Great Western

Well Name: **Schmunk EF 31-365HN**

Surface Location: Schmunk Pad Sec.31-T7N-R65W

North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

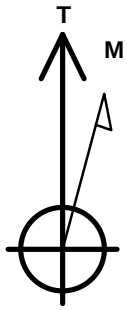
Ground Elevation: 4850.3

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1439632.65	3221325.12	40.537464	-104.703700	

RKB - 16.5' WELL @ 4866.8ft (RKB - 16.5')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 528'FNL & 1944'FEL	1.0	0.0	0.0	Point
BHL 470'FSL & 1092'FEL	7106.8	-4311.0	817.1	Point
Entry Pt. 460'FNL & 1097'FEL	7106.8	43.4	846.9	Point



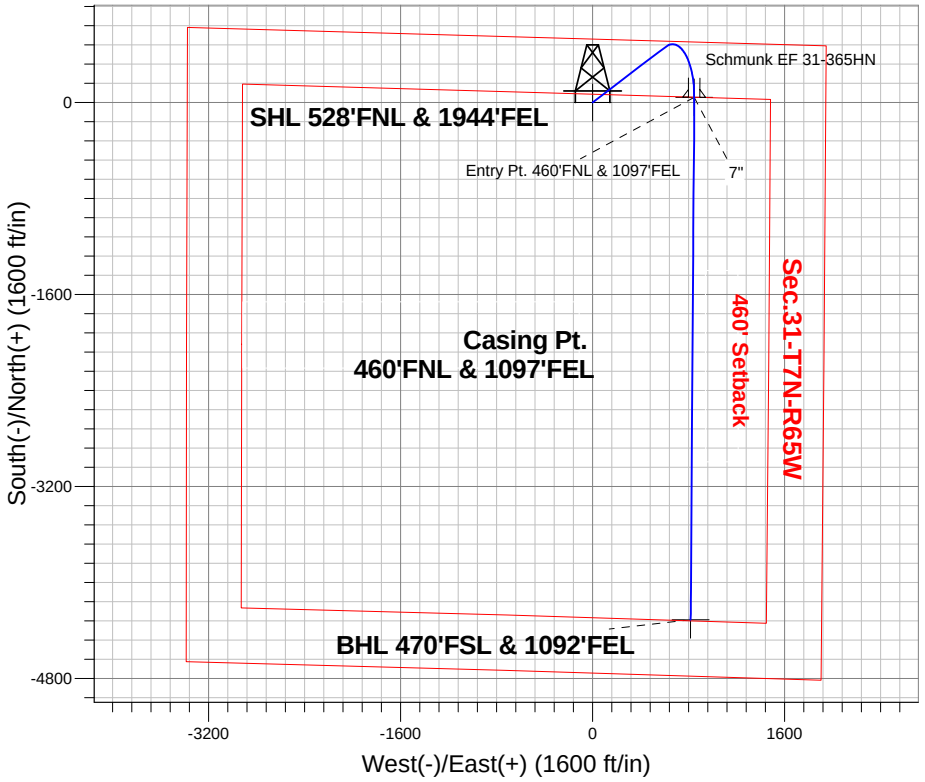
Azimuths to True North
Magnetic North: 8.52°

Magnetic Field
Strength: 52954.9snT
Dip Angle: 67.09°
Date: 11/13/2013
Model: IGRF2010

Schmunk Pad Sec.31-T7N-R65W
Schmunk EF 31-365HN
Plan #1 (11-13-13)
14:21, November 14 2013

ANNOTATIONS

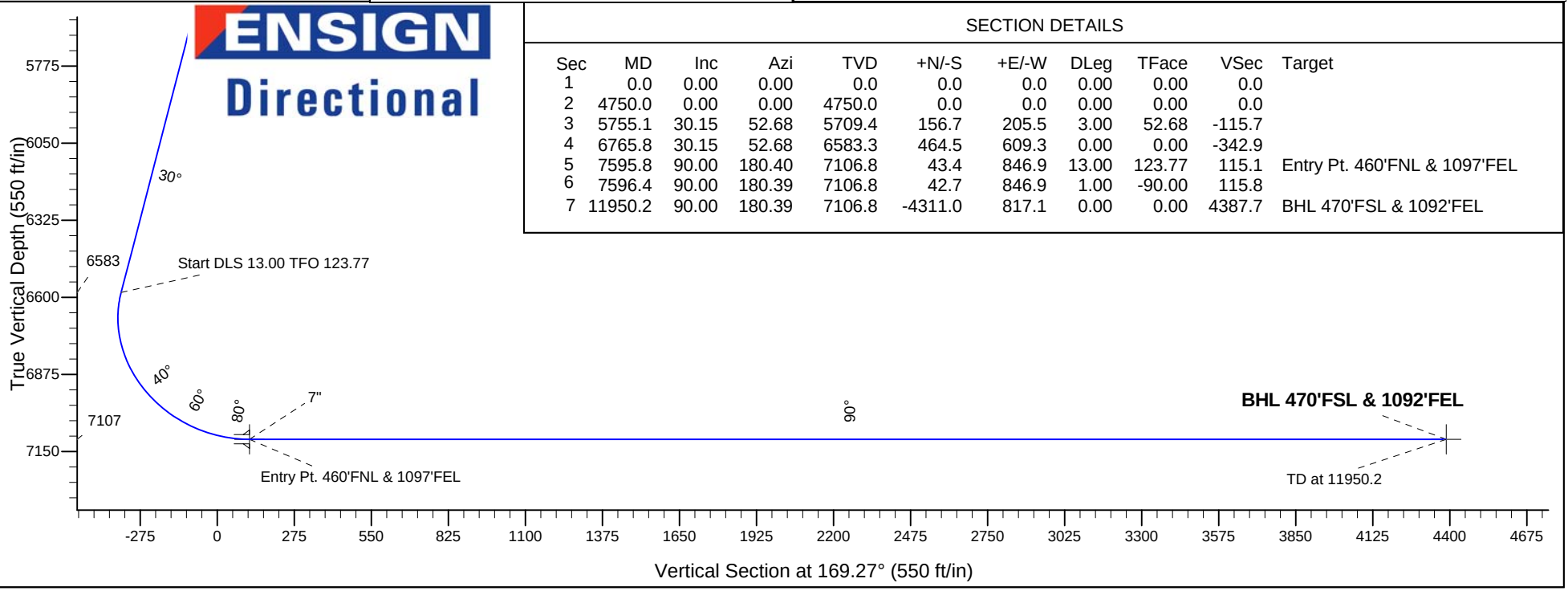
TVD	MD	Annotation
4750.0	4750.0	KOP - Start Build 3.00
6583.3	6765.8	Start DLS 13.00 TFO 123.77
7106.8	11950.2	TD at 11950.2



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	4750.0	0.00	0.00	4750.0	0.0	0.0	0.00	0.00	0.0	
3	5755.1	30.15	52.68	5709.4	156.7	205.5	3.00	52.68	-115.7	
4	6765.8	30.15	52.68	6583.3	464.5	609.3	0.00	0.00	-342.9	
5	7595.8	90.00	180.40	7106.8	43.4	846.9	13.00	123.77	115.1	Entry Pt. 460'FNL & 1097'FEL
6	7596.4	90.00	180.39	7106.8	42.7	846.9	1.00	-90.00	115.8	
7	11950.2	90.00	180.39	7106.8	-4311.0	817.1	0.00	0.00	4387.7	BHL 470'FSL & 1092'FEL



Great Western

SEC.31-T7N-R65W
Schmunk Pad Sec.31-T7N-R65W
Schmunk EF 31-365HN

Wellbore #1

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

Standard Planning Report

14 November, 2013

Database:	Landmark	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Company:	Great Western	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Project:	SEC.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site:	Schmunk Pad Sec.31-T7N-R65W	**North Reference:**	True
Well:	Schmunk EF 31-365HN	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-13-13)		

Project SEC.31-T7N-R65W, Weld County, Colorado

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site Schmunk Pad Sec.31-T7N-R65W

Site Position:		**Northing:**	1,439,632.94 ft	**Latitude:**	40.537467
From:	Lat/Long	**Easting:**	3,221,234.78 ft	**Longitude:**	-104.704025
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.51 °

Well Schmunk EF 31-365HN

Well Position	**+N/-S**	-1.1 ft	**Northing:**	1,439,632.65 ft	**Latitude:**	40.537464
	+E/-W	90.3 ft	**Easting:**	3,221,325.12 ft	**Longitude:**	-104.703700
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,850.3 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/13/2013	8.52	67.09	52,955

Design Plan #1 (11-13-13)

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	169.27

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	
4,750.0	0.00	0.00	4,750.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,755.1	30.15	52.68	5,709.4	156.7	205.5	3.00	3.00	0.00	52.68	
6,765.8	30.15	52.68	6,583.3	464.5	609.3	0.00	0.00	0.00	0.00	
7,595.8	90.00	180.40	7,106.8	43.4	846.9	13.00	7.21	15.39	123.77	Entry Pt. 460'FNL &
7,596.4	90.00	180.39	7,106.8	42.7	846.9	1.00	0.00	-1.00	-90.00	
11,950.2	90.00	180.39	7,106.8	-4,311.0	817.1	0.00	0.00	0.00	0.00	BHL 470'FSL & 109

Database:	Landmark	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Company:	Great Western	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Project:	SEC.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site:	Schmunk Pad Sec.31-T7N-R65W	**North Reference:**	True
Well:	Schmunk EF 31-365HN	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-13-13)		

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 528'FNL & 1944'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
4,750.0	0.00	0.00	4,750.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 3.00									
4,800.0	1.50	52.68	4,800.0	0.4	0.5	-0.3	3.00	3.00	0.00
4,900.0	4.50	52.68	4,899.8	3.6	4.7	-2.6	3.00	3.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Company:	Great Western	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Project:	SEC.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site:	Schmunk Pad Sec.31-T7N-R65W	**North Reference:**	True
Well:	Schmunk EF 31-365HN	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-13-13)		

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)
5,000.0	7.50	52.68	4,999.3	9.9	13.0	-7.3	3.00	3.00	0.00
5,100.0	10.50	52.68	5,098.0	19.4	25.4	-14.3	3.00	3.00	0.00
5,200.0	13.50	52.68	5,195.8	32.0	42.0	-23.6	3.00	3.00	0.00
5,300.0	16.50	52.68	5,292.4	47.7	62.5	-35.2	3.00	3.00	0.00
5,400.0	19.50	52.68	5,387.5	66.4	87.1	-49.0	3.00	3.00	0.00
5,500.0	22.50	52.68	5,480.9	88.1	115.6	-65.1	3.00	3.00	0.00
5,600.0	25.50	52.68	5,572.2	112.8	148.0	-83.3	3.00	3.00	0.00
5,700.0	28.50	52.68	5,661.3	140.3	184.1	-103.6	3.00	3.00	0.00
5,755.1	30.15	52.68	5,709.4	156.7	205.5	-115.7	3.00	3.00	0.00
5,800.0	30.15	52.68	5,748.2	170.3	223.5	-125.8	0.00	0.00	0.00
5,900.0	30.15	52.68	5,834.6	200.8	263.4	-148.2	0.00	0.00	0.00
6,000.0	30.15	52.68	5,921.1	231.3	303.4	-170.7	0.00	0.00	0.00
6,100.0	30.15	52.68	6,007.6	261.7	343.3	-193.2	0.00	0.00	0.00
6,200.0	30.15	52.68	6,094.0	292.2	383.3	-215.7	0.00	0.00	0.00
6,300.0	30.15	52.68	6,180.5	322.6	423.2	-238.2	0.00	0.00	0.00
6,400.0	30.15	52.68	6,267.0	353.1	463.1	-260.6	0.00	0.00	0.00
6,500.0	30.15	52.68	6,353.4	383.5	503.1	-283.1	0.00	0.00	0.00
6,600.0	30.15	52.68	6,439.9	414.0	543.0	-305.6	0.00	0.00	0.00
6,700.0	30.15	52.68	6,526.4	444.4	583.0	-328.1	0.00	0.00	0.00
6,765.8	30.15	52.68	6,583.3	464.5	609.3	-342.9	0.00	0.00	0.00
Start DLS 13.00 TFO 123.77									
6,800.0	27.90	60.60	6,613.2	473.6	623.1	-349.3	13.01	-6.58	23.16
6,900.0	24.68	89.33	6,703.2	485.4	664.5	-353.2	13.00	-3.22	28.73
7,000.0	27.51	118.47	6,793.4	474.6	705.9	-334.8	13.00	2.83	29.14
7,100.0	34.94	139.27	6,879.1	441.7	745.1	-295.3	13.00	7.43	20.80
7,200.0	44.72	152.75	6,955.9	388.5	780.0	-236.5	13.00	9.78	13.48
7,300.0	55.60	162.06	7,020.0	317.7	808.9	-161.5	13.00	10.88	9.31
7,400.0	67.02	169.16	7,067.9	232.9	830.4	-74.2	13.00	11.42	7.10
7,500.0	78.70	175.13	7,097.4	138.4	843.3	21.0	13.00	11.69	5.97
7,595.8	89.99	180.40	7,106.8	43.4	846.9	115.1	12.99	11.79	5.50
7" - Entry Pt. 460'FNL & 1097'FEL									
7,596.4	90.00	180.39	7,106.8	42.7	846.9	115.8	1.00	0.76	-0.65
7,600.0	90.00	180.39	7,106.8	39.1	846.9	119.3	0.00	0.00	0.00
7,700.0	90.00	180.39	7,106.8	-60.9	846.2	217.4	0.00	0.00	0.00
7,800.0	90.00	180.39	7,106.8	-160.9	845.5	315.5	0.00	0.00	0.00
7,900.0	90.00	180.39	7,106.8	-260.9	844.8	413.6	0.00	0.00	0.00
8,000.0	90.00	180.39	7,106.8	-360.9	844.2	511.7	0.00	0.00	0.00
8,100.0	90.00	180.39	7,106.8	-460.9	843.5	609.9	0.00	0.00	0.00
8,200.0	90.00	180.39	7,106.8	-560.9	842.8	708.0	0.00	0.00	0.00
8,300.0	90.00	180.39	7,106.8	-660.9	842.1	806.1	0.00	0.00	0.00
8,400.0	90.00	180.39	7,106.8	-760.8	841.4	904.2	0.00	0.00	0.00
8,500.0	90.00	180.39	7,106.8	-860.8	840.7	1,002.3	0.00	0.00	0.00
8,600.0	90.00	180.39	7,106.8	-960.8	840.0	1,100.5	0.00	0.00	0.00
8,700.0	90.00	180.39	7,106.8	-1,060.8	839.4	1,198.6	0.00	0.00	0.00
8,800.0	90.00	180.39	7,106.8	-1,160.8	838.7	1,296.7	0.00	0.00	0.00
8,900.0	90.00	180.39	7,106.8	-1,260.8	838.0	1,394.8	0.00	0.00	0.00
9,000.0	90.00	180.39	7,106.8	-1,360.8	837.3	1,492.9	0.00	0.00	0.00
9,100.0	90.00	180.39	7,106.8	-1,460.8	836.6	1,591.1	0.00	0.00	0.00
9,200.0	90.00	180.39	7,106.8	-1,560.8	835.9	1,689.2	0.00	0.00	0.00
9,300.0	90.00	180.39	7,106.8	-1,660.8	835.2	1,787.3	0.00	0.00	0.00
9,400.0	90.00	180.39	7,106.8	-1,760.8	834.5	1,885.4	0.00	0.00	0.00
9,500.0	90.00	180.39	7,106.8	-1,860.8	833.9	1,983.6	0.00	0.00	0.00
9,600.0	90.00	180.39	7,106.8	-1,960.8	833.2	2,081.7	0.00	0.00	0.00
9,700.0	90.00	180.39	7,106.8	-2,060.8	832.5	2,179.8	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Company:	Great Western	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Project:	SEC.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site:	Schmunk Pad Sec.31-T7N-R65W	**North Reference:**	True
Well:	Schmunk EF 31-365HN	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-13-13)		

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)
9,800.0	90.00	180.39	7,106.8	-2,160.8	831.8	2,277.9	0.00	0.00	0.00
9,900.0	90.00	180.39	7,106.8	-2,260.8	831.1	2,376.0	0.00	0.00	0.00
10,000.0	90.00	180.39	7,106.8	-2,360.8	830.4	2,474.2	0.00	0.00	0.00
10,100.0	90.00	180.39	7,106.8	-2,460.8	829.7	2,572.3	0.00	0.00	0.00
10,200.0	90.00	180.39	7,106.8	-2,560.8	829.1	2,670.4	0.00	0.00	0.00
10,300.0	90.00	180.39	7,106.8	-2,660.8	828.4	2,768.5	0.00	0.00	0.00
10,400.0	90.00	180.39	7,106.8	-2,760.8	827.7	2,866.6	0.00	0.00	0.00
10,500.0	90.00	180.39	7,106.8	-2,860.8	827.0	2,964.8	0.00	0.00	0.00
10,600.0	90.00	180.39	7,106.8	-2,960.8	826.3	3,062.9	0.00	0.00	0.00
10,700.0	90.00	180.39	7,106.8	-3,060.8	825.6	3,161.0	0.00	0.00	0.00
10,800.0	90.00	180.39	7,106.8	-3,160.8	824.9	3,259.1	0.00	0.00	0.00
10,900.0	90.00	180.39	7,106.8	-3,260.8	824.3	3,357.2	0.00	0.00	0.00
11,000.0	90.00	180.39	7,106.8	-3,360.8	823.6	3,455.4	0.00	0.00	0.00
11,100.0	90.00	180.39	7,106.8	-3,460.8	822.9	3,553.5	0.00	0.00	0.00
11,200.0	90.00	180.39	7,106.8	-3,560.8	822.2	3,651.6	0.00	0.00	0.00
11,300.0	90.00	180.39	7,106.8	-3,660.8	821.5	3,749.7	0.00	0.00	0.00
11,400.0	90.00	180.39	7,106.8	-3,760.8	820.8	3,847.8	0.00	0.00	0.00
11,500.0	90.00	180.39	7,106.8	-3,860.8	820.1	3,946.0	0.00	0.00	0.00
11,600.0	90.00	180.39	7,106.8	-3,960.8	819.5	4,044.1	0.00	0.00	0.00
11,700.0	90.00	180.39	7,106.8	-4,060.8	818.8	4,142.2	0.00	0.00	0.00
11,800.0	90.00	180.39	7,106.8	-4,160.8	818.1	4,240.3	0.00	0.00	0.00
11,900.0	90.00	180.39	7,106.8	-4,260.8	817.4	4,338.5	0.00	0.00	0.00
11,950.2	90.00	180.39	7,106.8	-4,311.0	817.1	4,387.7	0.00	0.00	0.00
TD at 11950.2 - BHL 470'FSL & 1092'FEL									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,595.8	7,106.8	7"	7	7-1/2

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
4,750.0	4,750.0	0.0	0.0	KOP - Start Build 3.00
6,765.8	6,583.3	464.5	609.3	Start DLS 13.00 TFO 123.77
11,950.2	7,106.8	-4,311.0	817.1	TD at 11950.2

ENSIGN Directional

Great Western

SEC.31-T7N-R65W
Schmunk Pad Sec.31-T7N-R65W
Schmunk EF 31-365HN

Wellbore #1
Plan #1 (11-13-13)

Anticollision Report

14 November, 2013

Company:	Great Western	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Project:	SEC.31-T7N-R65W	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Reference Site:	Schmunk Pad Sec.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Schmunk EF 31-365HN	**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 (11-13-13)	**Offset TVD Reference:**	Offset Datum

Reference Plan #1 (11-13-13)

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	**Error Surface:**	Elliptical Conic

Warning Levels Evaluated at: 2.00 **Sigma**

Survey Tool Program **Date** 11/13/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,950.2	Plan #1 (11-13-13) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Schmunk Pad Sec.31-T7N-R65W						
Schmunk EF 31-362HN - Wellbore #1 - Plan #1 (11-13-1	4,000.0	4,000.0	59.5	41.7	3.350	CC, ES, SF
Schmunk EF 31-363HC - Wellbore #1 - Plan #1 (11-13-1	4,600.0	4,600.0	29.5	9.0	1.440	Level 3, CC, ES, SF
Schmunk EF 31-367HN - Wellbore #1 - Plan #1 (11-13-1	4,700.0	4,700.0	30.0	9.1	1.436	Level 3, CC
Schmunk EF 31-367HN - Wellbore #1 - Plan #1 (11-13-1	4,728.1	4,728.1	30.1	9.1	1.431	Level 3, ES
Schmunk EF 31-367HN - Wellbore #1 - Plan #1 (11-13-1	4,800.0	4,800.0	30.5	9.2	1.431	Level 3, SF
Schmunk EF 31-368HC - Wellbore #1 - Plan #1 (11-13-1	4,700.0	4,700.0	60.3	39.4	2.886	CC
Schmunk EF 31-368HC - Wellbore #1 - Plan #1 (11-13-1	4,728.0	4,728.0	60.4	39.4	2.873	ES
Schmunk EF 31-368HC - Wellbore #1 - Plan #1 (11-13-1	4,800.0	4,800.0	60.8	39.5	2.850	SF

Offset Design Schmunk Pad Sec.31-T7N-R65W - Schmunk EF 31-362HN - Wellbore #1 - Plan #1 (11-13-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.02	0.0	59.5	59.5				
100.0	100.0	100.0	100.0	0.1	0.1	90.02	0.0	59.5	59.5	59.3	0.22	264.641	
200.0	200.0	200.0	200.0	0.3	0.3	90.02	0.0	59.5	59.5	58.8	0.67	88.214	
300.0	300.0	300.0	300.0	0.6	0.6	90.02	0.0	59.5	59.5	58.4	1.12	52.928	
400.0	400.0	400.0	400.0	0.8	0.8	90.02	0.0	59.5	59.5	57.9	1.57	37.806	
500.0	500.0	500.0	500.0	1.0	1.0	90.02	0.0	59.5	59.5	57.5	2.02	29.405	
600.0	600.0	600.0	600.0	1.2	1.2	90.02	0.0	59.5	59.5	57.0	2.47	24.058	
700.0	700.0	700.0	700.0	1.5	1.5	90.02	0.0	59.5	59.5	56.6	2.92	20.357	
800.0	800.0	800.0	800.0	1.7	1.7	90.02	0.0	59.5	59.5	56.1	3.37	17.643	
900.0	900.0	900.0	900.0	1.9	1.9	90.02	0.0	59.5	59.5	55.7	3.82	15.567	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.02	0.0	59.5	59.5	55.2	4.27	13.928	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	90.02	0.0	59.5	59.5	54.8	4.72	12.602	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	90.02	0.0	59.5	59.5	54.3	5.17	11.506	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	90.02	0.0	59.5	59.5	53.9	5.62	10.586	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	90.02	0.0	59.5	59.5	53.4	6.07	9.802	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	90.02	0.0	59.5	59.5	53.0	6.52	9.126	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	90.02	0.0	59.5	59.5	52.5	6.97	8.537	
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	90.02	0.0	59.5	59.5	52.1	7.42	8.019	
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	90.02	0.0	59.5	59.5	51.6	7.87	7.561	
1,900.0	1,900.0	1,900.0	1,900.0	4.2	4.2	90.02	0.0	59.5	59.5	51.2	8.32	7.152	

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

Company:	Great Western	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Project:	SEC.31-T7N-R65W	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Reference Site:	Schmunk Pad Sec.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Schmunk EF 31-365HN	**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 (11-13-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Schmunk Pad Sec.31-T7N-R65W - Schmunk EF 31-362HN - Wellbore #1 - Plan #1 (11-13-13) — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,000.0	2,000.0	2,000.0	2,000.0	4.4	4.4	90.02	0.0	59.5	59.5	50.7	8.77	6.786	
2,100.0	2,100.0	2,100.0	2,100.0	4.6	4.6	90.02	0.0	59.5	59.5	50.3	9.22	6.455	
2,200.0	2,200.0	2,200.0	2,200.0	4.8	4.8	90.02	0.0	59.5	59.5	49.8	9.66	6.154	
2,300.0	2,300.0	2,300.0	2,300.0	5.1	5.1	90.02	0.0	59.5	59.5	49.4	10.11	5.881	
2,400.0	2,400.0	2,400.0	2,400.0	5.3	5.3	90.02	0.0	59.5	59.5	48.9	10.56	5.631	
2,500.0	2,500.0	2,500.0	2,500.0	5.5	5.5	90.02	0.0	59.5	59.5	48.5	11.01	5.401	
2,600.0	2,600.0	2,600.0	2,600.0	5.7	5.7	90.02	0.0	59.5	59.5	48.0	11.46	5.189	
2,700.0	2,700.0	2,700.0	2,700.0	6.0	6.0	90.02	0.0	59.5	59.5	47.6	11.91	4.993	
2,800.0	2,800.0	2,800.0	2,800.0	6.2	6.2	90.02	0.0	59.5	59.5	47.1	12.36	4.812	
2,900.0	2,900.0	2,900.0	2,900.0	6.4	6.4	90.02	0.0	59.5	59.5	46.7	12.81	4.643	
3,000.0	3,000.0	3,000.0	3,000.0	6.6	6.6	90.02	0.0	59.5	59.5	46.2	13.26	4.485	
3,100.0	3,100.0	3,100.0	3,100.0	6.9	6.9	90.02	0.0	59.5	59.5	45.8	13.71	4.338	
3,200.0	3,200.0	3,200.0	3,200.0	7.1	7.1	90.02	0.0	59.5	59.5	45.3	14.16	4.201	
3,300.0	3,300.0	3,300.0	3,300.0	7.3	7.3	90.02	0.0	59.5	59.5	44.9	14.61	4.071	
3,400.0	3,400.0	3,400.0	3,400.0	7.5	7.5	90.02	0.0	59.5	59.5	44.4	15.06	3.950	
3,500.0	3,500.0	3,500.0	3,500.0	7.8	7.8	90.02	0.0	59.5	59.5	44.0	15.51	3.835	
3,600.0	3,600.0	3,600.0	3,600.0	8.0	8.0	90.02	0.0	59.5	59.5	43.5	15.96	3.727	
3,700.0	3,700.0	3,700.0	3,700.0	8.2	8.2	90.02	0.0	59.5	59.5	43.1	16.41	3.625	
3,800.0	3,800.0	3,800.0	3,800.0	8.4	8.4	90.02	0.0	59.5	59.5	42.6	16.86	3.529	
3,900.0	3,900.0	3,900.0	3,900.0	8.7	8.7	90.02	0.0	59.5	59.5	42.2	17.31	3.437	
4,000.0	4,000.0	4,000.0	4,000.0	8.9	8.9	90.02	0.0	59.5	59.5	41.7	17.76	3.350	CC, ES, SF
4,100.0	4,100.0	4,097.1	4,097.1	9.1	9.1	89.18	0.9	61.8	61.9	43.7	18.19	3.400	
4,200.0	4,200.0	4,193.7	4,193.4	9.3	9.3	87.01	3.6	68.6	69.0	50.4	18.62	3.707	
4,300.0	4,300.0	4,289.3	4,288.2	9.6	9.5	84.27	8.0	79.8	81.1	62.0	19.05	4.256	
4,400.0	4,400.0	4,383.5	4,380.9	9.8	9.7	81.60	14.1	95.2	98.1	78.6	19.49	5.033	
4,500.0	4,500.0	4,475.8	4,470.9	10.0	10.0	79.29	21.6	114.3	119.9	100.0	19.93	6.018	
4,600.0	4,600.0	4,565.9	4,557.7	10.2	10.2	77.43	30.5	136.9	146.5	126.1	20.39	7.187	
4,700.0	4,700.0	4,653.5	4,640.9	10.5	10.5	75.97	40.6	162.5	177.6	156.8	20.86	8.516	
4,800.0	4,800.0	4,738.6	4,720.3	10.7	10.8	21.99	51.7	190.7	212.5	191.4	21.11	10.067	
4,900.0	4,899.8	4,822.2	4,797.0	10.9	11.2	21.09	63.9	221.6	247.5	226.0	21.46	11.532	
5,000.0	4,999.3	4,900.0	4,867.1	11.1	11.5	20.61	76.4	253.1	282.1	260.3	21.77	12.958	
5,100.0	5,098.0	4,986.0	4,942.8	11.3	12.0	20.42	91.3	291.0	315.9	293.9	22.06	14.324	
5,200.0	5,195.8	5,075.3	5,019.9	11.6	12.6	20.47	107.9	333.0	348.5	326.2	22.32	15.611	
5,300.0	5,292.4	5,171.2	5,102.4	11.8	13.3	20.82	125.8	378.3	376.7	354.1	22.58	16.684	
5,400.0	5,387.5	5,268.2	5,186.0	12.1	14.0	21.40	143.8	424.1	400.2	377.4	22.82	17.535	
5,500.0	5,480.9	5,366.1	5,270.4	12.5	14.8	22.21	162.1	470.4	419.1	396.0	23.07	18.165	
5,600.0	5,572.2	5,464.7	5,355.3	12.9	15.6	23.26	180.5	516.9	433.3	410.0	23.34	18.568	
5,700.0	5,661.3	5,563.6	5,440.5	13.3	16.5	24.55	198.9	563.7	443.0	419.4	23.65	18.736	
5,800.0	5,748.2	5,662.6	5,525.8	13.9	17.4	26.11	217.4	610.4	448.8	424.6	24.19	18.555	
5,900.0	5,834.6	5,761.7	5,611.1	14.5	18.3	27.72	235.8	657.2	454.2	429.2	24.99	18.170	
6,000.0	5,921.1	5,860.7	5,696.5	15.1	19.2	29.29	254.3	704.0	459.9	434.0	25.88	17.772	
6,100.0	6,007.6	5,959.7	5,781.8	15.8	20.2	30.82	272.7	750.8	466.0	439.1	26.84	17.364	
6,200.0	6,094.0	6,058.8	5,867.1	16.6	21.1	32.31	291.2	797.5	472.4	444.5	27.87	16.949	
6,300.0	6,180.5	6,157.8	5,952.4	17.3	22.1	33.76	309.6	844.3	479.1	450.1	28.98	16.529	
6,400.0	6,267.0	6,256.9	6,037.7	18.1	23.1	35.17	328.1	891.1	486.1	456.0	30.17	16.110	
6,500.0	6,353.4	6,355.9	6,123.1	19.0	24.1	36.54	346.6	937.9	493.4	462.0	31.44	15.695	
6,600.0	6,439.9	6,454.9	6,208.4	19.8	25.1	37.87	365.0	984.7	501.0	468.3	32.77	15.287	
6,700.0	6,526.4	6,554.0	6,293.7	20.7	26.1	39.16	383.5	1,031.4	508.9	474.7	34.18	14.889	
6,800.0	6,613.2	6,653.1	6,379.1	21.5	27.1	33.68	402.0	1,078.3	516.8	481.2	35.65	14.499	
6,900.0	6,703.2	6,752.4	6,464.7	22.1	28.1	7.74	420.5	1,125.2	522.8	486.5	36.34	14.387	
7,000.0	6,793.4	6,847.6	6,546.7	22.7	29.1	-21.07	438.2	1,170.2	527.0	490.9	36.04	14.621	
7,100.0	6,879.1	6,933.8	6,620.9	23.0	30.0	-42.86	454.3	1,210.9	532.7	497.3	35.43	15.033	

Company:	Great Western	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Project:	SEC.31-T7N-R65W	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Reference Site:	Schmunk Pad Sec.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Schmunk EF 31-365HN	**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 (11-13-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Schmunk Pad Sec.31-T7N-R65W - Schmunk EF 31-362HN - Wellbore #1 - Plan #1 (11-13-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,200.0	6,955.9	7,016.6	6,692.6	23.1	30.8	-57.51	466.5	1,250.2	544.5	509.4	35.07	15.524	
7,300.0	7,020.0	7,116.1	6,779.7	23.2	31.6	-68.01	462.0	1,297.7	563.4	528.4	35.02	16.091	
7,400.0	7,067.9	7,245.6	6,887.8	23.1	32.4	-76.61	423.2	1,356.5	587.8	552.7	35.08	16.753	
7,500.0	7,097.4	7,433.8	7,017.1	23.0	33.1	-84.68	307.8	1,426.3	612.4	577.5	34.95	17.524	
7,600.0	7,106.8	7,711.5	7,106.0	22.9	33.3	-89.93	53.8	1,472.9	626.2	591.3	34.88	17.954	
7,700.0	7,106.8	7,831.2	7,106.8	22.8	33.3	-90.00	-65.8	1,472.4	626.2	591.0	35.23	17.776	
7,800.0	7,106.8	7,931.2	7,106.8	22.9	33.3	-90.00	-165.8	1,471.6	626.1	590.2	35.95	17.415	
7,900.0	7,106.8	8,031.2	7,106.8	23.2	33.4	-90.00	-265.8	1,470.9	626.0	589.0	37.06	16.891	
8,000.0	7,106.8	8,131.2	7,106.8	23.6	33.6	-90.00	-365.8	1,470.1	625.9	587.4	38.52	16.248	
8,100.0	7,106.8	8,231.2	7,106.8	24.2	33.9	-90.00	-465.8	1,469.3	625.8	585.5	40.30	15.529	
8,200.0	7,106.8	8,331.2	7,106.8	24.9	34.3	-90.00	-565.8	1,468.5	625.7	583.4	42.35	14.775	
8,300.0	7,106.8	8,431.2	7,106.8	25.9	34.8	-90.00	-665.8	1,467.7	625.6	581.0	44.64	14.015	
8,400.0	7,106.8	8,531.2	7,106.8	26.9	35.4	-90.00	-765.8	1,466.9	625.5	578.4	47.13	13.273	
8,500.0	7,106.8	8,631.2	7,106.8	28.1	36.0	-90.00	-865.8	1,466.1	625.4	575.6	49.79	12.561	
8,600.0	7,106.8	8,731.2	7,106.8	29.3	36.8	-90.00	-965.8	1,465.3	625.3	572.7	52.60	11.888	
8,700.0	7,106.8	8,831.2	7,106.8	30.6	37.7	-90.00	-1,065.8	1,464.5	625.2	569.7	55.53	11.258	
8,800.0	7,106.8	8,931.2	7,106.8	32.0	38.7	-90.00	-1,165.8	1,463.7	625.1	566.5	58.57	10.673	
8,900.0	7,106.8	9,031.2	7,106.8	33.5	39.8	-90.00	-1,265.8	1,462.9	625.0	563.3	61.70	10.130	
9,000.0	7,106.8	9,131.2	7,106.8	35.0	40.9	-90.00	-1,365.8	1,462.1	624.9	560.0	64.90	9.628	
9,100.0	7,106.8	9,231.2	7,106.8	36.5	42.1	-90.00	-1,465.8	1,461.3	624.8	556.6	68.17	9.165	
9,200.0	7,106.8	9,331.2	7,106.8	38.1	43.4	-90.00	-1,565.8	1,460.6	624.7	553.2	71.50	8.737	
9,300.0	7,106.8	9,431.2	7,106.8	39.7	44.7	-90.00	-1,665.8	1,459.8	624.5	549.7	74.87	8.341	
9,400.0	7,106.8	9,531.2	7,106.8	41.3	46.1	-90.00	-1,765.8	1,459.0	624.4	546.2	78.29	7.976	
9,500.0	7,106.8	9,631.2	7,106.8	43.0	47.5	-90.00	-1,865.8	1,458.2	624.3	542.6	81.75	7.637	
9,600.0	7,106.8	9,731.2	7,106.8	44.6	49.0	-90.00	-1,965.8	1,457.4	624.2	539.0	85.24	7.323	
9,700.0	7,106.8	9,831.2	7,106.8	46.3	50.5	-90.00	-2,065.8	1,456.6	624.1	535.4	88.76	7.032	
9,800.0	7,106.8	9,931.2	7,106.8	48.1	52.0	-90.00	-2,165.8	1,455.8	624.0	531.7	92.30	6.761	
9,900.0	7,106.8	10,031.2	7,106.8	49.8	53.6	-90.00	-2,265.8	1,455.0	623.9	528.0	95.87	6.508	
10,000.0	7,106.8	10,131.2	7,106.8	51.5	55.1	-90.00	-2,365.8	1,454.2	623.8	524.3	99.46	6.272	
10,100.0	7,106.8	10,231.2	7,106.8	53.3	56.8	-90.00	-2,465.7	1,453.4	623.7	520.6	103.07	6.052	
10,200.0	7,106.8	10,331.2	7,106.8	55.0	58.4	-90.00	-2,565.7	1,452.6	623.6	516.9	106.69	5.845	
10,300.0	7,106.8	10,431.2	7,106.8	56.8	60.0	-90.00	-2,665.7	1,451.8	623.5	513.2	110.33	5.651	
10,400.0	7,106.8	10,531.2	7,106.8	58.6	61.7	-90.00	-2,765.7	1,451.1	623.4	509.4	113.98	5.469	
10,500.0	7,106.8	10,631.2	7,106.8	60.4	63.4	-90.00	-2,865.7	1,450.3	623.3	505.6	117.64	5.298	
10,600.0	7,106.8	10,731.2	7,106.8	62.2	65.1	-90.00	-2,965.7	1,449.5	623.2	501.9	121.32	5.137	
10,700.0	7,106.8	10,831.2	7,106.8	64.0	66.8	-90.00	-3,065.7	1,448.7	623.1	498.1	125.00	4.985	
10,800.0	7,106.8	10,931.2	7,106.8	65.8	68.5	-90.00	-3,165.7	1,447.9	623.0	494.3	128.69	4.841	
10,900.0	7,106.8	11,031.2	7,106.8	67.6	70.2	-90.00	-3,265.7	1,447.1	622.9	490.5	132.40	4.704	
11,000.0	7,106.8	11,131.2	7,106.8	69.5	72.0	-90.00	-3,365.7	1,446.3	622.7	486.6	136.11	4.575	
11,100.0	7,106.8	11,231.2	7,106.8	71.3	73.7	-90.00	-3,465.7	1,445.5	622.6	482.8	139.82	4.453	
11,200.0	7,106.8	11,331.2	7,106.8	73.1	75.5	-90.00	-3,565.7	1,444.7	622.5	479.0	143.55	4.337	
11,300.0	7,106.8	11,431.2	7,106.8	75.0	77.3	-90.00	-3,665.7	1,443.9	622.4	475.2	147.28	4.226	
11,400.0	7,106.8	11,531.2	7,106.8	76.8	79.0	-90.00	-3,765.7	1,443.1	622.3	471.3	151.01	4.121	
11,500.0	7,106.8	11,631.2	7,106.8	78.6	80.8	-90.00	-3,865.7	1,442.3	622.2	467.5	154.75	4.021	
11,600.0	7,106.8	11,731.2	7,106.8	80.5	82.6	-90.00	-3,965.7	1,441.5	622.1	463.6	158.50	3.925	
11,700.0	7,106.8	11,831.2	7,106.8	82.3	84.4	-90.00	-4,065.7	1,440.8	622.0	459.8	162.25	3.834	
11,800.0	7,106.8	11,931.2	7,106.8	84.2	86.2	-90.00	-4,165.7	1,440.0	621.9	455.9	166.00	3.746	
11,900.0	7,106.8	12,031.2	7,106.8	86.1	88.0	-90.00	-4,265.7	1,439.2	621.8	452.0	169.76	3.663	
11,950.2	7,106.8	12,081.4	7,106.8	87.0	88.9	-90.00	-4,315.9	1,438.8	621.7	450.1	171.65	3.622	

Company:	Great Western	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Project:	SEC.31-T7N-R65W	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Reference Site:	Schmunk Pad Sec.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Schmunk EF 31-365HN	**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 (11-13-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Schmunk Pad Sec.31-T7N-R65W - Schmunk EF 31-363HC - Wellbore #1 - Plan #1 (11-13-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.02	0.0	29.5	29.5				
100.0	100.0	100.0	100.0	0.1	0.1	90.02	0.0	29.5	29.5	29.2	0.22	131.084	
200.0	200.0	200.0	200.0	0.3	0.3	90.02	0.0	29.5	29.5	28.8	0.67	43.695	
300.0	300.0	300.0	300.0	0.6	0.6	90.02	0.0	29.5	29.5	28.3	1.12	26.217	
400.0	400.0	400.0	400.0	0.8	0.8	90.02	0.0	29.5	29.5	27.9	1.57	18.726	
500.0	500.0	500.0	500.0	1.0	1.0	90.02	0.0	29.5	29.5	27.4	2.02	14.565	
600.0	600.0	600.0	600.0	1.2	1.2	90.02	0.0	29.5	29.5	27.0	2.47	11.917	
700.0	700.0	700.0	700.0	1.5	1.5	90.02	0.0	29.5	29.5	26.5	2.92	10.083	
800.0	800.0	800.0	800.0	1.7	1.7	90.02	0.0	29.5	29.5	26.1	3.37	8.739	
900.0	900.0	900.0	900.0	1.9	1.9	90.02	0.0	29.5	29.5	25.6	3.82	7.711	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.02	0.0	29.5	29.5	25.2	4.27	6.899	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	90.02	0.0	29.5	29.5	24.7	4.72	6.242	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	90.02	0.0	29.5	29.5	24.3	5.17	5.699	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	90.02	0.0	29.5	29.5	23.8	5.62	5.243	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	90.02	0.0	29.5	29.5	23.4	6.07	4.855	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	90.02	0.0	29.5	29.5	22.9	6.52	4.520	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	90.02	0.0	29.5	29.5	22.5	6.97	4.229	
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	90.02	0.0	29.5	29.5	22.0	7.42	3.972	
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	90.02	0.0	29.5	29.5	21.6	7.87	3.745	
1,900.0	1,900.0	1,900.0	1,900.0	4.2	4.2	90.02	0.0	29.5	29.5	21.1	8.32	3.543	
2,000.0	2,000.0	2,000.0	2,000.0	4.4	4.4	90.02	0.0	29.5	29.5	20.7	8.77	3.361	
2,100.0	2,100.0	2,100.0	2,100.0	4.6	4.6	90.02	0.0	29.5	29.5	20.2	9.22	3.197	
2,200.0	2,200.0	2,200.0	2,200.0	4.8	4.8	90.02	0.0	29.5	29.5	19.8	9.66	3.048	
2,300.0	2,300.0	2,300.0	2,300.0	5.1	5.1	90.02	0.0	29.5	29.5	19.3	10.11	2.913	
2,400.0	2,400.0	2,400.0	2,400.0	5.3	5.3	90.02	0.0	29.5	29.5	18.9	10.56	2.789	
2,500.0	2,500.0	2,500.0	2,500.0	5.5	5.5	90.02	0.0	29.5	29.5	18.4	11.01	2.675	
2,600.0	2,600.0	2,600.0	2,600.0	5.7	5.7	90.02	0.0	29.5	29.5	18.0	11.46	2.570	
2,700.0	2,700.0	2,700.0	2,700.0	6.0	6.0	90.02	0.0	29.5	29.5	17.6	11.91	2.473	
2,800.0	2,800.0	2,800.0	2,800.0	6.2	6.2	90.02	0.0	29.5	29.5	17.1	12.36	2.383	
2,900.0	2,900.0	2,900.0	2,900.0	6.4	6.4	90.02	0.0	29.5	29.5	16.7	12.81	2.300	
3,000.0	3,000.0	3,000.0	3,000.0	6.6	6.6	90.02	0.0	29.5	29.5	16.2	13.26	2.222	
3,100.0	3,100.0	3,100.0	3,100.0	6.9	6.9	90.02	0.0	29.5	29.5	15.8	13.71	2.149	
3,200.0	3,200.0	3,200.0	3,200.0	7.1	7.1	90.02	0.0	29.5	29.5	15.3	14.16	2.081	
3,300.0	3,300.0	3,300.0	3,300.0	7.3	7.3	90.02	0.0	29.5	29.5	14.9	14.61	2.017	
3,400.0	3,400.0	3,400.0	3,400.0	7.5	7.5	90.02	0.0	29.5	29.5	14.4	15.06	1.956	
3,500.0	3,500.0	3,500.0	3,500.0	7.8	7.8	90.02	0.0	29.5	29.5	14.0	15.51	1.900	
3,600.0	3,600.0	3,600.0	3,600.0	8.0	8.0	90.02	0.0	29.5	29.5	13.5	15.96	1.846	
3,700.0	3,700.0	3,700.0	3,700.0	8.2	8.2	90.02	0.0	29.5	29.5	13.1	16.41	1.796	
3,800.0	3,800.0	3,800.0	3,800.0	8.4	8.4	90.02	0.0	29.5	29.5	12.6	16.86	1.748	
3,900.0	3,900.0	3,900.0	3,900.0	8.7	8.7	90.02	0.0	29.5	29.5	12.2	17.31	1.702	
4,000.0	4,000.0	4,000.0	4,000.0	8.9	8.9	90.02	0.0	29.5	29.5	11.7	17.76	1.659	
4,100.0	4,100.0	4,100.0	4,100.0	9.1	9.1	90.02	0.0	29.5	29.5	11.3	18.21	1.618	
4,200.0	4,200.0	4,200.0	4,200.0	9.3	9.3	90.02	0.0	29.5	29.5	10.8	18.66	1.579	
4,300.0	4,300.0	4,300.0	4,300.0	9.6	9.6	90.02	0.0	29.5	29.5	10.4	19.11	1.542	
4,400.0	4,400.0	4,400.0	4,400.0	9.8	9.8	90.02	0.0	29.5	29.5	9.9	19.55	1.507	
4,500.0	4,500.0	4,500.0	4,500.0	10.0	10.0	90.02	0.0	29.5	29.5	9.5	20.00	1.473	Level 3
4,600.0	4,600.0	4,600.0	4,600.0	10.2	10.2	90.02	0.0	29.5	29.5	9.0	20.45	1.440	Level 3, CC, ES, SF
4,700.0	4,700.0	4,698.6	4,698.5	10.5	10.4	87.88	1.2	31.7	31.8	10.9	20.89	1.521	
4,800.0	4,800.0	4,796.7	4,796.3	10.7	10.7	30.76	4.7	38.4	38.3	17.0	21.31	1.797	
4,900.0	4,899.8	4,894.3	4,893.2	10.9	10.9	28.22	10.6	49.5	45.8	24.1	21.69	2.113	
5,000.0	4,999.3	4,991.6	4,988.9	11.1	11.1	27.25	18.7	64.9	53.6	31.6	22.02	2.434	
5,100.0	5,098.0	5,088.5	5,083.2	11.3	11.3	27.27	29.0	84.4	61.6	39.3	22.32	2.759	

Company:	Great Western	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Project:	SEC.31-T7N-R65W	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Reference Site:	Schmunk Pad Sec.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Schmunk EF 31-365HN	**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 (11-13-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Schmunk Pad Sec.31-T7N-R65W - Schmunk EF 31-363HC - Wellbore #1 - Plan #1 (11-13-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.0	5,195.8	5,185.1	5,175.9	11.6	11.6	27.93	41.5	108.1	69.7	47.1	22.59	3.086	
5,300.0	5,292.4	5,281.2	5,266.8	11.8	11.9	29.01	56.1	135.8	78.0	55.2	22.84	3.416	
5,400.0	5,387.5	5,376.9	5,355.7	12.1	12.3	30.38	72.7	167.3	86.5	63.4	23.08	3.748	
5,500.0	5,480.9	5,472.3	5,442.3	12.5	12.7	31.94	91.4	202.6	95.2	71.9	23.35	4.077	
5,600.0	5,572.2	5,567.4	5,526.5	12.9	13.1	33.63	111.9	241.5	104.1	80.5	23.67	4.400	
5,700.0	5,661.3	5,663.9	5,609.9	13.3	13.7	35.51	134.6	284.6	113.0	88.9	24.08	4.693	
5,800.0	5,748.2	5,763.5	5,695.5	13.9	14.4	38.39	158.4	329.7	119.2	94.3	24.83	4.800	
5,900.0	5,834.6	5,863.2	5,781.1	14.5	15.1	41.27	182.2	374.8	125.0	99.1	25.87	4.831	
6,000.0	5,921.1	5,962.8	5,866.7	15.1	15.8	43.89	206.1	419.9	131.1	104.1	27.03	4.851	
6,100.0	6,007.6	6,062.4	5,952.2	15.8	16.6	46.27	229.9	465.0	137.5	109.2	28.29	4.859	
6,200.0	6,094.0	6,162.1	6,037.8	16.6	17.4	48.44	253.7	510.2	144.0	114.4	29.65	4.859	
6,300.0	6,180.5	6,261.7	6,123.4	17.3	18.3	50.42	277.5	555.3	150.8	119.7	31.09	4.851	
6,400.0	6,267.0	6,361.4	6,209.0	18.1	19.1	52.23	301.3	600.4	157.7	125.1	32.62	4.836	
6,500.0	6,353.4	6,461.0	6,294.6	19.0	20.0	53.88	325.1	645.6	164.8	130.6	34.21	4.818	
6,600.0	6,439.9	6,560.7	6,380.2	19.8	21.0	55.39	348.9	690.7	172.0	136.2	35.86	4.797	
6,700.0	6,526.4	6,660.3	6,465.8	20.7	21.9	56.79	372.8	735.8	179.3	141.8	37.57	4.774	
6,800.0	6,613.2	6,760.0	6,551.4	21.5	22.8	51.01	396.6	781.0	186.2	147.1	39.15	4.756	
6,900.0	6,703.2	6,858.9	6,636.3	22.1	23.8	21.11	420.2	825.7	186.3	147.5	38.74	4.809	
7,000.0	6,793.4	6,952.5	6,716.7	22.7	24.7	-15.67	442.6	868.1	182.3	145.9	36.39	5.008	
7,028.5	6,818.4	6,977.5	6,738.2	22.7	24.9	-25.53	448.6	879.5	181.8	146.2	35.62	5.105	
7,100.0	6,879.1	7,036.0	6,788.4	23.0	25.5	-47.30	462.5	905.9	185.8	151.6	34.22	5.431	
7,200.0	6,955.9	7,121.6	6,863.2	23.1	26.2	-71.13	475.8	945.3	208.7	175.3	33.39	6.249	
7,300.0	7,020.0	7,224.5	6,953.9	23.2	27.0	-88.78	469.9	992.9	247.7	214.9	32.85	7.541	
7,400.0	7,067.9	7,359.2	7,066.5	23.1	27.7	-102.62	426.8	1,051.7	294.2	262.7	31.57	9.320	
7,500.0	7,097.4	7,554.7	7,198.0	23.0	28.1	-113.52	301.6	1,119.8	336.5	306.9	29.61	11.365	
7,600.0	7,106.8	7,834.0	7,277.7	22.9	28.1	-118.66	41.8	1,159.7	356.4	327.5	28.90	12.334	
7,700.0	7,106.8	7,939.1	7,277.8	22.8	28.0	-118.68	-63.3	1,158.9	356.4	327.2	29.11	12.242	
7,800.0	7,106.8	8,039.1	7,277.8	22.9	28.1	-118.68	-163.3	1,158.1	356.3	326.6	29.70	11.996	
7,900.0	7,106.8	8,139.1	7,277.8	23.2	28.2	-118.69	-263.3	1,157.3	356.2	325.5	30.66	11.616	
8,000.0	7,106.8	8,239.1	7,277.8	23.6	28.5	-118.70	-363.3	1,156.5	356.1	324.1	31.97	11.139	
8,100.0	7,106.8	8,339.1	7,277.8	24.2	28.9	-118.71	-463.3	1,155.7	356.0	322.4	33.58	10.602	
8,200.0	7,106.8	8,439.1	7,277.8	24.9	29.4	-118.72	-563.3	1,154.9	355.9	320.4	35.45	10.040	
8,300.0	7,106.8	8,539.1	7,277.8	25.9	30.0	-118.73	-663.3	1,154.1	355.8	318.3	37.54	9.478	
8,400.0	7,106.8	8,639.1	7,277.8	26.9	30.8	-118.73	-763.3	1,153.3	355.7	315.9	39.82	8.932	
8,500.0	7,106.8	8,739.1	7,277.8	28.1	31.7	-118.74	-863.3	1,152.5	355.6	313.3	42.26	8.415	
8,600.0	7,106.8	8,839.1	7,277.8	29.3	32.7	-118.75	-963.3	1,151.7	355.5	310.7	44.83	7.931	
8,700.0	7,106.8	8,939.1	7,277.8	30.6	33.8	-118.76	-1,063.3	1,150.9	355.4	307.9	47.51	7.482	
8,800.0	7,106.8	9,039.1	7,277.8	32.0	35.0	-118.77	-1,163.3	1,150.1	355.3	305.0	50.28	7.067	
8,900.0	7,106.8	9,139.1	7,277.8	33.5	36.2	-118.78	-1,263.3	1,149.3	355.2	302.1	53.12	6.687	
9,000.0	7,106.8	9,239.1	7,277.8	35.0	37.6	-118.78	-1,363.3	1,148.5	355.1	299.1	56.04	6.337	
9,100.0	7,106.8	9,339.1	7,277.8	36.5	38.9	-118.79	-1,463.3	1,147.7	355.0	296.0	59.01	6.017	
9,200.0	7,106.8	9,439.1	7,277.8	38.1	40.4	-118.80	-1,563.3	1,146.9	354.9	292.9	62.03	5.722	
9,300.0	7,106.8	9,539.1	7,277.8	39.7	41.8	-118.81	-1,663.3	1,146.2	354.9	289.8	65.09	5.452	
9,400.0	7,106.8	9,639.1	7,277.8	41.3	43.4	-118.82	-1,763.3	1,145.4	354.8	286.6	68.18	5.203	
9,500.0	7,106.8	9,739.1	7,277.8	43.0	44.9	-118.83	-1,863.3	1,144.6	354.7	283.4	71.31	4.974	
9,600.0	7,106.8	9,839.1	7,277.8	44.6	46.5	-118.83	-1,963.3	1,143.8	354.6	280.1	74.46	4.762	
9,700.0	7,106.8	9,939.1	7,277.8	46.3	48.1	-118.84	-2,063.3	1,143.0	354.5	276.8	77.63	4.566	
9,800.0	7,106.8	10,039.1	7,277.8	48.1	49.7	-118.85	-2,163.3	1,142.2	354.4	273.6	80.83	4.384	
9,900.0	7,106.8	10,139.1	7,277.8	49.8	51.4	-118.86	-2,263.3	1,141.4	354.3	270.2	84.04	4.215	
10,000.0	7,106.8	10,239.1	7,277.8	51.5	53.1	-118.87	-2,363.3	1,140.6	354.2	266.9	87.27	4.058	
10,100.0	7,106.8	10,339.1	7,277.8	53.3	54.7	-118.88	-2,463.3	1,139.8	354.1	263.6	90.52	3.912	
10,200.0	7,106.8	10,439.1	7,277.8	55.0	56.4	-118.88	-2,563.3	1,139.0	354.0	260.2	93.78	3.775	

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

Company:	Great Western	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Project:	SEC.31-T7N-R65W	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Reference Site:	Schmunk Pad Sec.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Schmunk EF 31-365HN	**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 (11-13-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Schmunk Pad Sec.31-T7N-R65W - Schmunk EF 31-363HC - Wellbore #1 - Plan #1 (11-13-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,300.0	7,106.8	10,539.1	7,277.8	56.8	58.2	-118.89	-2,663.3	1,138.2	353.9	256.9	97.05	3.647	
10,400.0	7,106.8	10,639.1	7,277.8	58.6	59.9	-118.90	-2,763.3	1,137.4	353.8	253.5	100.33	3.527	
10,500.0	7,106.8	10,739.1	7,277.8	60.4	61.6	-118.91	-2,863.3	1,136.6	353.7	250.1	103.62	3.414	
10,600.0	7,106.8	10,839.1	7,277.8	62.2	63.4	-118.92	-2,963.3	1,135.8	353.6	246.7	106.91	3.308	
10,700.0	7,106.8	10,939.1	7,277.8	64.0	65.2	-118.93	-3,063.3	1,135.0	353.5	243.3	110.22	3.208	
10,800.0	7,106.8	11,039.1	7,277.8	65.8	66.9	-118.93	-3,163.2	1,134.3	353.4	239.9	113.53	3.113	
10,900.0	7,106.8	11,139.1	7,277.8	67.6	68.7	-118.94	-3,263.2	1,133.5	353.3	236.5	116.85	3.024	
11,000.0	7,106.8	11,239.1	7,277.8	69.5	70.5	-118.95	-3,363.2	1,132.7	353.3	233.1	120.17	2.940	
11,100.0	7,106.8	11,339.1	7,277.8	71.3	72.3	-118.96	-3,463.2	1,131.9	353.2	229.7	123.50	2.860	
11,200.0	7,106.8	11,439.1	7,277.8	73.1	74.1	-118.97	-3,563.2	1,131.1	353.1	226.2	126.84	2.784	
11,300.0	7,106.8	11,539.1	7,277.8	75.0	75.9	-118.98	-3,663.2	1,130.3	353.0	222.8	130.18	2.712	
11,400.0	7,106.8	11,639.1	7,277.8	76.8	77.7	-118.99	-3,763.2	1,129.5	352.9	219.4	133.52	2.643	
11,500.0	7,106.8	11,739.1	7,277.8	78.6	79.5	-118.99	-3,863.2	1,128.7	352.8	215.9	136.86	2.578	
11,600.0	7,106.8	11,839.1	7,277.8	80.5	81.3	-119.00	-3,963.2	1,127.9	352.7	212.5	140.21	2.515	
11,700.0	7,106.8	11,939.1	7,277.8	82.3	83.2	-119.01	-4,063.2	1,127.1	352.6	209.0	143.57	2.456	
11,800.0	7,106.8	12,039.1	7,277.8	84.2	85.0	-119.02	-4,163.2	1,126.3	352.5	205.6	146.92	2.399	
11,900.0	7,106.8	12,139.1	7,277.8	86.1	86.8	-119.03	-4,263.2	1,125.5	352.4	202.1	150.28	2.345	
11,950.2	7,106.8	12,189.3	7,277.8	87.0	87.8	-119.03	-4,313.4	1,125.1	352.4	200.4	151.97	2.319	

Company:	Great Western	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Project:	SEC.31-T7N-R65W	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Reference Site:	Schmunk Pad Sec.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Schmunk EF 31-365HN	**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 (11-13-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Schmunk Pad Sec.31-T7N-R65W - Schmunk EF 31-367HN - Wellbore #1 - Plan #1 (11-13-13) — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-30.0	30.0				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-30.0	30.0	29.8	0.22	133.557	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-30.0	30.0	29.3	0.67	44.519	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	0.0	-30.0	30.0	28.9	1.12	26.711	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-30.0	30.0	28.4	1.57	19.080	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-30.0	30.0	28.0	2.02	14.840	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-30.0	30.0	27.5	2.47	12.142	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	0.0	-30.0	30.0	27.1	2.92	10.274	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	0.0	-30.0	30.0	26.6	3.37	8.904	
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	0.0	-30.0	30.0	26.2	3.82	7.856	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	0.0	-30.0	30.0	25.7	4.27	7.029	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-90.00	0.0	-30.0	30.0	25.3	4.72	6.360	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.00	0.0	-30.0	30.0	24.8	5.17	5.807	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-90.00	0.0	-30.0	30.0	24.4	5.62	5.342	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-90.00	0.0	-30.0	30.0	24.0	6.07	4.947	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-90.00	0.0	-30.0	30.0	23.5	6.52	4.605	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-90.00	0.0	-30.0	30.0	23.1	6.97	4.308	
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	-90.00	0.0	-30.0	30.0	22.6	7.42	4.047	
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	-90.00	0.0	-30.0	30.0	22.2	7.87	3.816	
1,900.0	1,900.0	1,900.0	1,900.0	4.2	4.2	-90.00	0.0	-30.0	30.0	21.7	8.32	3.610	
2,000.0	2,000.0	2,000.0	2,000.0	4.4	4.4	-90.00	0.0	-30.0	30.0	21.3	8.77	3.425	
2,100.0	2,100.0	2,100.0	2,100.0	4.6	4.6	-90.00	0.0	-30.0	30.0	20.8	9.22	3.257	
2,200.0	2,200.0	2,200.0	2,200.0	4.8	4.8	-90.00	0.0	-30.0	30.0	20.4	9.66	3.106	
2,300.0	2,300.0	2,300.0	2,300.0	5.1	5.1	-90.00	0.0	-30.0	30.0	19.9	10.11	2.968	
2,400.0	2,400.0	2,400.0	2,400.0	5.3	5.3	-90.00	0.0	-30.0	30.0	19.5	10.56	2.842	
2,500.0	2,500.0	2,500.0	2,500.0	5.5	5.5	-90.00	0.0	-30.0	30.0	19.0	11.01	2.726	
2,600.0	2,600.0	2,600.0	2,600.0	5.7	5.7	-90.00	0.0	-30.0	30.0	18.6	11.46	2.619	
2,700.0	2,700.0	2,700.0	2,700.0	6.0	6.0	-90.00	0.0	-30.0	30.0	18.1	11.91	2.520	
2,800.0	2,800.0	2,800.0	2,800.0	6.2	6.2	-90.00	0.0	-30.0	30.0	17.7	12.36	2.428	
2,900.0	2,900.0	2,900.0	2,900.0	6.4	6.4	-90.00	0.0	-30.0	30.0	17.2	12.81	2.343	
3,000.0	3,000.0	3,000.0	3,000.0	6.6	6.6	-90.00	0.0	-30.0	30.0	16.8	13.26	2.264	
3,100.0	3,100.0	3,100.0	3,100.0	6.9	6.9	-90.00	0.0	-30.0	30.0	16.3	13.71	2.189	
3,200.0	3,200.0	3,200.0	3,200.0	7.1	7.1	-90.00	0.0	-30.0	30.0	15.9	14.16	2.120	
3,300.0	3,300.0	3,300.0	3,300.0	7.3	7.3	-90.00	0.0	-30.0	30.0	15.4	14.61	2.055	
3,400.0	3,400.0	3,400.0	3,400.0	7.5	7.5	-90.00	0.0	-30.0	30.0	15.0	15.06	1.993	
3,500.0	3,500.0	3,500.0	3,500.0	7.8	7.8	-90.00	0.0	-30.0	30.0	14.5	15.51	1.936	
3,600.0	3,600.0	3,600.0	3,600.0	8.0	8.0	-90.00	0.0	-30.0	30.0	14.1	15.96	1.881	
3,700.0	3,700.0	3,700.0	3,700.0	8.2	8.2	-90.00	0.0	-30.0	30.0	13.6	16.41	1.830	
3,800.0	3,800.0	3,800.0	3,800.0	8.4	8.4	-90.00	0.0	-30.0	30.0	13.2	16.86	1.781	
3,900.0	3,900.0	3,900.0	3,900.0	8.7	8.7	-90.00	0.0	-30.0	30.0	12.7	17.31	1.735	
4,000.0	4,000.0	4,000.0	4,000.0	8.9	8.9	-90.00	0.0	-30.0	30.0	12.3	17.76	1.691	
4,100.0	4,100.0	4,100.0	4,100.0	9.1	9.1	-90.00	0.0	-30.0	30.0	11.8	18.21	1.649	
4,200.0	4,200.0	4,200.0	4,200.0	9.3	9.3	-90.00	0.0	-30.0	30.0	11.4	18.66	1.609	
4,300.0	4,300.0	4,300.0	4,300.0	9.6	9.6	-90.00	0.0	-30.0	30.0	10.9	19.11	1.571	
4,400.0	4,400.0	4,400.0	4,400.0	9.8	9.8	-90.00	0.0	-30.0	30.0	10.5	19.55	1.535	
4,500.0	4,500.0	4,500.0	4,500.0	10.0	10.0	-90.00	0.0	-30.0	30.0	10.0	20.00	1.501	
4,600.0	4,600.0	4,600.0	4,600.0	10.2	10.2	-90.00	0.0	-30.0	30.0	9.6	20.45	1.468	Level 3
4,700.0	4,700.0	4,700.0	4,700.0	10.5	10.5	-90.00	0.0	-30.0	30.0	9.1	20.90	1.436	Level 3, CC
4,728.1	4,728.1	4,728.1	4,728.1	10.5	10.5	-142.80	0.0	-30.0	30.1	9.1	21.03	1.431	Level 3, ES
4,800.0	4,800.0	4,800.0	4,800.0	10.7	10.7	-143.42	0.0	-30.0	30.5	9.2	21.35	1.431	Level 3, SF
4,900.0	4,899.8	4,899.8	4,899.8	10.9	10.9	-148.48	0.0	-30.0	34.9	13.1	21.75	1.604	
5,000.0	4,999.3	4,999.3	4,999.3	11.1	11.1	-155.46	0.0	-30.0	44.1	22.0	22.09	1.998	

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

Company:	Great Western	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Project:	SEC.31-T7N-R65W	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Reference Site:	Schmunk Pad Sec.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Schmunk EF 31-365HN	**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 (11-13-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Schmunk Pad Sec.31-T7N-R65W - Schmunk EF 31-367HN - Wellbore #1 - Plan #1 (11-13-13) — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,098.0	5,098.0	5,098.0	11.3	11.3	-161.67	0.0	-30.0	58.7	36.4	22.37	2.625	
5,200.0	5,195.8	5,197.1	5,197.1	11.6	11.6	-166.00	0.6	-29.8	78.4	55.8	22.60	3.469	
5,300.0	5,292.4	5,297.8	5,297.7	11.8	11.8	-167.29	5.5	-28.3	100.3	77.5	22.78	4.404	
5,400.0	5,387.5	5,399.0	5,398.3	12.1	12.0	-166.73	15.5	-25.2	123.8	100.8	22.92	5.399	
5,500.0	5,480.9	5,500.6	5,498.6	12.5	12.2	-165.20	30.6	-20.4	148.8	125.7	23.04	6.456	
5,600.0	5,572.2	5,602.4	5,598.2	12.9	12.5	-163.11	50.9	-14.0	175.4	152.2	23.15	7.575	
5,700.0	5,661.3	5,704.3	5,696.6	13.3	12.7	-160.72	76.2	-6.1	203.7	180.5	23.28	8.751	
5,800.0	5,748.2	5,806.4	5,793.5	13.9	13.0	-158.28	106.6	3.4	233.5	209.9	23.66	9.871	
5,900.0	5,834.6	5,909.3	5,889.4	14.5	13.3	-155.58	142.1	14.6	261.5	237.1	24.38	10.725	
6,000.0	5,921.1	6,012.7	5,983.7	15.1	13.7	-152.43	182.8	27.3	287.1	261.9	25.23	11.380	
6,100.0	6,007.6	6,116.0	6,075.3	15.8	14.1	-148.91	228.2	41.6	311.0	284.8	26.25	11.849	
6,200.0	6,094.0	6,216.0	6,161.6	16.6	14.6	-145.22	276.3	56.7	333.9	306.4	27.43	12.171	
6,300.0	6,180.5	6,311.2	6,243.4	17.3	15.1	-142.00	322.9	71.3	357.4	328.7	28.69	12.457	
6,400.0	6,267.0	6,406.5	6,325.1	18.1	15.7	-139.18	369.6	86.0	382.0	351.9	30.04	12.716	
6,500.0	6,353.4	6,501.7	6,406.9	19.0	16.3	-136.69	416.3	100.6	407.3	375.9	31.45	12.950	
6,600.0	6,439.9	6,601.5	6,493.3	19.8	16.9	-134.61	463.7	116.1	433.1	400.2	32.89	13.168	
6,700.0	6,526.4	6,711.3	6,596.2	20.7	17.3	-135.32	496.1	134.4	456.9	423.1	33.84	13.502	
6,800.0	6,613.2	6,814.2	6,697.2	21.5	17.6	-146.68	502.1	152.1	479.3	445.4	33.87	14.151	
6,900.0	6,703.2	6,909.3	6,789.4	22.1	17.7	-179.19	486.5	168.1	503.8	470.6	33.18	15.183	
7,000.0	6,793.4	7,000.0	6,872.4	22.7	17.6	148.37	453.2	182.4	529.8	497.1	32.73	16.188	
7,100.0	6,879.1	7,086.2	6,943.5	23.0	17.4	125.09	406.2	194.6	555.4	522.8	32.58	17.045	
7,200.0	6,955.9	7,170.5	7,003.0	23.1	17.1	110.15	347.6	204.6	578.8	546.2	32.61	17.749	
7,300.0	7,020.0	7,253.1	7,049.8	23.2	16.9	100.58	280.0	212.3	598.6	565.9	32.66	18.326	
7,400.0	7,067.9	7,334.7	7,082.9	23.1	16.6	94.56	205.8	217.5	613.6	580.9	32.72	18.756	
7,500.0	7,097.4	7,415.6	7,101.9	23.0	16.4	91.17	127.3	220.3	623.1	590.2	32.84	18.970	
7,600.0	7,106.8	7,499.4	7,106.8	22.9	16.3	90.00	43.8	220.6	626.4	593.2	33.11	18.920	
7,700.0	7,106.8	7,599.4	7,106.8	22.8	16.6	90.00	-56.2	219.8	626.4	592.9	33.53	18.680	
7,800.0	7,106.8	7,699.4	7,106.8	22.9	17.1	90.00	-156.2	219.1	626.5	592.1	34.39	18.217	
7,900.0	7,106.8	7,799.4	7,106.8	23.2	17.8	90.00	-256.2	218.3	626.5	590.9	35.64	17.579	
8,000.0	7,106.8	7,899.4	7,106.8	23.6	18.7	90.00	-356.2	217.6	626.6	589.3	37.25	16.822	
8,100.0	7,106.8	7,999.4	7,106.8	24.2	19.7	90.00	-456.2	216.9	626.6	587.5	39.16	16.000	
8,200.0	7,106.8	8,099.4	7,106.8	24.9	20.8	90.00	-556.2	216.1	626.7	585.3	41.35	15.154	
8,300.0	7,106.8	8,199.4	7,106.8	25.9	22.1	90.00	-656.2	215.4	626.7	583.0	43.77	14.319	
8,400.0	7,106.8	8,299.4	7,106.8	26.9	23.4	90.00	-756.2	214.6	626.8	580.4	46.38	13.515	
8,500.0	7,106.8	8,399.4	7,106.8	28.1	24.8	90.00	-856.2	213.9	626.8	577.7	49.15	12.754	
8,600.0	7,106.8	8,499.4	7,106.8	29.3	26.3	90.00	-956.2	213.2	626.9	574.8	52.06	12.043	
8,700.0	7,106.8	8,599.4	7,106.8	30.6	27.8	90.00	-1,056.2	212.4	626.9	571.9	55.08	11.383	
8,800.0	7,106.8	8,699.4	7,106.8	32.0	29.4	90.00	-1,156.2	211.7	627.0	568.8	58.20	10.774	
8,900.0	7,106.8	8,799.4	7,106.8	33.5	31.0	90.00	-1,256.2	210.9	627.1	565.7	61.40	10.213	
9,000.0	7,106.8	8,899.4	7,106.8	35.0	32.6	90.00	-1,356.2	210.2	627.1	562.4	64.67	9.697	
9,100.0	7,106.8	8,999.4	7,106.8	36.5	34.3	90.00	-1,456.2	209.5	627.2	559.2	68.00	9.223	
9,200.0	7,106.8	9,099.4	7,106.8	38.1	36.0	90.00	-1,556.2	208.7	627.2	555.8	71.38	8.787	
9,300.0	7,106.8	9,199.4	7,106.8	39.7	37.7	90.00	-1,656.2	208.0	627.3	552.5	74.81	8.385	
9,400.0	7,106.8	9,299.4	7,106.8	41.3	39.4	90.00	-1,756.2	207.2	627.3	549.0	78.27	8.015	
9,500.0	7,106.8	9,399.4	7,106.8	43.0	41.2	90.00	-1,856.2	206.5	627.4	545.6	81.77	7.672	
9,600.0	7,106.8	9,499.4	7,106.8	44.6	42.9	90.00	-1,956.2	205.8	627.4	542.1	85.30	7.356	
9,700.0	7,106.8	9,599.4	7,106.8	46.3	44.7	90.00	-2,056.2	205.0	627.5	538.6	88.85	7.062	
9,800.0	7,106.8	9,699.4	7,106.8	48.1	46.5	90.00	-2,156.2	204.3	627.5	535.1	92.43	6.789	
9,900.0	7,106.8	9,799.4	7,106.8	49.8	48.3	90.00	-2,256.2	203.5	627.6	531.6	96.03	6.535	
10,000.0	7,106.8	9,899.4	7,106.8	51.5	50.1	90.00	-2,356.2	202.8	627.6	528.0	99.65	6.299	
10,100.0	7,106.8	9,999.4	7,106.8	53.3	51.9	90.00	-2,456.2	202.1	627.7	524.4	103.28	6.078	
10,200.0	7,106.8	10,099.4	7,106.8	55.0	53.7	90.00	-2,556.2	201.3	627.7	520.8	106.93	5.871	

Company:	Great Western	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Project:	SEC.31-T7N-R65W	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Reference Site:	Schmunk Pad Sec.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Schmunk EF 31-365HN	**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 (11-13-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Schmunk Pad Sec.31-T7N-R65W - Schmunk EF 31-367HN - Wellbore #1 - Plan #1 (11-13-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,300.0	7,106.8	10,199.4	7,106.8	56.8	55.6	90.00	-2,656.2	200.6	627.8	517.2	110.59	5.677	
10,400.0	7,106.8	10,299.4	7,106.8	58.6	57.4	90.00	-2,756.2	199.8	627.9	513.6	114.26	5.495	
10,500.0	7,106.8	10,399.4	7,106.8	60.4	59.2	90.00	-2,856.2	199.1	627.9	510.0	117.94	5.324	
10,600.0	7,106.8	10,499.4	7,106.8	62.2	61.1	90.00	-2,956.2	198.4	628.0	506.3	121.63	5.163	
10,700.0	7,106.8	10,599.4	7,106.8	64.0	62.9	90.00	-3,056.1	197.6	628.0	502.7	125.34	5.011	
10,800.0	7,106.8	10,699.4	7,106.8	65.8	64.8	90.00	-3,156.1	196.9	628.1	499.0	129.05	4.867	
10,900.0	7,106.8	10,799.4	7,106.8	67.6	66.6	90.00	-3,256.1	196.1	628.1	495.4	132.76	4.731	
11,000.0	7,106.8	10,899.4	7,106.8	69.5	68.5	90.00	-3,356.1	195.4	628.2	491.7	136.49	4.602	
11,100.0	7,106.8	10,999.4	7,106.8	71.3	70.4	90.00	-3,456.1	194.7	628.2	488.0	140.22	4.480	
11,200.0	7,106.8	11,099.4	7,106.8	73.1	72.2	90.00	-3,556.1	193.9	628.3	484.3	143.96	4.364	
11,300.0	7,106.8	11,199.4	7,106.8	75.0	74.1	90.00	-3,656.1	193.2	628.3	480.6	147.70	4.254	
11,400.0	7,106.8	11,299.4	7,106.8	76.8	76.0	90.00	-3,756.1	192.4	628.4	476.9	151.45	4.149	
11,500.0	7,106.8	11,399.4	7,106.8	78.6	77.9	90.00	-3,856.1	191.7	628.4	473.3	155.20	4.049	
11,600.0	7,106.8	11,499.4	7,106.8	80.5	79.7	90.00	-3,956.1	191.0	628.5	469.5	158.95	3.954	
11,700.0	7,106.8	11,599.4	7,106.8	82.3	81.6	90.00	-4,056.1	190.2	628.6	465.8	162.71	3.863	
11,800.0	7,106.8	11,699.4	7,106.8	84.2	83.5	90.00	-4,156.1	189.5	628.6	462.1	166.48	3.776	
11,900.0	7,106.8	11,799.4	7,106.8	86.1	85.4	90.00	-4,256.1	188.7	628.7	458.4	170.25	3.693	
11,919.5	7,106.8	11,818.9	7,106.8	86.4	85.7	90.00	-4,275.6	188.6	628.7	457.7	170.98	3.677	
11,950.2	7,106.8	11,834.3	7,106.8	87.0	86.0	90.00	-4,291.0	188.5	628.9	457.0	171.85	3.659	

Company:	Great Western	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Project:	SEC.31-T7N-R65W	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Reference Site:	Schmunk Pad Sec.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Schmunk EF 31-365HN	**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 (11-13-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Schmunk Pad Sec.31-T7N-R65W - Schmunk EF 31-368HC - Wellbore #1 - Plan #1 (11-13-13) — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-88.98	1.1	-60.3	60.3				
100.0	100.0	100.0	100.0	0.1	0.1	-88.98	1.1	-60.3	60.3	60.1	0.22	268.394	
200.0	200.0	200.0	200.0	0.3	0.3	-88.98	1.1	-60.3	60.3	59.7	0.67	89.465	
300.0	300.0	300.0	300.0	0.6	0.6	-88.98	1.1	-60.3	60.3	59.2	1.12	53.679	
400.0	400.0	400.0	400.0	0.8	0.8	-88.98	1.1	-60.3	60.3	58.8	1.57	38.342	
500.0	500.0	500.0	500.0	1.0	1.0	-88.98	1.1	-60.3	60.3	58.3	2.02	29.822	
600.0	600.0	600.0	600.0	1.2	1.2	-88.98	1.1	-60.3	60.3	57.9	2.47	24.399	
700.0	700.0	700.0	700.0	1.5	1.5	-88.98	1.1	-60.3	60.3	57.4	2.92	20.646	
800.0	800.0	800.0	800.0	1.7	1.7	-88.98	1.1	-60.3	60.3	57.0	3.37	17.893	
900.0	900.0	900.0	900.0	1.9	1.9	-88.98	1.1	-60.3	60.3	56.5	3.82	15.788	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-88.98	1.1	-60.3	60.3	56.1	4.27	14.126	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-88.98	1.1	-60.3	60.3	55.6	4.72	12.781	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-88.98	1.1	-60.3	60.3	55.2	5.17	11.669	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-88.98	1.1	-60.3	60.3	54.7	5.62	10.736	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-88.98	1.1	-60.3	60.3	54.3	6.07	9.941	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-88.98	1.1	-60.3	60.3	53.8	6.52	9.255	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-88.98	1.1	-60.3	60.3	53.4	6.97	8.658	
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	-88.98	1.1	-60.3	60.3	52.9	7.42	8.133	
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	-88.98	1.1	-60.3	60.3	52.5	7.87	7.668	
1,900.0	1,900.0	1,900.0	1,900.0	4.2	4.2	-88.98	1.1	-60.3	60.3	52.0	8.32	7.254	
2,000.0	2,000.0	2,000.0	2,000.0	4.4	4.4	-88.98	1.1	-60.3	60.3	51.6	8.77	6.882	
2,100.0	2,100.0	2,100.0	2,100.0	4.6	4.6	-88.98	1.1	-60.3	60.3	51.1	9.22	6.546	
2,200.0	2,200.0	2,200.0	2,200.0	4.8	4.8	-88.98	1.1	-60.3	60.3	50.7	9.66	6.242	
2,300.0	2,300.0	2,300.0	2,300.0	5.1	5.1	-88.98	1.1	-60.3	60.3	50.2	10.11	5.964	
2,400.0	2,400.0	2,400.0	2,400.0	5.3	5.3	-88.98	1.1	-60.3	60.3	49.8	10.56	5.711	
2,500.0	2,500.0	2,500.0	2,500.0	5.5	5.5	-88.98	1.1	-60.3	60.3	49.3	11.01	5.477	
2,600.0	2,600.0	2,600.0	2,600.0	5.7	5.7	-88.98	1.1	-60.3	60.3	48.9	11.46	5.263	
2,700.0	2,700.0	2,700.0	2,700.0	6.0	6.0	-88.98	1.1	-60.3	60.3	48.4	11.91	5.064	
2,800.0	2,800.0	2,800.0	2,800.0	6.2	6.2	-88.98	1.1	-60.3	60.3	48.0	12.36	4.880	
2,900.0	2,900.0	2,900.0	2,900.0	6.4	6.4	-88.98	1.1	-60.3	60.3	47.5	12.81	4.709	
3,000.0	3,000.0	3,000.0	3,000.0	6.6	6.6	-88.98	1.1	-60.3	60.3	47.1	13.26	4.549	
3,100.0	3,100.0	3,100.0	3,100.0	6.9	6.9	-88.98	1.1	-60.3	60.3	46.6	13.71	4.400	
3,200.0	3,200.0	3,200.0	3,200.0	7.1	7.1	-88.98	1.1	-60.3	60.3	46.2	14.16	4.260	
3,300.0	3,300.0	3,300.0	3,300.0	7.3	7.3	-88.98	1.1	-60.3	60.3	45.7	14.61	4.129	
3,400.0	3,400.0	3,400.0	3,400.0	7.5	7.5	-88.98	1.1	-60.3	60.3	45.3	15.06	4.006	
3,500.0	3,500.0	3,500.0	3,500.0	7.8	7.8	-88.98	1.1	-60.3	60.3	44.8	15.51	3.890	
3,600.0	3,600.0	3,600.0	3,600.0	8.0	8.0	-88.98	1.1	-60.3	60.3	44.4	15.96	3.780	
3,700.0	3,700.0	3,700.0	3,700.0	8.2	8.2	-88.98	1.1	-60.3	60.3	43.9	16.41	3.677	
3,800.0	3,800.0	3,800.0	3,800.0	8.4	8.4	-88.98	1.1	-60.3	60.3	43.5	16.86	3.579	
3,900.0	3,900.0	3,900.0	3,900.0	8.7	8.7	-88.98	1.1	-60.3	60.3	43.0	17.31	3.486	
4,000.0	4,000.0	4,000.0	4,000.0	8.9	8.9	-88.98	1.1	-60.3	60.3	42.6	17.76	3.397	
4,100.0	4,100.0	4,100.0	4,100.0	9.1	9.1	-88.98	1.1	-60.3	60.3	42.1	18.21	3.314	
4,200.0	4,200.0	4,200.0	4,200.0	9.3	9.3	-88.98	1.1	-60.3	60.3	41.7	18.66	3.234	
4,300.0	4,300.0	4,300.0	4,300.0	9.6	9.6	-88.98	1.1	-60.3	60.3	41.2	19.11	3.158	
4,400.0	4,400.0	4,400.0	4,400.0	9.8	9.8	-88.98	1.1	-60.3	60.3	40.8	19.55	3.085	
4,500.0	4,500.0	4,500.0	4,500.0	10.0	10.0	-88.98	1.1	-60.3	60.3	40.3	20.00	3.016	
4,600.0	4,600.0	4,600.0	4,600.0	10.2	10.2	-88.98	1.1	-60.3	60.3	39.9	20.45	2.949	
4,700.0	4,700.0	4,700.0	4,700.0	10.5	10.5	-88.98	1.1	-60.3	60.3	39.4	20.90	2.886	CC
4,728.0	4,728.0	4,728.0	4,728.0	10.5	10.5	-141.72	1.1	-60.3	60.4	39.4	21.03	2.873	ES
4,800.0	4,800.0	4,800.0	4,800.0	10.7	10.7	-142.03	1.1	-60.3	60.8	39.5	21.35	2.850	SF
4,900.0	4,899.8	4,899.8	4,899.8	10.9	10.9	-144.79	1.1	-60.3	65.0	43.3	21.75	2.991	
5,000.0	4,999.3	4,999.3	4,999.3	11.1	11.1	-149.33	1.1	-60.3	73.8	51.7	22.10	3.340	

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

Company:	Great Western	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Project:	SEC.31-T7N-R65W	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Reference Site:	Schmunk Pad Sec.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Schmunk EF 31-365HN	**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 (11-13-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Schmunk Pad Sec.31-T7N-R65W - Schmunk EF 31-368HC - Wellbore #1 - Plan #1 (11-13-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,098.0	5,098.0	5,098.0	11.3	11.3	-154.36	1.1	-60.3	87.7	65.3	22.40	3.914	
5,200.0	5,195.8	5,195.8	5,195.8	11.6	11.6	-158.97	1.1	-60.3	106.9	84.2	22.64	4.721	
5,300.0	5,292.4	5,292.4	5,292.4	11.8	11.8	-162.78	1.1	-60.3	131.4	108.6	22.81	5.761	
5,400.0	5,387.5	5,389.5	5,389.5	12.1	12.0	-165.54	2.0	-60.3	160.9	138.0	22.93	7.018	
5,500.0	5,480.9	5,487.6	5,487.4	12.5	12.2	-166.45	7.6	-60.4	193.7	170.7	23.01	8.417	
5,600.0	5,572.2	5,585.4	5,584.6	12.9	12.4	-166.12	18.1	-60.5	229.3	206.2	23.06	9.942	
5,700.0	5,661.3	5,682.7	5,680.7	13.3	12.7	-165.02	33.6	-60.7	267.7	244.6	23.10	11.589	
5,800.0	5,748.2	5,779.5	5,775.4	13.9	12.9	-163.58	53.7	-60.9	308.5	285.2	23.36	13.210	
5,900.0	5,834.6	5,876.9	5,869.5	14.5	13.1	-161.86	78.9	-61.2	348.5	324.6	23.92	14.567	
6,000.0	5,921.1	5,974.8	5,962.6	15.1	13.4	-159.75	108.9	-61.5	387.1	362.5	24.56	15.758	
6,100.0	6,007.6	6,072.7	6,054.1	15.8	13.7	-157.36	143.7	-61.9	424.6	399.3	25.30	16.785	
6,200.0	6,094.0	6,170.0	6,143.2	16.6	14.0	-154.75	182.8	-62.3	461.4	435.3	26.14	17.653	
6,300.0	6,180.5	6,266.3	6,229.2	17.3	14.4	-151.98	226.0	-62.8	497.9	470.8	27.10	18.371	
6,400.0	6,267.0	6,360.2	6,311.0	18.1	14.8	-149.14	272.2	-63.3	534.4	506.3	28.18	18.963	
6,500.0	6,353.4	6,450.0	6,388.4	19.0	15.3	-146.61	317.6	-63.8	571.8	542.5	29.34	19.488	
6,600.0	6,439.9	6,539.8	6,465.9	19.8	15.8	-144.38	363.1	-64.3	610.0	579.5	30.56	19.964	
6,700.0	6,526.4	6,629.5	6,543.3	20.7	16.3	-142.40	408.5	-64.8	649.0	617.2	31.83	20.392	
6,800.0	6,613.2	6,718.5	6,620.0	21.5	16.8	-149.41	453.5	-65.3	688.7	655.9	32.79	21.002	
6,900.0	6,703.2	6,802.2	6,696.3	22.1	17.2	-179.07	487.5	-65.9	730.5	697.5	32.98	22.148	
7,000.0	6,793.4	6,889.6	6,781.4	22.7	17.5	150.92	507.1	-66.7	773.3	740.2	33.19	23.303	
7,100.0	6,879.1	6,983.8	6,875.4	23.0	17.7	129.67	509.0	-67.7	815.5	782.1	33.43	24.394	
7,200.0	6,955.9	7,088.5	6,977.6	23.1	17.6	116.53	487.7	-69.0	855.0	821.4	33.62	25.431	
7,300.0	7,020.0	7,208.6	7,084.9	23.2	17.4	108.59	434.4	-70.6	889.6	856.0	33.64	26.446	
7,400.0	7,067.9	7,348.6	7,186.3	23.1	17.0	103.98	338.8	-72.5	916.7	883.3	33.47	27.392	
7,500.0	7,097.4	7,508.3	7,258.9	23.0	16.6	101.51	197.6	-74.4	933.6	900.3	33.32	28.017	
7,600.0	7,106.8	7,661.2	7,277.8	22.9	16.6	100.50	46.5	-75.8	938.4	904.9	33.53	27.990	
7,700.0	7,106.8	7,761.2	7,277.8	22.8	16.8	100.50	-53.5	-76.6	938.5	904.6	33.97	27.625	
7,800.0	7,106.8	7,861.2	7,277.8	22.9	17.3	100.50	-153.5	-77.4	938.7	903.8	34.85	26.933	
7,900.0	7,106.8	7,961.2	7,277.8	23.2	18.0	100.50	-253.5	-78.2	938.8	902.7	36.11	26.000	
8,000.0	7,106.8	8,061.2	7,277.8	23.6	18.8	100.49	-353.5	-79.0	938.9	901.2	37.70	24.904	
8,100.0	7,106.8	8,161.2	7,277.8	24.2	19.8	100.49	-453.5	-79.8	939.0	899.4	39.59	23.715	
8,200.0	7,106.8	8,261.2	7,277.8	24.9	20.9	100.49	-553.5	-80.6	939.1	897.3	41.75	22.495	
8,300.0	7,106.8	8,361.2	7,277.8	25.9	22.1	100.49	-653.5	-81.4	939.2	895.1	44.12	21.287	
8,400.0	7,106.8	8,461.2	7,277.8	26.9	23.4	100.49	-753.5	-82.2	939.3	892.6	46.68	20.122	
8,500.0	7,106.8	8,561.2	7,277.8	28.1	24.8	100.49	-853.5	-83.0	939.4	890.0	49.40	19.017	
8,600.0	7,106.8	8,661.2	7,277.8	29.3	26.3	100.49	-953.5	-83.8	939.5	887.3	52.25	17.981	
8,700.0	7,106.8	8,761.2	7,277.8	30.6	27.8	100.49	-1,053.5	-84.6	939.6	884.4	55.22	17.018	
8,800.0	7,106.8	8,861.2	7,277.8	32.0	29.3	100.48	-1,153.5	-85.4	939.8	881.5	58.28	16.126	
8,900.0	7,106.8	8,961.2	7,277.8	33.5	30.9	100.48	-1,253.5	-86.2	939.9	878.4	61.42	15.303	
9,000.0	7,106.8	9,061.2	7,277.8	35.0	32.6	100.48	-1,353.5	-87.0	940.0	875.3	64.63	14.544	
9,100.0	7,106.8	9,161.2	7,277.8	36.5	34.3	100.48	-1,453.5	-87.8	940.1	872.2	67.90	13.845	
9,200.0	7,106.8	9,261.2	7,277.8	38.1	35.9	100.48	-1,553.4	-88.6	940.2	869.0	71.22	13.201	
9,300.0	7,106.8	9,361.2	7,277.8	39.7	37.7	100.48	-1,653.4	-89.4	940.3	865.7	74.59	12.607	
9,400.0	7,106.8	9,461.2	7,277.8	41.3	39.4	100.48	-1,753.4	-90.2	940.4	862.4	77.99	12.058	
9,500.0	7,106.8	9,561.2	7,277.8	43.0	41.1	100.48	-1,853.4	-91.0	940.5	859.1	81.43	11.550	
9,600.0	7,106.8	9,661.2	7,277.8	44.6	42.9	100.47	-1,953.4	-91.8	940.6	855.7	84.90	11.079	
9,700.0	7,106.8	9,761.2	7,277.8	46.3	44.7	100.47	-2,053.4	-92.6	940.8	852.4	88.40	10.643	
9,800.0	7,106.8	9,861.2	7,277.8	48.1	46.5	100.47	-2,153.4	-93.4	940.9	848.9	91.91	10.236	
9,900.0	7,106.8	9,961.2	7,277.8	49.8	48.3	100.47	-2,253.4	-94.2	941.0	845.5	95.45	9.858	
10,000.0	7,106.8	10,061.2	7,277.8	51.5	50.1	100.47	-2,353.4	-95.0	941.1	842.1	99.01	9.505	
10,100.0	7,106.8	10,161.2	7,277.8	53.3	51.9	100.47	-2,453.4	-95.8	941.2	838.6	102.58	9.175	
10,200.0	7,106.8	10,261.2	7,277.8	55.0	53.7	100.47	-2,553.4	-96.6	941.3	835.1	106.17	8.866	

Company:	Great Western	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Project:	SEC.31-T7N-R65W	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Reference Site:	Schmunk Pad Sec.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Schmunk EF 31-365HN	**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 (11-13-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Schmunk Pad Sec.31-T7N-R65W - Schmunk EF 31-368HC - Wellbore #1 - Plan #1 (11-13-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

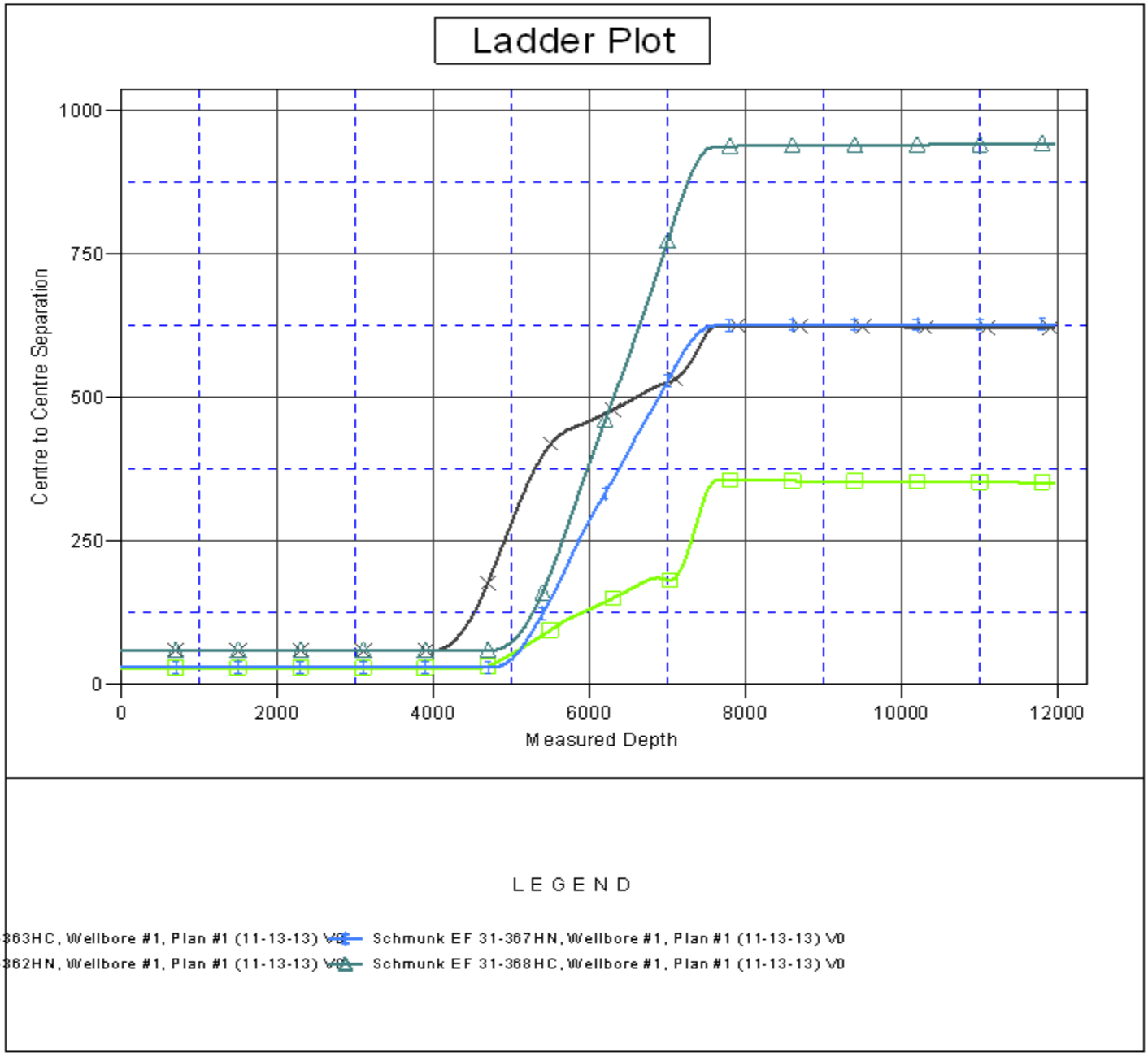
Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,300.0	7,106.8	10,361.2	7,277.8	56.8	55.6	100.47	-2,653.4	-97.4	941.4	831.6	109.77	8.576	
10,400.0	7,106.8	10,461.2	7,277.8	58.6	57.4	100.46	-2,753.4	-98.2	941.5	828.1	113.39	8.303	
10,500.0	7,106.8	10,561.2	7,277.8	60.4	59.2	100.46	-2,853.4	-98.9	941.6	824.6	117.01	8.047	
10,600.0	7,106.8	10,661.2	7,277.8	62.2	61.1	100.46	-2,953.4	-99.7	941.7	821.1	120.65	7.806	
10,700.0	7,106.8	10,761.2	7,277.8	64.0	62.9	100.46	-3,053.4	-100.5	941.9	817.6	124.29	7.578	
10,800.0	7,106.8	10,861.2	7,277.8	65.8	64.8	100.46	-3,153.4	-101.3	942.0	814.0	127.95	7.362	
10,900.0	7,106.8	10,961.2	7,277.8	67.6	66.7	100.46	-3,253.4	-102.1	942.1	810.5	131.61	7.158	
11,000.0	7,106.8	11,061.2	7,277.8	69.5	68.5	100.46	-3,353.4	-102.9	942.2	806.9	135.28	6.965	
11,100.0	7,106.8	11,161.2	7,277.8	71.3	70.4	100.46	-3,453.4	-103.7	942.3	803.3	138.95	6.782	
11,200.0	7,106.8	11,261.2	7,277.8	73.1	72.2	100.45	-3,553.4	-104.5	942.4	799.8	142.63	6.607	
11,300.0	7,106.8	11,361.2	7,277.8	75.0	74.1	100.45	-3,653.4	-105.3	942.5	796.2	146.32	6.442	
11,400.0	7,106.8	11,461.2	7,277.8	76.8	76.0	100.45	-3,753.4	-106.1	942.6	792.6	150.01	6.284	
11,500.0	7,106.8	11,561.2	7,277.8	78.6	77.9	100.45	-3,853.4	-106.9	942.7	789.0	153.70	6.134	
11,600.0	7,106.8	11,661.2	7,277.8	80.5	79.7	100.45	-3,953.4	-107.7	942.9	785.5	157.40	5.990	
11,700.0	7,106.8	11,761.2	7,277.8	82.3	81.6	100.45	-4,053.4	-108.5	943.0	781.9	161.11	5.853	
11,800.0	7,106.8	11,861.2	7,277.8	84.2	83.5	100.45	-4,153.4	-109.3	943.1	778.3	164.82	5.722	
11,900.0	7,106.8	11,961.2	7,277.8	86.1	85.4	100.45	-4,253.4	-110.1	943.2	774.7	168.53	5.597	
11,910.8	7,106.8	11,972.0	7,277.8	86.3	85.6	100.45	-4,264.2	-110.2	943.2	774.3	168.93	5.583	
11,950.2	7,106.8	11,989.7	7,277.8	87.0	85.9	100.45	-4,281.8	-110.4	943.5	773.5	169.99	5.550	

Company:	Great Western	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Project:	SEC.31-T7N-R65W	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Reference Site:	Schmunk Pad Sec.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Schmunk EF 31-365HN	**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 (11-13-13)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4866.8ft (RKB - 16.5')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Schmunk EF 31-365HN
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.51°



Company:	Great Western	**Local Co-ordinate Reference:**	Well Schmunk EF 31-365HN
Project:	SEC.31-T7N-R65W	**TVD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Reference Site:	Schmunk Pad Sec.31-T7N-R65W	**MD Reference:**	WELL @ 4866.8ft (RKB - 16.5')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Schmunk EF 31-365HN	**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 (11-13-13)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4866.8ft (RKB - 16.5')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Schmunk EF 31-365HN
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.51°