

Great Western

Well Name: **Spaur Brothers EH 31-339HN**

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

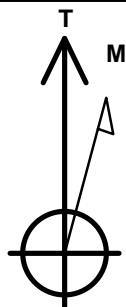
Ground Elevation: 4736.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1435320.63	3286048.21	40.523800	-104.471033	

RKB - 16.5' WELL @ 4752.5ft (RKB - 16.5')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 352'FSL & 210'FEL	1.0	0.0	0.0	Point
BHL 1040'FSL & 470'FWL	6715.0	644.9	-4482.3	Point
Entry Pt. 1048'FSL & 460'FEL	6715.0	693.3	-252.7	Point



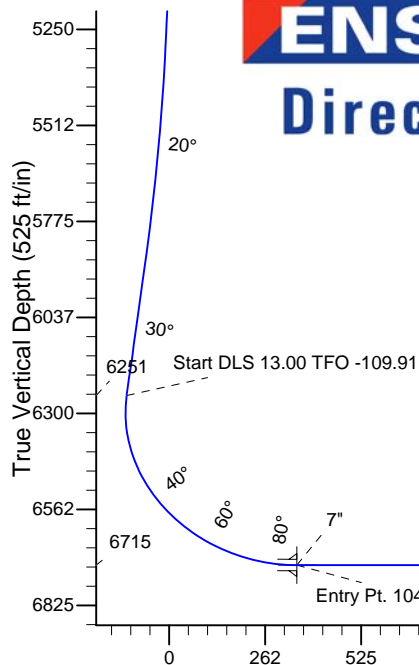
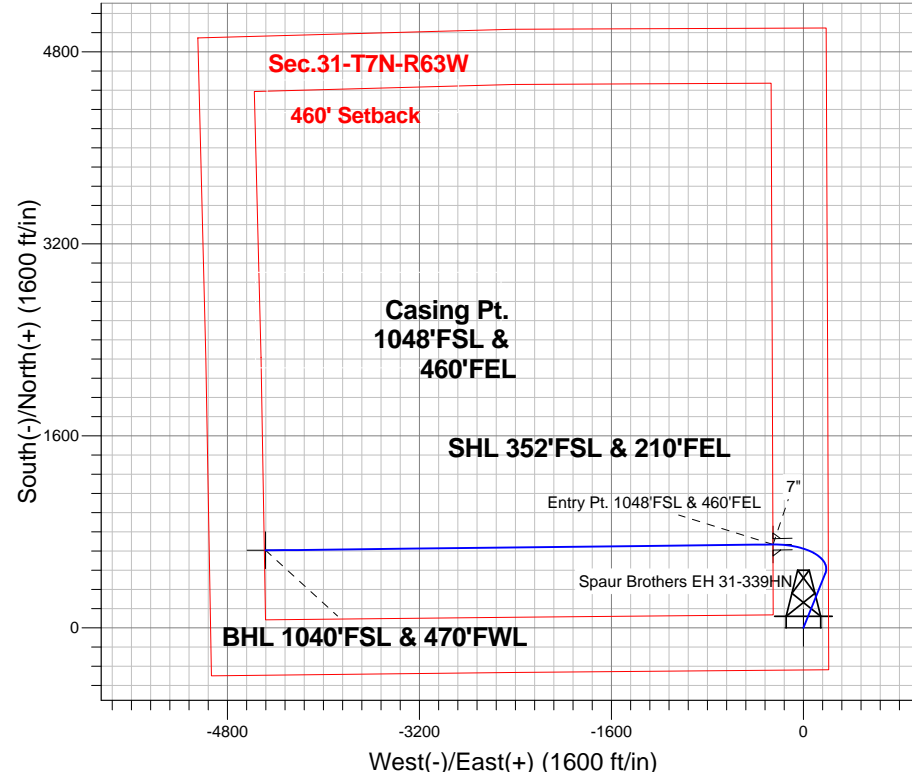
Azimuths to True North
Magnetic North: 8.39°

Magnetic Field
Strength: 52974.9snT
Dip Angle: 67.11°
Date: 11/6/2013
Model: IGRF2010

Spaur Brothers South Pad Sec.31-T7N-R63W
Spaur Brothers EH 31-339HN
Plan #1 (11-6-13)
9:30, November 07 2013

ANNOTATIONS

TVD	MD	Annotation
4900.0	4900.0	KOP - Start Build 3.00
6251.1	6358.0	Start DLS 13.00 TFO -109.91
6715.0	11366.0	TD at 11366.0



ENSIGN
Directional

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	4900.0	0.00	0.00	4900.0	0.0	0.0	0.00	0.00	0.0	
3	5903.8	30.11	22.07	5858.2	238.9	96.8	3.00	22.07	-61.8	
4	6358.0	30.11	22.07	6251.1	450.0	182.5	0.00	0.00	-116.5	
5	7136.2	90.00	269.35	6715.0	693.3	-252.7	13.00	-109.91	348.9	Entry Pt. 1048'FSL & 460'FEL
6	7136.8	90.00	269.34	6715.0	693.3	-253.3	1.00	-90.00	349.4	
7	11366.0	90.00	269.34	6715.0	644.9	-4482.3	0.00	0.00	4528.4	BHL 1040'FSL & 470'FWL

Vertical Section at 278.19° (525 ft/in)



Great Western

SEC.31-T7N-R63W

Spaur Brothers South Pad Sec.31-T7N-R63W

Spaur Brothers EH 31-339HN

Wellbore #1

Plan: Plan #1 (11-6-13)

Standard Planning Report

07 November, 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	
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,903.8	30.11	22.07	5,858.2	238.9	96.8	3.00	3.00	0.00	22.07	
6,358.0	30.11	22.07	6,251.1	450.0	182.5	0.00	0.00	0.00	0.00	
7,136.2	90.00	269.35	6,715.0	693.3	-252.7	13.00	7.70	-14.48	-109.91	Entry Pt. 1048'FSL
7,136.8	90.00	269.34	6,715.0	693.3	-253.3	1.00	0.00	-1.00	-90.00	
11,366.0	90.00	269.34	6,715.0	644.9	-4,482.3	0.00	0.00	0.00	0.00	BHL 1040'FSL & 47

Database:	Landmark	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-339HN
Company:	Great Western	TVD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Project:	SEC.31-T7N-R63W	MD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Site:	Spaur Brothers South Pad Sec.31-T7N-R63W	North Reference:	True
Well:	Spaur Brothers EH 31-339HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-6-13)		

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 352'FSL & 210'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
KOP - Start Build 3.00									
5,000.0	3.00	22.07	5,000.0	2.4	1.0	-0.6	3.00	3.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-339HN
Company:	Great Western	TVD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Project:	SEC.31-T7N-R63W	MD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Site:	Spaur Brothers South Pad Sec.31-T7N-R63W	North Reference:	True
Well:	Spaur Brothers EH 31-339HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-6-13)		

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)
5,100.0	6.00	22.07	5,099.6	9.7	3.9	-2.5	3.00	3.00	0.00
5,200.0	9.00	22.07	5,198.8	21.8	8.8	-5.6	3.00	3.00	0.00
5,300.0	12.00	22.07	5,297.1	38.7	15.7	-10.0	3.00	3.00	0.00
5,400.0	15.00	22.07	5,394.3	60.3	24.5	-15.6	3.00	3.00	0.00
5,500.0	18.00	22.07	5,490.2	86.6	35.1	-22.4	3.00	3.00	0.00
5,600.0	21.00	22.07	5,584.4	117.6	47.7	-30.4	3.00	3.00	0.00
5,700.0	24.00	22.07	5,676.8	153.0	62.0	-39.6	3.00	3.00	0.00
5,800.0	27.00	22.07	5,767.1	192.9	78.2	-49.9	3.00	3.00	0.00
5,900.0	30.00	22.07	5,854.9	237.1	96.1	-61.4	3.00	3.00	0.00
5,903.8	30.11	22.07	5,858.2	238.9	96.8	-61.8	3.00	3.00	0.00
6,000.0	30.11	22.07	5,941.4	283.6	115.0	-73.4	0.00	0.00	0.00
6,100.0	30.11	22.07	6,027.9	330.1	133.8	-85.5	0.00	0.00	0.00
6,200.0	30.11	22.07	6,114.4	376.6	152.7	-97.5	0.00	0.00	0.00
6,300.0	30.11	22.07	6,200.9	423.1	171.5	-109.5	0.00	0.00	0.00
6,358.0	30.11	22.07	6,251.1	450.1	182.5	-116.5	0.00	0.00	0.00
Start DLS 13.00 TFO -109.91									
6,400.0	28.67	11.31	6,287.7	469.7	188.4	-119.6	13.02	-3.43	-25.62
6,500.0	29.00	344.17	6,375.7	516.8	186.5	-111.0	13.00	0.33	-27.14
6,600.0	34.21	321.26	6,461.2	562.2	162.2	-80.5	13.00	5.21	-22.91
6,700.0	42.52	305.04	6,539.7	603.7	116.7	-29.6	13.00	8.31	-16.22
6,800.0	52.46	293.62	6,607.3	639.2	52.5	39.1	13.00	9.94	-11.42
6,900.0	63.24	285.00	6,660.5	666.7	-27.3	122.0	13.00	10.78	-8.62
7,000.0	74.44	277.91	6,696.6	685.0	-118.6	214.9	13.00	11.20	-7.09
7,100.0	85.85	271.57	6,713.7	693.0	-216.5	313.0	13.00	11.41	-6.34
7,136.2	90.00	269.35	6,715.0	693.3	-252.7	348.9	13.00	11.46	-6.14
7" - Entry Pt. 1048'FSL & 460'FEL									
7,136.8	90.00	269.34	6,715.0	693.3	-253.3	349.4	1.06	0.11	-1.06
7,200.0	90.00	269.34	6,715.0	692.6	-316.5	411.9	0.00	0.00	0.00
7,300.0	90.00	269.34	6,715.0	691.4	-416.5	510.7	0.00	0.00	0.00
7,400.0	90.00	269.34	6,715.0	690.3	-516.5	609.5	0.00	0.00	0.00
7,500.0	90.00	269.34	6,715.0	689.1	-616.5	708.3	0.00	0.00	0.00
7,600.0	90.00	269.34	6,715.0	688.0	-716.5	807.1	0.00	0.00	0.00
7,700.0	90.00	269.34	6,715.0	686.9	-816.5	906.0	0.00	0.00	0.00
7,800.0	90.00	269.34	6,715.0	685.7	-916.5	1,004.8	0.00	0.00	0.00
7,900.0	90.00	269.34	6,715.0	684.6	-1,016.4	1,103.6	0.00	0.00	0.00
8,000.0	90.00	269.34	6,715.0	683.4	-1,116.4	1,202.4	0.00	0.00	0.00
8,100.0	90.00	269.34	6,715.0	682.3	-1,216.4	1,301.2	0.00	0.00	0.00
8,200.0	90.00	269.34	6,715.0	681.1	-1,316.4	1,400.0	0.00	0.00	0.00
8,300.0	90.00	269.34	6,715.0	680.0	-1,416.4	1,498.8	0.00	0.00	0.00
8,400.0	90.00	269.34	6,715.0	678.8	-1,516.4	1,597.6	0.00	0.00	0.00
8,500.0	90.00	269.34	6,715.0	677.7	-1,616.4	1,696.4	0.00	0.00	0.00
8,600.0	90.00	269.34	6,715.0	676.6	-1,716.4	1,795.3	0.00	0.00	0.00
8,700.0	90.00	269.34	6,715.0	675.4	-1,816.4	1,894.1	0.00	0.00	0.00
8,800.0	90.00	269.34	6,715.0	674.3	-1,916.4	1,992.9	0.00	0.00	0.00
8,900.0	90.00	269.34	6,715.0	673.1	-2,016.4	2,091.7	0.00	0.00	0.00
9,000.0	90.00	269.34	6,715.0	672.0	-2,116.4	2,190.5	0.00	0.00	0.00
9,100.0	90.00	269.34	6,715.0	670.8	-2,216.4	2,289.3	0.00	0.00	0.00
9,200.0	90.00	269.34	6,715.0	669.7	-2,316.4	2,388.1	0.00	0.00	0.00
9,300.0	90.00	269.34	6,715.0	668.5	-2,416.4	2,486.9	0.00	0.00	0.00
9,400.0	90.00	269.34	6,715.0	667.4	-2,516.4	2,585.7	0.00	0.00	0.00
9,500.0	90.00	269.34	6,715.0	666.3	-2,616.3	2,684.6	0.00	0.00	0.00
9,600.0	90.00	269.34	6,715.0	665.1	-2,716.3	2,783.4	0.00	0.00	0.00
9,700.0	90.00	269.34	6,715.0	664.0	-2,816.3	2,882.2	0.00	0.00	0.00
9,800.0	90.00	269.34	6,715.0	662.8	-2,916.3	2,981.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-339HN
Company:	Great Western	TVD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Project:	SEC.31-T7N-R63W	MD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Site:	Spaur Brothers South Pad Sec.31-T7N-R63W	North Reference:	True
Well:	Spaur Brothers EH 31-339HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-6-13)		

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)	
9,900.0	90.00	269.34	6,715.0	661.7	-3,016.3	3,079.8	0.00	0.00	0.00	
10,000.0	90.00	269.34	6,715.0	660.5	-3,116.3	3,178.6	0.00	0.00	0.00	
10,100.0	90.00	269.34	6,715.0	659.4	-3,216.3	3,277.4	0.00	0.00	0.00	
10,200.0	90.00	269.34	6,715.0	658.2	-3,316.3	3,376.2	0.00	0.00	0.00	
10,300.0	90.00	269.34	6,715.0	657.1	-3,416.3	3,475.1	0.00	0.00	0.00	
10,400.0	90.00	269.34	6,715.0	656.0	-3,516.3	3,573.9	0.00	0.00	0.00	
10,500.0	90.00	269.34	6,715.0	654.8	-3,616.3	3,672.7	0.00	0.00	0.00	
10,600.0	90.00	269.34	6,715.0	653.7	-3,716.3	3,771.5	0.00	0.00	0.00	
10,700.0	90.00	269.34	6,715.0	652.5	-3,816.3	3,870.3	0.00	0.00	0.00	
10,800.0	90.00	269.34	6,715.0	651.4	-3,916.3	3,969.1	0.00	0.00	0.00	
10,900.0	90.00	269.34	6,715.0	650.2	-4,016.3	4,067.9	0.00	0.00	0.00	
11,000.0	90.00	269.34	6,715.0	649.1	-4,116.2	4,166.7	0.00	0.00	0.00	
11,100.0	90.00	269.34	6,715.0	647.9	-4,216.2	4,265.5	0.00	0.00	0.00	
11,200.0	90.00	269.34	6,715.0	646.8	-4,316.2	4,364.4	0.00	0.00	0.00	
11,300.0	90.00	269.34	6,715.0	645.7	-4,416.2	4,463.2	0.00	0.00	0.00	
11,366.0	90.00	269.34	6,715.0	644.9	-4,482.2	4,528.4	0.00	0.00	0.00	
TD at 11366.0 - BHL 1040'FSL & 470'FWL										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,136.2	6,715.0	7"	7	7-1/2	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
4,900.0	4,900.0	0.0	0.0	KOP - Start Build 3.00	
6,358.0	6,251.1	450.1	182.5	Start DLS 13.00 TFO -109.91	
11,366.0	6,715.0	644.9	-4,482.2	TD at 11366.0	



Great Western

SEC.31-T7N-R63W

Spaur Brothers South Pad Sec.31-T7N-R63W

Spaur Brothers EH 31-339HN

Wellbore #1

Plan #1 (11-6-13)

Anticollision Report

07 November, 2013

Offset Design Spaur Brothers South Pad Sec.31-T7N-R63W - Spaur Brothers EH 31-019HN - Wellbore #1 - Plan #1 (Offset Site Error: 0.0 ft													
Survey Program: 0-MWD Offset Well Error: 0.0 ft													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
2,200.0	2,200.0	2,200.0	2,200.0	4.8	4.8	-180.00	-90.0	0.0	90.0	80.3	9.66	9.311	
2,300.0	2,300.0	2,300.0	2,300.0	5.1	5.1	-180.00	-90.0	0.0	90.0	79.9	10.11	8.897	
2,400.0	2,400.0	2,400.0	2,400.0	5.3	5.3	-180.00	-90.0	0.0	90.0	79.4	10.56	8.519	
2,500.0	2,500.0	2,500.0	2,500.0	5.5	5.5	-180.00	-90.0	0.0	90.0	79.0	11.01	8.171	
2,600.0	2,600.0	2,600.0	2,600.0	5.7	5.7	-180.00	-90.0	0.0	90.0	78.5	11.46	7.851	
2,700.0	2,700.0	2,700.0	2,700.0	6.0	6.0	-180.00	-90.0	0.0	90.0	78.1	11.91	7.554	
2,800.0	2,800.0	2,800.0	2,800.0	6.2	6.2	-180.00	-90.0	0.0	90.0	77.6	12.36	7.280	
2,900.0	2,900.0	2,900.0	2,900.0	6.4	6.4	-180.00	-90.0	0.0	90.0	77.2	12.81	7.024	
3,000.0	3,000.0	3,000.0	3,000.0	6.6	6.6	-180.00	-90.0	0.0	90.0	76.7	13.26	6.786	
3,100.0	3,100.0	3,100.0	3,100.0	6.9	6.9	-180.00	-90.0	0.0	90.0	76.3	13.71	6.564	
3,200.0	3,200.0	3,200.0	3,200.0	7.1	7.1	-180.00	-90.0	0.0	90.0	75.8	14.16	6.355	
3,300.0	3,300.0	3,300.0	3,300.0	7.3	7.3	-180.00	-90.0	0.0	90.0	75.4	14.61	6.160	
3,400.0	3,400.0	3,400.0	3,400.0	7.5	7.5	-180.00	-90.0	0.0	90.0	74.9	15.06	5.976	
3,500.0	3,500.0	3,500.0	3,500.0	7.8	7.8	-180.00	-90.0	0.0	90.0	74.5	15.51	5.803	
3,600.0	3,600.0	3,600.0	3,600.0	8.0	8.0	-180.00	-90.0	0.0	90.0	74.0	15.96	5.639	
3,700.0	3,700.0	3,700.0	3,700.0	8.2	8.2	-180.00	-90.0	0.0	90.0	73.6	16.41	5.485	
3,800.0	3,800.0	3,800.0	3,800.0	8.4	8.4	-180.00	-90.0	0.0	90.0	73.1	16.86	5.338	
3,900.0	3,900.0	3,900.0	3,900.0	8.7	8.7	-180.00	-90.0	0.0	90.0	72.7	17.31	5.200	
4,000.0	4,000.0	4,000.0	4,000.0	8.9	8.9	-180.00	-90.0	0.0	90.0	72.2	17.76	5.068	
4,100.0	4,100.0	4,100.0	4,100.0	9.1	9.1	-180.00	-90.0	0.0	90.0	71.8	18.21	4.943	
4,200.0	4,200.0	4,200.0	4,200.0	9.3	9.3	-180.00	-90.0	0.0	90.0	71.3	18.66	4.824	
4,300.0	4,300.0	4,300.0	4,300.0	9.6	9.6	-180.00	-90.0	0.0	90.0	70.9	19.11	4.710	
4,400.0	4,400.0	4,400.0	4,400.0	9.8	9.8	-180.00	-90.0	0.0	90.0	70.4	19.55	4.602	
4,500.0	4,500.0	4,500.0	4,500.0	10.0	10.0	-180.00	-90.0	0.0	90.0	70.0	20.00	4.499	
4,600.0	4,600.0	4,600.0	4,600.0	10.2	10.2	-180.00	-90.0	0.0	90.0	69.5	20.45	4.400	
4,700.0	4,700.0	4,700.0	4,700.0	10.5	10.5	-180.00	-90.0	0.0	90.0	69.1	20.90	4.305	
4,800.0	4,800.0	4,800.0	4,800.0	10.7	10.7	-180.00	-90.0	0.0	90.0	68.6	21.35	4.214	
4,900.0	4,900.0	4,900.0	4,900.0	10.9	10.9	-180.00	-90.0	0.0	90.0	68.2	21.80	4.128 CC, ES, SF	
5,000.0	5,000.0	5,000.0	5,000.0	11.1	11.1	158.51	-90.0	0.0	92.4	70.2	22.23	4.158	
5,100.0	5,099.6	5,099.6	5,099.6	11.3	11.3	160.09	-90.0	0.0	99.8	77.2	22.61	4.413	
5,200.0	5,198.8	5,198.8	5,198.8	11.6	11.6	162.24	-90.0	0.0	112.1	89.2	22.93	4.890	
5,300.0	5,297.1	5,297.1	5,297.1	11.8	11.8	164.56	-90.0	0.0	129.6	106.4	23.20	5.587	
5,400.0	5,394.3	5,394.3	5,394.3	12.0	12.0	166.73	-90.0	0.0	152.3	128.9	23.41	6.505	
5,500.0	5,490.2	5,490.2	5,490.2	12.3	12.2	168.63	-90.0	0.0	180.1	156.5	23.56	7.644	
5,600.0	5,584.4	5,580.6	5,580.6	12.6	12.4	169.56	-91.1	1.9	213.6	190.0	23.63	9.038	
5,700.0	5,676.8	5,666.8	5,666.4	12.9	12.6	168.78	-95.3	9.3	254.0	230.4	23.66	10.735	
5,800.0	5,767.1	5,748.6	5,746.9	13.3	12.7	167.03	-102.1	21.6	301.1	277.4	23.67	12.719	
5,900.0	5,854.9	5,825.1	5,821.1	13.8	12.9	164.80	-111.1	37.5	354.8	331.1	23.69	14.977	
6,000.0	5,941.4	5,900.0	5,892.5	14.3	13.1	162.79	-122.3	57.3	412.9	388.7	24.18	17.077	
6,100.0	6,027.9	5,964.9	5,953.0	14.9	13.3	160.88	-133.7	77.6	473.2	448.5	24.71	19.150	
6,200.0	6,114.4	6,029.1	6,011.5	15.5	13.5	158.90	-146.7	100.7	535.9	510.6	25.29	21.187	
6,300.0	6,200.9	6,089.3	6,064.9	16.1	13.7	157.00	-160.3	124.9	600.9	575.0	25.91	23.192	
6,400.0	6,287.7	6,152.3	6,119.6	16.7	14.0	169.28	-175.8	152.1	668.1	641.8	26.26	25.437	
6,500.0	6,375.7	6,214.2	6,175.4	17.3	14.2	-157.46	-191.9	173.4	736.5	709.8	26.77	27.518	
6,600.0	6,461.2	6,276.8	6,234.2	17.7	14.4	-129.51	-208.9	186.5	804.1	776.2	27.96	28.764	
6,700.0	6,539.7	6,344.1	6,298.6	18.2	14.5	-110.09	-227.6	190.7	868.7	839.5	29.23	29.715	
6,800.0	6,607.3	6,422.2	6,373.1	18.5	14.7	-97.77	-249.3	182.7	928.0	897.8	30.21	30.722	
6,900.0	6,660.5	6,523.3	6,465.4	18.9	14.9	-90.92	-276.5	152.4	979.8	948.9	30.93	31.678	

Company:	Great Western	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-339HN
Project:	SEC.31-T7N-R63W	TVD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Reference Site:	Spaur Brothers South Pad Sec.31-T7N-R63W	MD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur Brothers EH 31-339HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-6-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-30.2	0.0	30.2					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-30.2	0.0	30.2	30.0	0.22	134.533		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-30.2	0.0	30.2	29.6	0.67	44.844		
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-30.2	0.0	30.2	29.1	1.12	26.907		
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-30.2	0.0	30.2	28.7	1.57	19.219		
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-30.2	0.0	30.2	28.2	2.02	14.948		
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-30.2	0.0	30.2	27.8	2.47	12.230		
700.0	700.0	700.0	700.0	1.5	1.5	180.00	-30.2	0.0	30.2	27.3	2.92	10.349		
800.0	800.0	800.0	800.0	1.7	1.7	180.00	-30.2	0.0	30.2	26.9	3.37	8.969		
900.0	900.0	900.0	900.0	1.9	1.9	180.00	-30.2	0.0	30.2	26.4	3.82	7.914		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	180.00	-30.2	0.0	30.2	26.0	4.27	7.081		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	180.00	-30.2	0.0	30.2	25.5	4.72	6.406		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	180.00	-30.2	0.0	30.2	25.1	5.17	5.849		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	180.00	-30.2	0.0	30.2	24.6	5.62	5.381		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	180.00	-30.2	0.0	30.2	24.2	6.07	4.983		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	180.00	-30.2	0.0	30.2	23.7	6.52	4.639		
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	180.00	-30.2	0.0	30.2	23.3	6.97	4.340		
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	180.00	-30.2	0.0	30.2	22.8	7.42	4.077		
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	180.00	-30.2	0.0	30.2	22.4	7.87	3.844		
1,900.0	1,900.0	1,900.0	1,900.0	4.2	4.2	180.00	-30.2	0.0	30.2	21.9	8.32	3.636		
2,000.0	2,000.0	2,000.0	2,000.0	4.4	4.4	180.00	-30.2	0.0	30.2	21.5	8.77	3.450		
2,100.0	2,100.0	2,100.0	2,100.0	4.6	4.6	180.00	-30.2	0.0	30.2	21.0	9.22	3.281		
2,200.0	2,200.0	2,200.0	2,200.0	4.8	4.8	180.00	-30.2	0.0	30.2	20.6	9.66	3.129		
2,300.0	2,300.0	2,300.0	2,300.0	5.1	5.1	180.00	-30.2	0.0	30.2	20.1	10.11	2.990		
2,400.0	2,400.0	2,400.0	2,400.0	5.3	5.3	180.00	-30.2	0.0	30.2	19.7	10.56	2.862		
2,500.0	2,500.0	2,500.0	2,500.0	5.5	5.5	180.00	-30.2	0.0	30.2	19.2	11.01	2.746		
2,600.0	2,600.0	2,600.0	2,600.0	5.7	5.7	180.00	-30.2	0.0	30.2	18.8	11.46	2.638		
2,700.0	2,700.0	2,700.0	2,700.0	6.0	6.0	180.00	-30.2	0.0	30.2	18.3	11.91	2.538		
2,800.0	2,800.0	2,800.0	2,800.0	6.2	6.2	180.00	-30.2	0.0	30.2	17.9	12.36	2.446		
2,900.0	2,900.0	2,900.0	2,900.0	6.4	6.4	180.00	-30.2	0.0	30.2	17.4	12.81	2.360		
3,000.0	3,000.0	3,000.0	3,000.0	6.6	6.6	180.00	-30.2	0.0	30.2	17.0	13.26	2.280		
3,100.0	3,100.0	3,100.0	3,100.0	6.9	6.9	180.00	-30.2	0.0	30.2	16.5	13.71	2.205		
3,200.0	3,200.0	3,200.0	3,200.0	7.1	7.1	180.00	-30.2	0.0	30.2	16.1	14.16	2.135		
3,300.0	3,300.0	3,300.0	3,300.0	7.3	7.3	180.00	-30.2	0.0	30.2	15.6	14.61	2.070		
3,400.0	3,400.0	3,400.0	3,400.0	7.5	7.5	180.00	-30.2	0.0	30.2	15.2	15.06	2.008		
3,500.0	3,500.0	3,500.0	3,500.0	7.8	7.8	180.00	-30.2	0.0	30.2	14.7	15.51	1.950		
3,600.0	3,600.0	3,600.0	3,600.0	8.0	8.0	180.00	-30.2	0.0	30.2	14.3	15.96	1.895		
3,700.0	3,700.0	3,700.0	3,700.0	8.2	8.2	180.00	-30.2	0.0	30.2	13.8	16.41	1.843		
3,800.0	3,800.0	3,800.0	3,800.0	8.4	8.4	180.00	-30.2	0.0	30.2	13.4	16.86	1.794		
3,900.0	3,900.0	3,900.0	3,900.0	8.7	8.7	180.00	-30.2	0.0	30.2	12.9	17.31	1.747		
4,000.0	4,000.0	4,000.0	4,000.0	8.9	8.9	180.00	-30.2	0.0	30.2	12.5	17.76	1.703		
4,100.0	4,100.0	4,100.0	4,100.0	9.1	9.1	180.00	-30.2	0.0	30.2	12.0	18.21	1.661		
4,200.0	4,200.0	4,200.0	4,200.0	9.3	9.3	180.00	-30.2	0.0	30.2	11.6	18.66	1.621		
4,300.0	4,300.0	4,300.0	4,300.0	9.6	9.6	180.00	-30.2	0.0	30.2	11.1	19.11	1.583		
4,400.0	4,400.0	4,400.0	4,400.0	9.8	9.8	180.00	-30.2	0.0	30.2	10.7	19.55	1.546		
4,500.0	4,500.0	4,500.0	4,500.0	10.0	10.0	180.00	-30.2	0.0	30.2	10.2	20.00	1.512		
4,600.0	4,600.0	4,600.0	4,600.0	10.2	10.2	180.00	-30.2	0.0	30.2	9.8	20.45	1.478 Level 3		
4,700.0	4,700.0	4,700.0	4,700.0	10.5	10.5	180.00	-30.2	0.0	30.2	9.3	20.90	1.447 Level 3		
4,800.0	4,800.0	4,800.0	4,800.0	10.7	10.7	180.00	-30.2	0.0	30.2	8.9	21.35	1.416 Level 3		
4,900.0	4,900.0	4,900.0	4,900.0	10.9	10.9	180.00	-30.2	0.0	30.2	8.4	21.80	1.387 Level 3, CC, ES		
5,000.0	5,000.0	5,000.0	5,000.0	11.1	11.1	159.63	-30.2	0.0	32.7	10.5	22.23	1.470 Level 3		
5,100.0	5,099.6	5,099.6	5,099.6	11.3	11.3	163.47	-30.2	0.0	40.1	17.5	22.60	1.775		

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

Company:	Great Western	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-339HN
Project:	SEC.31-T7N-R63W	TVD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Reference Site:	Spaur Brothers South Pad Sec.31-T7N-R63W	MD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur Brothers EH 31-339HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-6-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,200.0	5,198.8	5,198.8	5,198.8	11.6	11.6	167.42	-30.2	0.0	52.8	29.9	22.92	2.302		
5,300.0	5,297.1	5,298.1	5,298.1	11.8	11.8	170.53	-30.1	0.1	70.5	47.3	23.18	3.041		
5,400.0	5,394.3	5,400.3	5,400.2	12.0	12.0	172.20	-26.4	2.2	89.7	66.3	23.39	3.835		
5,500.0	5,490.2	5,503.6	5,503.1	12.3	12.3	172.89	-17.8	7.0	108.9	85.4	23.55	4.625		
5,600.0	5,584.4	5,608.1	5,606.3	12.6	12.5	173.03	-4.3	14.7	128.1	104.4	23.66	5.413		
5,700.0	5,676.8	5,713.6	5,709.6	12.9	12.7	172.82	14.4	25.3	147.1	123.4	23.74	6.199		
5,800.0	5,767.1	5,820.3	5,812.7	13.3	13.0	172.38	38.2	38.8	166.0	142.2	23.78	6.982		
5,900.0	5,854.9	5,928.1	5,915.1	13.8	13.3	171.76	67.4	55.4	184.6	160.8	23.79	7.760		
6,000.0	5,941.4	6,037.4	6,016.9	14.3	13.6	170.97	102.1	75.1	200.6	176.3	24.31	8.255		
6,100.0	6,027.9	6,148.2	6,117.6	14.9	14.1	169.81	142.3	97.9	211.2	186.3	24.88	8.487		
6,200.0	6,114.4	6,259.9	6,216.2	15.5	14.5	168.24	187.9	123.8	216.3	190.8	25.52	8.475		
6,300.0	6,200.9	6,361.4	6,304.0	16.1	15.0	166.54	232.3	148.9	218.0	191.8	26.19	8.324		
6,400.0	6,287.7	6,461.0	6,390.1	16.7	15.6	173.85	275.8	173.6	219.7	192.7	26.99	8.142		
6,500.0	6,375.7	6,557.9	6,475.1	17.3	16.1	-166.85	318.7	190.3	221.6	193.8	27.77	7.979		
6,600.0	6,461.2	6,658.5	6,564.7	17.7	16.5	-151.85	363.7	185.4	225.1	196.9	28.16	7.993		
6,700.0	6,539.7	6,764.0	6,655.2	18.2	16.9	-143.38	408.8	156.1	230.0	201.9	28.10	8.183		
6,800.0	6,607.3	6,874.8	6,740.8	18.5	17.2	-139.41	451.1	100.5	235.5	207.9	27.68	8.511		
6,900.0	6,660.5	6,990.8	6,814.3	18.9	17.6	-137.82	487.1	18.7	240.9	213.7	27.25	8.843		
7,000.0	6,696.6	7,111.4	6,868.0	19.4	18.1	-137.35	512.8	-85.7	245.2	217.7	27.46	8.930		
7,100.0	6,713.7	7,235.0	6,894.8	20.2	19.2	-137.28	524.8	-205.4	247.4	218.5	28.90	8.560		
7,200.0	6,715.0	7,344.2	6,897.0	21.3	20.7	-137.29	524.6	-314.5	247.7	216.5	31.19	7.941		
7,300.0	6,715.0	7,444.2	6,897.0	22.7	22.3	-137.29	523.4	-414.5	247.7	214.1	33.63	7.366		
7,400.0	6,715.0	7,544.2	6,897.0	24.5	24.1	-137.28	522.2	-514.5	247.7	211.4	36.34	6.818		
7,500.0	6,715.0	7,644.2	6,897.0	26.5	26.2	-137.27	521.0	-614.5	247.8	208.5	39.26	6.311		
7,600.0	6,715.0	7,744.2	6,897.0	28.6	28.3	-137.26	519.9	-714.5	247.8	205.4	42.36	5.850		
7,700.0	6,715.0	7,844.2	6,897.0	30.8	30.6	-137.26	518.7	-814.5	247.8	202.2	45.59	5.436		
7,800.0	6,715.0	7,944.2	6,897.0	33.1	33.0	-137.25	517.5	-914.5	247.8	198.9	48.93	5.065		
7,900.0	6,715.0	8,044.2	6,897.0	35.5	35.4	-137.24	516.3	-1,014.4	247.9	195.5	52.37	4.733		
8,000.0	6,715.0	8,144.2	6,897.0	38.0	37.8	-137.23	515.1	-1,114.4	247.9	192.0	55.87	4.437		
8,100.0	6,715.0	8,244.2	6,897.0	40.5	40.4	-137.23	513.9	-1,214.4	247.9	188.5	59.44	4.171		
8,200.0	6,715.0	8,344.2	6,897.0	43.0	42.9	-137.22	512.7	-1,314.4	248.0	184.9	63.05	3.933		
8,300.0	6,715.0	8,444.2	6,897.0	45.6	45.5	-137.21	511.5	-1,414.4	248.0	181.3	66.71	3.718		
8,400.0	6,715.0	8,544.2	6,897.0	48.2	48.1	-137.21	510.4	-1,514.4	248.0	177.6	70.40	3.523		
8,500.0	6,715.0	8,644.2	6,897.0	50.8	50.7	-137.20	509.2	-1,614.4	248.1	173.9	74.13	3.346		
8,600.0	6,715.0	8,744.2	6,897.0	53.4	53.4	-137.19	508.0	-1,714.4	248.1	170.2	77.88	3.186		
8,700.0	6,715.0	8,844.2	6,897.0	56.1	56.0	-137.18	506.8	-1,814.4	248.1	166.5	81.65	3.039		
8,800.0	6,715.0	8,944.2	6,897.0	58.8	58.7	-137.18	505.6	-1,914.4	248.1	162.7	85.44	2.904		
8,900.0	6,715.0	9,044.2	6,897.0	61.5	61.4	-137.17	504.4	-2,014.4	248.2	158.9	89.25	2.781		
9,000.0	6,715.0	9,144.2	6,897.0	64.1	64.1	-137.16	503.2	-2,114.4	248.2	155.1	93.08	2.667		
9,100.0	6,715.0	9,244.2	6,897.0	66.8	66.8	-137.15	502.0	-2,214.4	248.2	151.3	96.92	2.561		
9,200.0	6,715.0	9,344.2	6,897.0	69.6	69.5	-137.15	500.8	-2,314.4	248.3	147.5	100.77	2.464		
9,300.0	6,715.0	9,444.2	6,897.0	72.3	72.2	-137.14	499.7	-2,414.4	248.3	143.7	104.63	2.373		
9,400.0	6,715.0	9,544.2	6,897.0	75.0	75.0	-137.13	498.5	-2,514.3	248.3	139.8	108.50	2.289		
9,500.0	6,715.0	9,644.2	6,897.0	77.7	77.7	-137.12	497.3	-2,614.3	248.4	136.0	112.38	2.210		
9,600.0	6,715.0	9,744.2	6,897.0	80.5	80.4	-137.12	496.1	-2,714.3	248.4	132.1	116.27	2.136		
9,700.0	6,715.0	9,844.2	6,897.0	83.2	83.2	-137.11	494.9	-2,814.3	248.4	128.2	120.17	2.067		
9,800.0	6,715.0	9,944.2	6,897.0	85.9	85.9	-137.10	493.7	-2,914.3	248.4	124.4	124.07	2.002		
9,900.0	6,715.0	10,044.2	6,897.0	88.7	88.7	-137.09	492.5	-3,014.3	248.5	120.5	127.98	1.941		
10,000.0	6,715.0	10,144.2	6,897.0	91.4	91.4	-137.09	491.3	-3,114.3	248.5	116.6	131.90	1.884		
10,100.0	6,715.0	10,244.2	6,897.0	94.2	94.2	-137.08	490.2	-3,214.3	248.5	112.7	135.82	1.830		
10,200.0	6,715.0	10,344.2	6,897.0	97.0	97.0	-137.07	489.0	-3,314.3	248.6	108.8	139.75	1.779		
10,300.0	6,715.0	10,444.2	6,897.0	99.7	99.7	-137.06	487.8	-3,414.3	248.6	104.9	143.68	1.730		

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

Company:	Great Western	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-339HN
Project:	SEC.31-T7N-R63W	TVD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Reference Site:	Spaur Brothers South Pad Sec.31-T7N-R63W	MD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur Brothers EH 31-339HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-6-13)	Offset TVD Reference:	Offset Datum

Offset Design Spaur Brothers South Pad Sec.31-T7N-R63W - Spaur Brothers EH 31-339HC - Wellbore #1 - Plan #1 (Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis			Distance									Warning
Measured Depth (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		
10,400.0	6,715.0	10,544.2	6,897.0	102.5	102.5	-137.06	486.6	-3,514.3	248.6	101.0	147.62	1.684		
10,500.0	6,715.0	10,644.2	6,897.0	105.2	105.2	-137.05	485.4	-3,614.3	248.7	97.1	151.56	1.641		
10,600.0	6,715.0	10,744.2	6,897.0	108.0	108.0	-137.04	484.2	-3,714.3	248.7	93.2	155.50	1.599		
10,700.0	6,715.0	10,844.2	6,897.0	110.8	110.8	-137.04	483.0	-3,814.3	248.7	89.3	159.45	1.560		
10,800.0	6,715.0	10,944.2	6,897.0	113.6	113.6	-137.03	481.8	-3,914.2	248.7	85.3	163.40	1.522		
10,900.0	6,715.0	11,044.2	6,897.0	116.3	116.3	-137.02	480.6	-4,014.2	248.8	81.4	167.35	1.487	Level 3	
11,000.0	6,715.0	11,144.2	6,897.0	119.1	119.1	-137.01	479.5	-4,114.2	248.8	77.5	171.31	1.452	Level 3	
11,100.0	6,715.0	11,244.2	6,897.0	121.9	121.9	-137.01	478.3	-4,214.2	248.8	73.6	175.27	1.420	Level 3	
11,200.0	6,715.0	11,344.2	6,897.0	124.7	124.7	-137.00	477.1	-4,314.2	248.9	69.6	179.24	1.388	Level 3	
11,300.0	6,715.0	11,444.2	6,897.0	127.4	127.5	-136.99	475.9	-4,414.2	248.9	65.7	183.20	1.359	Level 3	
11,333.7	6,715.0	11,477.9	6,897.0	128.4	128.4	-136.99	475.5	-4,447.9	248.9	64.4	184.54	1.349	Level 3	
11,366.0	6,715.0	11,509.7	6,897.0	129.3	129.3	-136.99	475.1	-4,479.6	248.9	63.1	185.80	1.340	Level 3, SF	

Company:	Great Western	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-339HN
Project:	SEC.31-T7N-R63W	TVD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Reference Site:	Spaur Brothers South Pad Sec.31-T7N-R63W	MD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur Brothers EH 31-339HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-6-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-60.8	0.0	60.8					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-60.8	0.0	60.8	60.6	0.22	270.706		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-60.8	0.0	60.8	60.2	0.67	90.235		
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-60.8	0.0	60.8	59.7	1.12	54.141		
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-60.8	0.0	60.8	59.3	1.57	38.672		
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-60.8	0.0	60.8	58.8	2.02	30.078		
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-60.8	0.0	60.8	58.4	2.47	24.610		
700.0	700.0	700.0	700.0	1.5	1.5	180.00	-60.8	0.0	60.8	57.9	2.92	20.824		
800.0	800.0	800.0	800.0	1.7	1.7	180.00	-60.8	0.0	60.8	57.5	3.37	18.047		
900.0	900.0	900.0	900.0	1.9	1.9	180.00	-60.8	0.0	60.8	57.0	3.82	15.924		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	180.00	-60.8	0.0	60.8	56.6	4.27	14.248		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	180.00	-60.8	0.0	60.8	56.1	4.72	12.891		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	180.00	-60.8	0.0	60.8	55.7	5.17	11.770		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	180.00	-60.8	0.0	60.8	55.2	5.62	10.828		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	180.00	-60.8	0.0	60.8	54.8	6.07	10.026		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	180.00	-60.8	0.0	60.8	54.3	6.52	9.335		
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	180.00	-60.8	0.0	60.8	53.9	6.97	8.732		
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	180.00	-60.8	0.0	60.8	53.4	7.42	8.203		
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	180.00	-60.8	0.0	60.8	53.0	7.87	7.734		
1,900.0	1,900.0	1,900.0	1,900.0	4.2	4.2	180.00	-60.8	0.0	60.8	52.5	8.32	7.316		
2,000.0	2,000.0	2,000.0	2,000.0	4.4	4.4	180.00	-60.8	0.0	60.8	52.1	8.77	6.941		
2,100.0	2,100.0	2,100.0	2,100.0	4.6	4.6	180.00	-60.8	0.0	60.8	51.6	9.22	6.603		
2,200.0	2,200.0	2,200.0	2,200.0	4.8	4.8	180.00	-60.8	0.0	60.8	51.2	9.66	6.295		
2,300.0	2,300.0	2,300.0	2,300.0	5.1	5.1	180.00	-60.8	0.0	60.8	50.7	10.11	6.016		
2,400.0	2,400.0	2,400.0	2,400.0	5.3	5.3	180.00	-60.8	0.0	60.8	50.3	10.56	5.760		
2,500.0	2,500.0	2,500.0	2,500.0	5.5	5.5	180.00	-60.8	0.0	60.8	49.8	11.01	5.525		
2,600.0	2,600.0	2,600.0	2,600.0	5.7	5.7	180.00	-60.8	0.0	60.8	49.4	11.46	5.308		
2,700.0	2,700.0	2,700.0	2,700.0	6.0	6.0	180.00	-60.8	0.0	60.8	48.9	11.91	5.108		
2,800.0	2,800.0	2,800.0	2,800.0	6.2	6.2	180.00	-60.8	0.0	60.8	48.5	12.36	4.922		
2,900.0	2,900.0	2,900.0	2,900.0	6.4	6.4	180.00	-60.8	0.0	60.8	48.0	12.81	4.749		
3,000.0	3,000.0	3,000.0	3,000.0	6.6	6.6	180.00	-60.8	0.0	60.8	47.6	13.26	4.588		
3,100.0	3,100.0	3,100.0	3,100.0	6.9	6.9	180.00	-60.8	0.0	60.8	47.1	13.71	4.438		
3,200.0	3,200.0	3,200.0	3,200.0	7.1	7.1	180.00	-60.8	0.0	60.8	46.7	14.16	4.297		
3,300.0	3,300.0	3,300.0	3,300.0	7.3	7.3	180.00	-60.8	0.0	60.8	46.2	14.61	4.165		
3,400.0	3,400.0	3,400.0	3,400.0	7.5	7.5	180.00	-60.8	0.0	60.8	45.8	15.06	4.040		
3,500.0	3,500.0	3,500.0	3,500.0	7.8	7.8	180.00	-60.8	0.0	60.8	45.3	15.51	3.923		
3,600.0	3,600.0	3,600.0	3,600.0	8.0	8.0	180.00	-60.8	0.0	60.8	44.9	15.96	3.813		
3,700.0	3,700.0	3,700.0	3,700.0	8.2	8.2	180.00	-60.8	0.0	60.8	44.4	16.41	3.708		
3,800.0	3,800.0	3,800.0	3,800.0	8.4	8.4	180.00	-60.8	0.0	60.8	44.0	16.86	3.609		
3,900.0	3,900.0	3,900.0	3,900.0	8.7	8.7	180.00	-60.8	0.0	60.8	43.5	17.31	3.516		
4,000.0	4,000.0	4,000.0	4,000.0	8.9	8.9	180.00	-60.8	0.0	60.8	43.1	17.76	3.427		
4,100.0	4,100.0	4,100.0	4,100.0	9.1	9.1	180.00	-60.8	0.0	60.8	42.6	18.21	3.342		
4,200.0	4,200.0	4,200.0	4,200.0	9.3	9.3	180.00	-60.8	0.0	60.8	42.2	18.66	3.262		
4,300.0	4,300.0	4,300.0	4,300.0	9.6	9.6	180.00	-60.8	0.0	60.8	41.7	19.11	3.185		
4,400.0	4,400.0	4,400.0	4,400.0	9.8	9.8	180.00	-60.8	0.0	60.8	41.3	19.55	3.112		
4,500.0	4,500.0	4,500.0	4,500.0	10.0	10.0	180.00	-60.8	0.0	60.8	40.8	20.00	3.042		
4,600.0	4,600.0	4,600.0	4,600.0	10.2	10.2	180.00	-60.8	0.0	60.8	40.4	20.45	2.975		
4,700.0	4,700.0	4,700.0	4,700.0	10.5	10.5	180.00	-60.8	0.0	60.8	39.9	20.90	2.911		
4,800.0	4,800.0	4,800.0	4,800.0	10.7	10.7	180.00	-60.8	0.0	60.8	39.5	21.35	2.850		
4,900.0	4,900.0	4,900.0	4,900.0	10.9	10.9	180.00	-60.8	0.0	60.8	39.0	21.80	2.791 CC, ES		
5,000.0	5,000.0	5,000.0	5,000.0	11.1	11.1	158.79	-60.8	0.0	63.3	41.0	22.23	2.847		
5,100.0	5,099.6	5,099.6	5,099.6	11.3	11.3	161.02	-60.8	0.0	70.7	48.0	22.61	3.125		

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

Spaur Brothers South Pad Sec.31-T7N-R63W - Spaur Brothers EH 31-379HN - Wellbore #1 - Plan #1 (Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance		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	5,198.8	5,198.8	5,198.8	11.6	11.6	163.84	-60.8	0.0	83.1	60.2	22.93	3.625	
5,300.0	5,297.1	5,297.1	5,297.1	11.8	11.8	166.60	-60.8	0.0	100.8	77.6	23.19	4.344	
5,400.0	5,394.3	5,394.3	5,394.3	12.0	12.0	168.97	-60.8	0.0	123.6	100.2	23.40	5.283	
5,500.0	5,490.2	5,490.2	5,490.2	12.3	12.2	170.89	-60.8	0.0	151.6	128.1	23.54	6.439	
5,600.0	5,584.4	5,584.4	5,584.4	12.6	12.4	172.39	-60.8	0.0	184.7	161.0	23.63	7.815	
5,700.0	5,676.8	5,687.4	5,687.3	12.9	12.7	173.18	-60.0	2.2	221.6	197.9	23.68	9.358	
5,800.0	5,767.1	5,803.8	5,802.1	13.3	12.9	170.90	-53.5	19.6	255.7	231.9	23.74	10.770	
5,900.0	5,854.9	5,921.7	5,913.7	13.8	13.2	166.05	-40.2	54.8	286.5	262.6	23.90	11.990	
6,000.0	5,941.4	6,031.8	6,011.2	14.3	13.6	160.03	-22.4	102.5	314.1	289.4	24.71	12.712	
6,100.0	6,027.9	6,123.9	6,090.9	14.9	13.9	155.19	-6.0	145.8	342.1	316.5	25.60	13.364	
6,200.0	6,114.4	6,222.8	6,181.8	15.5	14.2	153.01	12.6	179.3	371.2	344.8	26.37	14.076	
6,300.0	6,200.9	6,323.1	6,279.2	16.1	14.5	154.49	32.2	191.3	399.1	372.3	26.86	14.858	
6,400.0	6,287.7	6,416.0	6,369.7	16.7	14.7	169.26	50.3	182.2	427.4	400.5	26.98	15.846	
6,500.0	6,375.7	6,503.1	6,451.1	17.3	14.8	-159.58	66.3	156.2	457.7	430.4	27.31	16.760	
6,600.0	6,461.2	6,586.9	6,523.3	17.7	14.9	-133.67	80.5	116.3	487.9	459.7	28.21	17.295	
6,700.0	6,539.7	6,668.6	6,585.4	18.2	15.0	-115.70	92.4	64.7	516.0	486.6	29.41	17.544	
6,800.0	6,607.3	6,750.0	6,636.9	18.5	15.4	-103.90	102.2	2.6	540.1	509.4	30.72	17.580	
6,900.0	6,660.5	6,829.0	6,675.4	18.9	16.0	-96.40	109.3	-65.9	559.0	526.8	32.15	17.386	
7,000.0	6,696.6	6,908.6	6,701.5	19.4	16.9	-92.00	113.8	-140.8	571.6	537.8	33.81	16.906	
7,100.0	6,713.7	6,988.1	6,713.9	20.2	17.9	-90.12	115.6	-219.2	577.5	541.7	35.75	16.154	
7,200.0	6,715.0	7,079.9	6,715.0	21.3	19.4	-90.00	114.9	-311.0	577.7	539.2	38.47	15.015	
7,300.0	6,715.0	7,179.9	6,715.0	22.7	21.2	-90.00	114.0	-411.0	577.5	535.5	42.02	13.743	
7,400.0	6,715.0	7,279.9	6,715.0	24.5	23.2	-90.00	113.0	-511.0	577.3	531.3	45.98	12.556	
7,500.0	6,715.0	7,379.9	6,715.0	26.5	25.3	-90.00	112.1	-611.0	577.1	526.8	50.25	11.484	
7,600.0	6,715.0	7,479.9	6,715.0	28.6	27.6	-90.00	111.1	-711.0	576.9	522.1	54.77	10.533	
7,700.0	6,715.0	7,579.9	6,715.0	30.8	30.0	-90.00	110.2	-811.0	576.7	517.2	59.47	9.697	
7,800.0	6,715.0	7,679.9	6,715.0	33.1	32.4	-90.00	109.2	-911.0	576.5	512.2	64.33	8.962	
7,900.0	6,715.0	7,779.9	6,715.0	35.5	34.9	-90.00	108.3	-1,011.0	576.3	507.0	69.29	8.317	
8,000.0	6,715.0	7,879.9	6,715.0	38.0	37.4	-90.00	107.3	-1,111.0	576.1	501.8	74.35	7.748	
8,100.0	6,715.0	7,979.9	6,715.0	40.5	40.0	-90.00	106.4	-1,211.0	575.9	496.4	79.49	7.245	
8,200.0	6,715.0	8,079.9	6,715.0	43.0	42.6	-90.00	105.4	-1,311.0	575.7	491.0	84.69	6.798	
8,300.0	6,715.0	8,179.9	6,715.0	45.6	45.2	-90.00	104.5	-1,411.0	575.5	485.6	89.93	6.400	
8,400.0	6,715.0	8,279.9	6,715.0	48.2	47.9	-90.00	103.5	-1,511.0	575.3	480.1	95.22	6.042	
8,500.0	6,715.0	8,379.9	6,715.0	50.8	50.5	-90.00	102.6	-1,611.0	575.1	474.6	100.55	5.720	
8,600.0	6,715.0	8,479.9	6,715.0	53.4	53.2	-90.00	101.6	-1,711.0	574.9	469.0	105.90	5.429	
8,700.0	6,715.0	8,579.9	6,715.0	56.1	55.9	-90.00	100.7	-1,810.9	574.7	463.5	111.28	5.165	
8,800.0	6,715.0	8,679.9	6,715.0	58.8	58.6	-90.00	99.7	-1,910.9	574.5	457.9	116.68	4.924	
8,900.0	6,715.0	8,779.9	6,715.0	61.5	61.3	-90.00	98.8	-2,010.9	574.4	452.2	122.11	4.704	
9,000.0	6,715.0	8,879.9	6,715.0	64.1	64.0	-90.00	97.8	-2,110.9	574.2	446.6	127.54	4.502	
9,100.0	6,715.0	8,979.9	6,715.0	66.8	66.8	-90.00	96.9	-2,210.9	574.0	441.0	133.00	4.316	
9,200.0	6,715.0	9,079.9	6,715.0	69.6	69.5	-90.00	96.0	-2,310.9	573.8	435.3	138.47	4.144	
9,300.0	6,715.0	9,179.9	6,715.0	72.3	72.2	-90.00	95.0	-2,410.9	573.6	429.6	143.94	3.985	
9,400.0	6,715.0	9,279.9	6,715.0	75.0	75.0	-90.00	94.1	-2,510.9	573.4	423.9	149.43	3.837	
9,500.0	6,715.0	9,379.9	6,715.0	77.7	77.7	-90.00	93.1	-2,610.9	573.2	418.2	154.93	3.700	
9,600.0	6,715.0	9,479.9	6,715.0	80.5	80.5	-90.00	92.2	-2,710.9	573.0	412.5	160.43	3.571	
9,700.0	6,715.0	9,579.9	6,715.0	83.2	83.2	-90.00	91.2	-2,810.9	572.8	406.8	165.95	3.452	
9,800.0	6,715.0	9,679.9	6,715.0	85.9	86.0	-90.00	90.3	-2,910.9	572.6	401.1	171.47	3.339	
9,900.0	6,715.0	9,779.9	6,715.0	88.7	88.8	-90.00	89.3	-3,010.9	572.4	395.4	176.99	3.234	
10,000.0	6,715.0	9,879.9	6,715.0	91.4	91.5	-90.00	88.4	-3,110.9	572.2	389.7	182.53	3.135	
10,100.0	6,715.0	9,979.9	6,715.0	94.2	94.3	-90.00	87.4	-3,210.9	572.0	383.9	188.06	3.042	
10,200.0	6,715.0	10,079.9	6,715.0	97.0	97.1	-90.00	86.5	-3,310.9	571.8	378.2	193.60	2.953	
10,300.0	6,715.0	10,179.9	6,715.0	99.7	99.8	-90.00	85.5	-3,410.9	571.6	372.5	199.15	2.870	

Company:	Great Western	Local Co-ordinate Reference:	Well Spaur Brothers EH 31-339HN
Project:	SEC.31-T7N-R63W	TVD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Reference Site:	Spaur Brothers South Pad Sec.31-T7N-R63W	MD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur Brothers EH 31-339HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-6-13)	Offset TVD Reference:	Offset Datum

Offset Design Spaur Brothers South Pad Sec.31-T7N-R63W - Spaur Brothers EH 31-379HN - Wellbore #1 - Plan #1 (Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (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	
10,400.0	6,715.0	10,279.9	6,715.0	102.5	102.6	-90.00	84.6	-3,510.9	571.4	366.7	204.70	2.791	
10,500.0	6,715.0	10,379.9	6,715.0	105.2	105.4	-90.00	83.6	-3,610.9	571.2	361.0	210.25	2.717	
10,600.0	6,715.0	10,479.9	6,715.0	108.0	108.2	-90.00	82.7	-3,710.9	571.0	355.2	215.81	2.646	
10,700.0	6,715.0	10,579.9	6,715.0	110.8	110.9	-90.00	81.7	-3,810.9	570.8	349.5	221.37	2.579	
10,800.0	6,715.0	10,679.9	6,715.0	113.6	113.7	-90.00	80.8	-3,910.8	570.6	343.7	226.93	2.515	
10,900.0	6,715.0	10,779.9	6,715.0	116.3	116.5	-90.00	79.8	-4,010.8	570.4	337.9	232.49	2.454	
11,000.0	6,715.0	10,879.9	6,715.0	119.1	119.3	-90.00	78.9	-4,110.8	570.2	332.2	238.06	2.395	
11,100.0	6,715.0	10,979.9	6,715.0	121.9	122.1	-90.00	77.9	-4,210.8	570.0	326.4	243.63	2.340	
11,200.0	6,715.0	11,079.9	6,715.0	124.7	124.9	-90.00	77.0	-4,310.8	569.8	320.6	249.20	2.287	
11,300.0	6,715.0	11,179.9	6,715.0	127.4	127.7	-90.00	76.0	-4,410.8	569.6	314.9	254.77	2.236	
11,349.7	6,715.0	11,229.6	6,715.0	128.8	129.0	-90.00	75.6	-4,460.5	569.5	312.0	257.54	2.211	
11,366.0	6,715.0	11,241.2	6,715.0	129.3	129.4	-90.00	75.5	-4,472.1	569.5	311.2	258.32	2.205 SF	

Reference Depths are relative to WELL @ 4752.5ft (RKB - 16.5')	Coordinates are relative to: Spaur Brothers EH 31-339HN
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 31-339HN
Project:	SEC.31-T7N-R63W	TVD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Reference Site:	Spaur Brothers South Pad Sec.31-T7N-R63W	MD Reference:	WELL @ 4752.5ft (RKB - 16.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur Brothers EH 31-339HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-6-13)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4752.5ft (RKB - 16.5')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Spaur Brothers EH 31-339HN
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.66°

