

PETROLEUM DEVELOPMENT CORP Weld County CO

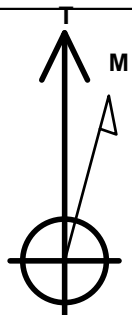
Well Name: **Suden 34R-423**

Surface Location: Suden 34U-HZ Pad Sec.34-T5N-R64W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4668.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1376383.64	3270176.41	40.362520	-104.530440	
RKB - 15' WELL @ 4683.0ft (RKB - 15')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 212'FNL & 1142'FEL	1.0	0.0	0.0	Point
BHL 500'FSL & 816'FEL	6804.0	-4572.1	359.4	Point



Azimuths to True North
 Magnetic North: 8.37°

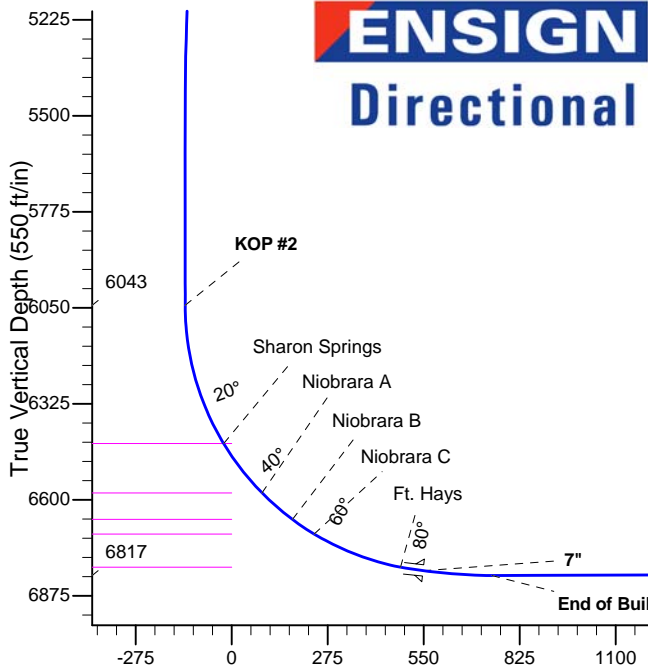
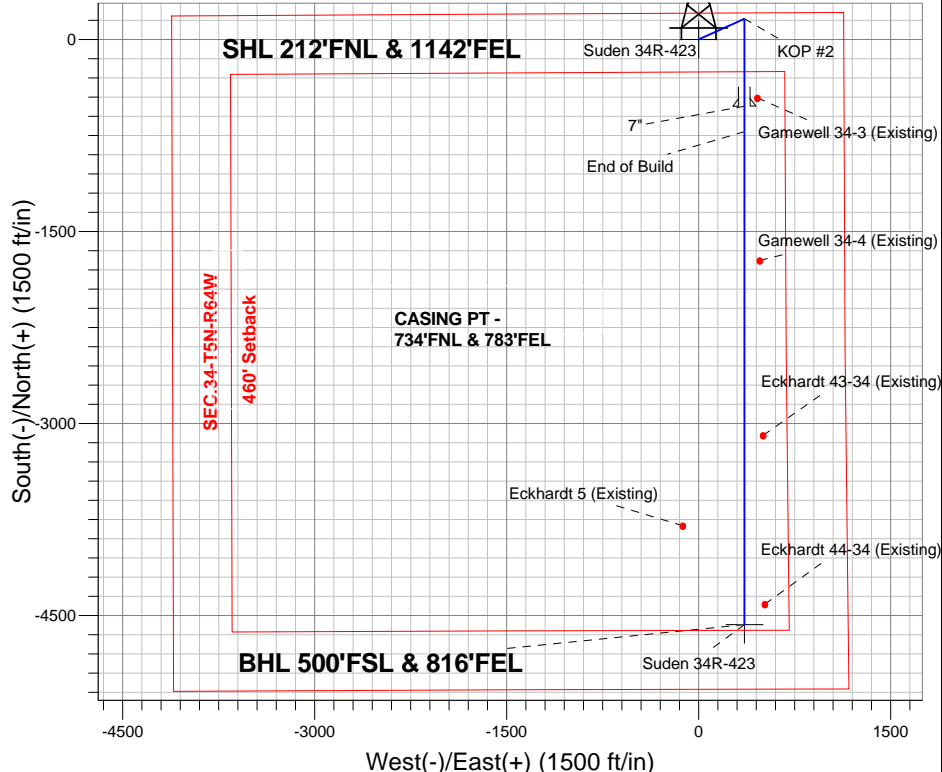
Magnetic Field
 Strength: 52851.0nT
 Dip Angle: 66.96°
 Date: 3/4/2014
 Model: IGRF2010

Suden 34U-HZ Pad Sec.34-T5N-R64W
 Suden 34R-423
 Plan #1 (2-13-14)
 10:05, March 05 2014

ANNOTATIONS

TVD	MD	Annotation
1500.0	1500.0	KOP #1
6043.0	6063.4	KOP #2
6816.8	7381.2	End of Build

South(-)/North(+) (1500 ft/in)



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	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	1804.5	6.09	65.74	1803.9	6.6	14.7	2.00	65.74	-5.5	
4	5215.9	6.09	65.74	5196.1	155.4	344.7	0.00	0.00	-127.9	
5	5520.4	0.00	0.00	5500.0	162.0	359.4	2.00	180.00	-133.3	
6	6063.4	0.00	0.00	6043.0	162.0	359.4	0.00	0.00	-133.3	
7	7183.4	84.00	180.00	6802.8	-522.1	359.4	7.50	180.00	548.7	
8	7257.4	84.00	180.00	6810.5	-595.7	359.4	0.00	0.00	622.0	
9	7381.2	90.19	180.00	6816.8	-719.3	359.4	5.00	0.00	745.2	
10	11234.0	90.19	180.00	6804.0	-4572.1	359.4	0.00	0.00	4586.2	BHL 500'FSL & 816'FEL

BHL 500'FSL & 816'FEL

Vertical Section at 175.51° (550 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.34-T5N-R64W

Suden 34U-HZ Pad Sec.34-T5N-R64W

Suden 34R-423

Wellbore #1

Plan: Plan #1 (2-13-14)

Standard Planning Report

05 March, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Suden 34R-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Project:	SEC.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	North Reference:	True
Well:	Suden 34R-423	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-13-14)		

Project	SEC.34-T5N-R64W, 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						Suden 34U-HZ Pad Sec.34-T5N-R64W											
Site Position:						Northing:			1,376,383.32 ft			Latitude:			40.362520		
From:			Lat/Long			Easting:			3,270,145.76 ft			Longitude:			-104.530550		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.63 °		

Well	Suden 34R-423					
Well Position	+N/-S	0.0 ft	Northing:	1,376,383.64 ft	Latitude:	40.362520
	+E/-W	30.7 ft	Easting:	3,270,176.41 ft	Longitude:	-104.530440
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,668.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/4/2014	8.37	66.96	52,851

Design	Plan #1 (2-13-14)			
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	175.51

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,804.5	6.09	65.74	1,803.9	6.6	14.7	2.00	2.00	0.00	65.74	
5,215.9	6.09	65.74	5,196.1	155.4	344.7	0.00	0.00	0.00	0.00	
5,520.4	0.00	0.00	5,500.0	162.0	359.4	2.00	-2.00	0.00	180.00	
6,063.4	0.00	0.00	6,043.0	162.0	359.4	0.00	0.00	0.00	0.00	
7,183.4	84.00	180.00	6,802.8	-522.1	359.4	7.50	7.50	0.00	180.00	
7,257.4	84.00	180.00	6,810.5	-595.7	359.4	0.00	0.00	0.00	0.00	
7,381.2	90.19	180.00	6,816.8	-719.3	359.4	5.00	5.00	0.00	0.00	
11,234.0	90.19	180.00	6,804.0	-4,572.1	359.4	0.00	0.00	0.00	0.00	BHL 500'FSL & 816

Database:	landmark	Local Co-ordinate Reference:	Well Suden 34R-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Project:	SEC.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	North Reference:	True
Well:	Suden 34R-423	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-13-14)		

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 212'FNL & 1142'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
KOP #1									
1,600.0	2.00	65.74	1,600.0	0.7	1.6	-0.6	2.00	2.00	0.00
1,700.0	4.00	65.74	1,699.8	2.9	6.4	-2.4	2.00	2.00	0.00
1,800.0	6.00	65.74	1,799.5	6.4	14.3	-5.3	2.00	2.00	0.00
1,804.5	6.09	65.74	1,803.9	6.6	14.7	-5.5	2.00	2.00	0.00
1,900.0	6.09	65.74	1,898.9	10.8	24.0	-8.9	0.00	0.00	0.00
2,000.0	6.09	65.74	1,998.3	15.2	33.6	-12.5	0.00	0.00	0.00
2,100.0	6.09	65.74	2,097.8	19.5	43.3	-16.1	0.00	0.00	0.00
2,200.0	6.09	65.74	2,197.2	23.9	53.0	-19.7	0.00	0.00	0.00
2,300.0	6.09	65.74	2,296.6	28.2	62.7	-23.2	0.00	0.00	0.00
2,400.0	6.09	65.74	2,396.1	32.6	72.3	-26.8	0.00	0.00	0.00
2,500.0	6.09	65.74	2,495.5	37.0	82.0	-30.4	0.00	0.00	0.00
2,600.0	6.09	65.74	2,594.9	41.3	91.7	-34.0	0.00	0.00	0.00
2,700.0	6.09	65.74	2,694.4	45.7	101.3	-37.6	0.00	0.00	0.00
2,800.0	6.09	65.74	2,793.8	50.0	111.0	-41.2	0.00	0.00	0.00
2,900.0	6.09	65.74	2,893.2	54.4	120.7	-44.8	0.00	0.00	0.00
3,000.0	6.09	65.74	2,992.7	58.8	130.4	-48.4	0.00	0.00	0.00
3,100.0	6.09	65.74	3,092.1	63.1	140.0	-52.0	0.00	0.00	0.00
3,200.0	6.09	65.74	3,191.6	67.5	149.7	-55.5	0.00	0.00	0.00
3,300.0	6.09	65.74	3,291.0	71.8	159.4	-59.1	0.00	0.00	0.00
3,400.0	6.09	65.74	3,390.4	76.2	169.0	-62.7	0.00	0.00	0.00
3,500.0	6.09	65.74	3,489.9	80.6	178.7	-66.3	0.00	0.00	0.00
3,510.2	6.09	65.74	3,500.0	81.0	179.7	-66.7	0.00	0.00	0.00
Parkman									
3,600.0	6.09	65.74	3,589.3	84.9	188.4	-69.9	0.00	0.00	0.00
3,700.0	6.09	65.74	3,688.7	89.3	198.1	-73.5	0.00	0.00	0.00
3,800.0	6.09	65.74	3,788.2	93.6	207.7	-77.1	0.00	0.00	0.00
3,900.0	6.09	65.74	3,887.6	98.0	217.4	-80.7	0.00	0.00	0.00
4,000.0	6.09	65.74	3,987.0	102.4	227.1	-84.2	0.00	0.00	0.00
4,100.0	6.09	65.74	4,086.5	106.7	236.7	-87.8	0.00	0.00	0.00
4,200.0	6.09	65.74	4,185.9	111.1	246.4	-91.4	0.00	0.00	0.00
4,264.5	6.09	65.74	4,250.0	113.9	252.6	-93.7	0.00	0.00	0.00
Sussex									
4,300.0	6.09	65.74	4,285.3	115.4	256.1	-95.0	0.00	0.00	0.00
4,400.0	6.09	65.74	4,384.8	119.8	265.8	-98.6	0.00	0.00	0.00

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Project:	SEC.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	North Reference:	True
Well:	Suden 34R-423	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-13-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	6.09	65.74	4,484.2	124.1	275.4	-102.2	0.00	0.00	0.00
4,600.0	6.09	65.74	4,583.7	128.5	285.1	-105.8	0.00	0.00	0.00
4,700.0	6.09	65.74	4,683.1	132.9	294.8	-109.4	0.00	0.00	0.00
4,800.0	6.09	65.74	4,782.5	137.2	304.4	-112.9	0.00	0.00	0.00
4,900.0	6.09	65.74	4,882.0	141.6	314.1	-116.5	0.00	0.00	0.00
5,000.0	6.09	65.74	4,981.4	145.9	323.8	-120.1	0.00	0.00	0.00
5,100.0	6.09	65.74	5,080.8	150.3	333.5	-123.7	0.00	0.00	0.00
5,189.7	6.09	65.74	5,170.0	154.2	342.1	-126.9	0.00	0.00	0.00
Shannon									
5,200.0	6.09	65.74	5,180.3	154.7	343.1	-127.3	0.00	0.00	0.00
5,215.9	6.09	65.74	5,196.1	155.4	344.7	-127.9	0.00	0.00	0.00
5,300.0	4.41	65.74	5,279.8	158.5	351.7	-130.5	2.00	-2.00	0.00
5,400.0	2.41	65.74	5,379.6	161.0	357.1	-132.5	2.00	-2.00	0.00
5,500.0	0.41	65.74	5,479.6	162.0	359.3	-133.3	2.00	-2.00	0.00
5,520.4	0.00	0.00	5,500.0	162.0	359.4	-133.3	2.00	-2.00	0.00
5,600.0	0.00	0.00	5,579.6	162.0	359.4	-133.3	0.00	0.00	0.00
5,700.0	0.00	0.00	5,679.6	162.0	359.4	-133.3	0.00	0.00	0.00
5,800.0	0.00	0.00	5,779.6	162.0	359.4	-133.3	0.00	0.00	0.00
5,900.0	0.00	0.00	5,879.6	162.0	359.4	-133.3	0.00	0.00	0.00
6,000.0	0.00	0.00	5,979.6	162.0	359.4	-133.3	0.00	0.00	0.00
6,063.4	0.00	0.00	6,043.0	162.0	359.4	-133.3	0.00	0.00	0.00
KOP #2									
6,100.0	2.74	180.00	6,079.6	161.1	359.4	-132.5	7.50	7.50	0.00
6,200.0	10.24	180.00	6,178.9	149.8	359.4	-121.2	7.50	7.50	0.00
6,300.0	17.74	180.00	6,275.8	125.7	359.4	-97.1	7.50	7.50	0.00
6,400.0	25.24	180.00	6,368.8	89.0	359.4	-60.6	7.50	7.50	0.00
6,479.7	31.22	180.00	6,439.0	51.4	359.4	-23.0	7.50	7.50	0.00
Sharon Springs									
6,500.0	32.74	180.00	6,456.2	40.6	359.4	-12.3	7.50	7.50	0.00
6,600.0	40.24	180.00	6,536.6	-18.8	359.4	46.9	7.50	7.50	0.00
6,658.9	44.66	180.00	6,580.0	-58.6	359.4	86.6	7.50	7.50	0.00
Niobrara A									
6,700.0	47.74	180.00	6,608.4	-88.2	359.4	116.1	7.50	7.50	0.00
6,774.9	53.36	180.00	6,656.0	-146.0	359.4	173.7	7.50	7.50	0.00
Niobrara B									
6,800.0	55.24	180.00	6,670.7	-166.4	359.4	194.1	7.50	7.50	0.00
6,850.4	59.02	180.00	6,698.0	-208.8	359.4	236.3	7.50	7.50	0.00
Niobrara C									
6,900.0	62.74	180.00	6,722.1	-252.1	359.4	279.5	7.50	7.50	0.00
7,000.0	70.24	180.00	6,762.0	-343.7	359.4	370.8	7.50	7.50	0.00
7,100.0	77.74	180.00	6,789.5	-439.8	359.4	466.6	7.50	7.50	0.00
7,117.2	79.03	180.00	6,793.0	-456.6	359.4	483.4	7.50	7.50	0.00
Ft. Hays									
7,183.4	84.00	180.00	6,802.8	-522.1	359.4	548.6	7.50	7.50	0.00
7"									
7,200.0	84.00	180.00	6,804.5	-538.6	359.4	565.1	0.00	0.00	0.00
7,257.4	84.00	180.00	6,810.5	-595.7	359.4	622.0	0.00	0.00	0.00
7,300.0	86.13	180.00	6,814.2	-638.1	359.4	664.3	5.00	5.00	0.00
7,381.2	90.19	180.00	6,816.8	-719.3	359.4	745.2	5.00	5.00	0.00
End of Build									
7,400.0	90.19	180.00	6,816.7	-738.1	359.4	764.0	0.00	0.00	0.00
7,500.0	90.19	180.00	6,816.4	-838.1	359.4	863.6	0.00	0.00	0.00

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Project:	SEC.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	North Reference:	True
Well:	Suden 34R-423	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-13-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,600.0	90.19	180.00	6,816.1	-938.1	359.4	963.3	0.00	0.00	0.00
7,700.0	90.19	180.00	6,815.7	-1,038.1	359.4	1,063.0	0.00	0.00	0.00
7,800.0	90.19	180.00	6,815.4	-1,138.1	359.4	1,162.7	0.00	0.00	0.00
7,900.0	90.19	180.00	6,815.1	-1,238.1	359.4	1,262.4	0.00	0.00	0.00
8,000.0	90.19	180.00	6,814.7	-1,338.1	359.4	1,362.1	0.00	0.00	0.00
8,100.0	90.19	180.00	6,814.4	-1,438.1	359.4	1,461.8	0.00	0.00	0.00
8,200.0	90.19	180.00	6,814.1	-1,538.1	359.4	1,561.5	0.00	0.00	0.00
8,300.0	90.19	180.00	6,813.7	-1,638.1	359.4	1,661.2	0.00	0.00	0.00
8,400.0	90.19	180.00	6,813.4	-1,738.1	359.4	1,760.9	0.00	0.00	0.00
8,500.0	90.19	180.00	6,813.1	-1,838.1	359.4	1,860.6	0.00	0.00	0.00
8,600.0	90.19	180.00	6,812.7	-1,938.1	359.4	1,960.3	0.00	0.00	0.00
8,700.0	90.19	180.00	6,812.4	-2,038.1	359.4	2,059.9	0.00	0.00	0.00
8,800.0	90.19	180.00	6,812.1	-2,138.1	359.4	2,159.6	0.00	0.00	0.00
8,900.0	90.19	180.00	6,811.7	-2,238.1	359.4	2,259.3	0.00	0.00	0.00
9,000.0	90.19	180.00	6,811.4	-2,338.1	359.4	2,359.0	0.00	0.00	0.00
9,100.0	90.19	180.00	6,811.1	-2,438.0	359.4	2,458.7	0.00	0.00	0.00
9,200.0	90.19	180.00	6,810.7	-2,538.0	359.4	2,558.4	0.00	0.00	0.00
9,300.0	90.19	180.00	6,810.4	-2,638.0	359.4	2,658.1	0.00	0.00	0.00
9,400.0	90.19	180.00	6,810.1	-2,738.0	359.4	2,757.8	0.00	0.00	0.00
9,500.0	90.19	180.00	6,809.8	-2,838.0	359.4	2,857.5	0.00	0.00	0.00
9,600.0	90.19	180.00	6,809.4	-2,938.0	359.4	2,957.2	0.00	0.00	0.00
9,700.0	90.19	180.00	6,809.1	-3,038.0	359.4	3,056.9	0.00	0.00	0.00
9,800.0	90.19	180.00	6,808.8	-3,138.0	359.4	3,156.6	0.00	0.00	0.00
9,900.0	90.19	180.00	6,808.4	-3,238.0	359.4	3,256.3	0.00	0.00	0.00
10,000.0	90.19	180.00	6,808.1	-3,338.0	359.4	3,355.9	0.00	0.00	0.00
10,100.0	90.19	180.00	6,807.8	-3,438.0	359.4	3,455.6	0.00	0.00	0.00
10,200.0	90.19	180.00	6,807.4	-3,538.0	359.4	3,555.3	0.00	0.00	0.00
10,300.0	90.19	180.00	6,807.1	-3,638.0	359.4	3,655.0	0.00	0.00	0.00
10,400.0	90.19	180.00	6,806.8	-3,738.0	359.4	3,754.7	0.00	0.00	0.00
10,500.0	90.19	180.00	6,806.4	-3,838.0	359.4	3,854.4	0.00	0.00	0.00
10,600.0	90.19	180.00	6,806.1	-3,938.0	359.4	3,954.1	0.00	0.00	0.00
10,700.0	90.19	180.00	6,805.8	-4,038.0	359.4	4,053.8	0.00	0.00	0.00
10,800.0	90.19	180.00	6,805.4	-4,138.0	359.4	4,153.5	0.00	0.00	0.00
10,900.0	90.19	180.00	6,805.1	-4,238.0	359.4	4,253.2	0.00	0.00	0.00
11,000.0	90.19	180.00	6,804.8	-4,338.0	359.4	4,352.9	0.00	0.00	0.00
11,100.0	90.19	180.00	6,804.4	-4,438.0	359.4	4,452.6	0.00	0.00	0.00
11,200.0	90.19	180.00	6,804.1	-4,538.0	359.4	4,552.2	0.00	0.00	0.00
11,234.0	90.19	180.00	6,804.0	-4,572.1	359.4	4,586.2	0.00	0.00	0.00
BHL 500'FSL & 816'FEL									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,183.4	6,802.8	7"	7	7-1/2

Database:	landmark	Local Co-ordinate Reference:	Well Suden 34R-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Project:	SEC.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	North Reference:	True
Well:	Suden 34R-423	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-13-14)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,510.2	3,500.0	Parkman		0.00		
4,264.5	4,250.0	Sussex		0.00		
5,189.7	5,170.0	Shannon		0.00		
6,479.7	6,439.0	Sharon Springs		0.00		
6,658.9	6,580.0	Niobrara A		0.00		
6,774.9	6,656.0	Niobrara B		0.00		
6,850.4	6,698.0	Niobrara C		0.00		
7,117.2	6,793.0	Ft. Hays		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,500.0	1,500.0	0.0	0.0	KOP #1	
6,063.4	6,043.0	162.0	359.4	KOP #2	
7,381.2	6,816.8	-719.3	359.4	End of Build	



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.34-T5N-R64W

Suden 34U-HZ Pad Sec.34-T5N-R64W

Suden 34R-423

Wellbore #1

Plan #1 (2-13-14)

Anticollision Report

05 March, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (2-13-14)		
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 3/4/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,234.0	Plan #1 (2-13-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Suden (Existing) Pad Sec.34-T5N-R64W						
Eckhardt 43-34 (Existing) - Wellbore #1 - Wellbore #1	9,755.3	6,625.0	192.1	42.2	1.281	Level 3, CC, ES, SF
Eckhardt 44-34 (Existing) - Wellbore #1 - Wellbore #1	11,073.8	6,750.5	159.0	-62.4	0.718	Level 1, CC, ES, SF
Eckhardt 5 (Existing) - Wellbore #1 - Wellbore #1	10,461.7	6,750.6	482.0	272.2	2.297	CC, ES
Eckhardt 34U-243 (Existing) - Wellbore #1 - Wellbore #1	10,500.0	6,750.4	483.6	273.0	2.297	SF
Gamewell 34-3 (Existing) - Wellbore #1 - Wellbore #1	7,115.9	6,787.8	100.4	-52.7	0.656	Level 1, CC, ES, SF
Gamewell 34-4 (Existing) - Wellbore #1 - Wellbore #1	8,388.7	6,808.4	120.0	-52.4	0.696	Level 1, CC, ES, SF
Suden 34U-HZ Pad Sec.34-T5N-R64W						
Suden 34R-323 - Wellbore #1 - Plan #1 (2-13-14)	1,500.0	1,499.0	30.7	24.1	4.705	CC, ES
Suden 34R-323 - Wellbore #1 - Plan #1 (2-13-14)	11,234.0	11,142.7	272.4	108.1	1.658	SF
Suden 34U-243 - Wellbore #1 - Plan #1 (2-13-14)	1,000.0	1,000.0	30.7	26.4	7.178	CC, ES
Suden 34U-243 - Wellbore #1 - Plan #1 (2-13-14)	11,234.0	11,126.6	449.0	281.0	2.673	SF
Suden 34U-403 - Wellbore #1 - Plan #1 (2-13-14)	166.3	167.3	58.5	58.0	111.431	CC
Suden 34U-403 - Wellbore #1 - Plan #1 (2-13-14)	200.0	200.0	58.5	57.9	86.802	ES
Suden 34U-403 - Wellbore #1 - Plan #1 (2-13-14)	11,234.0	11,318.9	741.6	562.5	4.141	SF

Offset Design Suden (Existing) Pad Sec.34-T5N-R64W - Eckhardt 43-34 (Existing) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 6625-UNKNOWN												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)		
8,800.0	6,812.1	6,625.0	6,625.0	44.3	132.5	-49.05	-3,093.0	504.5	974.5	838.5	135.94	7.168	
8,900.0	6,811.7	6,625.0	6,625.0	46.1	132.5	-49.05	-3,093.0	504.5	876.7	739.3	137.38	6.381	
9,000.0	6,811.4	6,625.0	6,625.0	47.9	132.5	-49.05	-3,093.0	504.5	779.4	640.6	138.82	5.614	
9,100.0	6,811.1	6,625.0	6,625.0	49.8	132.5	-49.05	-3,093.0	504.5	682.9	542.6	140.27	4.868	
9,200.0	6,810.7	6,625.0	6,625.0	51.6	132.5	-49.05	-3,093.0	504.5	587.6	445.9	141.73	4.146	
9,300.0	6,810.4	6,625.0	6,625.0	53.4	132.5	-49.05	-3,093.0	504.5	494.2	351.0	143.19	3.451	
9,400.0	6,810.1	6,625.0	6,625.0	55.3	132.5	-49.05	-3,093.0	504.5	403.9	259.3	144.66	2.792	
9,500.0	6,809.8	6,625.0	6,625.0	57.1	132.5	-49.05	-3,093.0	504.5	319.5	173.4	146.13	2.187	
9,600.0	6,809.4	6,625.0	6,625.0	58.9	132.5	-49.05	-3,093.0	504.5	247.0	99.4	147.60	1.674	
9,700.0	6,809.1	6,625.0	6,625.0	60.8	132.5	-49.05	-3,093.0	504.5	199.9	50.8	149.08	1.341	Level 3
9,755.3	6,808.9	6,625.0	6,625.0	61.8	132.5	-49.05	-3,093.0	504.5	192.1	42.2	149.90	1.281	Level 3, CC, ES, SF
9,800.0	6,808.8	6,625.0	6,625.0	62.7	132.5	-49.05	-3,093.0	504.5	197.2	46.6	150.56	1.310	Level 3

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden (Existing) Pad Sec.34-T5N-R64W - Eckhardt 43-34 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6625-UNKNOWN													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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9,900.0	6,808.4	6,625.0	6,625.0	64.5	132.5	-49.05	-3,093.0	504.5	240.5	88.4	152.04	1.582		
10,000.0	6,808.1	6,625.0	6,625.0	66.4	132.5	-49.05	-3,093.0	504.5	311.0	157.5	153.53	2.026		
10,100.0	6,807.8	6,625.0	6,625.0	68.2	132.5	-49.05	-3,093.0	504.5	394.6	239.5	155.01	2.545		
10,200.0	6,807.4	6,625.0	6,625.0	70.1	132.5	-49.05	-3,093.0	504.5	484.4	327.9	156.50	3.095		
10,300.0	6,807.1	6,625.0	6,625.0	72.0	132.5	-49.05	-3,093.0	504.5	577.5	419.5	158.00	3.655		
10,400.0	6,806.8	6,625.0	6,625.0	73.9	132.5	-49.05	-3,093.0	504.5	672.7	513.2	159.49	4.218		
10,500.0	6,806.4	6,625.0	6,625.0	75.7	132.5	-49.05	-3,093.0	504.5	769.0	608.0	160.99	4.777		
10,600.0	6,806.1	6,625.0	6,625.0	77.6	132.5	-49.05	-3,093.0	504.5	866.2	703.7	162.48	5.331		
10,700.0	6,805.8	6,625.0	6,625.0	79.5	132.5	-49.05	-3,093.0	504.5	964.0	800.0	163.98	5.879		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden (Existing) Pad Sec.34-T5N-R64W - Eckhardt 44-34 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7010-UNKNOWN													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		
10,100.0	6,807.8	6,753.8	6,753.8	68.2	135.1	-91.16	-4,411.8	518.4	986.6	783.6	203.03	4.860		
10,200.0	6,807.4	6,753.4	6,753.4	70.1	135.1	-91.04	-4,411.8	518.4	888.1	683.2	204.91	4.334		
10,300.0	6,807.1	6,753.1	6,753.1	72.0	135.1	-90.92	-4,411.8	518.4	789.9	583.1	206.79	3.820		
10,400.0	6,806.8	6,752.8	6,752.8	73.9	135.1	-90.80	-4,411.8	518.4	692.3	483.6	208.68	3.317		
10,500.0	6,806.4	6,752.4	6,752.4	75.7	135.0	-90.69	-4,411.8	518.4	595.4	384.8	210.56	2.828		
10,600.0	6,806.1	6,752.1	6,752.1	77.6	135.0	-90.57	-4,411.8	518.4	499.7	287.3	212.44	2.352		
10,700.0	6,805.8	6,751.8	6,751.8	79.5	135.0	-90.45	-4,411.8	518.4	406.2	191.8	214.33	1.895		
10,800.0	6,805.4	6,751.4	6,751.4	81.4	135.0	-90.33	-4,411.8	518.4	316.6	100.4	216.22	1.464 Level 3		
10,900.0	6,805.1	6,751.1	6,751.1	83.3	135.0	-90.21	-4,411.8	518.4	235.5	17.4	218.10	1.080 Level 2		
11,000.0	6,804.8	6,750.8	6,750.8	85.2	135.0	-90.09	-4,411.8	518.4	175.3	-44.7	219.99	0.797 Level 1		
11,073.8	6,804.5	6,750.5	6,750.5	86.6	135.0	-90.00	-4,411.8	518.4	159.0	-62.4	221.38	0.718 Level 1, CC, ES, SF		
11,100.0	6,804.4	6,750.4	6,750.4	87.0	135.0	-89.97	-4,411.8	518.4	161.2	-60.7	221.88	0.726 Level 1		
11,200.0	6,804.1	6,750.1	6,750.1	88.9	135.0	-89.85	-4,411.8	518.4	203.0	-20.7	223.77	0.907 Level 1		
11,234.0	6,804.0	6,750.0	6,750.0	89.6	135.0	-89.81	-4,411.8	518.4	225.8	1.4	224.41	1.006 Level 2		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden (Existing) Pad Sec.34-T5N-R64W - Eckhardt 5 (Existing) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 6915-UNKNOWN												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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
9,600.0	6,809.4	6,753.4	6,753.4	58.9	135.1	90.34	-3,799.8	-122.6	987.4	793.6	193.76	5.096	
9,700.0	6,809.1	6,753.1	6,753.1	60.8	135.1	90.30	-3,799.8	-122.6	901.4	705.8	195.61	4.608	
9,800.0	6,808.8	6,752.8	6,752.8	62.7	135.1	90.26	-3,799.8	-122.6	818.7	621.2	197.47	4.146	
9,900.0	6,808.4	6,752.4	6,752.4	64.5	135.0	90.22	-3,799.8	-122.6	740.2	540.9	199.33	3.713	
10,000.0	6,808.1	6,752.1	6,752.1	66.4	135.0	90.18	-3,799.8	-122.6	667.5	466.3	201.19	3.318	
10,100.0	6,807.8	6,751.8	6,751.8	68.2	135.0	90.14	-3,799.8	-122.6	602.7	399.6	203.06	2.968	
10,200.0	6,807.4	6,751.4	6,751.4	70.1	135.0	90.10	-3,799.8	-122.6	548.5	343.6	204.93	2.677	
10,300.0	6,807.1	6,751.1	6,751.1	72.0	135.0	90.06	-3,799.8	-122.6	508.4	301.6	206.80	2.459	
10,400.0	6,806.8	6,750.8	6,750.8	73.9	135.0	90.02	-3,799.8	-122.6	486.0	277.3	208.67	2.329	
10,461.7	6,806.6	6,750.6	6,750.6	75.0	135.0	90.00	-3,799.8	-122.6	482.0	272.2	209.83	2.297 CC, ES	
10,500.0	6,806.4	6,750.4	6,750.4	75.7	135.0	89.98	-3,799.8	-122.6	483.6	273.0	210.55	2.297 SF	
10,600.0	6,806.1	6,750.1	6,750.1	77.6	135.0	89.95	-3,799.8	-122.6	501.5	289.1	212.42	2.361	
10,700.0	6,805.8	6,749.8	6,749.8	79.5	135.0	89.91	-3,799.8	-122.6	537.7	323.4	214.30	2.509	
10,800.0	6,805.4	6,749.4	6,749.4	81.4	135.0	89.87	-3,799.8	-122.6	588.9	372.7	216.18	2.724	
10,900.0	6,805.1	6,749.1	6,749.1	83.3	135.0	89.83	-3,799.8	-122.6	651.5	433.4	218.06	2.988	
11,000.0	6,804.8	6,748.8	6,748.8	85.2	135.0	89.79	-3,799.8	-122.6	722.6	502.6	219.95	3.285	
11,100.0	6,804.4	6,748.4	6,748.4	87.0	135.0	89.75	-3,799.8	-122.6	799.9	578.0	221.83	3.606	
11,200.0	6,804.1	6,748.1	6,748.1	88.9	135.0	89.71	-3,799.8	-122.6	881.7	658.0	223.72	3.941	
11,234.0	6,804.0	6,748.0	6,748.0	89.6	135.0	89.70	-3,799.8	-122.6	910.4	686.0	224.36	4.058	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 6965-UNKNOWN													Offset Well Error:	0.0 ft
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	134.72	-455.4	459.8	647.2					
100.0	100.0	95.0	95.0	0.1	1.9	134.72	-455.4	459.8	647.2	645.1	2.01	321.556		
200.0	200.0	195.0	195.0	0.3	3.9	134.72	-455.4	459.8	647.2	642.9	4.24	152.727		
300.0	300.0	295.0	295.0	0.6	5.9	134.72	-455.4	459.8	647.2	640.7	6.46	100.146		
400.0	400.0	395.0	395.0	0.8	7.9	134.72	-455.4	459.8	647.2	638.5	8.69	74.498		
500.0	500.0	495.0	495.0	1.0	9.9	134.72	-455.4	459.8	647.2	636.2	10.91	59.309		
600.0	600.0	595.0	595.0	1.2	11.9	134.72	-455.4	459.8	647.2	634.0	13.14	49.264		
700.0	700.0	695.0	695.0	1.5	13.9	134.72	-455.4	459.8	647.2	631.8	15.36	42.129		
800.0	800.0	795.0	795.0	1.7	15.9	134.72	-455.4	459.8	647.2	629.6	17.59	36.800		
900.0	900.0	895.0	895.0	1.9	17.9	134.72	-455.4	459.8	647.2	627.3	19.81	32.667		
1,000.0	1,000.0	995.0	995.0	2.1	19.9	134.72	-455.4	459.8	647.2	625.1	22.04	29.369		
1,100.0	1,100.0	1,095.0	1,095.0	2.4	21.9	134.72	-455.4	459.8	647.2	622.9	24.26	26.676		
1,200.0	1,200.0	1,195.0	1,195.0	2.6	23.9	134.72	-455.4	459.8	647.2	620.7	26.48	24.435		
1,300.0	1,300.0	1,295.0	1,295.0	2.8	25.9	134.72	-455.4	459.8	647.2	618.4	28.71	22.541		
1,400.0	1,400.0	1,395.0	1,395.0	3.0	27.9	134.72	-455.4	459.8	647.2	616.2	30.93	20.920		
1,500.0	1,500.0	1,495.0	1,495.0	3.3	29.9	134.72	-455.4	459.8	647.2	614.0	33.16	19.517		
1,600.0	1,600.0	1,595.0	1,595.0	3.5	31.9	69.14	-455.4	459.8	646.5	611.2	35.37	18.278		
1,700.0	1,699.8	1,694.8	1,694.8	3.7	33.9	69.61	-455.4	459.8	644.7	607.1	37.57	17.158		
1,800.0	1,799.5	1,794.5	1,794.5	3.9	35.9	70.39	-455.4	459.8	641.7	601.9	39.77	16.135		
1,900.0	1,898.9	1,893.9	1,893.9	4.1	37.9	71.29	-455.4	459.8	638.2	596.2	41.99	15.199		
2,000.0	1,998.3	1,993.3	1,993.3	4.4	39.9	72.19	-455.4	459.8	634.9	590.6	44.22	14.358		
2,100.0	2,097.8	2,092.8	2,092.8	4.6	41.9	73.10	-455.4	459.8	631.7	585.2	46.45	13.599		
2,200.0	2,197.2	2,192.2	2,192.2	4.9	43.8	74.02	-455.4	459.8	628.7	580.0	48.69	12.912		
2,300.0	2,296.6	2,291.6	2,291.6	5.1	45.8	74.95	-455.4	459.8	625.8	574.9	50.94	12.286		
2,400.0	2,396.1	2,391.1	2,391.1	5.4	47.8	75.89	-455.4	459.8	623.1	569.9	53.19	11.716		
2,500.0	2,495.5	2,490.5	2,490.5	5.7	49.8	76.83	-455.4	459.8	620.6	565.2	55.44	11.194		
2,600.0	2,594.9	2,589.9	2,589.9	5.9	51.8	77.79	-455.4	459.8	618.3	560.6	57.70	10.715		
2,700.0	2,694.4	2,689.4	2,689.4	6.2	53.8	78.74	-455.4	459.8	616.1	556.1	59.96	10.275		
2,800.0	2,793.8	2,788.8	2,788.8	6.5	55.8	79.71	-455.4	459.8	614.1	551.9	62.23	9.869		
2,900.0	2,893.2	2,888.2	2,888.2	6.8	57.8	80.68	-455.4	459.8	612.3	547.8	64.49	9.494		
3,000.0	2,992.7	2,987.7	2,987.7	7.0	59.8	81.66	-455.4	459.8	610.6	543.9	66.76	9.146		
3,100.0	3,092.1	3,087.1	3,087.1	7.3	61.7	82.64	-455.4	459.8	609.2	540.2	69.04	8.824		
3,200.0	3,191.6	3,186.6	3,186.6	7.6	63.7	83.63	-455.4	459.8	607.9	536.6	71.31	8.525		
3,300.0	3,291.0	3,286.0	3,286.0	7.9	65.7	84.62	-455.4	459.8	606.8	533.2	73.58	8.247		
3,400.0	3,390.4	3,385.4	3,385.4	8.2	67.7	85.61	-455.4	459.8	605.9	530.1	75.86	7.987		
3,500.0	3,489.9	3,484.9	3,484.9	8.5	69.7	86.60	-455.4	459.8	605.2	527.1	78.14	7.745		
3,600.0	3,589.3	3,584.3	3,584.3	8.7	71.7	87.60	-455.4	459.8	604.6	524.2	80.42	7.519		
3,700.0	3,688.7	3,683.7	3,683.7	9.0	73.7	88.60	-455.4	459.8	604.3	521.6	82.69	7.308		
3,800.0	3,788.2	3,783.2	3,783.2	9.3	75.7	89.60	-455.4	459.8	604.1	519.2	84.97	7.110		
3,839.8	3,827.7	3,822.7	3,822.7	9.4	76.5	90.00	-455.4	459.8	604.1	518.2	85.88	7.035		
3,900.0	3,887.6	3,882.6	3,882.6	9.6	77.7	90.60	-455.4	459.8	604.1	516.9	87.25	6.924		
4,000.0	3,987.0	3,982.0	3,982.0	9.9	79.6	91.60	-455.4	459.8	604.4	514.8	89.53	6.750		
4,100.0	4,086.5	4,081.5	4,081.5	10.2	81.6	92.60	-455.4	459.8	604.7	512.9	91.81	6.587		
4,200.0	4,185.9	4,180.9	4,180.9	10.5	83.6	93.60	-455.4	459.8	605.3	511.2	94.09	6.434		
4,300.0	4,285.3	4,280.3	4,280.3	10.8	85.6	94.59	-455.4	459.8	606.1	509.7	96.36	6.289		
4,400.0	4,384.8	4,379.8	4,379.8	11.1	87.6	95.59	-455.4	459.8	607.0	508.4	98.64	6.154		
4,500.0	4,484.2	4,479.2	4,479.2	11.3	89.6	96.58	-455.4	459.8	608.2	507.2	100.92	6.026		
4,600.0	4,583.7	4,578.7	4,578.7	11.6	91.6	97.56	-455.4	459.8	609.5	506.3	103.19	5.906		
4,700.0	4,683.1	4,678.1	4,678.1	11.9	93.6	98.54	-455.4	459.8	611.0	505.5	105.47	5.793		
4,800.0	4,782.5	4,777.5	4,777.5	12.2	95.6	99.52	-455.4	459.8	612.6	504.9	107.74	5.686		
4,900.0	4,882.0	4,877.0	4,877.0	12.5	97.5	100.49	-455.4	459.8	614.5	504.5	110.01	5.586		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden (Existing) Pad Sec.34-T5N-R64W - Gamewell 34-3 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6965-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,981.4	4,976.4	4,976.4	12.8	99.5	101.45		-455.4	459.8	616.5	504.2	112.28	5.491	
5,100.0	5,080.8	5,075.8	5,075.8	13.1	101.5	102.41		-455.4	459.8	618.7	504.2	114.55	5.401	
5,200.0	5,180.3	5,175.3	5,175.3	13.4	103.5	103.36		-455.4	459.8	621.1	504.3	116.82	5.317	
5,300.0	5,279.8	5,274.8	5,274.8	13.6	105.5	104.23		-455.4	459.8	623.4	504.3	119.07	5.235	
5,400.0	5,379.6	5,374.6	5,374.6	13.8	107.5	104.79		-455.4	459.8	624.8	503.6	121.26	5.153	
5,500.0	5,479.6	5,474.6	5,474.6	14.0	109.5	105.02		-455.4	459.8	625.5	502.0	123.43	5.067	
5,600.0	5,579.6	5,574.6	5,574.6	14.2	111.5	170.76		-455.4	459.8	625.5	499.9	125.60	4.980	
5,700.0	5,679.6	5,674.6	5,674.6	14.4	113.5	170.76		-455.4	459.8	625.5	497.7	127.79	4.895	
5,800.0	5,779.6	5,774.6	5,774.6	14.6	115.5	170.76		-455.4	459.8	625.5	495.5	129.98	4.812	
5,900.0	5,879.6	5,874.6	5,874.6	14.7	117.5	170.76		-455.4	459.8	625.5	493.3	132.17	4.732	
6,000.0	5,979.6	5,974.6	5,974.6	14.9	119.5	170.76		-455.4	459.8	625.5	491.1	134.36	4.655	
6,100.0	6,079.6	6,074.6	6,074.6	15.1	121.5	-9.26		-455.4	459.8	624.6	488.2	136.39	4.580	
6,200.0	6,178.9	6,173.9	6,173.9	15.3	123.5	-9.57		-455.4	459.8	613.5	476.9	136.53	4.493	
6,300.0	6,275.8	6,270.8	6,270.8	15.4	125.4	-10.29		-455.4	459.8	589.7	455.3	134.33	4.390	
6,400.0	6,368.8	6,363.8	6,363.8	15.4	127.3	-11.53		-455.4	459.8	553.6	423.8	129.84	4.264	
6,500.0	6,456.2	6,451.2	6,451.2	15.5	129.0	-13.54		-455.4	459.8	506.0	382.7	123.31	4.104	
6,600.0	6,536.6	6,531.6	6,531.6	15.6	130.6	-16.77		-455.4	459.8	448.0	332.5	115.48	3.879	
6,700.0	6,608.4	6,603.4	6,603.4	15.8	132.1	-22.14		-455.4	459.8	380.6	272.3	108.34	3.513	
6,800.0	6,670.7	6,665.7	6,665.7	16.0	133.3	-31.37		-455.4	459.8	305.9	198.8	107.08	2.857	
6,900.0	6,722.1	6,717.1	6,717.1	16.5	134.3	-47.17		-455.4	459.8	226.7	106.4	120.30	1.885	
7,000.0	6,762.0	6,757.0	6,757.0	17.1	135.1	-69.40		-455.4	459.8	150.2	7.0	143.16	1.049	Level 2
7,100.0	6,789.5	6,784.5	6,784.5	18.0	135.7	-88.11		-455.4	459.8	101.6	-51.2	152.81	0.665	Level 1
7,115.9	6,792.8	6,787.8	6,787.8	18.1	135.8	-89.99		-455.4	459.8	100.4	-52.7	153.10	0.656	Level 1, CC, ES, SF
7,200.0	6,804.5	6,799.5	6,799.5	19.0	136.0	-94.95		-455.4	459.8	130.4	-23.2	153.61	0.849	Level 1
7,300.0	6,814.2	6,809.2	6,809.2	20.1	136.2	-97.00		-455.4	459.8	208.5	54.1	154.38	1.351	Level 3
7,400.0	6,816.7	6,811.7	6,811.7	21.4	136.2	-89.47		-455.4	459.8	300.0	143.0	156.98	1.911	
7,500.0	6,816.4	6,811.4	6,811.4	22.8	136.2	-89.28		-455.4	459.8	395.6	237.3	158.36	2.498	
7,600.0	6,816.1	6,811.1	6,811.1	24.2	136.2	-89.09		-455.4	459.8	493.0	333.2	159.81	3.085	
7,700.0	6,815.7	6,810.7	6,810.7	25.7	136.2	-88.90		-455.4	459.8	591.3	429.9	161.33	3.665	
7,800.0	6,815.4	6,810.4	6,810.4	27.2	136.2	-88.71		-455.4	459.8	690.0	527.1	162.89	4.236	
7,900.0	6,815.1	6,810.1	6,810.1	28.8	136.2	-88.52		-455.4	459.8	789.1	624.6	164.49	4.797	
8,000.0	6,814.7	6,809.7	6,809.7	30.5	136.2	-88.33		-455.4	459.8	888.4	722.2	166.13	5.347	
8,100.0	6,814.4	6,809.4	6,809.4	32.1	136.2	-88.14		-455.4	459.8	987.8	820.0	167.79	5.887	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden (Existing) Pad Sec.34-T5N-R64W - Gamewell 34-4 (Existing) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 6988-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,400.0	6,816.7	6,811.7	6,811.7	21.4	135.8	-91.57	-1,726.8	479.4	996.0	839.6	156.47	6.366	
7,500.0	6,816.4	6,811.4	6,811.4	22.8	135.8	-91.41	-1,726.8	479.4	896.8	739.0	157.86	5.681	
7,600.0	6,816.1	6,811.1	6,811.1	24.2	135.8	-91.25	-1,726.8	479.4	797.8	638.5	159.33	5.007	
7,700.0	6,815.7	6,810.7	6,810.7	25.7	135.8	-91.09	-1,726.8	479.4	699.1	538.3	160.86	4.346	
7,800.0	6,815.4	6,810.4	6,810.4	27.2	135.8	-90.93	-1,726.8	479.4	600.9	438.4	162.44	3.699	
7,900.0	6,815.1	6,810.1	6,810.1	28.8	135.8	-90.77	-1,726.8	479.4	503.3	339.2	164.06	3.068	
8,000.0	6,814.7	6,809.7	6,809.7	30.5	135.8	-90.62	-1,726.8	479.4	406.9	241.1	165.72	2.455	
8,100.0	6,814.4	6,809.4	6,809.4	32.1	135.8	-90.46	-1,726.8	479.4	312.7	145.3	167.40	1.868	
8,200.0	6,814.1	6,809.1	6,809.1	33.8	135.8	-90.30	-1,726.8	479.4	223.7	54.5	169.11	1.323 Level 3	
8,300.0	6,813.7	6,808.7	6,808.7	35.5	135.8	-90.14	-1,726.8	479.4	149.2	-21.6	170.84	0.873 Level 1	
8,388.7	6,813.4	6,808.4	6,808.4	37.1	135.7	-90.00	-1,726.8	479.4	120.0	-52.4	172.40	0.696 Level 1, CC, ES, SF	
8,400.0	6,813.4	6,808.4	6,808.4	37.2	135.7	-89.98	-1,726.8	479.4	120.5	-52.1	172.59	0.698 Level 1	
8,500.0	6,813.1	6,808.1	6,808.1	39.0	135.7	-89.82	-1,726.8	479.4	163.6	-10.8	174.35	0.938 Level 1	
8,600.0	6,812.7	6,807.7	6,807.7	40.8	135.7	-89.67	-1,726.8	479.4	242.9	66.8	176.13	1.379 Level 3	
8,700.0	6,812.4	6,807.4	6,807.4	42.5	135.7	-89.51	-1,726.8	479.4	333.5	155.6	177.92	1.875	
8,800.0	6,812.1	6,807.1	6,807.1	44.3	135.7	-89.35	-1,726.8	479.4	428.4	248.7	179.71	2.384	
8,900.0	6,811.7	6,806.7	6,806.7	46.1	135.7	-89.19	-1,726.8	479.4	525.1	343.6	181.52	2.893	
9,000.0	6,811.4	6,806.4	6,806.4	47.9	135.7	-89.03	-1,726.8	479.4	622.9	439.6	183.33	3.398	
9,100.0	6,811.1	6,806.1	6,806.1	49.8	135.7	-88.87	-1,726.8	479.4	721.3	536.1	185.14	3.896	
9,200.0	6,810.7	6,805.7	6,805.7	51.6	135.7	-88.72	-1,726.8	479.4	820.0	633.1	186.96	4.386	
9,300.0	6,810.4	6,805.4	6,805.4	53.4	135.7	-88.56	-1,726.8	479.4	919.1	730.3	188.79	4.868	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34R-323 - Wellbore #1 - Plan #1 (2-13-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	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	-90.02	0.0	-30.7	30.7				
100.0	100.0	99.0	99.0	0.1	0.1	-90.02	-90.02	0.0	-30.7	30.7	30.4	0.22	137.068	
200.0	200.0	199.0	199.0	0.3	0.3	-90.02	-90.02	0.0	-30.7	30.7	30.0	0.67	45.613	
300.0	300.0	299.0	299.0	0.6	0.6	-90.02	-90.02	0.0	-30.7	30.7	29.5	1.12	27.331	
400.0	400.0	399.0	399.0	0.8	0.8	-90.02	-90.02	0.0	-30.7	30.7	29.1	1.57	19.511	
500.0	500.0	499.0	499.0	1.0	1.0	-90.02	-90.02	0.0	-30.7	30.7	28.6	2.02	15.171	
600.0	600.0	599.0	599.0	1.2	1.2	-90.02	-90.02	0.0	-30.7	30.7	28.2	2.47	12.410	
700.0	700.0	699.0	699.0	1.5	1.5	-90.02	-90.02	0.0	-30.7	30.7	27.7	2.92	10.499	
800.0	800.0	799.0	799.0	1.7	1.7	-90.02	-90.02	0.0	-30.7	30.7	27.3	3.37	9.098	
900.0	900.0	899.0	899.0	1.9	1.9	-90.02	-90.02	0.0	-30.7	30.7	26.8	3.82	8.027	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	-90.02	-90.02	0.0	-30.7	30.7	26.4	4.27	7.182	
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.4	-90.02	-90.02	0.0	-30.7	30.7	25.9	4.72	6.498	
1,200.0	1,200.0	1,199.0	1,199.0	2.6	2.6	-90.02	-90.02	0.0	-30.7	30.7	25.5	5.17	5.932	
1,300.0	1,300.0	1,299.0	1,299.0	2.8	2.8	-90.02	-90.02	0.0	-30.7	30.7	25.0	5.62	5.458	
1,400.0	1,400.0	1,399.0	1,399.0	3.0	3.0	-90.02	-90.02	0.0	-30.7	30.7	24.6	6.07	5.053	
1,500.0	1,500.0	1,499.0	1,499.0	3.3	3.3	-90.02	-90.02	0.0	-30.7	30.7	24.1	6.52	4.705 CC, ES	
1,600.0	1,600.0	1,599.0	1,599.0	3.5	3.5	-157.01	-157.01	0.0	-30.7	32.3	25.3	6.95	4.638	
1,700.0	1,699.8	1,698.8	1,698.8	3.7	3.7	-160.13	-160.13	0.0	-30.7	37.1	29.7	7.38	5.031	
1,800.0	1,799.5	1,798.5	1,798.5	3.9	3.9	-163.83	-163.83	0.0	-30.7	45.4	37.6	7.80	5.825	
1,900.0	1,898.9	1,897.9	1,897.9	4.1	4.2	-166.86	-166.86	0.0	-30.7	55.7	47.5	8.23	6.765	
2,000.0	1,998.3	1,997.3	1,997.3	4.4	4.4	-168.95	-168.95	0.0	-30.7	66.1	57.4	8.67	7.620	
2,100.0	2,097.8	2,096.8	2,096.8	4.6	4.6	-170.48	-170.48	0.0	-30.7	76.5	67.4	9.11	8.398	
2,200.0	2,197.2	2,196.2	2,196.2	4.9	4.8	-171.63	-171.63	0.0	-30.7	87.0	77.4	9.55	9.106	
2,300.0	2,296.6	2,295.6	2,295.6	5.1	5.0	-172.54	-172.54	0.0	-30.7	97.5	87.5	10.00	9.754	
2,400.0	2,396.1	2,395.1	2,395.1	5.4	5.3	-173.27	-173.27	0.0	-30.7	108.0	97.6	10.44	10.346	
2,500.0	2,495.5	2,494.5	2,494.5	5.7	5.5	-173.87	-173.87	0.0	-30.7	118.6	107.7	10.89	10.890	
2,600.0	2,594.9	2,597.7	2,597.7	5.9	5.7	-174.02	-174.02	1.2	-29.6	127.7	116.4	11.34	11.266	
2,700.0	2,694.4	2,701.6	2,701.4	6.2	6.0	-173.33	-173.33	5.3	-26.0	133.8	122.0	11.79	11.352	
2,800.0	2,793.8	2,804.5	2,804.0	6.5	6.2	-171.93	-171.93	12.0	-20.1	136.9	124.7	12.24	11.190	
2,900.0	2,893.2	2,904.4	2,903.4	6.8	6.4	-170.40	-170.40	19.3	-13.7	139.4	126.7	12.69	10.985	
3,000.0	2,992.7	3,004.3	3,002.8	7.0	6.6	-168.94	-168.94	26.5	-7.4	141.9	128.7	13.14	10.798	
3,100.0	3,092.1	3,104.2	3,102.3	7.3	6.9	-167.52	-167.52	33.8	-1.0	144.5	130.9	13.60	10.626	
3,200.0	3,191.6	3,204.1	3,201.7	7.6	7.1	-166.15	-166.15	41.0	5.4	147.2	133.1	14.06	10.468	
3,300.0	3,291.0	3,304.0	3,301.2	7.9	7.4	-164.84	-164.84	48.3	11.7	149.9	135.4	14.52	10.322	
3,400.0	3,390.4	3,403.9	3,400.6	8.2	7.6	-163.57	-163.57	55.5	18.1	152.8	137.8	14.99	10.188	
3,500.0	3,489.9	3,503.8	3,500.0	8.5	7.8	-162.35	-162.35	62.8	24.5	155.7	140.2	15.47	10.063	
3,600.0	3,589.3	3,603.8	3,599.5	8.7	8.1	-161.18	-161.18	70.0	30.8	158.7	142.7	15.95	9.948	
3,700.0	3,688.7	3,703.7	3,698.9	9.0	8.3	-160.04	-160.04	77.3	37.2	161.7	145.3	16.43	9.840	
3,800.0	3,788.2	3,803.6	3,798.3	9.3	8.6	-158.96	-158.96	84.5	43.5	164.8	147.9	16.92	9.740	
3,900.0	3,887.6	3,903.5	3,897.8	9.6	8.9	-157.91	-157.91	91.8	49.9	168.0	150.6	17.41	9.646	
4,000.0	3,987.0	4,003.4	3,997.2	9.9	9.1	-156.90	-156.90	99.0	56.3	171.2	153.3	17.91	9.559	
4,100.0	4,086.5	4,103.3	4,096.6	10.2	9.4	-155.93	-155.93	106.3	62.6	174.5	156.1	18.41	9.477	
4,200.0	4,185.9	4,203.2	4,196.1	10.5	9.6	-154.99	-154.99	113.5	69.0	177.8	158.9	18.91	9.400	
4,300.0	4,285.3	4,303.1	4,295.5	10.8	9.9	-154.09	-154.09	120.7	75.3	181.2	161.7	19.42	9.328	
4,400.0	4,384.8	4,403.0	4,395.0	11.1	10.2	-153.22	-153.22	128.0	81.7	184.6	164.6	19.93	9.260	
4,500.0	4,484.2	4,502.9	4,494.4	11.3	10.4	-152.38	-152.38	135.2	88.1	188.0	167.6	20.45	9.196	
4,600.0	4,583.7	4,602.8	4,593.8	11.6	10.7	-151.58	-151.58	142.5	94.4	191.5	170.5	20.96	9.136	
4,700.0	4,683.1	4,702.7	4,693.3	11.9	11.0	-150.80	-150.80	149.7	100.8	195.0	173.6	21.48	9.079	
4,800.0	4,782.5	4,800.0	4,790.2	12.2	11.2	-150.25	-150.25	156.2	106.5	199.1	177.1	21.97	9.060	
4,900.0	4,882.0	4,895.7	4,885.8	12.5	11.4	-150.43	-150.43	160.3	110.0	205.0	182.6	22.40	9.152	
5,000.0	4,981.4	4,991.2	4,981.2	12.8	11.6	-151.30	-151.30	161.9	111.5	212.9	190.1	22.79	9.343	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34R-323 - Wellbore #1 - Plan #1 (2-13-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	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	5,080.8	5,089.8	5,079.8	13.1	11.7	-152.59		162.0	111.5	222.2	199.0	23.18	9.588	
5,200.0	5,180.3	5,189.3	5,179.3	13.4	11.9	-153.80		162.0	111.5	231.7	208.1	23.59	9.821	
5,300.0	5,279.8	5,288.8	5,278.8	13.6	12.2	-154.84		162.0	111.5	240.2	216.1	24.01	10.002	
5,400.0	5,379.6	5,388.6	5,378.6	13.8	12.4	-155.48		162.0	111.5	245.6	221.2	24.40	10.064	
5,500.0	5,479.6	5,488.6	5,478.6	14.0	12.6	-155.73		162.0	111.5	247.8	223.0	24.77	10.004	
5,600.0	5,579.6	5,588.6	5,578.6	14.2	12.8	-90.00		162.0	111.5	247.9	222.7	25.17	9.849	
5,700.0	5,679.6	5,688.6	5,678.6	14.4	13.0	-90.00		162.0	111.5	247.9	222.3	25.59	9.686	
5,800.0	5,779.6	5,788.6	5,778.6	14.6	13.2	-90.00		162.0	111.5	247.9	221.8	26.01	9.529	
5,900.0	5,879.6	5,888.6	5,878.6	14.7	13.4	-90.00		162.0	111.5	247.9	221.4	26.43	9.376	
5,963.7	5,943.3	5,952.3	5,942.3	14.9	13.6	-90.00		162.0	111.5	247.9	221.2	26.70	9.282	
6,000.0	5,979.6	5,988.6	5,978.6	14.9	13.6	-90.04		161.8	111.5	247.9	221.0	26.85	9.230	
6,100.0	6,079.6	6,087.9	6,077.4	15.1	13.8	88.21		153.4	111.5	248.0	220.8	27.14	9.136	
6,200.0	6,178.9	6,185.7	6,173.0	15.3	13.9	85.91		132.7	111.5	248.5	221.2	27.32	9.096	
6,300.0	6,275.8	6,282.4	6,264.0	15.4	14.0	83.70		100.4	111.5	249.4	221.9	27.45	9.084	
6,400.0	6,368.8	6,377.9	6,349.3	15.4	14.1	81.62		57.4	111.5	250.6	223.0	27.59	9.080	
6,500.0	6,456.2	6,472.5	6,427.7	15.5	14.2	79.70		4.7	111.5	251.9	224.2	27.79	9.066	
6,600.0	6,536.6	6,566.2	6,498.5	15.6	14.3	77.97		-56.6	111.5	253.5	225.4	28.10	9.021	
6,700.0	6,608.4	6,659.1	6,560.7	15.8	14.5	76.45		-125.6	111.5	255.0	226.4	28.57	8.926	
6,800.0	6,670.7	6,750.0	6,613.0	16.0	15.0	75.17		-199.9	111.5	256.4	227.2	29.24	8.771	
6,900.0	6,722.1	6,843.0	6,657.0	16.5	15.6	74.11		-281.7	111.5	257.7	227.6	30.17	8.541	
7,000.0	6,762.0	6,934.2	6,690.2	17.1	16.3	73.31		-366.6	111.5	258.8	227.4	31.38	8.247	
7,100.0	6,789.5	7,025.2	6,713.0	18.0	17.2	72.76		-454.6	111.5	259.5	226.7	32.86	7.899	
7,200.0	6,804.5	7,115.9	6,725.2	19.0	18.2	72.43		-544.5	111.5	260.0	225.4	34.63	7.508	
7,300.0	6,814.2	7,208.8	6,727.1	20.1	19.3	70.90		-637.3	111.5	262.4	225.9	36.51	7.187	
7,400.0	6,816.7	7,308.7	6,726.1	21.4	20.6	70.13		-737.2	111.5	263.6	224.9	38.70	6.811	
7,500.0	6,816.4	7,408.7	6,725.2	22.8	22.0	70.01		-837.2	111.5	263.8	222.5	41.30	6.386	
7,600.0	6,816.1	7,508.7	6,724.3	24.2	23.5	69.88		-937.2	111.5	264.0	219.9	44.05	5.993	
7,700.0	6,815.7	7,608.7	6,723.3	25.7	25.0	69.76		-1,037.2	111.5	264.2	217.3	46.91	5.632	
7,800.0	6,815.4	7,708.7	6,722.4	27.2	26.6	69.63		-1,137.2	111.5	264.4	214.5	49.87	5.302	
7,900.0	6,815.1	7,808.7	6,721.4	28.8	28.2	69.51		-1,237.2	111.5	264.6	211.7	52.90	5.002	
8,000.0	6,814.7	7,908.7	6,720.5	30.5	29.9	69.39		-1,337.2	111.5	264.8	208.8	55.99	4.730	
8,100.0	6,814.4	8,008.7	6,719.5	32.1	31.6	69.26		-1,437.2	111.5	265.0	205.9	59.14	4.482	
8,200.0	6,814.1	8,108.7	6,718.6	33.8	33.3	69.14		-1,537.2	111.5	265.3	202.9	62.33	4.256	
8,300.0	6,813.7	8,208.7	6,717.7	35.5	35.0	69.02		-1,637.2	111.5	265.5	199.9	65.56	4.050	
8,400.0	6,813.4	8,308.7	6,716.7	37.2	36.8	68.89		-1,737.1	111.5	265.7	196.9	68.81	3.861	
8,500.0	6,813.1	8,408.7	6,715.8	39.0	38.5	68.77		-1,837.1	111.5	265.9	193.8	72.10	3.688	
8,600.0	6,812.7	8,508.7	6,714.8	40.8	40.3	68.65		-1,937.1	111.5	266.1	190.7	75.40	3.530	
8,700.0	6,812.4	8,608.7	6,713.9	42.5	42.1	68.53		-2,037.1	111.5	266.4	187.6	78.72	3.384	
8,800.0	6,812.1	8,708.7	6,712.9	44.3	43.9	68.40		-2,137.1	111.5	266.6	184.5	82.06	3.249	
8,900.0	6,811.7	8,808.7	6,712.0	46.1	45.7	68.28		-2,237.1	111.5	266.8	181.4	85.41	3.124	
9,000.0	6,811.4	8,908.7	6,711.1	47.9	47.6	68.16		-2,337.1	111.5	267.0	178.3	88.77	3.008	
9,100.0	6,811.1	9,008.7	6,710.1	49.8	49.4	68.04		-2,437.1	111.5	267.3	175.1	92.14	2.901	
9,200.0	6,810.7	9,108.7	6,709.2	51.6	51.2	67.92		-2,537.1	111.5	267.5	172.0	95.52	2.801	
9,300.0	6,810.4	9,208.7	6,708.2	53.4	53.1	67.80		-2,637.1	111.5	267.7	168.8	98.90	2.707	
9,400.0	6,810.1	9,308.7	6,707.3	55.3	54.9	67.68		-2,737.1	111.5	268.0	165.7	102.29	2.620	
9,500.0	6,809.8	9,408.7	6,706.4	57.1	56.8	67.55		-2,837.1	111.5	268.2	162.5	105.68	2.538	
9,600.0	6,809.4	9,508.7	6,705.4	58.9	58.6	67.43		-2,937.1	111.5	268.4	159.4	109.07	2.461	
9,700.0	6,809.1	9,608.7	6,704.5	60.8	60.5	67.31		-3,037.1	111.5	268.7	156.2	112.47	2.389	
9,800.0	6,808.8	9,708.7	6,703.5	62.7	62.4	67.19		-3,137.1	111.5	268.9	153.0	115.87	2.321	
9,900.0	6,808.4	9,808.7	6,702.6	64.5	64.2	67.07		-3,237.1	111.5	269.2	149.9	119.26	2.257	
10,000.0	6,808.1	9,908.7	6,701.6	66.4	66.1	66.95		-3,337.0	111.5	269.4	146.7	122.66	2.196	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34R-323 - Wellbore #1 - Plan #1 (2-13-14)												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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation		Separation Factor
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
10,100.0	6,807.8	10,008.7	6,700.7	68.2	68.0	66.84	-3,437.0	111.5	269.6	143.6	126.06	2.139	
10,200.0	6,807.4	10,108.6	6,699.8	70.1	69.9	66.72	-3,537.0	111.5	269.9	140.4	129.46	2.085	
10,300.0	6,807.1	10,208.6	6,698.8	72.0	71.7	66.60	-3,637.0	111.5	270.1	137.3	132.85	2.033	
10,400.0	6,806.8	10,308.6	6,697.9	73.9	73.6	66.48	-3,737.0	111.5	270.4	134.1	136.25	1.984	
10,500.0	6,806.4	10,408.6	6,696.9	75.7	75.5	66.36	-3,837.0	111.5	270.6	131.0	139.64	1.938	
10,600.0	6,806.1	10,508.6	6,696.0	77.6	77.4	66.24	-3,937.0	111.5	270.9	127.8	143.03	1.894	
10,700.0	6,805.8	10,608.6	6,695.0	79.5	79.3	66.12	-4,037.0	111.5	271.1	124.7	146.42	1.852	
10,800.0	6,805.4	10,708.6	6,694.1	81.4	81.2	66.01	-4,137.0	111.5	271.3	121.5	149.80	1.811	
10,900.0	6,805.1	10,808.6	6,693.2	83.3	83.0	65.89	-4,237.0	111.5	271.6	118.4	153.18	1.773	
11,000.0	6,804.8	10,908.6	6,692.2	85.2	84.9	65.77	-4,337.0	111.5	271.8	115.3	156.56	1.736	
11,100.0	6,804.4	11,008.6	6,691.3	87.0	86.8	65.65	-4,437.0	111.5	272.1	112.2	159.94	1.701	
11,200.0	6,804.1	11,108.6	6,690.3	88.9	88.7	65.54	-4,537.0	111.5	272.4	109.1	163.28	1.668	
11,234.0	6,804.0	11,142.7	6,690.0	89.6	89.2	65.50	-4,571.0	111.5	272.4	108.1	164.31	1.658 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-243 - Wellbore #1 - Plan #1 (2-13-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	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	90.00	0.0	30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	90.00	90.00	0.0	30.7	30.7	30.4	0.22	136.384	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	90.00	0.0	30.7	30.7	30.0	0.67	45.461	
300.0	300.0	300.0	300.0	0.6	0.6	90.00	90.00	0.0	30.7	30.7	29.5	1.12	27.277	
400.0	400.0	400.0	400.0	0.8	0.8	90.00	90.00	0.0	30.7	30.7	29.1	1.57	19.483	
500.0	500.0	500.0	500.0	1.0	1.0	90.00	90.00	0.0	30.7	30.7	28.6	2.02	15.154	
600.0	600.0	600.0	600.0	1.2	1.2	90.00	90.00	0.0	30.7	30.7	28.2	2.47	12.399	
700.0	700.0	700.0	700.0	1.5	1.5	90.00	90.00	0.0	30.7	30.7	27.7	2.92	10.491	
800.0	800.0	800.0	800.0	1.7	1.7	90.00	90.00	0.0	30.7	30.7	27.3	3.37	9.092	
900.0	900.0	900.0	900.0	1.9	1.9	90.00	90.00	0.0	30.7	30.7	26.8	3.82	8.023	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.00	90.00	0.0	30.7	30.7	26.4	4.27	7.178 CC, ES	
1,100.0	1,100.0	1,098.9	1,098.9	2.4	2.3	89.35	89.35	0.4	32.3	32.3	27.6	4.71	6.870	
1,200.0	1,200.0	1,197.6	1,197.5	2.6	2.6	87.77	87.77	1.5	37.3	37.4	32.3	5.14	7.280	
1,300.0	1,300.0	1,295.8	1,295.3	2.8	2.8	85.91	85.91	3.3	45.6	45.9	40.3	5.58	8.223	
1,400.0	1,400.0	1,393.4	1,392.1	3.0	3.0	84.23	84.23	5.8	57.0	57.8	51.8	6.04	9.570	
1,500.0	1,500.0	1,490.0	1,487.6	3.3	3.3	82.89	82.89	8.9	71.5	73.1	66.6	6.52	11.209	
1,600.0	1,600.0	1,588.1	1,584.1	3.5	3.6	16.36	16.36	12.6	88.5	89.1	82.3	6.88	12.952	
1,700.0	1,699.8	1,687.2	1,681.7	3.7	3.9	16.34	16.34	16.4	105.8	102.0	94.7	7.30	13.962	
1,800.0	1,799.5	1,786.8	1,779.6	3.9	4.2	16.83	16.83	20.2	123.1	111.5	103.7	7.73	14.426	
1,900.0	1,898.9	1,886.5	1,877.7	4.1	4.6	17.56	17.56	24.0	140.5	119.2	111.0	8.17	14.580	
2,000.0	1,998.3	1,986.2	1,975.8	4.4	4.9	18.21	18.21	27.8	157.9	126.9	118.3	8.63	14.706	
2,100.0	2,097.8	2,085.8	2,073.9	4.6	5.3	18.78	18.78	31.6	175.3	134.6	125.5	9.09	14.813	
2,200.0	2,197.2	2,185.5	2,172.0	4.9	5.7	19.29	19.29	35.4	192.7	142.4	132.8	9.55	14.903	
2,300.0	2,296.6	2,285.2	2,270.1	5.1	6.0	19.75	19.75	39.2	210.0	150.1	140.1	10.02	14.979	
2,400.0	2,396.1	2,384.9	2,368.2	5.4	6.4	20.16	20.16	43.0	227.4	157.9	147.4	10.50	15.044	
2,500.0	2,495.5	2,484.6	2,466.3	5.7	6.8	20.53	20.53	46.8	244.8	165.7	154.7	10.97	15.099	
2,600.0	2,594.9	2,584.3	2,564.4	5.9	7.2	20.87	20.87	50.6	262.2	173.5	162.0	11.45	15.146	
2,700.0	2,694.4	2,684.0	2,662.5	6.2	7.6	21.18	21.18	54.4	279.5	181.2	169.3	11.93	15.186	
2,800.0	2,793.8	2,783.7	2,760.6	6.5	8.0	21.47	21.47	58.2	296.9	189.0	176.6	12.42	15.221	
2,900.0	2,893.2	2,883.4	2,858.6	6.8	8.3	21.73	21.73	62.0	314.3	196.8	183.9	12.91	15.250	
3,000.0	2,992.7	2,983.1	2,956.7	7.0	8.7	21.97	21.97	65.8	331.7	204.6	191.2	13.40	15.275	
3,100.0	3,092.1	3,082.8	3,054.8	7.3	9.1	22.20	22.20	69.6	349.1	212.4	198.5	13.89	15.297	
3,200.0	3,191.6	3,182.5	3,152.9	7.6	9.5	22.41	22.41	73.4	366.4	220.2	205.9	14.38	15.316	
3,300.0	3,291.0	3,282.1	3,251.0	7.9	9.9	22.60	22.60	77.2	383.8	228.0	213.2	14.87	15.332	
3,400.0	3,390.4	3,381.8	3,349.1	8.2	10.3	22.78	22.78	81.0	401.2	235.9	220.5	15.37	15.345	
3,500.0	3,489.9	3,481.5	3,447.2	8.5	10.7	22.95	22.95	84.8	418.6	243.7	227.8	15.87	15.357	
3,600.0	3,589.3	3,581.2	3,545.3	8.7	11.1	23.11	23.11	88.6	436.0	251.5	235.1	16.37	15.367	
3,700.0	3,688.7	3,680.9	3,643.4	9.0	11.5	23.26	23.26	92.4	453.3	259.3	242.4	16.86	15.375	
3,800.0	3,788.2	3,780.6	3,741.5	9.3	11.9	23.40	23.40	96.2	470.7	267.1	249.8	17.36	15.383	
3,900.0	3,887.6	3,880.3	3,839.6	9.6	12.3	23.54	23.54	100.0	488.1	274.9	257.1	17.87	15.389	
4,000.0	3,987.0	3,980.0	3,937.7	9.9	12.7	23.66	23.66	103.7	505.5	282.8	264.4	18.37	15.394	
4,100.0	4,086.5	4,079.7	4,035.7	10.2	13.1	23.78	23.78	107.5	522.9	290.6	271.7	18.87	15.398	
4,200.0	4,185.9	4,179.4	4,133.8	10.5	13.5	23.89	23.89	111.3	540.2	298.4	279.0	19.37	15.402	
4,300.0	4,285.3	4,279.1	4,231.9	10.8	13.9	24.00	24.00	115.1	557.6	306.2	286.4	19.88	15.404	
4,400.0	4,384.8	4,378.8	4,330.0	11.1	14.3	24.10	24.10	118.9	575.0	314.1	293.7	20.38	15.407	
4,500.0	4,484.2	4,478.4	4,428.1	11.3	14.7	24.20	24.20	122.7	592.4	321.9	301.0	20.89	15.408	
4,600.0	4,583.7	4,578.1	4,526.2	11.6	15.1	24.29	24.29	126.5	609.8	329.7	308.3	21.40	15.410	
4,700.0	4,683.1	4,677.8	4,624.3	11.9	15.5	24.38	24.38	130.3	627.1	337.5	315.6	21.90	15.411	
4,800.0	4,782.5	4,777.5	4,722.4	12.2	15.9	24.46	24.46	134.1	644.5	345.4	323.0	22.41	15.411	
4,900.0	4,882.0	4,877.2	4,820.5	12.5	16.3	24.54	24.54	137.9	661.9	353.2	330.3	22.92	15.412	
5,000.0	4,981.4	4,976.9	4,918.6	12.8	16.7	24.62	24.62	141.7	679.3	361.0	337.6	23.43	15.411	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-243 - Wellbore #1 - Plan #1 (2-13-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,080.8	5,076.6	5,016.7	13.1	17.1	24.69		145.5	696.7	368.9	344.9	23.93	15.411	
5,200.0	5,180.3	5,176.3	5,114.8	13.4	17.5	24.76		149.3	714.0	376.7	352.2	24.44	15.411	
5,300.0	5,279.6	5,279.6	5,216.4	13.6	17.9	24.82		153.2	731.9	385.5	360.6	24.92	15.470	
5,400.0	5,379.6	5,394.4	5,329.9	13.8	18.3	24.75		156.9	748.6	394.7	369.4	25.32	15.590	
5,500.0	5,479.6	5,509.7	5,444.5	14.0	18.5	24.59		159.6	760.9	403.1	377.5	25.66	15.711	
5,600.0	5,579.6	5,625.5	5,560.1	14.2	18.7	90.10		161.3	768.7	409.8	383.8	26.03	15.743	
5,700.0	5,679.6	5,741.8	5,676.3	14.4	18.9	90.00		162.0	772.0	412.6	386.2	26.43	15.610	
5,800.0	5,779.6	5,845.1	5,779.6	14.6	19.1	90.00		162.0	772.1	412.7	385.8	26.83	15.383	
5,900.0	5,879.6	5,945.1	5,879.6	14.7	19.2	90.00		162.0	772.1	412.7	385.4	27.22	15.159	
5,935.1	5,914.7	5,980.1	5,914.7	14.8	19.2	90.05		161.7	772.1	412.7	385.3	27.36	15.083	
6,000.0	5,979.6	6,044.7	5,979.0	14.9	19.3	90.69		157.0	772.1	412.7	385.1	27.63	14.935	
6,100.0	6,079.6	6,141.7	6,074.4	15.1	19.4	-87.03		139.9	772.1	413.2	385.2	28.09	14.711	
6,200.0	6,178.9	6,236.0	6,164.4	15.3	19.5	-84.47		111.8	772.1	414.7	386.2	28.48	14.561	
6,300.0	6,275.8	6,328.4	6,248.5	15.4	19.5	-82.04		73.8	772.1	416.8	388.0	28.77	14.488	
6,400.0	6,368.8	6,419.0	6,325.9	15.4	19.6	-79.77		26.9	772.1	419.5	390.5	28.97	14.479	
6,500.0	6,456.2	6,508.0	6,396.1	15.5	19.7	-77.69		-27.8	772.1	422.6	393.5	29.14	14.503	
6,600.0	6,536.6	6,595.8	6,458.6	15.6	19.8	-75.83		-89.4	772.1	425.9	396.5	29.32	14.525	
6,700.0	6,608.4	6,682.3	6,512.9	15.8	19.9	-74.20		-156.7	772.1	429.1	399.5	29.62	14.486	
6,800.0	6,670.7	6,768.0	6,558.9	16.0	20.2	-72.83		-229.0	772.1	432.1	402.0	30.15	14.332	
6,900.0	6,722.1	6,850.0	6,595.0	16.5	20.5	-71.74		-302.6	772.1	434.8	403.8	30.99	14.031	
7,000.0	6,762.0	6,937.2	6,624.5	17.1	21.0	-70.86		-384.5	772.1	436.9	404.6	32.27	13.540	
7,100.0	6,789.5	7,021.1	6,643.9	18.0	21.5	-70.28		-466.1	772.1	438.4	404.4	33.97	12.907	
7,200.0	6,804.5	7,104.7	6,654.2	19.0	22.2	-69.96		-549.0	772.1	439.3	403.3	36.02	12.196	
7,300.0	6,814.2	7,192.6	6,655.8	20.1	23.0	-69.06		-637.0	772.1	442.0	403.9	38.11	11.597	
7,400.0	6,816.7	7,292.6	6,655.1	21.4	24.1	-68.61		-736.9	772.1	443.2	402.4	40.74	10.879	
7,500.0	6,816.4	7,392.6	6,654.4	22.8	25.3	-68.57		-836.9	772.1	443.3	400.0	43.34	10.230	
7,600.0	6,816.1	7,492.6	6,653.6	24.2	26.5	-68.52		-936.9	772.1	443.5	397.4	46.07	9.625	
7,700.0	6,815.7	7,592.6	6,652.9	25.7	27.9	-68.47		-1,036.9	772.1	443.6	394.7	48.92	9.068	
7,800.0	6,815.4	7,692.6	6,652.2	27.2	29.3	-68.42		-1,136.9	772.1	443.8	391.9	51.86	8.556	
7,900.0	6,815.1	7,792.6	6,651.4	28.8	30.8	-68.37		-1,236.9	772.1	443.9	389.0	54.88	8.088	
8,000.0	6,814.7	7,892.6	6,650.7	30.5	32.3	-68.33		-1,336.9	772.1	444.1	386.1	57.97	7.661	
8,100.0	6,814.4	7,992.6	6,650.0	32.1	33.9	-68.28		-1,436.8	772.1	444.2	383.1	61.11	7.270	
8,200.0	6,814.1	8,092.6	6,649.2	33.8	35.5	-68.23		-1,536.8	772.1	444.4	380.1	64.29	6.912	
8,300.0	6,813.7	8,192.6	6,648.5	35.5	37.1	-68.18		-1,636.8	772.1	444.5	377.0	67.52	6.584	
8,400.0	6,813.4	8,292.6	6,647.8	37.2	38.8	-68.13		-1,736.8	772.1	444.7	373.9	70.77	6.283	
8,500.0	6,813.1	8,392.6	6,647.1	39.0	40.5	-68.08		-1,836.8	772.1	444.8	370.8	74.06	6.006	
8,600.0	6,812.7	8,492.6	6,646.3	40.8	42.2	-68.04		-1,936.8	772.1	445.0	367.6	77.37	5.751	
8,700.0	6,812.4	8,592.6	6,645.6	42.5	43.9	-67.99		-2,036.8	772.1	445.1	364.4	80.71	5.515	
8,800.0	6,812.1	8,692.6	6,644.9	44.3	45.6	-67.94		-2,136.8	772.1	445.3	361.2	84.06	5.297	
8,900.0	6,811.7	8,792.6	6,644.1	46.1	47.4	-67.89		-2,236.8	772.1	445.4	358.0	87.43	5.094	
9,000.0	6,811.4	8,892.6	6,643.4	47.9	49.1	-67.85		-2,336.8	772.1	445.6	354.8	90.82	4.906	
9,100.0	6,811.1	8,992.6	6,642.7	49.8	50.9	-67.80		-2,436.8	772.1	445.7	351.5	94.21	4.731	
9,200.0	6,810.7	9,092.6	6,641.9	51.6	52.7	-67.75		-2,536.8	772.1	445.9	348.2	97.62	4.567	
9,300.0	6,810.4	9,192.6	6,641.2	53.4	54.5	-67.70		-2,636.8	772.1	446.0	345.0	101.04	4.414	
9,400.0	6,810.1	9,292.5	6,640.5	55.3	56.3	-67.65		-2,736.8	772.1	446.2	341.7	104.46	4.271	
9,500.0	6,809.8	9,392.5	6,639.7	57.1	58.1	-67.61		-2,836.8	772.1	446.3	338.4	107.90	4.137	
9,600.0	6,809.4	9,492.5	6,639.0	58.9	59.9	-67.56		-2,936.8	772.1	446.5	335.1	111.34	4.010	
9,700.0	6,809.1	9,592.5	6,638.3	60.8	61.8	-67.51		-3,036.8	772.1	446.6	331.9	114.78	3.891	
9,800.0	6,808.8	9,692.5	6,637.5	62.7	63.6	-67.46		-3,136.8	772.1	446.8	328.6	118.23	3.779	
9,900.0	6,808.4	9,792.5	6,636.8	64.5	65.4	-67.42		-3,236.8	772.1	446.9	325.3	121.69	3.673	
10,000.0	6,808.1	9,892.5	6,636.1	66.4	67.3	-67.37		-3,336.8	772.1	447.1	321.9	125.15	3.573	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-243 - Wellbore #1 - Plan #1 (2-13-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,807.8	9,992.5	6,635.3	68.2	69.1	-67.32	-3,436.8	772.1	447.3	318.6	128.61	3.478	
10,200.0	6,807.4	10,092.5	6,634.6	70.1	70.9	-67.27	-3,536.8	772.1	447.4	315.3	132.08	3.387	
10,300.0	6,807.1	10,192.5	6,633.9	72.0	72.8	-67.23	-3,636.8	772.1	447.6	312.0	135.55	3.302	
10,400.0	6,806.8	10,292.5	6,633.1	73.9	74.7	-67.18	-3,736.8	772.1	447.7	308.7	139.02	3.221	
10,500.0	6,806.4	10,392.5	6,632.4	75.7	76.5	-67.13	-3,836.8	772.1	447.9	305.4	142.49	3.143	
10,600.0	6,806.1	10,492.5	6,631.7	77.6	78.4	-67.08	-3,936.8	772.1	448.0	302.1	145.96	3.069	
10,700.0	6,805.8	10,592.5	6,630.9	79.5	80.2	-67.04	-4,036.8	772.1	448.2	298.7	149.44	2.999	
10,800.0	6,805.4	10,692.5	6,630.2	81.4	82.1	-66.99	-4,136.8	772.1	448.3	295.4	152.92	2.932	
10,900.0	6,805.1	10,792.5	6,629.5	83.3	84.0	-66.94	-4,236.8	772.1	448.5	292.1	156.39	2.868	
11,000.0	6,804.8	10,892.5	6,628.7	85.2	85.8	-66.90	-4,336.7	772.1	448.7	288.8	159.87	2.806	
11,100.0	6,804.4	10,992.5	6,628.0	87.0	87.7	-66.85	-4,436.7	772.1	448.8	285.5	163.35	2.748	
11,200.0	6,804.1	11,092.5	6,627.3	88.9	89.6	-66.80	-4,536.7	772.1	449.0	282.1	166.83	2.691	
11,234.0	6,804.0	11,126.6	6,627.0	89.6	90.2	-66.79	-4,570.8	772.1	449.0	281.0	168.01	2.673 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	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		Minimum Separation		Separation Factor		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	Warning
0.0	0.0	1.0	1.0	0.0	0.0	90.00	0.0	58.5	58.5	58.5	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	90.00	0.0	58.5	58.5	58.3	0.23	257.791	
166.3	166.3	167.3	167.3	0.3	0.3	90.00	0.0	58.5	58.5	58.0	0.53	111.431 CC	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	58.5	58.5	57.9	0.67	86.802 ES	
300.0	300.0	299.0	298.9	0.6	0.6	89.75	0.3	60.2	60.2	59.1	1.11	54.088	
400.0	400.0	396.7	396.6	0.8	0.8	89.09	1.0	65.2	65.4	63.8	1.56	41.912	
500.0	500.0	494.0	493.5	1.0	1.0	88.19	2.3	73.4	73.8	71.8	2.03	36.460	
600.0	600.0	590.6	589.4	1.2	1.3	87.24	4.1	84.8	85.7	83.2	2.52	34.036	
700.0	700.0	686.4	684.0	1.5	1.6	86.35	6.3	99.2	100.9	97.8	3.04	33.156	
800.0	800.0	782.6	778.6	1.7	2.0	85.56	9.1	116.9	119.3	115.7	3.61	33.087	
900.0	900.0	878.9	872.9	1.9	2.4	84.94	12.1	136.1	139.5	135.3	4.20	33.187	
1,000.0	1,000.0	976.8	968.8	2.1	2.8	84.46	15.1	155.6	159.6	154.8	4.81	33.161	
1,100.0	1,100.0	1,074.8	1,064.7	2.4	3.2	84.09	18.1	175.2	179.8	174.4	5.43	33.094	
1,200.0	1,200.0	1,172.7	1,160.6	2.6	3.6	83.80	21.2	194.7	200.0	193.9	6.06	33.014	
1,300.0	1,300.0	1,270.6	1,256.6	2.8	4.0	83.55	24.2	214.3	220.2	213.5	6.69	32.931	
1,400.0	1,400.0	1,368.6	1,352.5	3.0	4.5	83.35	27.2	233.8	240.3	233.0	7.32	32.851	
1,500.0	1,500.0	1,466.5	1,448.4	3.3	4.9	83.18	30.3	253.4	260.5	252.6	7.95	32.776	
1,600.0	1,600.0	1,564.8	1,544.6	3.5	5.3	83.00	33.3	273.0	279.1	271.9	7.15	32.701	
1,700.0	1,699.8	1,663.6	1,641.4	3.7	5.8	82.83	36.4	292.7	294.3	286.7	7.62	32.637	
1,800.0	1,799.5	1,762.8	1,738.6	3.9	6.2	82.66	39.5	312.5	306.3	298.2	8.08	32.589	
1,900.0	1,898.9	1,862.3	1,836.0	4.1	6.7	82.50	42.6	332.4	316.5	308.0	8.56	32.541	
2,000.0	1,998.3	1,961.8	1,933.4	4.4	7.1	82.35	45.6	352.2	326.7	317.7	9.04	32.493	
2,100.0	2,097.8	2,061.2	2,030.8	4.6	7.6	82.20	48.7	372.1	336.9	327.4	9.52	32.445	
2,200.0	2,197.2	2,160.7	2,128.2	4.9	8.0	82.05	51.8	391.9	347.2	337.2	10.01	32.397	
2,300.0	2,296.6	2,260.1	2,225.6	5.1	8.4	81.90	54.9	411.8	357.4	346.9	10.50	32.349	
2,400.0	2,396.1	2,359.6	2,323.0	5.4	8.9	81.75	58.0	431.6	367.7	356.7	10.99	32.301	
2,500.0	2,495.5	2,459.0	2,420.5	5.7	9.3	81.60	61.1	451.4	378.0	366.5	11.48	32.253	
2,600.0	2,594.9	2,558.5	2,517.9	5.9	9.8	81.45	64.2	471.3	388.2	376.3	11.98	32.205	
2,700.0	2,694.4	2,657.9	2,615.3	6.2	10.2	81.30	67.2	491.1	398.5	386.1	12.47	32.157	
2,800.0	2,793.8	2,757.4	2,712.7	6.5	10.7	81.15	70.3	511.0	408.8	395.9	12.97	32.109	
2,900.0	2,893.2	2,856.8	2,810.1	6.8	11.1	81.00	73.4	530.8	419.1	405.7	13.47	32.061	
3,000.0	2,992.7	2,956.3	2,907.5	7.0	11.6	80.85	76.5	550.7	429.5	415.5	13.97	32.013	
3,100.0	3,092.1	3,055.7	3,004.9	7.3	12.0	80.70	79.6	570.5	439.8	425.3	14.48	31.965	
3,200.0	3,191.6	3,155.2	3,102.3	7.6	12.4	80.55	82.7	590.4	450.1	435.1	14.98	31.917	
3,300.0	3,291.0	3,254.6	3,199.7	7.9	12.9	80.40	85.7	610.2	460.4	444.9	15.49	29.728	
3,400.0	3,390.4	3,354.1	3,297.1	8.2	13.3	80.25	88.8	630.1	470.8	454.8	16.00	29.432	
3,500.0	3,489.9	3,453.5	3,394.5	8.5	13.8	80.10	91.9	649.9	481.1	464.6	16.50	29.153	
3,600.0	3,589.3	3,553.0	3,491.9	8.7	14.2	80.00	95.0	669.8	491.5	474.5	17.01	28.889	
3,700.0	3,688.7	3,652.4	3,589.3	9.0	14.7	80.00	98.1	689.6	501.8	484.3	17.52	28.640	
3,800.0	3,788.2	3,751.9	3,686.7	9.3	15.1	80.00	101.2	709.5	512.2	494.1	18.03	28.403	
3,900.0	3,887.6	3,851.3	3,784.1	9.6	15.6	80.00	104.3	729.3	522.5	504.0	18.54	28.178	
4,000.0	3,987.0	3,950.8	3,881.5	9.9	16.0	80.00	107.3	749.2	532.9	513.8	19.06	27.965	
4,100.0	4,086.5	4,050.2	3,978.9	10.2	16.5	80.00	110.4	769.0	543.3	523.7	19.57	27.762	
4,200.0	4,185.9	4,149.7	4,076.3	10.5	16.9	80.00	113.5	788.9	553.6	533.6	20.08	27.568	
4,300.0	4,285.3	4,249.1	4,173.7	10.8	17.3	80.00	116.6	808.7	564.0	543.4	20.60	27.384	
4,400.0	4,384.8	4,348.6	4,271.1	11.1	17.8	80.00	119.7	828.6	574.4	553.3	21.11	27.207	
4,500.0	4,484.2	4,448.0	4,368.5	11.3	18.2	80.00	122.8	848.4	584.8	563.2	21.63	27.039	
4,600.0	4,583.7	4,547.5	4,465.9	11.6	18.7	80.00	125.8	868.3	595.2	573.0	22.14	26.878	
4,700.0	4,683.1	4,646.9	4,563.3	11.9	19.1	80.00	128.9	888.1	605.5	582.9	22.66	26.724	
4,800.0	4,782.5	4,746.4	4,660.7	12.2	19.6	80.00	132.0	908.0	615.9	592.8	23.18	26.576	
4,900.0	4,882.0	4,845.9	4,758.1	12.5	20.0	80.00	135.1	927.8	626.3	602.6	23.69	26.434	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-403 - Wellbore #1 - Plan #1 (2-13-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,981.4	4,945.3	4,855.5	12.8	20.5	24.58		138.2	947.7	636.7	612.5	24.21	26.298	
5,100.0	5,080.8	5,044.8	4,952.9	13.1	20.9	24.69		141.3	967.5	647.1	622.4	24.73	26.167	
5,200.0	5,180.3	5,144.2	5,050.3	13.4	21.4	24.79		144.4	987.4	657.5	632.3	25.25	26.042	
5,300.0	5,279.8	5,243.5	5,147.6	13.6	21.8	24.92		147.4	1,007.2	669.0	643.3	25.72	26.012	
5,400.0	5,379.6	5,342.5	5,244.5	13.8	22.2	24.97		150.5	1,026.9	683.6	657.5	26.12	26.169	
5,500.0	5,479.6	5,447.2	5,347.0	14.0	22.7	24.92		153.7	1,047.7	701.3	674.8	26.50	26.468	
5,600.0	5,579.6	5,577.6	5,475.6	14.2	23.1	90.39		157.1	1,069.7	718.1	691.1	26.93	26.662	
5,700.0	5,679.6	5,709.9	5,606.7	14.4	23.4	90.18		159.7	1,086.1	730.4	703.1	27.38	26.678	
5,800.0	5,779.6	5,843.4	5,739.8	14.6	23.7	90.05		161.3	1,096.5	738.3	710.4	27.81	26.543	
5,900.0	5,879.6	5,977.6	5,873.9	14.7	23.9	90.00		162.0	1,100.8	741.5	713.2	28.24	26.256	
6,000.0	5,979.6	6,084.2	5,980.6	14.9	24.0	90.00		162.0	1,101.0	741.6	712.9	28.63	25.905	
6,044.0	6,023.6	6,128.2	6,024.6	15.0	24.0	-90.04		162.0	1,101.0	741.6	712.8	28.79	25.761	
6,100.0	6,079.6	6,184.2	6,080.6	15.1	24.1	-90.00		161.2	1,101.0	741.6	712.6	28.99	25.579	
6,200.0	6,178.9	6,284.2	6,179.9	15.3	24.2	-90.01		149.9	1,101.0	741.6	712.3	29.26	25.344	
6,300.0	6,275.8	6,384.3	6,276.9	15.4	24.2	-90.02		125.9	1,101.0	741.6	712.1	29.46	25.171	
6,400.0	6,368.8	6,484.3	6,369.9	15.4	24.3	-90.02		89.3	1,101.0	741.6	711.9	29.64	25.019	
6,500.0	6,456.2	6,584.3	6,457.4	15.5	24.4	-90.03		40.9	1,101.0	741.6	711.7	29.85	24.839	
6,600.0	6,536.6	6,684.4	6,537.8	15.6	24.4	-90.03		-18.5	1,101.0	741.6	711.4	30.18	24.570	
6,700.0	6,608.4	6,784.4	6,609.8	15.8	24.5	-90.04		-87.9	1,101.0	741.6	710.9	30.70	24.156	
6,800.0	6,670.7	6,884.5	6,672.1	16.0	24.7	-90.04		-166.1	1,101.0	741.6	710.1	31.48	23.558	
6,900.0	6,722.1	6,984.6	6,723.7	16.5	24.9	-90.05		-251.8	1,101.0	741.6	709.0	32.57	22.766	
7,000.0	6,762.0	7,084.7	6,763.6	17.1	25.3	-90.05		-343.5	1,101.0	741.6	707.6	34.01	21.806	
7,100.0	6,789.5	7,184.8	6,791.2	18.0	25.8	-90.05		-439.6	1,101.0	741.6	705.8	35.78	20.729	
7,200.0	6,804.5	7,284.8	6,806.2	19.0	26.4	-90.05		-538.5	1,101.0	741.6	703.7	37.84	19.597	
7,300.0	6,814.2	7,384.9	6,815.8	20.1	27.1	-90.05		-638.1	1,101.0	741.6	701.4	40.16	18.463	
7,400.0	6,816.7	7,484.9	6,818.4	21.4	28.0	-90.05		-738.1	1,101.0	741.6	698.9	42.69	17.370	
7,500.0	6,816.4	7,584.9	6,818.0	22.8	29.0	-90.05		-838.1	1,101.0	741.6	696.2	45.40	16.332	
7,600.0	6,816.1	7,684.9	6,817.7	24.2	30.1	-90.05		-938.1	1,101.0	741.6	693.3	48.27	15.364	
7,700.0	6,815.7	7,784.9	6,817.3	25.7	31.2	-90.05		-1,038.1	1,101.0	741.6	690.3	51.26	14.468	
7,800.0	6,815.4	7,884.9	6,817.0	27.2	32.5	-90.05		-1,138.1	1,101.0	741.6	687.2	54.35	13.643	
7,900.0	6,815.1	7,984.9	6,816.6	28.8	33.8	-90.04		-1,238.1	1,101.0	741.6	684.0	57.54	12.888	
8,000.0	6,814.7	8,084.9	6,816.3	30.5	35.2	-90.04		-1,338.1	1,101.0	741.6	680.8	60.80	12.196	
8,100.0	6,814.4	8,184.9	6,815.9	32.1	36.6	-90.04		-1,438.1	1,101.0	741.6	677.4	64.13	11.564	
8,200.0	6,814.1	8,284.9	6,815.6	33.8	38.1	-90.04		-1,538.1	1,101.0	741.6	674.1	67.51	10.985	
8,300.0	6,813.7	8,384.9	6,815.2	35.5	39.6	-90.04		-1,638.1	1,101.0	741.6	670.6	70.94	10.454	
8,400.0	6,813.4	8,484.9	6,814.9	37.2	41.2	-90.04		-1,738.1	1,101.0	741.6	667.2	74.41	9.966	
8,500.0	6,813.1	8,584.9	6,814.5	39.0	42.8	-90.04		-1,838.1	1,101.0	741.6	663.7	77.91	9.518	
8,600.0	6,812.7	8,684.9	6,814.2	40.8	44.4	-90.04		-1,938.1	1,101.0	741.6	660.1	81.44	9.105	
8,700.0	6,812.4	8,784.9	6,813.8	42.5	46.0	-90.03		-2,038.1	1,101.0	741.6	656.6	85.00	8.724	
8,800.0	6,812.1	8,884.9	6,813.5	44.3	47.7	-90.03		-2,138.1	1,101.0	741.6	653.0	88.59	8.371	
8,900.0	6,811.7	8,984.9	6,813.1	46.1	49.4	-90.03		-2,238.1	1,101.0	741.6	649.4	92.19	8.044	
9,000.0	6,811.4	9,084.9	6,812.8	47.9	51.1	-90.03		-2,338.1	1,101.0	741.6	645.7	95.82	7.739	
9,100.0	6,811.1	9,184.9	6,812.4	49.8	52.8	-90.03		-2,438.1	1,101.0	741.6	642.1	99.46	7.456	
9,200.0	6,810.7	9,284.9	6,812.1	51.6	54.5	-90.03		-2,538.1	1,101.0	741.6	638.5	103.11	7.192	
9,300.0	6,810.4	9,384.9	6,811.8	53.4	56.2	-90.03		-2,638.0	1,101.0	741.6	634.8	106.78	6.945	
9,400.0	6,810.1	9,484.9	6,811.4	55.3	58.0	-90.02		-2,738.0	1,101.0	741.6	631.1	110.46	6.714	
9,500.0	6,809.8	9,584.9	6,811.1	57.1	59.8	-90.02		-2,838.0	1,101.0	741.6	627.4	114.15	6.497	
9,600.0	6,809.4	9,684.9	6,810.7	58.9	61.5	-90.02		-2,938.0	1,101.0	741.6	623.7	117.85	6.293	
9,700.0	6,809.1	9,784.9	6,810.4	60.8	63.3	-90.02		-3,038.0	1,101.0	741.6	620.0	121.55	6.101	
9,800.0	6,808.8	9,884.9	6,810.0	62.7	65.1	-90.02		-3,138.0	1,101.0	741.6	616.3	125.27	5.920	
9,900.0	6,808.4	9,984.9	6,809.7	64.5	66.9	-90.02		-3,238.0	1,101.0	741.6	612.6	128.99	5.749	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-403 - Wellbore #1 - Plan #1 (2-13-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	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
10,000.0	6,808.1	10,084.9	6,809.3	66.4	68.7	-90.02	-3,338.0	1,101.0	741.6	608.8	132.72	5.587		
10,100.0	6,807.8	10,184.9	6,809.0	68.2	70.5	-90.02	-3,438.0	1,101.0	741.6	605.1	136.46	5.434		
10,200.0	6,807.4	10,284.9	6,808.6	70.1	72.3	-90.01	-3,538.0	1,101.0	741.6	601.4	140.20	5.289		
10,300.0	6,807.1	10,384.9	6,808.3	72.0	74.1	-90.01	-3,638.0	1,101.0	741.6	597.6	143.95	5.152		
10,400.0	6,806.8	10,484.9	6,807.9	73.9	76.0	-90.01	-3,738.0	1,101.0	741.6	593.9	147.70	5.021		
10,500.0	6,806.4	10,584.9	6,807.6	75.7	77.8	-90.01	-3,838.0	1,101.0	741.6	590.1	151.46	4.896		
10,600.0	6,806.1	10,684.9	6,807.2	77.6	79.6	-90.01	-3,938.0	1,101.0	741.6	586.3	155.22	4.778		
10,700.0	6,805.8	10,784.9	6,806.9	79.5	81.5	-90.01	-4,038.0	1,101.0	741.6	582.6	158.98	4.664		
10,800.0	6,805.4	10,884.9	6,806.5	81.4	83.3	-90.01	-4,138.0	1,101.0	741.6	578.8	162.75	4.556		
10,900.0	6,805.1	10,984.9	6,806.2	83.3	85.1	-90.00	-4,238.0	1,101.0	741.6	575.0	166.52	4.453		
11,000.0	6,804.8	11,084.9	6,805.8	85.2	87.0	-90.00	-4,338.0	1,101.0	741.6	571.3	170.30	4.354		
11,100.0	6,804.4	11,184.9	6,805.5	87.0	88.8	-90.00	-4,438.0	1,101.0	741.6	567.5	174.08	4.260		
11,200.0	6,804.1	11,284.9	6,805.1	88.9	90.7	-90.00	-4,538.0	1,101.0	741.6	563.7	177.86	4.169		
11,227.7	6,804.0	11,312.6	6,805.0	89.5	91.2	-90.00	-4,565.7	1,101.0	741.6	562.7	178.86	4.146		
11,234.0	6,804.0	11,318.9	6,805.0	89.6	91.3	-90.00	-4,572.0	1,101.0	741.6	562.5	179.08	4.141 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-423	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 (2-13-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4683.0ft (RKB - 15')

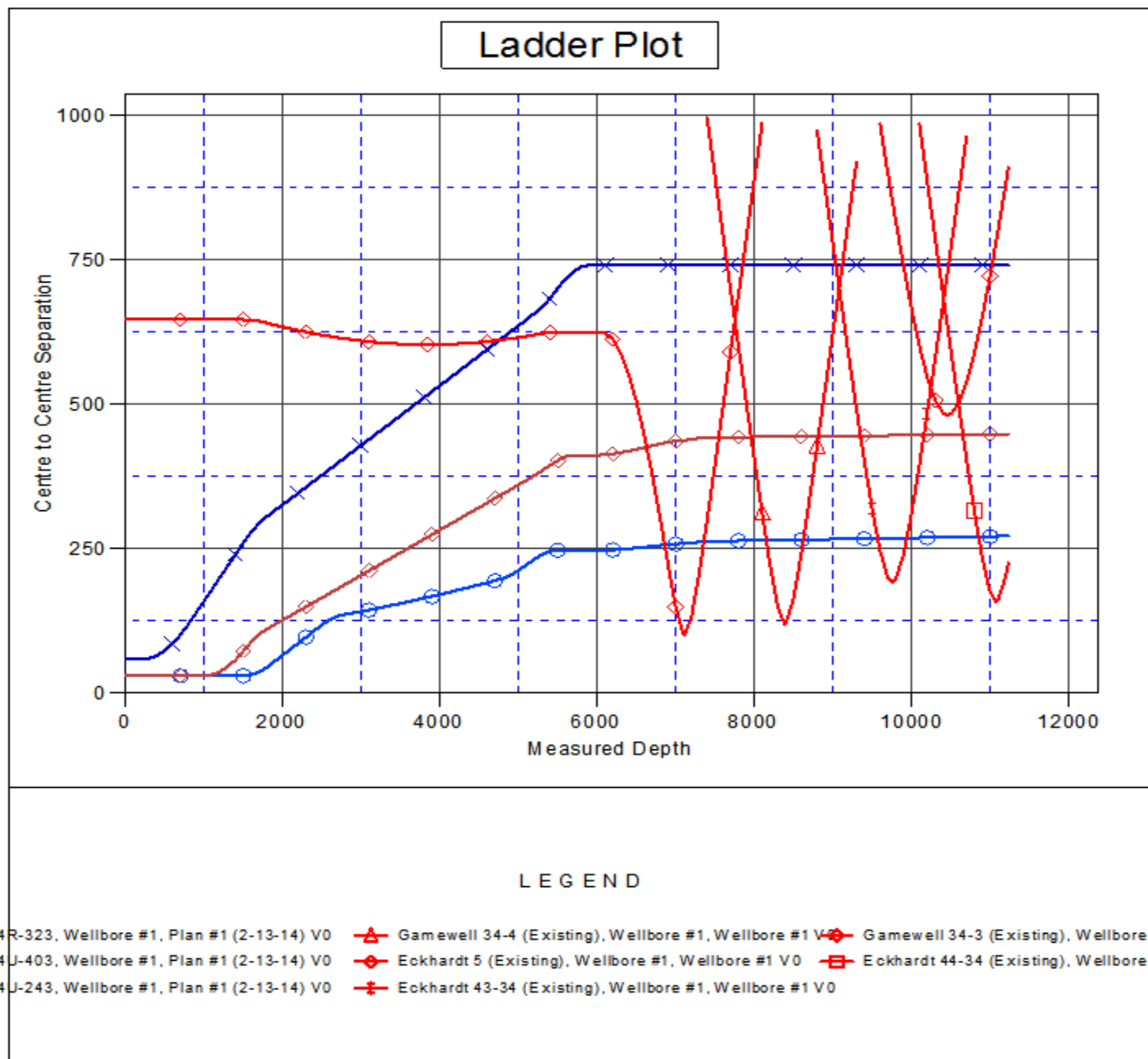
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Suden 34R-423

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.63°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-423
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4683.0ft (RKB - 15')
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4683.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
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