1	30.2	4.0	26.28	1.151 Level 2		
5,100.0	5,100.0	5,100.0	5,100.0	13.4	13.4	-179.88	-30.2	-0.1	30.2	3.4	26.81	1.128 Level 2		
5,200.0	5,200.0	5,200.0	5,200.0	13.7	13.7	-179.88	-30.2	-0.1	30.2	2.9	27.34	1.106 Level 2		
5,300.0	5,300.0	5,300.0	5,300.0	13.9	13.9	-179.88	-30.2	-0.1	30.2	2.4	27.87	1.085 Level 2		
5,400.0	5,400.0	5,400.0	5,400.0	14.2	14.2	-179.88	-30.2	-0.1	30.2	1.8	28.40	1.065 Level 2		
5,500.0	5,500.0	5,500.0	5,500.0	14.5	14.5	-179.88	-30.2	-0.1	30.2	1.3	28.93	1.045 Level 2, CC		
5,509.4	5,509.4	5,509.4	5,509.4	14.5	14.5	110.27	-30.2	-0.1	30.2	1.3	28.98	1.044 Level 2, ES, SF		
5,600.0	5,600.0	5,600.0	5,600.0	14.7	14.7	113.40	-30.2	-0.1	30.9	1.5	29.43	1.051 Level 2		
5,700.0	5,699.4	5,698.9	5,698.9	14.9	14.9	125.22	-31.0	1.4	36.4	6.7	29.71	1.227 Level 2		
5,800.0	5,797.6	5,796.7	5,795.7	15.0	15.0	126.95	-37.4	13.1	50.4	20.6	29.76	1.694		
5,900.0	5,893.9	5,892.5	5,887.9	15.2	15.0	122.35	-49.7	35.6	72.2	42.3	29.86	2.418		
6,000.0	5,987.3	5,984.4	5,972.4	15.4	15.1	116.43	-67.0	67.2	102.1	72.0	30.07	3.395		
6,100.0	6,077.4	6,074.6	6,050.9	15.6	15.2	111.36	-88.2	106.1	139.4	109.1	30.35	4.594		
6,200.0	6,165.4	6,165.9	6,129.8	15.8	15.2	118.17	-110.2	146.5	180.0	149.5	30.53	5.895		
6,300.0	6,260.0	6,251.4	6,205.4	16.0	15.3	144.22	-131.4	180.1	222.0	191.2	30.83	7.202		
6,400.0	6,357.9	6,336.3	6,285.1	16.3	15.3	-154.51	-154.1	198.3	266.3	235.1	31.18	8.541		
6,500.0	6,454.1	6,424.1	6,369.2	16.5	15.3	-116.90	-178.3	200.1	311.0	279.5	31.49	9.877		
6,600.0	6,543.7	6,517.0	6,456.8	16.6	15.3	-102.95	-203.8	183.1	354.2	322.4	31.74	11.158		
6,700.0	6,622.1	6,618.0	6,545.6	16.7	15.4	-96.19	-230.0	143.5	393.8	361.8	31.94	12.329		
6,800.0	6,685.2	6,729.7	6,630.9	16.8	15.4	-92.53	-255.7	76.5	427.5	395.4	32.08	13.324		
6,900.0	6,729.8	6,854.0	6,703.2	18.2	16.9	-90.67	-278.1	-21.5	452.7	420.4	32.31	14.011		
7,000.0	6,753.7	6,989.4	6,748.7	18.3	17.0	-89.99	-293.3	-147.6	467.0	433.8	33.18	14.077		
7,100.0	6,757.5	7,115.7	6,757.5	18.3	17.2	-90.00	-297.9	-273.2	469.6	434.3	35.24	13.324		
7,200.0	6,757.5	7,215.7	6,757.5	19.4	18.5	-90.00	-299.5	-373.2	469.6	431.8	37.86	12.404		

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

Spaur Brothers North Pad Sec.31-T7N-R63W - Spaur Brothers EH 31-222HN - Wellbore #1 - Plan #1 (1)													Offset Site Error:	0.0 ft
Survey Program: 0-NS-GYRO-MS, 6840-MWVD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
7,300.0	6,757.5	7,315.7	6,757.5	21.0	20.1	-90.00	-301.1	-473.2	469.7	428.6	41.08	11.433		
7,400.0	6,757.5	7,415.7	6,757.5	22.8	22.0	-90.00	-302.8	-573.1	469.7	424.9	44.77	10.490		
7,500.0	6,757.5	7,515.7	6,757.5	24.8	24.1	-90.00	-304.4	-673.1	469.7	420.9	48.84	9.618		
7,600.0	6,757.5	7,615.7	6,757.5	26.9	26.3	-90.00	-306.1	-773.1	469.7	416.6	53.18	8.833		
7,700.0	6,757.5	7,715.7	6,757.5	29.1	28.6	-90.00	-307.7	-873.1	469.8	412.0	57.74	8.135		
7,800.0	6,757.5	7,815.7	6,757.5	31.5	31.0	-90.00	-309.3	-973.1	469.8	407.3	62.48	7.519		
7,900.0	6,757.5	7,915.7	6,757.5	33.9	33.5	-90.00	-311.0	-1,073.1	469.8	402.5	67.35	6.976		
8,000.0	6,757.5	8,015.7	6,757.5	36.3	36.0	-90.00	-312.6	-1,173.1	469.8	397.5	72.33	6.496		
8,100.0	6,757.5	8,115.7	6,757.5	38.9	38.5	-90.00	-314.2	-1,273.1	469.9	392.5	77.39	6.071		
8,200.0	6,757.5	8,215.7	6,757.5	41.4	41.1	-90.00	-315.9	-1,373.0	469.9	387.4	82.53	5.694		
8,300.0	6,757.5	8,315.7	6,757.5	44.0	43.7	-90.00	-317.5	-1,473.0	469.9	382.2	87.73	5.357		
8,400.0	6,757.5	8,415.7	6,757.5	46.6	46.4	-90.00	-319.2	-1,573.0	470.0	377.0	92.97	5.055		
8,500.0	6,757.5	8,515.7	6,757.5	49.2	49.0	-90.00	-320.8	-1,673.0	470.0	371.7	98.25	4.783		
8,600.0	6,757.5	8,615.7	6,757.5	51.9	51.7	-90.00	-322.4	-1,773.0	470.0	366.4	103.57	4.538		
8,700.0	6,757.5	8,715.7	6,757.5	54.5	54.4	-90.00	-324.1	-1,873.0	470.0	361.1	108.92	4.315		
8,800.0	6,757.5	8,815.7	6,757.5	57.2	57.1	-90.00	-325.7	-1,973.0	470.1	355.8	114.30	4.113		
8,900.0	6,757.5	8,915.7	6,757.5	59.9	59.8	-90.00	-327.3	-2,072.9	470.1	350.4	119.69	3.928		
9,000.0	6,757.5	9,015.7	6,757.5	62.6	62.5	-90.00	-329.0	-2,172.9	470.1	345.0	125.11	3.758		
9,100.0	6,757.5	9,115.7	6,757.5	65.3	65.2	-90.00	-330.6	-2,272.9	470.2	339.6	130.54	3.602		
9,200.0	6,757.5	9,215.7	6,757.5	68.0	68.0	-90.00	-332.3	-2,372.9	470.2	334.2	135.99	3.458		
9,300.0	6,757.5	9,315.7	6,757.5	70.8	70.7	-90.00	-333.9	-2,472.9	470.2	328.8	141.45	3.324		
9,400.0	6,757.5	9,415.7	6,757.5	73.5	73.4	-90.00	-335.5	-2,572.9	470.2	323.3	146.92	3.201		
9,500.0	6,757.5	9,515.7	6,757.5	76.2	76.2	-90.00	-337.2	-2,672.9	470.3	317.9	152.40	3.086		
9,600.0	6,757.5	9,615.7	6,757.5	79.0	78.9	-90.00	-338.8	-2,772.9	470.3	312.4	157.89	2.979		
9,700.0	6,757.5	9,715.7	6,757.5	81.7	81.7	-90.00	-340.4	-2,872.8	470.3	306.9	163.39	2.879		
9,800.0	6,757.5	9,815.7	6,757.5	84.5	84.4	-90.00	-342.1	-2,972.8	470.4	301.5	168.90	2.785		
9,900.0	6,757.5	9,915.7	6,757.5	87.2	87.2	-90.00	-343.7	-3,072.8	470.4	296.0	174.41	2.697		
10,000.0	6,757.5	10,015.7	6,757.5	90.0	90.0	-90.00	-345.4	-3,172.8	470.4	290.5	179.93	2.614		
10,100.0	6,757.5	10,115.7	6,757.5	92.7	92.7	-90.00	-347.0	-3,272.8	470.4	285.0	185.45	2.537		
10,200.0	6,757.5	10,215.7	6,757.5	95.5	95.5	-90.00	-348.6	-3,372.8	470.5	279.5	190.99	2.463		
10,300.0	6,757.5	10,315.7	6,757.5	98.2	98.3	-90.00	-350.3	-3,472.8	470.5	274.0	196.52	2.394		
10,400.0	6,757.5	10,415.7	6,757.5	101.0	101.0	-90.00	-351.9	-3,572.7	470.5	268.5	202.06	2.329		
10,500.0	6,757.5	10,515.7	6,757.5	103.8	103.8	-90.00	-353.6	-3,672.7	470.5	262.9	207.60	2.267		
10,600.0	6,757.5	10,615.7	6,757.5	106.6	106.6	-90.00	-355.2	-3,772.7	470.6	257.4	213.15	2.208		
10,700.0	6,757.5	10,715.7	6,757.5	109.3	109.4	-90.00	-356.8	-3,872.7	470.6	251.9	218.70	2.152		
10,800.0	6,757.5	10,815.7	6,757.5	112.1	112.2	-90.00	-358.5	-3,972.7	470.6	246.4	224.26	2.099		
10,900.0	6,757.5	10,915.7	6,757.5	114.9	114.9	-90.00	-360.1	-4,072.7	470.7	240.8	229.81	2.048		
11,000.0	6,757.5	11,015.7	6,757.5	117.7	117.7	-90.00	-361.7	-4,172.7	470.7	235.3	235.37	2.000		
11,100.0	6,757.5	11,115.7	6,757.5	120.4	120.5	-90.00	-363.4	-4,272.6	470.7	229.8	240.93	1.954		
11,200.0	6,757.5	11,215.7	6,757.5	123.2	123.3	-90.00	-365.0	-4,372.6	470.7	224.2	246.50	1.910		
11,300.0	6,757.5	11,315.7	6,757.5	126.0	126.1	-90.00	-366.7	-4,472.6	470.8	218.7	252.06	1.868		
11,310.6	6,757.5	11,325.7	6,757.5	126.3	126.4	-90.00	-366.8	-4,482.7	470.8	218.1	252.64	1.863		

Company:	Great Western	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-219HN
Project:	SEC.31-T7N-R63W	TVD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Reference Site:	Spaur Brothers North Pad Sec.31-T7N-R63W	MD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur Brothers EH 31-219HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-23-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-NS-GYRO-MS, 7010-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	-179.94	-59.8	-0.1	59.8					
100.0	100.0	100.0	100.0	0.1	0.1	-179.94	-59.8	-0.1	59.8	59.5	0.27	225.239		
200.0	200.0	200.0	200.0	0.4	0.4	-179.94	-59.8	-0.1	59.8	59.0	0.80	75.080		
300.0	300.0	300.0	300.0	0.7	0.7	-179.94	-59.8	-0.1	59.8	58.5	1.33	45.048		
400.0	400.0	400.0	400.0	0.9	0.9	-179.94	-59.8	-0.1	59.8	57.9	1.86	32.177		
500.0	500.0	500.0	500.0	1.2	1.2	-179.94	-59.8	-0.1	59.8	57.4	2.39	25.027		
600.0	600.0	600.0	600.0	1.5	1.5	-179.94	-59.8	-0.1	59.8	56.9	2.92	20.476		
700.0	700.0	700.0	700.0	1.7	1.7	-179.94	-59.8	-0.1	59.8	56.3	3.45	17.326		
800.0	800.0	800.0	800.0	2.0	2.0	-179.94	-59.8	-0.1	59.8	55.8	3.98	15.016		
900.0	900.0	900.0	900.0	2.3	2.3	-179.94	-59.8	-0.1	59.8	55.3	4.51	13.249		
1,000.0	1,000.0	1,000.0	1,000.0	2.5	2.5	-179.94	-59.8	-0.1	59.8	54.7	5.04	11.855		
1,100.0	1,100.0	1,100.0	1,100.0	2.8	2.8	-179.94	-59.8	-0.1	59.8	54.2	5.57	10.726		
1,200.0	1,200.0	1,200.0	1,200.0	3.1	3.1	-179.94	-59.8	-0.1	59.8	53.7	6.11	9.793		
1,300.0	1,300.0	1,300.0	1,300.0	3.3	3.3	-179.94	-59.8	-0.1	59.8	53.2	6.64	9.010		
1,400.0	1,400.0	1,400.0	1,400.0	3.6	3.6	-179.94	-59.8	-0.1	59.8	52.6	7.17	8.342		
1,500.0	1,500.0	1,500.0	1,500.0	3.8	3.8	-179.94	-59.8	-0.1	59.8	52.1	7.70	7.767		
1,600.0	1,600.0	1,600.0	1,600.0	4.1	4.1	-179.94	-59.8	-0.1	59.8	51.6	8.23	7.266		
1,700.0	1,700.0	1,700.0	1,700.0	4.4	4.4	-179.94	-59.8	-0.1	59.8	51.0	8.76	6.825		
1,800.0	1,800.0	1,800.0	1,800.0	4.6	4.6	-179.94	-59.8	-0.1	59.8	50.5	9.29	6.435		
1,900.0	1,900.0	1,900.0	1,900.0	4.9	4.9	-179.94	-59.8	-0.1	59.8	50.0	9.82	6.088		
2,000.0	2,000.0	2,000.0	2,000.0	5.2	5.2	-179.94	-59.8	-0.1	59.8	49.4	10.35	5.775		
2,100.0	2,100.0	2,100.0	2,100.0	5.4	5.4	-179.94	-59.8	-0.1	59.8	48.9	10.88	5.494		
2,200.0	2,200.0	2,200.0	2,200.0	5.7	5.7	-179.94	-59.8	-0.1	59.8	48.4	11.41	5.238		
2,300.0	2,300.0	2,300.0	2,300.0	6.0	6.0	-179.94	-59.8	-0.1	59.8	47.8	11.95	5.005		
2,400.0	2,400.0	2,400.0	2,400.0	6.2	6.2	-179.94	-59.8	-0.1	59.8	47.3	12.48	4.792		
2,500.0	2,500.0	2,500.0	2,500.0	6.5	6.5	-179.94	-59.8	-0.1	59.8	46.8	13.01	4.597		
2,600.0	2,600.0	2,600.0	2,600.0	6.8	6.8	-179.94	-59.8	-0.1	59.8	46.3	13.54	4.416		
2,700.0	2,700.0	2,700.0	2,700.0	7.0	7.0	-179.94	-59.8	-0.1	59.8	45.7	14.07	4.250		
2,800.0	2,800.0	2,800.0	2,800.0	7.3	7.3	-179.94	-59.8	-0.1	59.8	45.2	14.60	4.095		
2,900.0	2,900.0	2,900.0	2,900.0	7.6	7.6	-179.94	-59.8	-0.1	59.8	44.7	15.13	3.952		
3,000.0	3,000.0	3,000.0	3,000.0	7.8	7.8	-179.94	-59.8	-0.1	59.8	44.1	15.66	3.818		
3,100.0	3,100.0	3,100.0	3,100.0	8.1	8.1	-179.94	-59.8	-0.1	59.8	43.6	16.19	3.692		
3,200.0	3,200.0	3,200.0	3,200.0	8.4	8.4	-179.94	-59.8	-0.1	59.8	43.1	16.72	3.575		
3,300.0	3,300.0	3,300.0	3,300.0	8.6	8.6	-179.94	-59.8	-0.1	59.8	42.5	17.25	3.465		
3,400.0	3,400.0	3,400.0	3,400.0	8.9	8.9	-179.94	-59.8	-0.1	59.8	42.0	17.78	3.362		
3,500.0	3,500.0	3,500.0	3,500.0	9.2	9.2	-179.94	-59.8	-0.1	59.8	41.5	18.32	3.264		
3,600.0	3,600.0	3,600.0	3,600.0	9.4	9.4	-179.94	-59.8	-0.1	59.8	40.9	18.85	3.172		
3,700.0	3,700.0	3,700.0	3,700.0	9.7	9.7	-179.94	-59.8	-0.1	59.8	40.4	19.38	3.085		
3,800.0	3,800.0	3,800.0	3,800.0	10.0	10.0	-179.94	-59.8	-0.1	59.8	39.9	19.91	3.003		
3,900.0	3,900.0	3,900.0	3,900.0	10.2	10.2	-179.94	-59.8	-0.1	59.8	39.3	20.44	2.925		
4,000.0	4,000.0	4,000.0	4,000.0	10.5	10.5	-179.94	-59.8	-0.1	59.8	38.8	20.97	2.851		
4,100.0	4,100.0	4,100.0	4,100.0	10.8	10.8	-179.94	-59.8	-0.1	59.8	38.3	21.50	2.781		
4,200.0	4,200.0	4,200.0	4,200.0	11.0	11.0	-179.94	-59.8	-0.1	59.8	37.8	22.03	2.714		
4,300.0	4,300.0	4,300.0	4,300.0	11.3	11.3	-179.94	-59.8	-0.1	59.8	37.2	22.56	2.650		
4,400.0	4,400.0	4,400.0	4,400.0	11.5	11.5	-179.94	-59.8	-0.1	59.8	36.7	23.09	2.589		
4,500.0	4,500.0	4,500.0	4,500.0	11.8	11.8	-179.94	-59.8	-0.1	59.8	36.2	23.62	2.531		
4,600.0	4,600.0	4,600.0	4,600.0	12.1	12.1	-179.94	-59.8	-0.1	59.8	35.6	24.16	2.475		
4,700.0	4,700.0	4,700.0	4,700.0	12.3	12.3	-179.94	-59.8	-0.1	59.8	35.1	24.69	2.422		
4,800.0	4,800.0	4,800.0	4,800.0	12.6	12.6	-179.94	-59.8	-0.1	59.8	34.6	25.22	2.371		
4,900.0	4,900.0	4,900.0	4,900.0	12.9	12.9	-179.94	-59.8	-0.1	59.8	34.0	25.75	2.322		
5,000.0	5,000.0	5,000.0	5,000.0	13.1	13.1	-179.94	-59.8	-0.1	59.8	33.5	26.28	2.275		
5,100.0	5,100.0	5,100.0	5,100.0	13.4	13.4	-179.94	-59.8	-0.1	59.8	33.0	26.81	2.230		

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

Spaur Brothers North Pad Sec.31-T7N-R63W - Spaur Brothers EH 31-259HC - Wellbore #1 - Plan #1 (1)													Offset Site Error:	0.0 ft
Survey Program: 0-NS-GYRO-MS, 7010-MWVD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,200.0	5,200.0	5,200.0	5,200.0	13.7	13.7	-179.94	-59.8	-0.1	59.8	32.4	27.34	2.187	2.145 CC, ES, SF	
5,300.0	5,300.0	5,300.0	5,300.0	13.9	13.9	-179.94	-59.8	-0.1	59.8	31.9	27.87	2.145		
5,400.0	5,400.0	5,397.6	5,397.6	14.2	14.1	178.50	-61.6	1.6	61.7	33.4	28.27	2.183		
5,500.0	5,500.0	5,494.8	5,494.5	14.5	14.1	174.39	-67.1	6.6	67.7	39.2	28.55	2.372		
5,600.0	5,600.0	5,591.0	5,589.9	14.7	14.1	100.04	-76.2	14.8	78.6	49.8	28.79	2.729		
5,700.0	5,699.4	5,685.9	5,683.3	14.9	14.1	99.49	-88.6	26.0	95.2	66.3	28.97	3.288		
5,800.0	5,797.6	5,778.9	5,773.9	15.0	14.1	101.42	-104.1	40.0	117.6	88.4	29.15	4.034		
5,900.0	5,893.9	5,869.4	5,861.0	15.2	14.2	104.23	-122.3	56.5	145.9	116.6	29.30	4.978		
6,000.0	5,987.3	5,956.8	5,943.9	15.4	14.2	106.98	-142.7	75.0	180.5	151.0	29.42	6.135		
6,100.0	6,077.4	6,046.6	6,028.3	15.6	14.2	109.92	-165.4	95.4	220.3	190.9	29.48	7.474		
6,200.0	6,165.4	6,135.0	6,111.5	15.8	14.3	122.35	-187.7	115.6	263.9	234.4	29.44	8.963		
6,300.0	6,260.0	6,225.1	6,196.2	16.0	14.4	152.14	-210.4	136.2	306.6	276.8	29.76	10.301		
6,400.0	6,357.9	6,313.1	6,279.0	16.3	14.4	-147.39	-232.6	156.3	346.8	316.5	30.28	11.451		
6,500.0	6,454.1	6,394.6	6,355.6	16.5	14.5	-112.71	-253.2	174.9	386.4	355.7	30.68	12.594		
6,600.0	6,543.7	6,465.7	6,422.5	16.6	14.6	-101.59	-271.2	191.1	428.7	397.8	30.95	13.853		
6,700.0	6,622.1	6,543.1	6,496.4	16.7	14.6	-97.38	-291.1	201.4	475.3	444.2	31.12	15.274		
6,800.0	6,685.2	6,638.3	6,588.0	16.8	14.7	-96.26	-316.1	195.5	524.0	492.8	31.21	16.791		
6,900.0	6,729.8	6,775.0	6,712.2	18.2	14.7	-98.42	-350.5	151.9	571.3	540.1	31.21	18.304		
7,000.0	6,753.7	7,014.1	6,878.1	18.3	15.7	-104.43	-397.9	-9.4	608.6	577.3	31.27	19.462		
7,100.0	6,757.5	7,289.1	6,939.5	18.3	16.7	-107.14	-418.4	-272.5	617.5	584.1	33.42	18.477		
7,200.0	6,757.5	7,389.1	6,939.5	19.4	17.8	-107.15	-419.8	-372.5	617.3	581.4	35.97	17.164		
7,300.0	6,757.5	7,489.1	6,939.5	21.0	19.5	-107.15	-421.2	-472.5	617.2	578.1	39.08	15.791		
7,400.0	6,757.5	7,589.1	6,939.5	22.8	21.5	-107.16	-422.6	-572.4	617.0	574.3	42.65	14.466		
7,500.0	6,757.5	7,689.1	6,939.5	24.8	23.6	-107.16	-424.1	-672.4	616.8	570.2	46.57	13.245		
7,600.0	6,757.5	7,789.1	6,939.5	26.9	25.8	-107.17	-425.5	-772.4	616.6	565.9	50.76	12.149		
7,700.0	6,757.5	7,889.1	6,939.5	29.1	28.2	-107.17	-426.9	-872.4	616.5	561.3	55.15	11.177		
7,800.0	6,757.5	7,989.1	6,939.5	31.5	30.6	-107.18	-428.3	-972.4	616.3	556.6	59.71	10.321		
7,900.0	6,757.5	8,089.1	6,939.5	33.9	33.1	-107.18	-429.8	-1,072.4	616.1	551.7	64.39	9.568		
8,000.0	6,757.5	8,189.1	6,939.5	36.3	35.6	-107.19	-431.2	-1,172.4	615.9	546.7	69.18	8.903		
8,100.0	6,757.5	8,289.1	6,939.5	38.9	38.2	-107.19	-432.6	-1,272.4	615.7	541.7	74.05	8.316		
8,200.0	6,757.5	8,389.1	6,939.5	41.4	40.8	-107.20	-434.0	-1,372.4	615.6	536.6	78.98	7.794		
8,300.0	6,757.5	8,489.1	6,939.5	44.0	43.5	-107.20	-435.5	-1,472.3	615.4	531.4	83.97	7.329		
8,400.0	6,757.5	8,589.1	6,939.5	46.6	46.1	-107.21	-436.9	-1,572.3	615.2	526.0	89.00	6.912		
8,500.0	6,757.5	8,689.1	6,939.5	49.2	48.8	-107.21	-438.3	-1,672.3	615.0	521.0	94.07	6.538		
8,600.0	6,757.5	8,789.1	6,939.5	51.9	51.5	-107.22	-439.7	-1,772.3	614.9	515.7	99.18	6.200		
8,700.0	6,757.5	8,889.1	6,939.5	54.5	54.2	-107.22	-441.2	-1,872.3	614.7	510.4	104.31	5.893		
8,800.0	6,757.5	8,989.1	6,939.5	57.2	56.9	-107.23	-442.6	-1,972.3	614.5	505.0	109.47	5.614		
8,900.0	6,757.5	9,089.1	6,939.5	59.9	59.6	-107.23	-444.0	-2,072.3	614.3	499.7	114.64	5.359		
9,000.0	6,757.5	9,189.1	6,939.5	62.6	62.3	-107.24	-445.4	-2,172.3	614.2	494.3	119.84	5.125		
9,100.0	6,757.5	9,289.1	6,939.5	65.3	65.0	-107.24	-446.9	-2,272.3	614.0	488.9	125.05	4.910		
9,200.0	6,757.5	9,389.1	6,939.5	68.0	67.8	-107.25	-448.3	-2,372.3	613.8	483.5	130.27	4.712		
9,300.0	6,757.5	9,489.1	6,939.5	70.8	70.5	-107.25	-449.7	-2,472.2	613.6	478.1	135.50	4.528		
9,400.0	6,757.5	9,589.1	6,939.5	73.5	73.3	-107.26	-451.1	-2,572.2	613.4	472.7	140.75	4.358		
9,500.0	6,757.5	9,689.1	6,939.5	76.2	76.0	-107.26	-452.5	-2,672.2	613.3	467.3	146.00	4.200		
9,600.0	6,757.5	9,789.1	6,939.5	79.0	78.8	-107.27	-454.0	-2,772.2	613.1	461.8	151.27	4.053		
9,700.0	6,757.5	9,889.1	6,939.5	81.7	81.5	-107.27	-455.4	-2,872.2	612.9	456.4	156.54	3.915		
9,800.0	6,757.5	9,989.1	6,939.5	84.5	84.3	-107.28	-456.8	-2,972.2	612.7	450.9	161.81	3.787		
9,900.0	6,757.5	10,089.1	6,939.5	87.2	87.1	-107.28	-458.2	-3,072.2	612.6	445.5	167.10	3.666		
10,000.0	6,757.5	10,189.1	6,939.5	90.0	89.8	-107.29	-459.7	-3,172.2	612.4	440.0	172.39	3.552		
10,100.0	6,757.5	10,289.1	6,939.5	92.7	92.6	-107.29	-461.1	-3,272.2	612.2	434.5	177.68	3.446		
10,200.0	6,757.5	10,389.1	6,939.5	95.5	95.4	-107.30	-462.5	-3,372.2	612.0	429.0	182.98	3.345		
10,300.0	6,757.5	10,489.1	6,939.5	98.2	98.1	-107.31	-463.9	-3,472.1	611.9	423.6	188.28	3.250		

Company:	Great Western	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-219HN
Project:	SEC.31-T7N-R63W	TVD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Reference Site:	Spaur Brothers North Pad Sec.31-T7N-R63W	MD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur Brothers EH 31-219HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-23-13)	Offset TVD Reference:	Offset Datum

Offset Design Spaur Brothers North Pad Sec.31-T7N-R63W - Spaur Brothers EH 31-259HC - Wellbore #1 - Plan #1 (1												Offset Site Error:	0.0 ft
Survey Program: 0-NS-GYRO-MS, 7010-MWD												Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,400.0	6,757.5	10,589.1	6,939.5	101.0	100.9	-107.31	-465.4	-3,572.1	611.7	418.1	193.59	3.160	
10,500.0	6,757.5	10,689.1	6,939.5	103.8	103.7	-107.32	-466.8	-3,672.1	611.5	412.6	198.90	3.074	
10,600.0	6,757.5	10,789.1	6,939.5	106.6	106.5	-107.32	-468.2	-3,772.1	611.3	407.1	204.21	2.994	
10,700.0	6,757.5	10,889.1	6,939.5	109.3	109.3	-107.33	-469.6	-3,872.1	611.1	401.6	209.53	2.917	
10,800.0	6,757.5	10,989.1	6,939.5	112.1	112.0	-107.33	-471.1	-3,972.1	611.0	396.1	214.85	2.844	
10,900.0	6,757.5	11,089.1	6,939.5	114.9	114.8	-107.34	-472.5	-4,072.1	610.8	390.6	220.17	2.774	
11,000.0	6,757.5	11,189.1	6,939.5	117.7	117.6	-107.34	-473.9	-4,172.1	610.6	385.1	225.49	2.708	
11,100.0	6,757.5	11,289.1	6,939.5	120.4	120.4	-107.35	-475.3	-4,272.1	610.4	379.6	230.82	2.645	
11,200.0	6,757.5	11,389.1	6,939.5	123.2	123.2	-107.35	-476.8	-4,372.0	610.3	374.1	236.15	2.584	
11,300.0	6,757.5	11,489.1	6,939.5	126.0	126.0	-107.36	-478.2	-4,472.0	610.1	368.6	241.48	2.526	
11,309.2	6,757.5	11,497.3	6,939.5	126.3	126.2	-107.36	-478.3	-4,480.2	610.1	368.1	241.94	2.522	
11,310.6	6,757.5	11,497.3	6,939.5	126.3	126.2	-107.36	-478.3	-4,480.2	610.1	368.1	241.98	2.521	

Offset Design Spaur Brothers North Pad Sec.31-T7N-R63W - Spaur Brothers EH 31-262HN - Wellbore #1 - Plan #1 (1)													Offset Site Error: 0.0 ft	
Survey Program: 0-NS-GYRO-MS, 6930-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-90.0	0.0	90.0					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-90.0	0.0	90.0	89.7	0.27	338.866		
200.0	200.0	200.0	200.0	0.4	0.4	180.00	-90.0	0.0	90.0	89.2	0.80	112.955		
300.0	300.0	300.0	300.0	0.7	0.7	180.00	-90.0	0.0	90.0	88.6	1.33	67.773		
400.0	400.0	400.0	400.0	0.9	0.9	180.00	-90.0	0.0	90.0	88.1	1.86	48.409		
500.0	500.0	500.0	500.0	1.2	1.2	180.00	-90.0	0.0	90.0	87.6	2.39	37.652		
600.0	600.0	600.0	600.0	1.5	1.5	180.00	-90.0	0.0	90.0	87.0	2.92	30.806		
700.0	700.0	700.0	700.0	1.7	1.7	180.00	-90.0	0.0	90.0	86.5	3.45	26.067		
800.0	800.0	800.0	800.0	2.0	2.0	180.00	-90.0	0.0	90.0	86.0	3.98	22.591		
900.0	900.0	900.0	900.0	2.3	2.3	180.00	-90.0	0.0	90.0	85.4	4.51	19.933		
1,000.0	1,000.0	1,000.0	1,000.0	2.5	2.5	180.00	-90.0	0.0	90.0	84.9	5.04	17.835		
1,100.0	1,100.0	1,100.0	1,100.0	2.8	2.8	180.00	-90.0	0.0	90.0	84.4	5.57	16.136		
1,200.0	1,200.0	1,200.0	1,200.0	3.1	3.1	180.00	-90.0	0.0	90.0	83.8	6.11	14.733		
1,300.0	1,300.0	1,300.0	1,300.0	3.3	3.3	180.00	-90.0	0.0	90.0	83.3	6.64	13.555		
1,400.0	1,400.0	1,400.0	1,400.0	3.6	3.6	180.00	-90.0	0.0	90.0	82.8	7.17	12.551		
1,500.0	1,500.0	1,500.0	1,500.0	3.8	3.8	180.00	-90.0	0.0	90.0	82.3	7.70	11.685		
1,600.0	1,600.0	1,600.0	1,600.0	4.1	4.1	180.00	-90.0	0.0	90.0	81.7	8.23	10.931		
1,700.0	1,700.0	1,700.0	1,700.0	4.4	4.4	180.00	-90.0	0.0	90.0	81.2	8.76	10.269		
1,800.0	1,800.0	1,800.0	1,800.0	4.6	4.6	180.00	-90.0	0.0	90.0	80.7	9.29	9.682		
1,900.0	1,900.0	1,900.0	1,900.0	4.9	4.9	180.00	-90.0	0.0	90.0	80.1	9.82	9.159		
2,000.0	2,000.0	2,000.0	2,000.0	5.2	5.2	180.00	-90.0	0.0	90.0	79.6	10.35	8.689		
2,100.0	2,100.0	2,100.0	2,100.0	5.4	5.4	180.00	-90.0	0.0	90.0	79.1	10.88	8.265		
2,200.0	2,200.0	2,200.0	2,200.0	5.7	5.7	180.00	-90.0	0.0	90.0	78.5	11.41	7.881		
2,300.0	2,300.0	2,300.0	2,300.0	6.0	6.0	180.00	-90.0	0.0	90.0	78.0	11.95	7.530		
2,400.0	2,400.0	2,400.0	2,400.0	6.2	6.2	180.00	-90.0	0.0	90.0	77.5	12.48	7.210		
2,500.0	2,500.0	2,500.0	2,500.0	6.5	6.5	180.00	-90.0	0.0	90.0	76.9	13.01	6.916		
2,600.0	2,600.0	2,600.0	2,600.0	6.8	6.8	180.00	-90.0	0.0	90.0	76.4	13.54	6.644		
2,700.0	2,700.0	2,700.0	2,700.0	7.0	7.0	180.00	-90.0	0.0	90.0	75.9	14.07	6.394		
2,800.0	2,800.0	2,800.0	2,800.0	7.3	7.3	180.00	-90.0	0.0	90.0	75.4	14.60	6.161		
2,900.0	2,900.0	2,900.0	2,900.0	7.6	7.6	180.00	-90.0	0.0	90.0	74.8	15.13	5.945		
3,000.0	3,000.0	3,000.0	3,000.0	7.8	7.8	180.00	-90.0	0.0	90.0	74.3	15.66	5.743		
3,100.0	3,100.0	3,100.0	3,100.0	8.1	8.1	180.00	-90.0	0.0	90.0	73.8	16.19	5.555		
3,200.0	3,200.0	3,200.0	3,200.0	8.4	8.4	180.00	-90.0	0.0	90.0	73.2	16.72	5.379		
3,300.0	3,300.0	3,300.0	3,300.0	8.6	8.6	180.00	-90.0	0.0	90.0	72.7	17.25	5.213		
3,400.0	3,400.0	3,400.0	3,400.0	8.9	8.9	180.00	-90.0	0.0	90.0	72.2	17.78	5.058		
3,500.0	3,500.0	3,500.0	3,500.0	9.2	9.2	180.00	-90.0	0.0	90.0	71.6	18.32	4.911		
3,600.0	3,600.0	3,600.0	3,600.0	9.4	9.4	180.00	-90.0	0.0	90.0	71.1	18.85	4.773		
3,700.0	3,700.0	3,700.0	3,700.0	9.7	9.7	180.00	-90.0	0.0	90.0	70.6	19.38	4.642		
3,800.0	3,800.0	3,800.0	3,800.0	10.0	10.0	180.00	-90.0	0.0	90.0	70.0	19.91	4.518		
3,900.0	3,900.0	3,900.0	3,900.0	10.2	10.2	180.00	-90.0	0.0	90.0	69.5	20.44	4.401		
4,000.0	4,000.0	4,000.0	4,000.0	10.5	10.5	180.00	-90.0	0.0	90.0	69.0	20.97	4.289		
4,100.0	4,100.0	4,100.0	4,100.0	10.8	10.8	180.00	-90.0	0.0	90.0	68.4	21.50	4.184		
4,200.0	4,200.0	4,200.0	4,200.0	11.0	11.0	180.00	-90.0	0.0	90.0	67.9	22.03	4.083		
4,300.0	4,300.0	4,300.0	4,300.0	11.3	11.3	180.00	-90.0	0.0	90.0	67.4	22.56	3.987		
4,400.0	4,400.0	4,400.0	4,400.0	11.5	11.5	180.00	-90.0	0.0	90.0	66.9	23.09	3.895		
4,500.0	4,500.0	4,500.0	4,500.0	11.8	11.8	180.00	-90.0	0.0	90.0	66.3	23.62	3.807		
4,600.0	4,600.0	4,600.0	4,600.0	12.1	12.1	180.00	-90.0	0.0	90.0	65.8	24.16	3.724		
4,700.0	4,700.0	4,700.0	4,700.0	12.3	12.3	180.00	-90.0	0.0	90.0	65.3	24.69	3.644		
4,800.0	4,800.0	4,800.0	4,800.0	12.6	12.6	180.00	-90.0	0.0	90.0	64.7	25.22	3.567 CC, ES, SF		
4,900.0	4,900.0	4,895.7	4,895.6	12.9	12.7	179.49	-92.2	0.8	92.3	66.7	25.60	3.606		
5,000.0	5,000.0	4,990.9	4,990.6	13.1	12.7	178.11	-98.9	3.3	99.4	73.6	25.85	3.846		
5,100.0	5,100.0	5,085.2	5,084.1	13.4	12.7	176.20	-109.9	7.3	111.3	85.2	26.10	4.264		

Company:	Great Western	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-219HN
Project:	SEC.31-T7N-R63W	TVD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Reference Site:	Spaur Brothers North Pad Sec.31-T7N-R63W	MD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur Brothers EH 31-219HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-23-13)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Spaur Brothers North Pad Sec.31-T7N-R63W - Spaur Brothers EH 31-262HN - Wellbore #1 - Plan #1 (1												Offset Well Error:	0.0 ft
Survey Program: 0-NS-GYRO-MS, 6930-MWD													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.0	5,200.0	5,178.0	5,175.6	13.7	12.7	174.15	-125.0	12.8	128.0	101.6	26.35	4.856	
5,300.0	5,300.0	5,269.1	5,264.4	13.9	12.7	172.21	-143.8	19.7	149.4	122.8	26.62	5.614	
5,400.0	5,400.0	5,358.1	5,350.2	14.2	12.7	170.50	-166.0	27.8	175.5	148.6	26.88	6.529	
5,500.0	5,500.0	5,444.7	5,432.5	14.5	12.7	169.05	-191.2	37.0	206.1	178.9	27.16	7.589	
5,600.0	5,600.0	5,528.6	5,511.0	14.7	12.7	97.14	-218.9	47.1	241.2	213.8	27.39	8.807	
5,700.0	5,699.4	5,609.2	5,585.2	14.9	12.7	95.88	-248.6	58.0	281.2	253.6	27.56	10.203	
5,800.0	5,797.6	5,685.9	5,654.4	15.0	12.8	95.41	-279.5	69.3	325.9	298.2	27.74	11.750	
5,900.0	5,893.9	5,758.1	5,718.4	15.2	12.8	95.24	-311.0	80.8	375.4	347.5	27.92	13.443	
6,000.0	5,987.3	5,832.4	5,783.1	15.4	12.9	95.36	-345.4	93.3	429.2	401.1	28.12	15.264	
6,100.0	6,077.4	5,910.6	5,850.9	15.6	13.0	95.84	-381.9	106.7	485.5	457.1	28.31	17.145	
6,200.0	6,165.4	5,986.3	5,916.6	15.8	13.0	108.66	-417.3	119.6	544.6	516.3	28.37	19.196	
6,300.0	6,260.0	6,064.1	5,984.1	16.0	13.1	144.31	-453.6	132.9	606.9	578.5	28.40	21.371	
6,400.0	6,357.9	6,140.7	6,050.6	16.3	13.2	-147.95	-489.4	145.9	668.8	639.9	28.83	23.194	
6,500.0	6,454.1	6,212.4	6,112.8	16.5	13.3	-106.27	-522.8	158.2	728.5	699.2	29.35	24.822	
6,600.0	6,543.7	6,275.4	6,167.4	16.6	13.5	-89.40	-552.2	168.9	785.8	756.1	29.62	26.528	
6,700.0	6,622.1	6,326.5	6,211.8	16.7	13.5	-79.78	-576.1	177.6	840.6	811.1	29.47	28.527	
6,800.0	6,685.2	6,363.1	6,243.5	16.8	13.6	-72.61	-593.2	183.9	893.2	864.4	28.78	31.032	
6,900.0	6,729.8	6,383.2	6,261.0	18.2	13.6	-66.32	-602.6	187.3	943.1	915.6	27.56	34.225	
7,000.0	6,753.7	6,386.0	6,263.4	18.3	13.6	-60.50	-603.9	187.8	989.5	963.2	26.35	37.558	

Reference Depths are relative to WELL @ 4778.5ft (RKB - 16.5')	Coordinates are relative to: Spaur Brothers EH 31-219HN
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: 0.66°



Company:	Great Western	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-219HN
Project:	SEC.31-T7N-R63W	TVD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Reference Site:	Spaur Brothers North Pad Sec.31-T7N-R63W	MD Reference:	WELL @ 4778.5ft (RKB - 16.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur Brothers EH 31-219HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-23-13)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4778.5ft (RKB - 16.5')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Spaur Brothers EH 31-219HN
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.66°

