

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Suden 34U-243**

Surface Location: Suden 34U-HZ Pad Sec.34-T5N-R64W

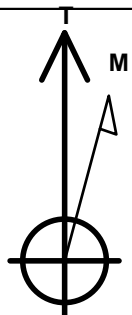
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4668.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1376383.98	3270207.06	40.362520	-104.530330	
		RKB - 15'	WELL @ 4683.0ft (RKB - 15')			

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 212'FNL & 1112'FEL	1.0	0.0	0.0	Point
BHL 500'FSL & 405'FEL	6627.0	-4572.1	741.4	Point



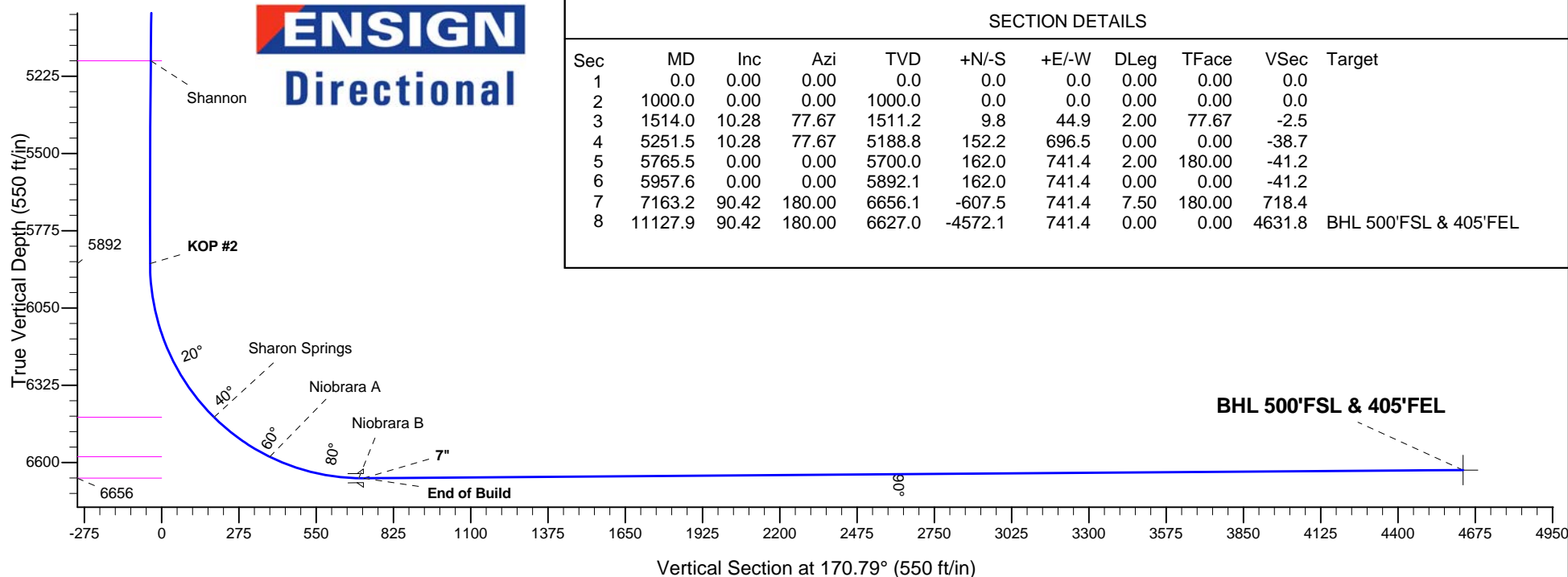
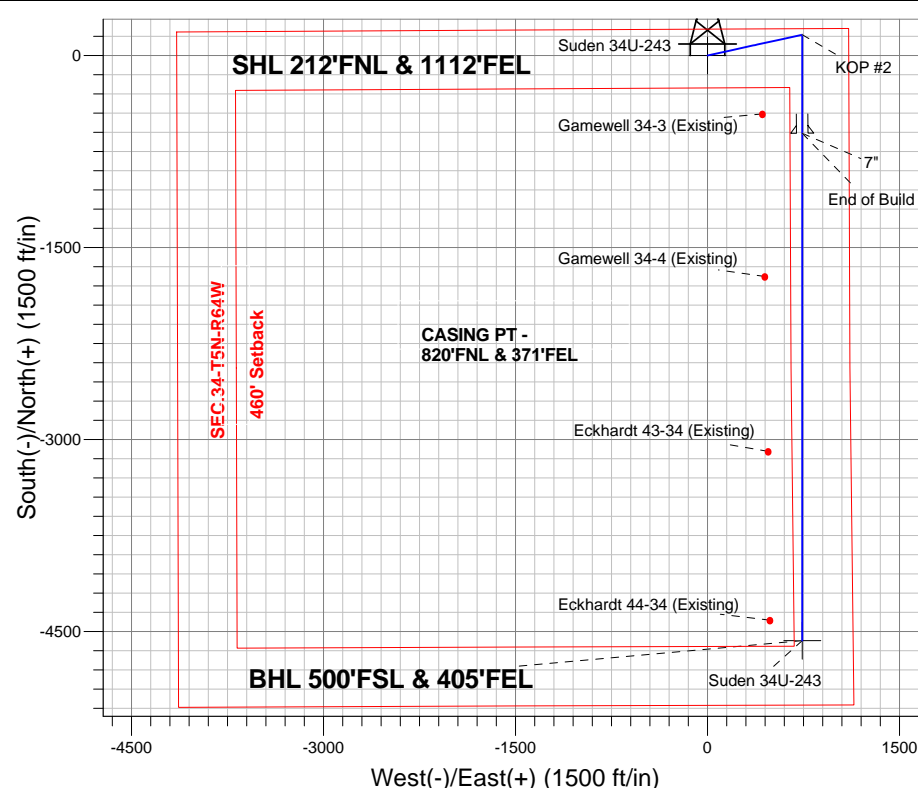
Azimuths to True North
Magnetic North: 8.37°

Magnetic Field
Strength: 52851.1nT
Dip Angle: 66.96°
Date: 3/4/2014
Model: IGRF2010

Suden 34U-HZ Pad Sec.34-T5N-R64W
Suden 34U-243
Plan #1 (2-13-14)
10:51, March 05 2014

ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP #1
5892.1	5957.6	KOP #2
6656.1	7163.2	End of Build





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.34-T5N-R64W

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

Suden 34U-243

Wellbore #1

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

Standard Planning Report

05 March, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Suden 34U-243
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 34U-243	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 34U-243					
Well Position	+N/-S	0.0 ft	Northing:	1,376,383.98 ft	Latitude:	40.362520
	+E/-W	61.3 ft	Easting:	3,270,207.06 ft	Longitude:	-104.530330
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	170.79

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,514.0	10.28	77.67	1,511.2	9.8	44.9	2.00	2.00	0.00	77.67	
5,251.5	10.28	77.67	5,188.8	152.2	696.5	0.00	0.00	0.00	0.00	
5,765.5	0.00	0.00	5,700.0	162.0	741.4	2.00	-2.00	0.00	180.00	
5,957.6	0.00	0.00	5,892.1	162.0	741.4	0.00	0.00	0.00	0.00	
7,163.2	90.42	180.00	6,656.1	-607.5	741.4	7.50	7.50	0.00	180.00	
11,127.9	90.42	180.00	6,627.0	-4,572.1	741.4	0.00	0.00	0.00	0.00	BHL 500'FSL & 405

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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 34U-243	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 & 1112'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
KOP #1									
1,100.0	2.00	77.67	1,100.0	0.4	1.7	-0.1	2.00	2.00	0.00
1,200.0	4.00	77.67	1,199.8	1.5	6.8	-0.4	2.00	2.00	0.00
1,300.0	6.00	77.67	1,299.5	3.4	15.3	-0.9	2.00	2.00	0.00
1,400.0	8.00	77.67	1,398.7	6.0	27.2	-1.5	2.00	2.00	0.00
1,500.0	10.00	77.67	1,497.5	9.3	42.5	-2.4	2.00	2.00	0.00
1,514.0	10.28	77.67	1,511.2	9.8	44.9	-2.5	2.00	2.00	0.00
1,600.0	10.28	77.67	1,595.9	13.1	59.9	-3.3	0.00	0.00	0.00
1,700.0	10.28	77.67	1,694.3	16.9	77.4	-4.3	0.00	0.00	0.00
1,800.0	10.28	77.67	1,792.7	20.7	94.8	-5.3	0.00	0.00	0.00
1,900.0	10.28	77.67	1,891.1	24.5	112.2	-6.2	0.00	0.00	0.00
2,000.0	10.28	77.67	1,989.4	28.3	129.7	-7.2	0.00	0.00	0.00
2,100.0	10.28	77.67	2,087.8	32.1	147.1	-8.2	0.00	0.00	0.00
2,200.0	10.28	77.67	2,186.2	35.9	164.5	-9.1	0.00	0.00	0.00
2,300.0	10.28	77.67	2,284.6	39.8	182.0	-10.1	0.00	0.00	0.00
2,400.0	10.28	77.67	2,383.0	43.6	199.4	-11.1	0.00	0.00	0.00
2,500.0	10.28	77.67	2,481.4	47.4	216.8	-12.1	0.00	0.00	0.00
2,600.0	10.28	77.67	2,579.8	51.2	234.3	-13.0	0.00	0.00	0.00
2,700.0	10.28	77.67	2,678.2	55.0	251.7	-14.0	0.00	0.00	0.00
2,800.0	10.28	77.67	2,776.6	58.8	269.1	-15.0	0.00	0.00	0.00
2,900.0	10.28	77.67	2,875.0	62.6	286.6	-15.9	0.00	0.00	0.00
3,000.0	10.28	77.67	2,973.4	66.4	304.0	-16.9	0.00	0.00	0.00
3,100.0	10.28	77.67	3,071.8	70.2	321.4	-17.9	0.00	0.00	0.00
3,200.0	10.28	77.67	3,170.2	74.0	338.8	-18.8	0.00	0.00	0.00
3,300.0	10.28	77.67	3,268.6	77.8	356.3	-19.8	0.00	0.00	0.00
3,400.0	10.28	77.67	3,367.0	81.7	373.7	-20.8	0.00	0.00	0.00
3,500.0	10.28	77.67	3,465.4	85.5	391.1	-21.8	0.00	0.00	0.00
3,535.2	10.28	77.67	3,500.0	86.8	397.3	-22.1	0.00	0.00	0.00
Parkman									
3,600.0	10.28	77.67	3,563.8	89.3	408.6	-22.7	0.00	0.00	0.00
3,700.0	10.28	77.67	3,662.2	93.1	426.0	-23.7	0.00	0.00	0.00
3,800.0	10.28	77.67	3,760.6	96.9	443.4	-24.7	0.00	0.00	0.00
3,900.0	10.28	77.67	3,859.0	100.7	460.9	-25.6	0.00	0.00	0.00
4,000.0	10.28	77.67	3,957.3	104.5	478.3	-26.6	0.00	0.00	0.00
4,100.0	10.28	77.67	4,055.7	108.3	495.7	-27.6	0.00	0.00	0.00
4,200.0	10.28	77.67	4,154.1	112.1	513.2	-28.5	0.00	0.00	0.00
4,297.4	10.28	77.67	4,250.0	115.8	530.2	-29.5	0.00	0.00	0.00
Sussex									
4,300.0	10.28	77.67	4,252.5	115.9	530.6	-29.5	0.00	0.00	0.00
4,400.0	10.28	77.67	4,350.9	119.7	548.0	-30.5	0.00	0.00	0.00

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Well:	Suden 34U-243	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	10.28	77.67	4,449.3	123.6	565.5	-31.4	0.00	0.00	0.00
4,600.0	10.28	77.67	4,547.7	127.4	582.9	-32.4	0.00	0.00	0.00
4,700.0	10.28	77.67	4,646.1	131.2	600.3	-33.4	0.00	0.00	0.00
4,800.0	10.28	77.67	4,744.5	135.0	617.8	-34.4	0.00	0.00	0.00
4,900.0	10.28	77.67	4,842.9	138.8	635.2	-35.3	0.00	0.00	0.00
5,000.0	10.28	77.67	4,941.3	142.6	652.6	-36.3	0.00	0.00	0.00
5,100.0	10.28	77.67	5,039.7	146.4	670.1	-37.3	0.00	0.00	0.00
5,200.0	10.28	77.67	5,138.1	150.2	687.5	-38.2	0.00	0.00	0.00
5,232.4	10.28	77.67	5,170.0	151.5	693.2	-38.5	0.00	0.00	0.00
Shannon									
5,251.5	10.28	77.67	5,188.8	152.2	696.5	-38.7	0.00	0.00	0.00
5,300.0	9.31	77.67	5,236.6	153.9	704.6	-39.2	2.00	-2.00	0.00
5,400.0	7.31	77.67	5,335.5	157.0	718.7	-40.0	2.00	-2.00	0.00
5,500.0	5.31	77.67	5,434.9	159.4	729.4	-40.6	2.00	-2.00	0.00
5,600.0	3.31	77.67	5,534.6	161.0	736.7	-41.0	2.00	-2.00	0.00
5,700.0	1.31	77.67	5,634.5	161.8	740.7	-41.2	2.00	-2.00	0.00
5,765.5	0.00	0.00	5,700.0	162.0	741.4	-41.2	2.00	-2.00	0.00
5,800.0	0.00	0.00	5,734.5	162.0	741.4	-41.2	0.00	0.00	0.00
5,900.0	0.00	0.00	5,834.5	162.0	741.4	-41.2	0.00	0.00	0.00
5,957.6	0.00	0.00	5,892.1	162.0	741.4	-41.2	0.00	0.00	0.00
KOP #2									
6,000.0	3.18	180.00	5,934.5	160.8	741.4	-40.1	7.49	7.49	0.00
6,100.0	10.68	180.00	6,033.7	148.8	741.4	-28.2	7.50	7.50	0.00
6,200.0	18.18	180.00	6,130.5	123.9	741.4	-3.6	7.50	7.50	0.00
6,300.0	25.68	180.00	6,223.2	86.6	741.4	33.2	7.50	7.50	0.00
6,400.0	33.18	180.00	6,310.2	37.5	741.4	81.7	7.50	7.50	0.00
6,500.0	40.68	180.00	6,390.1	-22.6	741.4	141.0	7.50	7.50	0.00
6,567.1	45.71	180.00	6,439.0	-68.5	741.4	186.3	7.50	7.50	0.00
Sharon Springs									
6,600.0	48.18	180.00	6,461.4	-92.5	741.4	210.0	7.50	7.50	0.00
6,700.0	55.68	180.00	6,523.1	-171.2	741.4	287.7	7.50	7.50	0.00
6,800.0	63.18	180.00	6,573.9	-257.2	741.4	372.6	7.50	7.50	0.00
6,813.8	64.21	180.00	6,580.0	-269.6	741.4	384.8	7.50	7.50	0.00
Niobrara A									
6,900.0	70.68	180.00	6,613.1	-349.2	741.4	463.3	7.50	7.50	0.00
7,000.0	78.18	180.00	6,639.9	-445.4	741.4	558.4	7.50	7.50	0.00
7,100.0	85.68	180.00	6,653.9	-544.4	741.4	656.0	7.50	7.50	0.00
7,146.4	89.16	180.00	6,656.0	-590.7	741.4	701.8	7.50	7.50	0.00
Niobrara B									
7,163.2	90.42	180.00	6,656.1	-607.5	741.4	718.4	7.50	7.50	0.00
End of Build - 7"									
7,200.0	90.42	180.00	6,655.8	-644.3	741.4	754.7	0.01	0.01	0.00
7,300.0	90.42	180.00	6,655.1	-744.3	741.4	853.4	0.00	0.00	0.00
7,400.0	90.42	180.00	6,654.3	-844.3	741.4	952.1	0.00	0.00	0.00
7,500.0	90.42	180.00	6,653.6	-944.3	741.4	1,050.8	0.00	0.00	0.00
7,600.0	90.42	180.00	6,652.9	-1,044.3	741.4	1,149.5	0.00	0.00	0.00
7,700.0	90.42	180.00	6,652.1	-1,144.3	741.4	1,248.2	0.00	0.00	0.00
7,800.0	90.42	180.00	6,651.4	-1,244.3	741.4	1,346.9	0.00	0.00	0.00
7,900.0	90.42	180.00	6,650.7	-1,344.3	741.4	1,445.6	0.00	0.00	0.00
8,000.0	90.42	180.00	6,649.9	-1,444.3	741.4	1,544.3	0.00	0.00	0.00
8,100.0	90.42	180.00	6,649.2	-1,544.3	741.4	1,643.1	0.00	0.00	0.00
8,200.0	90.42	180.00	6,648.5	-1,644.3	741.4	1,741.8	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Suden 34U-243
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 34U-243	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)
8,300.0	90.42	180.00	6,647.7	-1,744.3	741.4	1,840.5	0.00	0.00	0.00
8,400.0	90.42	180.00	6,647.0	-1,844.3	741.4	1,939.2	0.00	0.00	0.00
8,500.0	90.42	180.00	6,646.3	-1,944.3	741.4	2,037.9	0.00	0.00	0.00
8,600.0	90.42	180.00	6,645.5	-2,044.3	741.4	2,136.6	0.00	0.00	0.00
8,700.0	90.42	180.00	6,644.8	-2,144.3	741.4	2,235.3	0.00	0.00	0.00
8,800.0	90.42	180.00	6,644.1	-2,244.3	741.4	2,334.0	0.00	0.00	0.00
8,900.0	90.42	180.00	6,643.3	-2,344.3	741.4	2,432.7	0.00	0.00	0.00
9,000.0	90.42	180.00	6,642.6	-2,444.3	741.4	2,531.4	0.00	0.00	0.00
9,100.0	90.42	180.00	6,641.9	-2,544.3	741.4	2,630.1	0.00	0.00	0.00
9,200.0	90.42	180.00	6,641.1	-2,644.3	741.4	2,728.8	0.00	0.00	0.00
9,300.0	90.42	180.00	6,640.4	-2,744.3	741.4	2,827.5	0.00	0.00	0.00
9,400.0	90.42	180.00	6,639.7	-2,844.3	741.4	2,926.3	0.00	0.00	0.00
9,500.0	90.42	180.00	6,638.9	-2,944.2	741.4	3,025.0	0.00	0.00	0.00
9,600.0	90.42	180.00	6,638.2	-3,044.2	741.4	3,123.7	0.00	0.00	0.00
9,700.0	90.42	180.00	6,637.5	-3,144.2	741.4	3,222.4	0.00	0.00	0.00
9,800.0	90.42	180.00	6,636.7	-3,244.2	741.4	3,321.1	0.00	0.00	0.00
9,900.0	90.42	180.00	6,636.0	-3,344.2	741.4	3,419.8	0.00	0.00	0.00
10,000.0	90.42	180.00	6,635.3	-3,444.2	741.4	3,518.5	0.00	0.00	0.00
10,100.0	90.42	180.00	6,634.5	-3,544.2	741.4	3,617.2	0.00	0.00	0.00
10,200.0	90.42	180.00	6,633.8	-3,644.2	741.4	3,715.9	0.00	0.00	0.00
10,300.0	90.42	180.00	6,633.1	-3,744.2	741.4	3,814.6	0.00	0.00	0.00
10,400.0	90.42	180.00	6,632.3	-3,844.2	741.4	3,913.3	0.00	0.00	0.00
10,500.0	90.42	180.00	6,631.6	-3,944.2	741.4	4,012.0	0.00	0.00	0.00
10,600.0	90.42	180.00	6,630.9	-4,044.2	741.4	4,110.8	0.00	0.00	0.00
10,700.0	90.42	180.00	6,630.1	-4,144.2	741.4	4,209.5	0.00	0.00	0.00
10,800.0	90.42	180.00	6,629.4	-4,244.2	741.4	4,308.2	0.00	0.00	0.00
10,900.0	90.42	180.00	6,628.7	-4,344.2	741.4	4,406.9	0.00	0.00	0.00
11,000.0	90.42	180.00	6,627.9	-4,444.2	741.4	4,505.6	0.00	0.00	0.00
11,100.0	90.42	180.00	6,627.2	-4,544.2	741.4	4,604.3	0.00	0.00	0.00
11,127.9	90.42	180.00	6,627.0	-4,572.1	741.4	4,631.8	0.00	0.00	0.00
BHL 500'FSL & 405'FEL									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,163.2	6,656.1	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,535.2	3,500.0	Parkman		0.00	
4,297.4	4,250.0	Sussex		0.00	
5,232.4	5,170.0	Shannon		0.00	
6,567.1	6,439.0	Sharon Springs		0.00	
6,813.8	6,580.0	Niobrara A		0.00	
7,146.4	6,656.0	Niobrara B		0.00	

Database:	landmark	Local Co-ordinate Reference:	Well Suden 34U-243
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 34U-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-13-14)		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,000.0	1,000.0	0.0	0.0	KOP #1
5,957.6	5,892.1	162.0	741.4	KOP #2
7,163.2	6,656.1	-607.5	741.4	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.34-T5N-R64W

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

Suden 34U-243

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 34U-243
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 34U-243	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	11,127.9	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)	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	9,648.7	6,579.8	267.6	74.4	1.385	Level 3, CC, ES, SF
Eckhardt 44-34 (Existing) - Wellbore #1 - Wellbore #1	10,967.6	6,574.2	253.6	35.7	1.164	Level 2, CC, ES, SF
Gamewell 34-3 (Existing) - Wellbore #1 - Wellbore #1	7,010.2	6,636.9	312.2	161.9	2.076	CC, ES, SF
Gamewell 34-4 (Existing) - Wellbore #1 - Wellbore #1	8,282.5	6,642.9	292.7	123.5	1.730	CC, ES
Gamewell 34-4 (Existing) - Wellbore #1 - Wellbore #1	8,300.0	6,642.7	293.2	123.7	1.730	SF
Suden 34U-HZ Pad Sec.34-T5N-R64W						
Suden 34R-323 - Wellbore #1 - Plan #1 (2-13-14)	1,000.0	999.0	61.3	57.0	14.364	CC, ES
Suden 34R-323 - Wellbore #1 - Plan #1 (2-13-14)	11,127.9	11,143.7	663.7	485.4	3.723	SF
Suden 34R-423 - Wellbore #1 - Plan #1 (2-13-14)	1,000.0	1,000.0	30.7	26.4	7.178	CC, ES
Suden 34R-423 - Wellbore #1 - Plan #1 (2-13-14)	11,127.9	11,234.0	449.0	281.0	2.672	SF
Suden 34U-403 - Wellbore #1 - Plan #1 (2-13-14)	166.3	167.3	27.9	27.3	53.062	CC
Suden 34U-403 - Wellbore #1 - Plan #1 (2-13-14)	200.0	201.0	27.9	27.2	41.198	ES
Suden 34U-403 - Wellbore #1 - Plan #1 (2-13-14)	11,127.9	11,318.9	373.5	214.9	2.356	SF

Offset Design Suden (Existing) Pad Sec.34-T5N-R64W - Eckhardt 43-34 (Existing) - Wellbore #1 - Wellbore #1											
Survey Program: 6625-UNKNOWN											
Offset Site Error: 0.0ft											
Offset Well Error: 0.0ft											
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)
8,700.0	6,644.8	6,586.8	6,586.8	45.8	131.7	91.49	-3,093.0	473.8	985.7	809.8	175.96
8,800.0	6,644.1	6,586.1	6,586.1	47.5	131.7	91.33	-3,093.0	473.8	889.9	712.1	177.76
8,900.0	6,643.3	6,585.3	6,585.3	49.3	131.7	91.17	-3,093.0	473.8	795.1	615.5	179.56
9,000.0	6,642.6	6,584.6	6,584.6	51.0	131.7	91.02	-3,093.0	473.8	701.7	520.4	181.38
9,100.0	6,641.9	6,583.9	6,583.9	52.8	131.7	90.86	-3,093.0	473.8	610.5	427.3	183.19
9,200.0	6,641.1	6,583.1	6,583.1	54.6	131.7	90.70	-3,093.0	473.8	522.5	337.4	185.02
9,300.0	6,640.4	6,582.4	6,582.4	56.4	131.6	90.55	-3,093.0	473.8	439.6	252.7	186.85
9,400.0	6,639.7	6,581.7	6,581.7	58.2	131.6	90.39	-3,093.0	473.8	365.3	176.7	188.68
9,500.0	6,638.9	6,580.9	6,580.9	60.1	131.6	90.23	-3,093.0	473.8	306.2	115.6	190.51
9,600.0	6,638.2	6,580.2	6,580.2	61.9	131.6	90.08	-3,093.0	473.8	272.0	79.7	192.35
9,648.7	6,637.8	6,579.8	6,579.8	62.8	131.6	90.00	-3,093.0	473.8	267.6	74.4	193.25
9,700.0	6,637.5	6,579.5	6,579.5	63.7	131.6	89.92	-3,093.0	473.8	272.5	78.3	194.19
9,800.0	6,636.7	6,578.7	6,578.7	65.6	131.6	89.76	-3,093.0	473.8	307.4	111.4	196.03

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 34U-243
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 34U-243	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							
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)			
9,900.0	6,636.0	6,578.0	6,578.0	67.4	131.6	89.61	-3,093.0	473.8	367.1	169.2	197.88	1.855		
10,000.0	6,635.3	6,577.3	6,577.3	69.2	131.5	89.45	-3,093.0	473.8	441.6	241.9	199.72	2.211		
10,100.0	6,634.5	6,576.5	6,576.5	71.1	131.5	89.29	-3,093.0	473.8	524.6	323.1	201.57	2.603		
10,200.0	6,633.8	6,575.8	6,575.8	72.9	131.5	89.13	-3,093.0	473.8	612.8	409.4	203.42	3.012		
10,300.0	6,633.1	6,575.1	6,575.1	74.8	131.5	88.98	-3,093.0	473.8	704.1	498.8	205.27	3.430		
10,400.0	6,632.3	6,574.3	6,574.3	76.6	131.5	88.82	-3,093.0	473.8	797.5	590.4	207.12	3.850		
10,500.0	6,631.6	6,573.6	6,573.6	78.5	131.5	88.66	-3,093.0	473.8	892.3	683.3	208.97	4.270		
10,600.0	6,630.9	6,572.9	6,572.9	80.4	131.5	88.51	-3,093.0	473.8	988.2	777.3	210.82	4.687		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34U-243
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 34U-243	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
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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,634.5	6,580.5	6,580.5	71.1	131.6	91.44	-4,411.8	487.8	903.9	702.2	201.70	4.481	
10,200.0	6,633.8	6,579.8	6,579.8	72.9	131.6	91.27	-4,411.8	487.8	808.4	604.8	203.56	3.971	
10,300.0	6,633.1	6,579.1	6,579.1	74.8	131.6	91.11	-4,411.8	487.8	714.1	508.7	205.43	3.476	
10,400.0	6,632.3	6,578.3	6,578.3	76.6	131.6	90.94	-4,411.8	487.8	621.7	414.4	207.30	2.999	
10,500.0	6,631.6	6,577.6	6,577.6	78.5	131.6	90.77	-4,411.8	487.8	531.9	322.8	209.17	2.543	
10,600.0	6,630.9	6,576.9	6,576.9	80.4	131.5	90.61	-4,411.8	487.8	446.6	235.6	211.04	2.116	
10,700.0	6,630.1	6,576.1	6,576.1	82.2	131.5	90.44	-4,411.8	487.8	368.7	155.8	212.91	1.732	
10,800.0	6,629.4	6,575.4	6,575.4	84.1	131.5	90.28	-4,411.8	487.8	304.0	89.2	214.78	1.415	Level 3
10,900.0	6,628.7	6,574.7	6,574.7	86.0	131.5	90.11	-4,411.8	487.8	262.5	45.8	216.65	1.212	Level 2
10,967.6	6,628.2	6,574.2	6,574.2	87.2	131.5	90.00	-4,411.8	487.8	253.6	35.7	217.91	1.164	Level 2, CC, ES, SF
11,000.0	6,627.9	6,573.9	6,573.9	87.9	131.5	89.95	-4,411.8	487.8	255.7	37.2	218.52	1.170	Level 2
11,100.0	6,627.2	6,573.2	6,573.2	89.7	131.5	89.78	-4,411.8	487.8	286.1	65.7	220.39	1.298	Level 3
11,127.9	6,627.0	6,573.0	6,573.0	90.2	131.5	89.73	-4,411.8	487.8	300.0	79.1	220.91	1.358	Level 3

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34U-243
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 34U-243	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		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	136.70	-455.4	429.2	625.8					
100.0	100.0	95.0	95.0	0.1	1.9	136.70	-455.4	429.2	625.7	623.7	2.01	310.918		
200.0	200.0	195.0	195.0	0.3	3.9	136.70	-455.4	429.2	625.7	621.5	4.24	147.675		
300.0	300.0	295.0	295.0	0.6	5.9	136.70	-455.4	429.2	625.7	619.3	6.46	96.833		
400.0	400.0	395.0	395.0	0.8	7.9	136.70	-455.4	429.2	625.7	617.1	8.69	72.034		
500.0	500.0	495.0	495.0	1.0	9.9	136.70	-455.4	429.2	625.7	614.8	10.91	57.347		
600.0	600.0	595.0	595.0	1.2	11.9	136.70	-455.4	429.2	625.7	612.6	13.14	47.635		
700.0	700.0	695.0	695.0	1.5	13.9	136.70	-455.4	429.2	625.7	610.4	15.36	40.736		
800.0	800.0	795.0	795.0	1.7	15.9	136.70	-455.4	429.2	625.7	608.2	17.59	35.582		
900.0	900.0	895.0	895.0	1.9	17.9	136.70	-455.4	429.2	625.7	605.9	19.81	31.586		
1,000.0	1,000.0	995.0	995.0	2.1	19.9	136.70	-455.4	429.2	625.7	603.7	22.04	28.397		
1,100.0	1,100.0	1,095.0	1,095.0	2.3	21.9	59.18	-455.4	429.2	624.9	600.6	24.25	25.772		
1,200.0	1,199.8	1,194.8	1,194.8	2.6	23.9	59.63	-455.4	429.2	622.2	595.7	26.44	23.533		
1,300.0	1,299.5	1,294.5	1,294.5	2.8	25.9	60.41	-455.4	429.2	617.8	589.2	28.63	21.580		
1,400.0	1,398.7	1,393.7	1,393.7	3.0	27.9	61.50	-455.4	429.2	611.9	581.0	30.82	19.853		
1,500.0	1,497.5	1,492.5	1,492.5	3.3	29.8	62.92	-455.4	429.2	604.5	571.5	33.02	18.306		
1,600.0	1,595.9	1,590.9	1,590.9	3.6	31.8	64.44	-455.4	429.2	596.5	561.2	35.28	16.908		
1,700.0	1,694.3	1,689.3	1,689.3	3.9	33.8	65.99	-455.4	429.2	588.9	551.4	37.56	15.679		
1,800.0	1,792.7	1,787.7	1,787.7	4.3	35.8	67.57	-455.4	429.2	581.8	541.9	39.86	14.594		
1,900.0	1,891.1	1,886.1	1,886.1	4.6	37.7	69.19	-455.4	429.2	575.1	532.9	42.18	13.635		
2,000.0	1,889.4	1,884.4	1,884.4	5.0	39.7	70.85	-455.4	429.2	568.9	524.4	44.51	12.782		
2,100.0	2,087.8	2,082.8	2,082.8	5.3	41.7	72.54	-455.4	429.2	563.2	516.4	46.85	12.022		
2,200.0	2,186.2	2,181.2	2,181.2	5.7	43.6	74.26	-455.4	429.2	558.1	508.9	49.20	11.342		
2,300.0	2,284.6	2,279.6	2,279.6	6.1	45.6	76.01	-455.4	429.2	553.4	501.9	51.56	10.733		
2,400.0	2,383.0	2,378.0	2,378.0	6.5	47.6	77.79	-455.4	429.2	549.3	495.4	53.93	10.186		
2,500.0	2,481.4	2,476.4	2,476.4	6.9	49.5	79.59	-455.4	429.2	545.8	489.5	56.30	9.694		
2,600.0	2,579.8	2,574.8	2,574.8	7.2	51.5	81.42	-455.4	429.2	542.8	484.1	58.67	9.251		
2,700.0	2,678.2	2,673.2	2,673.2	7.6	53.5	83.26	-455.4	429.2	540.4	479.3	61.04	8.852		
2,800.0	2,776.6	2,771.6	2,771.6	8.0	55.4	85.11	-455.4	429.2	538.5	475.1	63.42	8.492		
2,900.0	2,875.0	2,870.0	2,870.0	8.4	57.4	86.98	-455.4	429.2	537.3	471.5	65.79	8.166		
3,000.0	2,973.4	2,968.4	2,968.4	8.8	59.4	88.85	-455.4	429.2	536.6	468.4	68.16	7.872		
3,061.2	3,033.6	3,028.6	3,028.6	9.0	60.6	90.00	-455.4	429.2	536.5	466.9	69.61	7.707		
3,100.0	3,071.8	3,066.8	3,066.8	9.2	61.3	90.73	-455.4	429.2	536.5	466.0	70.53	7.607		
3,200.0	3,170.2	3,165.2	3,165.2	9.6	63.3	92.60	-455.4	429.2	537.1	464.2	72.89	7.368		
3,300.0	3,268.6	3,263.6	3,263.6	10.0	65.3	94.47	-455.4	429.2	538.2	462.9	75.25	7.152		
3,400.0	3,367.0	3,362.0	3,362.0	10.4	67.2	96.33	-455.4	429.2	539.9	462.3	77.60	6.957		
3,500.0	3,465.4	3,460.4	3,460.4	10.8	69.2	98.17	-455.4	429.2	542.2	462.2	79.94	6.782		
3,600.0	3,563.8	3,558.8	3,558.8	11.2	71.2	100.00	-455.4	429.2	545.0	462.8	82.28	6.625		
3,700.0	3,662.2	3,657.2	3,657.2	11.6	73.1	101.81	-455.4	429.2	548.5	463.9	84.60	6.483		
3,800.0	3,760.6	3,755.6	3,755.6	12.0	75.1	103.59	-455.4	429.2	552.5	465.5	86.92	6.356		
3,900.0	3,859.0	3,854.0	3,854.0	12.4	77.1	105.35	-455.4	429.2	557.0	467.8	89.22	6.243		
4,000.0	3,957.3	3,952.3	3,952.3	12.8	79.0	107.08	-455.4	429.2	562.0	470.5	91.52	6.141		
4,100.0	4,055.7	4,050.7	4,050.7	13.2	81.0	108.78	-455.4	429.2	567.6	473.8	93.80	6.051		
4,200.0	4,154.1	4,149.1	4,149.1	13.6	83.0	110.44	-455.4	429.2	573.7	477.6	96.08	5.971		
4,300.0	4,252.5	4,247.5	4,247.5	14.0	85.0	112.07	-455.4	429.2	580.3	481.9	98.35	5.900		
4,400.0	4,350.9	4,345.9	4,345.9	14.4	86.9	113.66	-455.4	429.2	587.3	486.7	100.60	5.838		
4,500.0	4,449.3	4,444.3	4,444.3	14.8	88.9	115.22	-455.4	429.2	594.8	491.9	102.85	5.783		
4,600.0	4,547.7	4,542.7	4,542.7	15.2	90.9	116.73	-455.4	429.2	602.7	497.6	105.09	5.735		
4,700.0	4,646.1	4,641.1	4,641.1	15.6	92.8	118.21	-455.4	429.2	611.0	503.7	107.32	5.694		
4,800.0	4,744.5	4,739.5	4,739.5	16.0	94.8	119.64	-455.4	429.2	619.8	510.2	109.54	5.658		
4,900.0	4,842.9	4,837.9	4,837.9	16.4	96.8	121.04	-455.4	429.2	628.9	517.1	111.76	5.627		

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 34U-243
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 34U-243	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:	
Survey Program: 6965-UNKNOWN													Offset Well Error:	
Reference				Offset		Semi Major Axis			Distance				Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,000.0	4,941.3	4,936.3	4,936.3	16.8	98.7	122.40	-455.4	429.2	638.4	524.4	113.96	5.602		
5,100.0	5,039.7	5,034.7	5,034.7	17.2	100.7	123.71	-455.4	429.2	648.2	532.1	116.16	5.580		
5,200.0	5,138.1	5,133.1	5,133.1	17.6	102.7	124.99	-455.4	429.2	658.4	540.0	118.36	5.563		
5,300.0	5,236.6	5,231.6	5,231.6	18.0	104.6	126.28	-455.4	429.2	668.7	548.0	120.62	5.543		
5,400.0	5,335.5	5,330.5	5,330.5	18.3	106.6	127.40	-455.4	429.2	677.4	554.5	122.91	5.511		
5,500.0	5,434.9	5,429.9	5,429.9	18.5	108.6	128.24	-455.4	429.2	684.2	559.0	125.18	5.465		
5,600.0	5,534.6	5,529.6	5,529.6	18.7	110.6	128.80	-455.4	429.2	688.8	561.4	127.41	5.407		
5,700.0	5,634.5	5,629.5	5,629.5	18.9	112.6	129.10	-455.4	429.2	691.4	561.8	129.59	5.335		
5,800.0	5,734.5	5,729.5	5,729.5	19.0	114.6	-153.17	-455.4	429.2	691.9	560.1	131.72	5.252		
5,900.0	5,834.5	5,829.5	5,829.5	19.1	116.6	-153.17	-455.4	429.2	691.9	558.0	133.88	5.168		
6,000.0	5,934.5	5,929.5	5,929.5	19.3	118.6	26.91	-455.4	429.2	690.8	555.0	135.82	5.086		
6,100.0	6,033.7	6,028.7	6,028.7	19.4	120.6	27.74	-455.4	429.2	680.1	544.0	136.10	4.997		
6,200.0	6,130.5	6,125.5	6,125.5	19.4	122.5	29.57	-455.4	429.2	658.1	523.5	134.59	4.889		
6,300.0	6,223.2	6,218.2	6,218.2	19.5	124.4	32.59	-455.4	429.2	625.5	493.7	131.78	4.746		
6,400.0	6,310.2	6,305.2	6,305.2	19.6	126.1	37.12	-455.4	429.2	583.4	454.7	128.69	4.534		
6,500.0	6,390.1	6,385.1	6,385.1	19.7	127.7	43.57	-455.4	429.2	533.7	406.6	127.11	4.198		
6,600.0	6,461.4	6,456.4	6,456.4	19.8	129.1	52.23	-455.4	429.2	478.7	349.6	129.16	3.706		
6,700.0	6,523.1	6,518.1	6,518.1	20.0	130.4	62.83	-455.4	429.2	422.2	286.9	135.34	3.120		
6,800.0	6,573.9	6,568.9	6,568.9	20.3	131.4	74.02	-455.4	429.2	369.8	227.0	142.80	2.590		
6,900.0	6,613.1	6,608.1	6,608.1	20.8	132.2	83.58	-455.4	429.2	329.8	181.9	147.90	2.230		
7,000.0	6,639.9	6,634.9	6,634.9	21.4	132.7	89.63	-455.4	429.2	312.4	162.2	150.22	2.080		
7,010.2	6,641.9	6,636.9	6,636.9	21.4	132.7	90.00	-455.4	429.2	312.2	161.9	150.37	2.076 CC, ES, SF		
7,100.0	6,653.9	6,648.9	6,648.9	22.2	133.0	91.23	-455.4	429.2	324.7	173.1	151.58	2.142		
7,200.0	6,655.8	6,650.8	6,650.8	23.1	133.0	89.75	-455.4	429.2	365.0	212.2	152.77	2.389		
7,300.0	6,655.1	6,650.1	6,650.1	24.2	133.0	89.61	-455.4	429.2	425.4	271.4	154.04	2.762		
7,400.0	6,654.3	6,649.3	6,649.3	25.4	133.0	89.48	-455.4	429.2	498.8	343.4	155.39	3.210		
7,500.0	6,653.6	6,648.6	6,648.6	26.6	133.0	89.34	-455.4	429.2	580.1	423.3	156.82	3.699		
7,600.0	6,652.9	6,647.9	6,647.9	28.0	133.0	89.21	-455.4	429.2	666.6	508.3	158.31	4.210		
7,700.0	6,652.1	6,647.1	6,647.1	29.4	132.9	89.07	-455.4	429.2	756.4	596.5	159.86	4.732		
7,800.0	6,651.4	6,646.4	6,646.4	30.9	132.9	88.94	-455.4	429.2	848.5	687.0	161.44	5.256		
7,900.0	6,650.7	6,645.7	6,645.7	32.4	132.9	88.80	-455.4	429.2	942.2	779.1	163.06	5.778		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34U-243
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 34U-243	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
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
7,400.0	6,654.3	6,649.3	6,649.3	25.4	132.6	91.27	-1,726.8	448.7	929.8	774.8	155.03	5.998	
7,500.0	6,653.6	6,648.6	6,648.6	26.6	132.6	91.12	-1,726.8	448.7	835.5	679.0	156.47	5.340	
7,600.0	6,652.9	6,647.9	6,647.9	28.0	132.5	90.98	-1,726.8	448.7	742.6	584.7	157.97	4.701	
7,700.0	6,652.1	6,647.1	6,647.1	29.4	132.5	90.84	-1,726.8	448.7	651.9	492.4	159.52	4.087	
7,800.0	6,651.4	6,646.4	6,646.4	30.9	132.5	90.69	-1,726.8	448.7	564.4	403.3	161.12	3.503	
7,900.0	6,650.7	6,645.7	6,645.7	32.4	132.5	90.55	-1,726.8	448.7	481.7	318.9	162.75	2.960	
8,000.0	6,649.9	6,644.9	6,644.9	34.0	132.5	90.41	-1,726.8	448.7	406.8	242.4	164.40	2.475	
8,100.0	6,649.2	6,644.2	6,644.2	35.6	132.5	90.26	-1,726.8	448.7	345.0	178.9	166.09	2.077	
8,200.0	6,648.5	6,643.5	6,643.5	37.2	132.4	90.12	-1,726.8	448.7	304.1	136.3	167.80	1.813	
8,282.5	6,647.9	6,642.9	6,642.9	38.6	132.4	90.00	-1,726.8	448.7	292.7	123.5	169.22	1.730 CC, ES	
8,300.0	6,647.7	6,642.7	6,642.7	38.9	132.4	89.97	-1,726.8	448.7	293.2	123.7	169.52	1.730 SF	
8,400.0	6,647.0	6,642.0	6,642.0	40.6	132.4	89.83	-1,726.8	448.7	315.4	144.1	171.26	1.842	
8,500.0	6,646.3	6,641.3	6,641.3	42.3	132.4	89.69	-1,726.8	448.7	364.6	191.6	173.01	2.108	
8,600.0	6,645.5	6,640.5	6,640.5	44.0	132.4	89.54	-1,726.8	448.7	431.8	257.0	174.78	2.471	
8,700.0	6,644.8	6,639.8	6,639.8	45.8	132.4	89.40	-1,726.8	448.7	509.8	333.3	176.55	2.888	
8,800.0	6,644.1	6,639.1	6,639.1	47.5	132.4	89.26	-1,726.8	448.7	594.5	416.2	178.34	3.334	
8,900.0	6,643.3	6,638.3	6,638.3	49.3	132.3	89.11	-1,726.8	448.7	683.3	503.2	180.13	3.793	
9,000.0	6,642.6	6,637.6	6,637.6	51.0	132.3	88.97	-1,726.8	448.7	774.9	592.9	181.92	4.259	
9,100.0	6,641.9	6,636.9	6,636.9	52.8	132.3	88.83	-1,726.8	448.7	868.3	684.5	183.73	4.726	
9,200.0	6,641.1	6,636.1	6,636.1	54.6	132.3	88.68	-1,726.8	448.7	963.0	777.5	185.54	5.190	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34U-243
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 34U-243	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 (ft)	Offset (ft)	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	
0.0	0.0	0.0	0.0	0.0	0.0	-90.01	0.0	-61.3	61.3					
100.0	100.0	99.0	99.0	0.1	0.1	-90.01	0.0	-61.3	61.3	61.1	0.22	274.135		
200.0	200.0	199.0	199.0	0.3	0.3	-90.01	0.0	-61.3	61.3	60.6	0.67	91.226		
300.0	300.0	299.0	299.0	0.6	0.6	-90.01	0.0	-61.3	61.3	60.2	1.12	54.663		
400.0	400.0	399.0	399.0	0.8	0.8	-90.01	0.0	-61.3	61.3	59.7	1.57	39.022		
500.0	500.0	499.0	499.0	1.0	1.0	-90.01	0.0	-61.3	61.3	59.3	2.02	30.341		
600.0	600.0	599.0	599.0	1.2	1.2	-90.01	0.0	-61.3	61.3	58.8	2.47	24.820		
700.0	700.0	699.0	699.0	1.5	1.5	-90.01	0.0	-61.3	61.3	58.4	2.92	20.998		
800.0	800.0	799.0	799.0	1.7	1.7	-90.01	0.0	-61.3	61.3	57.9	3.37	18.197		
900.0	900.0	899.0	899.0	1.9	1.9	-90.01	0.0	-61.3	61.3	57.5	3.82	16.055		
1,000.0	1,000.0	999.0	999.0	2.1	2.1	-90.01	0.0	-61.3	61.3	57.0	4.27	14.364 CC, ES		
1,100.0	1,100.0	1,099.0	1,099.0	2.3	2.4	-168.01	0.0	-61.3	63.0	58.3	4.71	13.390		
1,200.0	1,199.8	1,198.8	1,198.8	2.6	2.6	-168.91	0.0	-61.3	68.1	63.0	5.13	13.278		
1,300.0	1,299.5	1,298.5	1,298.5	2.8	2.8	-170.13	0.0	-61.3	76.7	71.2	5.56	13.807		
1,400.0	1,398.7	1,397.7	1,397.7	3.0	3.0	-171.44	0.0	-61.3	88.7	82.8	5.98	14.847		
1,500.0	1,497.5	1,496.5	1,496.5	3.3	3.3	-172.68	0.0	-61.3	104.2	97.8	6.40	16.300		
1,600.0	1,595.9	1,594.9	1,594.9	3.6	3.5	-173.74	0.0	-61.3	121.9	115.1	6.83	17.846		
1,700.0	1,694.3	1,693.3	1,693.3	3.9	3.7	-174.54	0.0	-61.3	139.7	132.4	7.28	19.194		
1,800.0	1,792.7	1,791.7	1,791.7	4.3	3.9	-175.16	0.0	-61.3	157.5	149.7	7.73	20.378		
1,900.0	1,891.1	1,890.1	1,890.1	4.6	4.1	-175.65	0.0	-61.3	175.3	167.1	8.18	21.426		
2,000.0	1,889.4	1,888.4	1,888.4	5.0	4.4	-176.05	0.0	-61.3	193.1	184.4	8.63	22.358		
2,100.0	2,087.8	2,086.8	2,086.8	5.3	4.6	-176.39	0.0	-61.3	210.9	201.8	9.09	23.192		
2,200.0	2,186.2	2,185.2	2,185.2	5.7	4.8	-176.67	0.0	-61.3	228.7	219.1	9.55	23.942		
2,300.0	2,284.6	2,283.6	2,283.6	6.1	5.0	-176.91	0.0	-61.3	246.5	236.5	10.01	24.619		
2,400.0	2,383.0	2,382.0	2,382.0	6.5	5.2	-177.12	0.0	-61.3	264.3	253.8	10.47	25.233		
2,500.0	2,481.4	2,480.4	2,480.4	6.9	5.5	-177.30	0.0	-61.3	282.1	271.2	10.94	25.793		
2,600.0	2,579.8	2,585.8	2,585.8	7.2	5.7	-177.31	1.0	-60.5	299.0	287.6	11.41	26.201		
2,700.0	2,678.2	2,693.7	2,693.5	7.6	5.9	-176.87	4.9	-57.0	313.1	301.2	11.89	26.337		
2,800.0	2,776.6	2,800.1	2,799.5	8.0	6.2	-176.03	11.7	-51.0	324.5	312.1	12.37	26.238		
2,900.0	2,875.0	2,899.4	2,898.4	8.4	6.4	-175.17	18.9	-44.7	335.0	322.2	12.83	26.100		
3,000.0	2,973.4	2,998.7	2,997.2	8.8	6.6	-174.37	26.1	-38.4	345.6	332.3	13.31	25.968		
3,100.0	3,071.8	3,098.0	3,096.1	9.2	6.9	-173.61	33.3	-32.0	356.3	342.5	13.79	25.841		
3,200.0	3,170.2	3,197.3	3,194.9	9.6	7.1	-172.90	40.5	-25.7	367.0	352.7	14.27	25.719		
3,300.0	3,268.6	3,296.7	3,293.8	10.0	7.3	-172.23	47.7	-19.4	377.8	363.0	14.76	25.601		
3,400.0	3,367.0	3,396.0	3,392.7	10.4	7.6	-171.59	54.9	-13.1	388.6	373.4	15.25	25.487		
3,500.0	3,465.4	3,495.3	3,491.5	10.8	7.8	-170.99	62.2	-6.7	399.5	383.8	15.74	25.378		
3,600.0	3,563.8	3,594.6	3,590.4	11.2	8.1	-170.43	69.4	-0.4	410.4	394.2	16.24	25.272		
3,700.0	3,662.2	3,694.0	3,689.2	11.6	8.3	-169.89	76.6	5.9	421.4	404.6	16.74	25.169		
3,800.0	3,760.6	3,793.3	3,788.1	12.0	8.6	-169.38	83.8	12.2	432.4	415.1	17.25	25.070		
3,900.0	3,859.0	3,892.6	3,887.0	12.4	8.8	-168.89	91.0	18.6	443.4	425.6	17.75	24.974		
4,000.0	3,957.3	3,991.9	3,985.8	12.8	9.1	-168.43	98.2	24.9	454.4	436.2	18.26	24.882		
4,100.0	4,055.7	4,091.2	4,084.7	13.2	9.3	-167.99	105.4	31.2	465.5	446.7	18.78	24.792		
4,200.0	4,154.1	4,190.6	4,183.5	13.6	9.6	-167.57	112.6	37.5	476.6	457.3	19.29	24.706		
4,300.0	4,252.5	4,289.9	4,282.4	14.0	9.9	-167.17	119.8	43.8	487.8	467.9	19.81	24.622		
4,400.0	4,350.9	4,389.2	4,381.2	14.4	10.1	-166.78	127.0	50.2	498.9	478.6	20.33	24.540		
4,500.0	4,449.3	4,488.5	4,480.1	14.8	10.4	-166.42	134.2	56.5	510.1	489.2	20.85	24.462		
4,600.0	4,547.7	4,587.9	4,579.0	15.2	10.7	-166.07	141.4	62.8	521.3	499.9	21.38	24.386		
4,700.0	4,646.1	4,687.2	4,677.8	15.6	10.9	-165.73	148.6	69.1	532.5	510.6	21.90	24.312		
4,800.0	4,744.5	4,780.8	4,771.0	16.0	11.2	-165.46	155.1	74.8	544.0	521.6	22.40	24.285		
4,900.0	4,842.9	4,869.1	4,859.2	16.4	11.3	-165.41	159.4	78.6	557.3	534.4	22.84	24.396		
5,000.0	4,941.3	4,957.0	4,947.0	16.8	11.5	-165.58	161.6	80.6	572.4	549.2	23.26	24.612		

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 34U-243
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 34U-243	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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,039.7	5,048.7	5,038.7	17.2	11.7	-165.94		162.0	80.9	589.4	565.7	23.67	24.900	
5,200.0	5,138.1	5,147.1	5,137.1	17.6	11.9	-166.35		162.0	80.9	606.7	582.6	24.11	25.164	
5,300.0	5,236.6	5,245.5	5,235.6	18.0	12.1	-166.77		162.0	80.9	623.7	599.1	24.58	25.379	
5,400.0	5,335.5	5,344.5	5,334.5	18.3	12.3	-167.13		162.0	80.9	637.8	612.8	25.02	25.494	
5,500.0	5,434.9	5,443.9	5,433.9	18.5	12.5	-167.39		162.0	80.9	648.5	623.1	25.43	25.501	
5,600.0	5,534.6	5,543.6	5,533.6	18.7	12.7	-167.57		162.0	80.9	655.9	630.0	25.82	25.405	
5,700.0	5,634.5	5,643.5	5,633.5	18.9	12.9	-167.66		162.0	80.9	659.8	633.6	26.17	25.211	
5,800.0	5,734.5	5,743.5	5,733.5	19.0	13.1	-90.00		162.0	80.9	660.5	634.0	26.53	24.900	
5,900.0	5,834.5	5,843.5	5,833.5	19.1	13.3	-90.00		162.0	80.9	660.5	633.6	26.93	24.526	
5,952.2	5,886.7	5,895.7	5,885.7	19.2	13.4	90.06		162.0	80.9	660.5	633.4	27.14	24.334	
6,000.0	5,934.5	5,943.5	5,933.5	19.3	13.5	90.10		162.0	80.9	660.5	633.2	27.34	24.163	
6,100.0	6,033.7	6,043.7	6,033.6	19.4	13.7	90.87		158.8	80.9	660.6	632.9	27.69	23.860	
6,200.0	6,130.5	6,145.2	6,133.8	19.4	13.8	91.67		142.8	80.9	660.8	632.9	27.94	23.651	
6,300.0	6,223.2	6,248.0	6,232.2	19.5	13.9	92.45		113.2	80.9	661.1	633.0	28.14	23.498	
6,400.0	6,310.2	6,352.1	6,326.8	19.6	14.0	93.20		70.0	80.9	661.6	633.2	28.33	23.352	
6,500.0	6,390.1	6,457.5	6,415.7	19.7	14.1	93.89		13.7	80.9	662.1	633.5	28.61	23.145	
6,600.0	6,461.4	6,564.0	6,496.9	19.8	14.3	94.51		-55.1	80.9	662.6	633.5	29.06	22.801	
6,700.0	6,523.1	6,671.6	6,568.4	20.0	14.6	95.06		-135.5	80.9	663.1	633.3	29.79	22.258	
6,800.0	6,573.9	6,780.2	6,628.4	20.3	15.1	95.51		-225.8	80.9	663.6	632.7	30.89	21.481	
6,900.0	6,613.1	6,889.5	6,675.2	20.8	15.9	95.86		-324.5	80.9	664.0	631.6	32.41	20.489	
7,000.0	6,639.9	6,999.5	6,707.7	21.4	16.9	96.10		-429.5	80.9	664.3	629.9	34.35	19.342	
7,100.0	6,653.9	7,109.8	6,724.7	22.2	18.1	96.23		-538.4	80.9	664.5	627.8	36.67	18.121	
7,200.0	6,655.8	7,216.5	6,727.0	23.1	19.4	96.24		-645.0	80.9	664.5	625.3	39.21	16.949	
7,300.0	6,655.1	7,316.5	6,726.1	24.2	20.7	96.22		-745.0	80.9	664.4	622.6	41.81	15.894	
7,400.0	6,654.3	7,416.5	6,725.1	25.4	22.1	96.20		-845.0	80.9	664.4	619.8	44.58	14.903	
7,500.0	6,653.6	7,516.5	6,724.2	26.6	23.6	96.19		-945.0	80.9	664.4	616.9	47.51	13.986	
7,600.0	6,652.9	7,616.5	6,723.2	28.0	25.1	96.17		-1,045.0	80.9	664.4	613.8	50.55	13.143	
7,700.0	6,652.1	7,716.5	6,722.3	29.4	26.7	96.15		-1,145.0	80.9	664.4	610.7	53.69	12.374	
7,800.0	6,651.4	7,816.5	6,721.4	30.9	28.3	96.13		-1,245.0	80.9	664.3	607.4	56.92	11.672	
7,900.0	6,650.7	7,916.5	6,720.4	32.4	30.0	96.11		-1,345.0	80.9	664.3	604.1	60.21	11.032	
8,000.0	6,649.9	8,016.5	6,719.5	34.0	31.7	96.10		-1,444.9	80.9	664.3	600.7	63.57	10.450	
8,100.0	6,649.2	8,116.5	6,718.5	35.6	33.4	96.08		-1,544.9	80.9	664.3	597.3	66.98	9.918	
8,200.0	6,648.5	8,216.5	6,717.6	37.2	35.1	96.06		-1,644.9	80.9	664.3	593.8	70.43	9.432	
8,300.0	6,647.7	8,316.5	6,716.6	38.9	36.9	96.04		-1,744.9	80.9	664.2	590.3	73.91	8.987	
8,400.0	6,647.0	8,416.5	6,715.7	40.6	38.7	96.02		-1,844.9	80.9	664.2	586.8	77.43	8.578	
8,500.0	6,646.3	8,516.5	6,714.8	42.3	40.5	96.01		-1,944.9	80.9	664.2	583.2	80.98	8.202	
8,600.0	6,645.5	8,616.5	6,713.8	44.0	42.3	95.99		-2,044.9	80.9	664.2	579.6	84.55	7.856	
8,700.0	6,644.8	8,716.5	6,712.9	45.8	44.1	95.97		-2,144.9	80.9	664.2	576.0	88.14	7.535	
8,800.0	6,644.1	8,816.5	6,711.9	47.5	45.9	95.95		-2,244.9	80.9	664.1	572.4	91.75	7.238	
8,900.0	6,643.3	8,916.5	6,711.0	49.3	47.7	95.93		-2,344.9	80.9	664.1	568.7	95.38	6.963	
9,000.0	6,642.6	9,016.5	6,710.0	51.0	49.5	95.92		-2,444.9	80.9	664.1	565.1	99.02	6.706	
9,100.0	6,641.9	9,116.5	6,709.1	52.8	51.4	95.90		-2,544.9	80.9	664.1	561.4	102.68	6.467	
9,200.0	6,641.1	9,216.5	6,708.2	54.6	53.2	95.88		-2,644.9	80.9	664.0	557.7	106.35	6.244	
9,300.0	6,640.4	9,316.5	6,707.2	56.4	55.1	95.86		-2,744.9	80.9	664.0	554.0	110.03	6.035	
9,400.0	6,639.7	9,416.5	6,706.3	58.2	56.9	95.84		-2,844.9	80.9	664.0	550.3	113.72	5.839	
9,500.0	6,638.9	9,516.5	6,705.3	60.1	58.8	95.83		-2,944.9	80.9	664.0	546.6	117.42	5.655	
9,600.0	6,638.2	9,616.5	6,704.4	61.9	60.6	95.81		-3,044.9	80.9	664.0	542.8	121.12	5.482	
9,700.0	6,637.5	9,716.5	6,703.5	63.7	62.5	95.79		-3,144.9	80.9	663.9	539.1	124.84	5.319	
9,800.0	6,636.7	9,816.5	6,702.5	65.6	64.4	95.77		-3,244.9	80.9	663.9	535.4	128.56	5.164	
9,900.0	6,636.0	9,916.5	6,701.6	67.4	66.2	95.75		-3,344.9	80.9	663.9	531.6	132.29	5.019	
10,000.0	6,635.3	10,016.5	6,700.6	69.2	68.1	95.74		-3,444.9	80.9	663.9	527.9	136.02	4.881	

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 34U-243
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 34U-243	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 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	6,634.5	10,116.5	6,699.7	71.1	70.0	95.72	-3,544.9	80.9	663.9	524.1	139.76	4.750		
10,200.0	6,633.8	10,216.5	6,698.7	72.9	71.9	95.70	-3,644.8	80.9	663.8	520.3	143.50	4.626		
10,300.0	6,633.1	10,316.5	6,697.8	74.8	73.8	95.68	-3,744.8	80.9	663.8	516.6	147.25	4.508		
10,400.0	6,632.3	10,416.5	6,696.9	76.6	75.6	95.66	-3,844.8	80.8	663.8	512.8	151.00	4.396		
10,500.0	6,631.6	10,516.5	6,695.9	78.5	77.5	95.65	-3,944.8	80.8	663.8	509.0	154.75	4.289		
10,600.0	6,630.9	10,616.5	6,695.0	80.4	79.4	95.63	-4,044.8	80.8	663.8	505.3	158.51	4.187		
10,700.0	6,630.1	10,716.5	6,694.0	82.2	81.3	95.61	-4,144.8	80.8	663.7	501.5	162.28	4.090		
10,800.0	6,629.4	10,816.5	6,693.1	84.1	83.2	95.59	-4,244.8	80.8	663.7	497.7	166.04	3.997		
10,900.0	6,628.7	10,916.5	6,692.1	86.0	85.1	95.57	-4,344.8	80.8	663.7	493.9	169.81	3.908		
11,000.0	6,627.9	11,016.5	6,691.2	87.9	87.0	95.56	-4,444.8	80.8	663.7	490.1	173.58	3.823		
11,100.0	6,627.2	11,116.5	6,690.3	89.7	88.8	95.54	-4,544.8	80.8	663.7	486.4	177.30	3.743		
11,121.1	6,627.0	11,137.6	6,690.1	90.1	89.1	95.53	-4,565.9	80.8	663.7	485.6	178.02	3.728		
11,127.9	6,627.0	11,143.7	6,690.0	90.2	89.2	95.53	-4,572.1	80.8	663.7	485.4	178.24	3.723 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34U-243
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 34U-243	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-423 - 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		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-30.7	30.7						
100.0	100.0	100.0	100.0	0.1	0.1	-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	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	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	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	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	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	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	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	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	0.0	-30.7	30.7	26.4	4.27	7.178 CC, ES			
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	-168.33	0.0	-30.7	32.4	27.7	4.71	6.873			
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	-169.93	0.0	-30.7	37.5	32.4	5.13	7.304			
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	-171.80	0.0	-30.7	46.1	40.5	5.56	8.295			
1,400.0	1,398.7	1,398.7	1,398.7	3.0	3.0	-173.48	0.0	-30.7	58.2	52.2	5.98	9.733			
1,500.0	1,497.5	1,497.5	1,497.5	3.3	3.3	-174.83	0.0	-30.7	73.8	67.4	6.40	11.531			
1,600.0	1,595.9	1,598.9	1,598.8	3.6	3.5	-175.55	0.7	-29.1	89.9	83.1	6.83	13.169			
1,700.0	1,694.3	1,701.4	1,701.2	3.9	3.7	-175.50	2.9	-24.2	102.8	95.5	7.26	14.147			
1,800.0	1,792.7	1,804.6	1,804.0	4.3	3.9	-174.93	6.6	-15.9	112.2	104.5	7.71	14.551			
1,900.0	1,891.1	1,904.3	1,903.2	4.6	4.2	-174.20	11.0	-6.3	119.9	111.7	8.16	14.697			
2,000.0	1,989.4	2,004.0	2,002.3	5.0	4.4	-173.56	15.3	3.4	127.6	119.0	8.61	14.817			
2,100.0	2,087.8	2,103.7	2,101.4	5.3	4.6	-173.00	19.7	13.0	135.3	126.3	9.07	14.917			
2,200.0	2,186.2	2,203.4	2,200.6	5.7	4.9	-172.49	24.0	22.7	143.1	133.5	9.54	15.001			
2,300.0	2,284.6	2,303.1	2,299.7	6.1	5.2	-172.04	28.4	32.3	150.8	140.8	10.01	15.072			
2,400.0	2,383.0	2,402.8	2,398.8	6.5	5.4	-171.63	32.7	41.9	158.6	148.1	10.48	15.131			
2,500.0	2,481.4	2,502.5	2,497.9	6.9	5.7	-171.26	37.1	51.6	166.4	155.4	10.96	15.182			
2,600.0	2,579.8	2,602.1	2,597.1	7.2	5.9	-170.92	41.4	61.2	174.2	162.7	11.44	15.225			
2,700.0	2,678.2	2,701.8	2,696.2	7.6	6.2	-170.62	45.8	70.9	181.9	170.0	11.92	15.261			
2,800.0	2,776.6	2,801.5	2,795.3	8.0	6.5	-170.33	50.1	80.5	189.7	177.3	12.41	15.292			
2,900.0	2,875.0	2,901.2	2,894.5	8.4	6.8	-170.07	54.5	90.2	197.5	184.6	12.90	15.318			
3,000.0	2,973.4	3,000.9	2,993.6	8.8	7.0	-169.83	58.8	99.8	205.3	191.9	13.39	15.340			
3,100.0	3,071.8	3,100.6	3,092.7	9.2	7.3	-169.61	63.1	109.4	213.1	199.3	13.88	15.359			
3,200.0	3,170.2	3,200.3	3,191.8	9.6	7.6	-169.40	67.5	119.1	220.9	206.6	14.37	15.375			
3,300.0	3,268.6	3,300.0	3,291.0	10.0	7.9	-169.21	71.8	128.7	228.7	213.9	14.87	15.388			
3,400.0	3,367.0	3,399.7	3,390.1	10.4	8.2	-169.03	76.2	138.4	236.6	221.2	15.36	15.399			
3,500.0	3,465.4	3,499.4	3,489.2	10.8	8.5	-168.86	80.5	148.0	244.4	228.5	15.86	15.409			
3,600.0	3,563.8	3,599.1	3,588.4	11.2	8.7	-168.70	84.9	157.6	252.2	235.8	16.36	15.417			
3,700.0	3,662.2	3,698.8	3,687.5	11.6	9.0	-168.55	89.2	167.3	260.0	243.1	16.86	15.424			
3,800.0	3,760.6	3,798.4	3,786.6	12.0	9.3	-168.41	93.6	176.9	267.8	250.5	17.36	15.429			
3,900.0	3,859.0	3,898.1	3,885.8	12.4	9.6	-168.28	97.9	186.6	275.6	257.8	17.86	15.434			
4,000.0	3,957.3	3,997.8	3,984.9	12.8	9.9	-168.15	102.3	196.2	283.5	265.1	18.36	15.437			
4,100.0	4,055.7	4,097.5	4,084.0	13.2	10.2	-168.03	106.6	205.8	291.3	272.4	18.87	15.440			
4,200.0	4,154.1	4,197.2	4,183.1	13.6	10.5	-167.92	110.9	215.5	299.1	279.7	19.37	15.442			
4,300.0	4,252.5	4,296.9	4,282.3	14.0	10.8	-167.82	115.3	225.1	306.9	287.1	19.87	15.444			
4,400.0	4,350.9	4,396.6	4,381.4	14.4	11.0	-167.71	119.6	234.8	314.8	294.4	20.38	15.445			
4,500.0	4,449.3	4,496.3	4,480.5	14.8	11.3	-167.62	124.0	244.4	322.6	301.7	20.89	15.445			
4,600.0	4,547.7	4,596.0	4,579.7	15.2	11.6	-167.53	128.3	254.1	330.4	309.0	21.39	15.445			
4,700.0	4,646.1	4,695.7	4,678.8	15.6	11.9	-167.44	132.7	263.7	338.2	316.3	21.90	15.445			
4,800.0	4,744.5	4,795.4	4,777.9	16.0	12.2	-167.36	137.0	273.3	346.1	323.7	22.41	15.445			
4,900.0	4,842.9	4,895.1	4,877.0	16.4	12.5	-167.28	141.4	283.0	353.9	331.0	22.91	15.444			
5,000.0	4,941.3	4,994.8	4,976.2	16.8	12.8	-167.20	145.7	292.6	361.7	338.3	23.42	15.443			

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 34U-243
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 34U-243	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-423 - 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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,039.7	5,094.4	5,075.3	17.2	13.1	-167.13		150.1	302.3	369.6	345.6	23.93	15.442	
5,200.0	5,138.1	5,194.1	5,174.4	17.6	13.4	-167.06		154.4	311.9	377.4	352.9	24.44	15.441	
5,300.0	5,236.6	5,285.4	5,265.2	18.0	13.6	-167.05		158.0	320.0	385.7	360.8	24.92	15.478	
5,400.0	5,335.5	5,374.1	5,353.8	18.3	13.8	-167.15		160.5	325.3	393.8	368.4	25.32	15.552	
5,500.0	5,434.9	5,462.6	5,442.2	18.5	14.0	-167.30		161.8	328.2	401.3	375.6	25.67	15.631	
5,600.0	5,534.6	5,555.0	5,534.6	18.7	14.1	-167.51		162.0	328.7	408.0	382.0	25.99	15.697	
5,700.0	5,634.5	5,654.9	5,634.5	18.9	14.3	-167.65		162.0	328.7	411.9	385.6	26.31	15.656	
5,800.0	5,734.5	5,754.9	5,734.5	19.0	14.5	-90.00		162.0	328.7	412.7	386.0	26.65	15.486	
5,900.0	5,834.5	5,854.9	5,834.5	19.1	14.7	-90.00		162.0	328.7	412.7	385.6	27.04	15.260	
5,952.2	5,886.7	5,907.0	5,886.7	19.2	14.8	90.10		162.0	328.7	412.7	385.4	27.25	15.142	
6,000.0	5,934.5	5,954.9	5,934.5	19.3	14.9	90.16		162.0	328.7	412.7	385.2	27.44	15.038	
6,100.0	6,033.7	6,054.1	6,033.7	19.4	15.0	91.80		162.0	328.7	412.9	385.0	27.89	14.803	
6,200.0	6,130.5	6,155.0	6,134.4	19.4	15.2	94.47		156.5	328.7	414.0	385.6	28.34	14.610	
6,300.0	6,223.2	6,258.9	6,236.4	19.5	15.3	97.09		137.1	328.7	416.0	387.3	28.67	14.511	
6,400.0	6,310.2	6,365.8	6,337.6	19.6	15.4	99.60		102.9	328.7	418.7	389.8	28.89	14.496	
6,500.0	6,390.1	6,475.7	6,435.6	19.7	15.5	101.94		53.4	328.7	422.1	393.0	29.05	14.531	
6,600.0	6,461.4	6,588.7	6,527.9	19.8	15.6	104.08		-11.6	328.7	425.7	396.5	29.25	14.557	
6,700.0	6,523.1	6,704.7	6,611.6	20.0	15.8	105.95		-91.7	328.7	429.5	399.8	29.64	14.492	
6,800.0	6,573.9	6,823.5	6,683.7	20.3	16.1	107.51		-185.9	328.7	433.0	402.6	30.39	14.247	
6,900.0	6,613.1	6,944.6	6,741.4	20.8	16.7	108.73		-292.3	328.7	435.9	404.2	31.65	13.774	
7,000.0	6,639.9	7,067.5	6,782.0	21.4	17.7	109.57		-408.2	328.7	438.0	404.5	33.51	13.071	
7,100.0	6,653.9	7,190.0	6,803.5	22.2	18.9	110.01		-528.6	328.7	439.2	403.3	35.94	12.219	
7,200.0	6,655.8	7,294.8	6,813.8	23.1	20.1	110.94		-632.9	328.7	442.0	403.6	38.39	11.515	
7,300.0	6,655.1	7,406.8	6,816.7	24.2	21.5	111.39		-744.8	328.7	443.2	402.3	40.93	10.828	
7,400.0	6,654.3	7,506.8	6,816.4	25.4	22.9	111.44		-844.8	328.7	443.3	399.8	43.54	10.181	
7,500.0	6,653.6	7,606.8	6,816.0	26.6	24.3	111.49		-944.8	328.7	443.5	397.2	46.29	9.580	
7,600.0	6,652.9	7,706.8	6,815.7	28.0	25.8	111.53		-1,044.8	328.7	443.6	394.5	49.15	9.027	
7,700.0	6,652.1	7,806.8	6,815.4	29.4	27.3	111.58		-1,144.8	328.7	443.8	391.7	52.10	8.519	
7,800.0	6,651.4	7,906.8	6,815.0	30.9	28.9	111.63		-1,244.8	328.7	443.9	388.8	55.12	8.054	
7,900.0	6,650.7	8,006.8	6,814.7	32.4	30.6	111.68		-1,344.8	328.7	444.1	385.9	58.21	7.629	
8,000.0	6,649.9	8,106.8	6,814.4	34.0	32.2	111.73		-1,444.8	328.7	444.2	382.9	61.35	7.241	
8,100.0	6,649.2	8,206.8	6,814.0	35.6	33.9	111.77		-1,544.8	328.7	444.4	379.8	64.54	6.885	
8,200.0	6,648.5	8,306.8	6,813.7	37.2	35.6	111.82		-1,644.8	328.7	444.5	376.8	67.77	6.560	
8,300.0	6,647.7	8,406.8	6,813.4	38.9	37.4	111.87		-1,744.8	328.7	444.7	373.6	71.03	6.260	
8,400.0	6,647.0	8,506.8	6,813.0	40.6	39.1	111.92		-1,844.8	328.7	444.8	370.5	74.32	5.985	
8,500.0	6,646.3	8,606.8	6,812.7	42.3	40.9	111.97		-1,944.8	328.7	445.0	367.3	77.63	5.732	
8,600.0	6,645.5	8,706.8	6,812.4	44.0	42.7	112.01		-2,044.8	328.7	445.1	364.2	80.97	5.497	
8,700.0	6,644.8	8,806.8	6,812.0	45.8	44.5	112.06		-2,144.8	328.7	445.3	361.0	84.32	5.280	
8,800.0	6,644.1	8,906.8	6,811.7	47.5	46.3	112.11		-2,244.8	328.7	445.4	357.7	87.70	5.079	
8,900.0	6,643.3	9,006.8	6,811.4	49.3	48.1	112.16		-2,344.8	328.7	445.6	354.5	91.08	4.892	
9,000.0	6,642.6	9,106.8	6,811.1	51.0	49.9	112.21		-2,444.8	328.7	445.7	351.3	94.48	4.718	
9,100.0	6,641.9	9,206.8	6,810.7	52.8	51.7	112.25		-2,544.8	328.7	445.9	348.0	97.89	4.555	
9,200.0	6,641.1	9,306.8	6,810.4	54.6	53.5	112.30		-2,644.8	328.7	446.0	344.7	101.31	4.403	
9,300.0	6,640.4	9,406.8	6,810.1	56.4	55.4	112.35		-2,744.8	328.7	446.2	341.5	104.73	4.260	
9,400.0	6,639.7	9,506.8	6,809.7	58.2	57.2	112.40		-2,844.8	328.7	446.3	338.2	108.17	4.126	
9,500.0	6,638.9	9,606.8	6,809.4	60.1	59.1	112.44		-2,944.8	328.7	446.5	334.9	111.61	4.001	
9,600.0	6,638.2	9,706.8	6,809.1	61.9	60.9	112.49		-3,044.8	328.7	446.6	331.6	115.05	3.882	
9,700.0	6,637.5	9,806.8	6,808.7	63.7	62.8	112.54		-3,144.8	328.7	446.8	328.3	118.50	3.770	
9,800.0	6,636.7	9,906.8	6,808.4	65.6	64.6	112.59		-3,244.8	328.7	447.0	325.0	121.96	3.665	
9,900.0	6,636.0	10,006.8	6,808.1	67.4	66.5	112.63		-3,344.8	328.7	447.1	321.7	125.42	3.565	
10,000.0	6,635.3	10,106.8	6,807.7	69.2	68.4	112.68		-3,444.8	328.7	447.3	318.4	128.88	3.470	

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 34U-243
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 34U-243	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-423 - 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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,634.5	10,206.8	6,807.4	71.1	70.2	112.73	-3,544.8	328.7	447.4	315.1	132.35	3.381	
10,200.0	6,633.8	10,306.8	6,807.1	72.9	72.1	112.78	-3,644.8	328.7	447.6	311.8	135.82	3.295	
10,300.0	6,633.1	10,406.8	6,806.7	74.8	74.0	112.82	-3,744.8	328.7	447.7	308.4	139.29	3.214	
10,400.0	6,632.3	10,506.8	6,806.4	76.6	75.9	112.87	-3,844.8	328.7	447.9	305.1	142.76	3.137	
10,500.0	6,631.6	10,606.8	6,806.1	78.5	77.8	112.92	-3,944.8	328.7	448.0	301.8	146.24	3.064	
10,600.0	6,630.9	10,706.8	6,805.7	80.4	79.6	112.97	-4,044.8	328.7	448.2	298.5	149.71	2.994	
10,700.0	6,630.1	10,806.8	6,805.4	82.2	81.5	113.01	-4,144.8	328.7	448.4	295.2	153.19	2.927	
10,800.0	6,629.4	10,906.8	6,805.1	84.1	83.4	113.06	-4,244.8	328.7	448.5	291.8	156.67	2.863	
10,900.0	6,628.7	11,006.8	6,804.8	86.0	85.3	113.11	-4,344.8	328.7	448.7	288.5	160.14	2.802	
11,000.0	6,627.9	11,106.8	6,804.4	87.9	87.2	113.15	-4,444.8	328.7	448.8	285.2	163.62	2.743	
11,100.0	6,627.2	11,206.8	6,804.1	89.7	89.1	113.20	-4,544.8	328.7	449.0	281.9	167.10	2.687	
11,127.9	6,627.0	11,234.0	6,804.0	90.2	89.6	113.21	-4,572.1	328.7	449.0	281.0	168.06	2.672 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34U-243
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 34U-243	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
0.0	0.0	1.0	1.0	0.0	0.0	89.99	89.99	0.0	27.9	27.9	27.9	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	89.99	89.99	0.0	27.9	27.9	27.6	0.23	122.758	
166.3	166.3	167.3	167.3	0.3	0.3	89.99	89.99	0.0	27.9	27.9	27.3	0.53	53.062 CC	
200.0	200.0	201.0	201.0	0.3	0.3	89.99	89.99	0.0	27.9	27.9	27.2	0.68	41.198 ES	
300.0	300.0	300.0	300.0	0.6	0.6	89.47	89.47	0.3	29.6	29.6	28.5	1.12	26.537	
400.0	400.0	398.8	398.6	0.8	0.8	88.24	88.24	1.1	34.7	34.8	33.2	1.56	22.250	
500.0	500.0	497.1	496.5	1.0	1.0	86.85	86.85	2.4	43.1	43.4	41.3	2.03	21.323	
600.0	600.0	594.7	593.4	1.2	1.3	85.64	85.64	4.2	54.7	55.4	52.8	2.54	21.833	
700.0	700.0	691.4	688.9	1.5	1.6	84.68	84.68	6.5	69.4	70.7	67.7	3.08	22.994	
800.0	800.0	787.1	783.0	1.7	2.0	83.96	83.96	9.2	87.1	89.4	85.8	3.66	24.449	
900.0	900.0	885.0	878.9	1.9	2.4	83.45	83.45	12.2	106.6	109.6	105.3	4.28	25.606	
1,000.0	1,000.0	982.9	974.8	2.1	2.8	83.09	83.09	15.3	126.2	129.8	124.9	4.91	26.417	
1,100.0	1,100.0	1,081.2	1,071.0	2.3	3.2	5.19	5.19	18.3	145.8	148.3	143.5	4.79	30.940	
1,200.0	1,199.8	1,180.1	1,167.9	2.6	3.7	5.11	5.11	21.4	165.5	163.3	158.1	5.24	31.160	
1,300.0	1,299.5	1,279.4	1,265.1	2.8	4.1	5.16	5.16	24.5	185.4	174.9	169.2	5.70	30.711	
1,400.0	1,398.7	1,379.0	1,362.7	3.0	4.5	5.30	5.30	27.6	205.2	183.1	176.9	6.16	29.733	
1,500.0	1,497.5	1,478.9	1,460.6	3.3	5.0	5.54	5.54	30.7	225.2	187.8	181.2	6.62	28.355	
1,600.0	1,595.9	1,578.9	1,558.5	3.6	5.4	5.83	5.83	33.8	245.1	190.3	183.2	7.11	26.773	
1,700.0	1,694.3	1,678.9	1,656.4	3.9	5.9	6.13	6.13	36.9	265.1	192.8	185.2	7.60	25.362	
1,800.0	1,792.7	1,778.8	1,754.3	4.3	6.3	6.41	6.41	40.0	285.0	195.2	187.1	8.10	24.110	
1,900.0	1,891.1	1,878.8	1,852.2	4.6	6.7	6.69	6.69	43.1	305.0	197.7	189.1	8.60	22.993	
2,000.0	1,989.4	1,978.7	1,950.1	5.0	7.2	6.96	6.96	46.2	324.9	200.2	191.1	9.10	21.992	
2,100.0	2,087.8	2,078.7	2,048.0	5.3	7.6	7.23	7.23	49.3	344.9	202.7	193.1	9.61	21.090	
2,200.0	2,186.2	2,178.7	2,145.9	5.7	8.1	7.48	7.48	52.4	364.8	205.2	195.1	10.12	20.273	
2,300.0	2,284.6	2,278.6	2,243.8	6.1	8.5	7.73	7.73	55.5	384.8	207.7	197.1	10.63	19.531	
2,400.0	2,383.0	2,378.6	2,341.7	6.5	9.0	7.98	7.98	58.6	404.7	210.2	199.1	11.15	18.854	
2,500.0	2,481.4	2,478.6	2,439.6	6.9	9.4	8.22	8.22	61.7	424.7	212.7	201.1	11.67	18.234	
2,600.0	2,579.8	2,578.5	2,537.5	7.2	9.9	8.45	8.45	64.8	444.6	215.2	203.1	12.19	17.664	
2,700.0	2,678.2	2,678.5	2,635.4	7.6	10.3	8.68	8.68	67.9	464.6	217.8	205.1	12.71	17.138	
2,800.0	2,776.6	2,778.5	2,733.3	8.0	10.8	8.91	8.91	71.0	484.6	220.3	207.0	13.23	16.653	
2,900.0	2,875.0	2,878.4	2,831.2	8.4	11.2	9.13	9.13	74.1	504.5	222.8	209.1	13.75	16.202	
3,000.0	2,973.4	2,978.4	2,929.1	8.8	11.7	9.34	9.34	77.2	524.5	225.3	211.1	14.28	15.783	
3,100.0	3,071.8	3,078.4	3,027.0	9.2	12.1	9.55	9.55	80.3	544.4	227.9	213.1	14.80	15.393	
3,200.0	3,170.2	3,178.3	3,124.9	9.6	12.5	9.75	9.75	83.4	564.4	230.4	215.1	15.33	15.029	
3,300.0	3,268.6	3,278.3	3,222.8	10.0	13.0	9.95	9.95	86.5	584.3	232.9	217.1	15.86	14.687	
3,400.0	3,367.0	3,378.2	3,320.7	10.4	13.4	10.15	10.15	89.6	604.3	235.5	219.1	16.39	14.367	
3,500.0	3,465.4	3,478.2	3,418.6	10.8	13.9	10.34	10.34	92.7	624.2	238.0	221.1	16.92	14.067	
3,600.0	3,563.8	3,578.2	3,516.6	11.2	14.3	10.53	10.53	95.8	644.2	240.6	223.1	17.45	13.783	
3,700.0	3,662.2	3,678.1	3,614.5	11.6	14.8	10.71	10.71	98.9	664.1	243.1	225.1	17.99	13.516	
3,800.0	3,760.6	3,778.1	3,712.4	12.0	15.2	10.89	10.89	102.0	684.1	245.7	227.1	18.52	13.264	
3,900.0	3,859.0	3,878.1	3,810.3	12.4	15.7	11.07	11.07	105.1	704.0	248.2	229.1	19.06	13.025	
4,000.0	3,957.3	3,978.0	3,908.2	12.8	16.1	11.24	11.24	108.2	724.0	250.8	231.2	19.59	12.799	
4,100.0	4,055.7	4,078.0	4,006.1	13.2	16.6	11.41	11.41	111.3	743.9	253.3	233.2	20.13	12.584	
4,200.0	4,154.1	4,178.0	4,104.0	13.6	17.0	11.57	11.57	114.4	763.9	255.9	235.2	20.67	12.380	
4,300.0	4,252.5	4,277.9	4,201.9	14.0	17.5	11.73	11.73	117.5	783.8	258.4	237.2	21.21	12.186	
4,400.0	4,350.9	4,377.9	4,299.8	14.4	17.9	11.89	11.89	120.6	803.8	261.0	239.2	21.75	12.002	
4,500.0	4,449.3	4,477.9	4,397.7	14.8	18.4	12.05	12.05	123.7	823.7	263.6	241.3	22.29	11.825	
4,600.0	4,547.7	4,577.8	4,495.6	15.2	18.8	12.20	12.20	126.8	843.7	266.1	243.3	22.83	11.657	
4,700.0	4,646.1	4,677.8	4,593.5	15.6	19.3	12.35	12.35	129.9	863.6	268.7	245.3	23.37	11.497	
4,800.0	4,744.5	4,777.8	4,691.4	16.0	19.7	12.50	12.50	133.0	883.6	271.3	247.3	23.92	11.343	
4,900.0	4,842.9	4,877.7	4,789.3	16.4	20.2	12.64	12.64	136.1	903.5	273.8	249.4	24.46	11.196	

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 34U-243
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 34U-243	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	4,941.3	4,977.7	4,887.2	16.8	20.6	12.79		139.2	923.5	276.4	251.4	25.00	11.055	
5,100.0	5,039.7	5,077.6	4,985.1	17.2	21.1	12.93		142.3	943.4	279.0	253.4	25.55	10.919	
5,200.0	5,138.1	5,177.6	5,083.0	17.6	21.5	13.06		145.4	963.4	281.6	255.5	26.10	10.790	
5,300.0	5,236.6	5,277.6	5,180.9	18.0	22.0	13.18		148.5	983.3	284.5	257.9	26.63	10.685	
5,400.0	5,335.5	5,377.4	5,278.7	18.3	22.4	13.19		151.6	1,003.3	290.5	263.4	27.09	10.720	
5,500.0	5,434.9	5,483.4	5,382.6	18.5	22.8	13.06		154.8	1,023.8	299.2	271.7	27.51	10.877	
5,600.0	5,534.6	5,594.6	5,492.4	18.7	23.2	12.89		157.5	1,041.5	307.8	280.0	27.84	11.055	
5,700.0	5,634.5	5,706.3	5,603.2	18.9	23.4	12.70		159.6	1,055.1	316.1	287.9	28.12	11.239	
5,800.0	5,734.5	5,818.3	5,714.8	19.0	23.7	90.16		161.1	1,064.4	323.6	295.2	28.40	11.396	
5,900.0	5,834.5	5,930.9	5,827.3	19.1	23.8	90.02		161.9	1,069.4	328.1	299.3	28.76	11.407	
6,000.0	5,934.5	6,039.1	5,935.5	19.3	23.9	-90.21		162.0	1,070.3	328.9	299.8	29.10	11.302	
6,100.0	6,033.7	6,138.3	6,034.7	19.4	24.1	-92.26		162.0	1,070.3	329.2	299.9	29.22	11.266	
6,200.0	6,130.5	6,239.2	6,135.4	19.4	24.1	-95.61		156.6	1,070.3	330.5	301.3	29.25	11.302	
6,300.0	6,223.2	6,343.1	6,237.4	19.5	24.2	-98.89		137.3	1,070.3	333.0	303.7	29.35	11.348	
6,400.0	6,310.2	6,450.0	6,338.6	19.6	24.3	-102.02		103.2	1,070.3	336.5	307.0	29.53	11.396	
6,500.0	6,390.1	6,560.0	6,436.7	19.7	24.3	-104.92		53.7	1,070.3	340.7	310.9	29.79	11.438	
6,600.0	6,461.4	6,673.0	6,529.1	19.8	24.4	-107.53		-11.2	1,070.3	345.3	315.2	30.08	11.480	
6,700.0	6,523.1	6,789.1	6,612.9	20.0	24.5	-109.80		-91.3	1,070.3	349.9	319.5	30.47	11.485	
6,800.0	6,573.9	6,907.9	6,685.2	20.3	24.7	-111.68		-185.5	1,070.3	354.2	323.3	30.93	11.453	
6,900.0	6,613.1	7,029.1	6,742.9	20.8	25.1	-113.14		-292.0	1,070.3	357.8	326.3	31.53	11.350	
7,000.0	6,639.9	7,152.2	6,783.6	21.4	25.6	-114.13		-408.0	1,070.3	360.5	328.1	32.33	11.151	
7,100.0	6,653.9	7,274.8	6,805.1	22.2	26.3	-114.66		-528.6	1,070.3	361.9	328.5	33.38	10.841	
7,200.0	6,655.8	7,379.6	6,815.5	23.1	27.1	-115.74		-632.8	1,070.3	365.4	330.8	34.57	10.568	
7,300.0	6,655.1	7,491.7	6,818.4	24.2	28.1	-116.27		-744.9	1,070.3	366.8	330.0	36.78	9.971	
7,400.0	6,654.3	7,591.7	6,818.0	25.4	29.1	-116.32		-844.9	1,070.3	366.9	327.7	39.21	9.358	
7,500.0	6,653.6	7,691.7	6,817.7	26.6	30.1	-116.37		-944.9	1,070.3	367.1	325.3	41.78	8.786	
7,600.0	6,652.9	7,791.7	6,817.3	28.0	31.3	-116.43		-1,044.9	1,070.3	367.3	322.8	44.48	8.258	
7,700.0	6,652.1	7,891.7	6,817.0	29.4	32.6	-116.48		-1,144.9	1,070.3	367.4	320.2	47.27	7.773	
7,800.0	6,651.4	7,991.7	6,816.6	30.9	33.9	-116.53		-1,244.9	1,070.3	367.6	317.5	50.15	7.330	
7,900.0	6,650.7	8,091.7	6,816.3	32.4	35.3	-116.59		-1,344.9	1,070.3	367.8	314.7	53.10	6.926	
8,000.0	6,649.9	8,191.7	6,815.9	34.0	36.7	-116.64		-1,444.9	1,070.3	368.0	311.9	56.11	6.558	
8,100.0	6,649.2	8,291.7	6,815.6	35.6	38.2	-116.69		-1,544.9	1,070.3	368.1	309.0	59.16	6.222	
8,200.0	6,648.5	8,391.7	6,815.2	37.2	39.7	-116.75		-1,644.9	1,070.3	368.3	306.0	62.26	5.916	
8,300.0	6,647.7	8,491.7	6,814.9	38.9	41.3	-116.80		-1,744.9	1,070.3	368.5	303.1	65.39	5.635	
8,400.0	6,647.0	8,591.7	6,814.5	40.6	42.9	-116.85		-1,844.9	1,070.3	368.6	300.1	68.55	5.378	
8,500.0	6,646.3	8,691.7	6,814.2	42.3	44.5	-116.91		-1,944.9	1,070.3	368.8	297.1	71.74	5.141	
8,600.0	6,645.5	8,791.7	6,813.8	44.0	46.1	-116.96		-2,044.9	1,070.3	369.0	294.1	74.94	4.924	
8,700.0	6,644.8	8,891.7	6,813.5	45.8	47.8	-117.01		-2,144.9	1,070.3	369.2	291.0	78.17	4.723	
8,800.0	6,644.1	8,991.7	6,813.1	47.5	49.5	-117.07		-2,244.9	1,070.3	369.3	287.9	81.41	4.537	
8,900.0	6,643.3	9,091.7	6,812.8	49.3	51.2	-117.12		-2,344.9	1,070.3	369.5	284.8	84.67	4.364	
9,000.0	6,642.6	9,191.7	6,812.4	51.0	52.9	-117.17		-2,444.9	1,070.3	369.7	281.8	87.94	4.204	
9,100.0	6,641.9	9,291.7	6,812.1	52.8	54.6	-117.23		-2,544.9	1,070.3	369.9	278.7	91.22	4.055	
9,200.0	6,641.1	9,391.7	6,811.7	54.6	56.4	-117.28		-2,644.8	1,070.3	370.0	275.5	94.51	3.916	
9,300.0	6,640.4	9,491.7	6,811.4	56.4	58.1	-117.33		-2,744.8	1,070.3	370.2	272.4	97.80	3.785	
9,400.0	6,639.7	9,591.7	6,811.0	58.2	59.9	-117.38		-2,844.8	1,070.3	370.4	269.3	101.10	3.664	
9,500.0	6,638.9	9,691.7	6,810.7	60.1	61.6	-117.44		-2,944.8	1,070.3	370.6	266.2	104.41	3.549	
9,600.0	6,638.2	9,791.7	6,810.3	61.9	63.4	-117.49		-3,044.8	1,070.3	370.8	263.0	107.73	3.442	
9,700.0	6,637.5	9,891.7	6,810.0	63.7	65.2	-117.54		-3,144.8	1,070.3	370.9	259.9	111.05	3.340	
9,800.0	6,636.7	9,991.7	6,809.6	65.6	67.0	-117.59		-3,244.8	1,070.3	371.1	256.7	114.37	3.245	
9,900.0	6,636.0	10,091.7	6,809.3	67.4	68.8	-117.65		-3,344.8	1,070.3	371.3	253.6	117.69	3.155	
10,000.0	6,635.3	10,191.7	6,808.9	69.2	70.6	-117.70		-3,444.8	1,070.3	371.5	250.4	121.02	3.069	

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 34U-243
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 34U-243	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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,634.5	10,291.7	6,808.6	71.1	72.4	-117.75	-3,544.8	1,070.3	371.6	247.3	124.35	2.989	
10,200.0	6,633.8	10,391.7	6,808.2	72.9	74.3	-117.80	-3,644.8	1,070.3	371.8	244.1	127.68	2.912	
10,300.0	6,633.1	10,491.7	6,807.9	74.8	76.1	-117.86	-3,744.8	1,070.3	372.0	241.0	131.01	2.839	
10,400.0	6,632.3	10,591.7	6,807.5	76.6	77.9	-117.91	-3,844.8	1,070.3	372.2	237.8	134.35	2.770	
10,500.0	6,631.6	10,691.7	6,807.2	78.5	79.7	-117.96	-3,944.8	1,070.3	372.4	234.7	137.68	2.704	
10,600.0	6,630.9	10,791.7	6,806.8	80.4	81.6	-118.01	-4,044.8	1,070.3	372.5	231.5	141.02	2.642	
10,700.0	6,630.1	10,891.7	6,806.5	82.2	83.4	-118.06	-4,144.8	1,070.3	372.7	228.4	144.36	2.582	
10,800.0	6,629.4	10,991.7	6,806.1	84.1	85.3	-118.12	-4,244.8	1,070.3	372.9	225.2	147.69	2.525	
10,900.0	6,628.7	11,091.7	6,805.8	86.0	87.1	-118.17	-4,344.8	1,070.3	373.1	222.1	151.03	2.470	
11,000.0	6,627.9	11,191.7	6,805.4	87.9	89.0	-118.22	-4,444.8	1,070.3	373.3	218.9	154.36	2.418	
11,100.0	6,627.2	11,291.7	6,805.1	89.7	90.8	-118.27	-4,544.8	1,070.3	373.4	215.7	157.70	2.368	
11,127.9	6,627.0	11,318.9	6,805.0	90.2	91.3	-118.29	-4,572.0	1,070.3	373.5	214.9	158.55	2.356 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34U-243
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 34U-243	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')

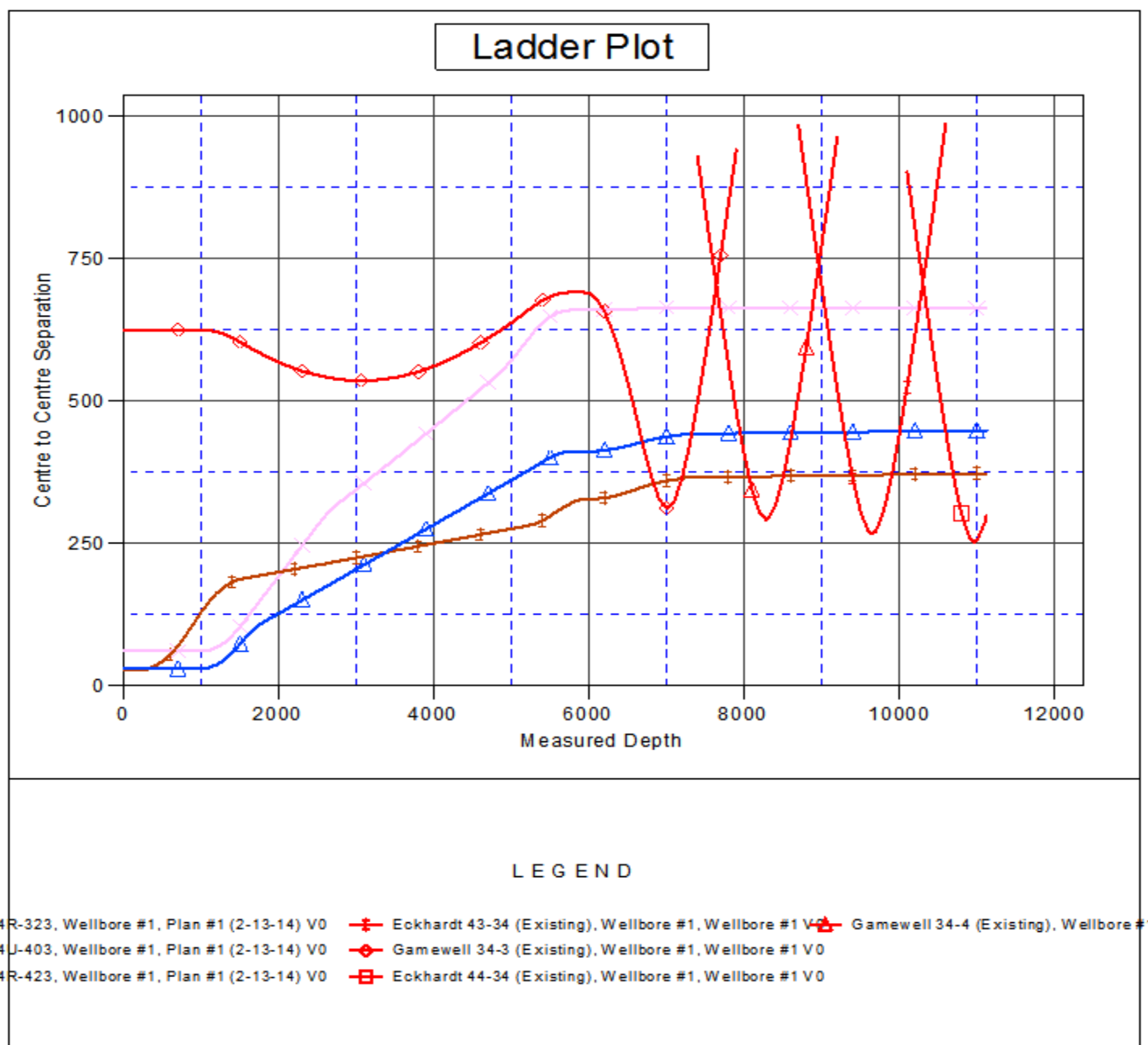
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Suden 34U-243

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 34U-243
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 34U-243	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 34U-243

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.63°

