PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Simonsen 12E-223**

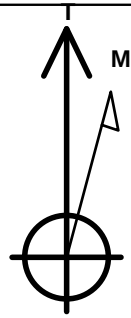
Surface Location: Simonsen NWNW-12 Pad Sec.12-T6N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4848.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1428709.54	3180754.57	40.508390	-104.849950	

Original Well Elev WELL @ 4863.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
HARDLINE BHL 460'FSL (4)	1.0	-4677.8	-358.5	Polygon
HARDLINE SHL 460'FNL (4)	1.0	-254.0	-350.0	Polygon
SECTION LINE 206'N & 350'W OF SHL (4)	1.0	206.0	-350.0	Polygon
BHL 500'FSL, 200'FWL	7043.0	-4637.8	-158.5	Point



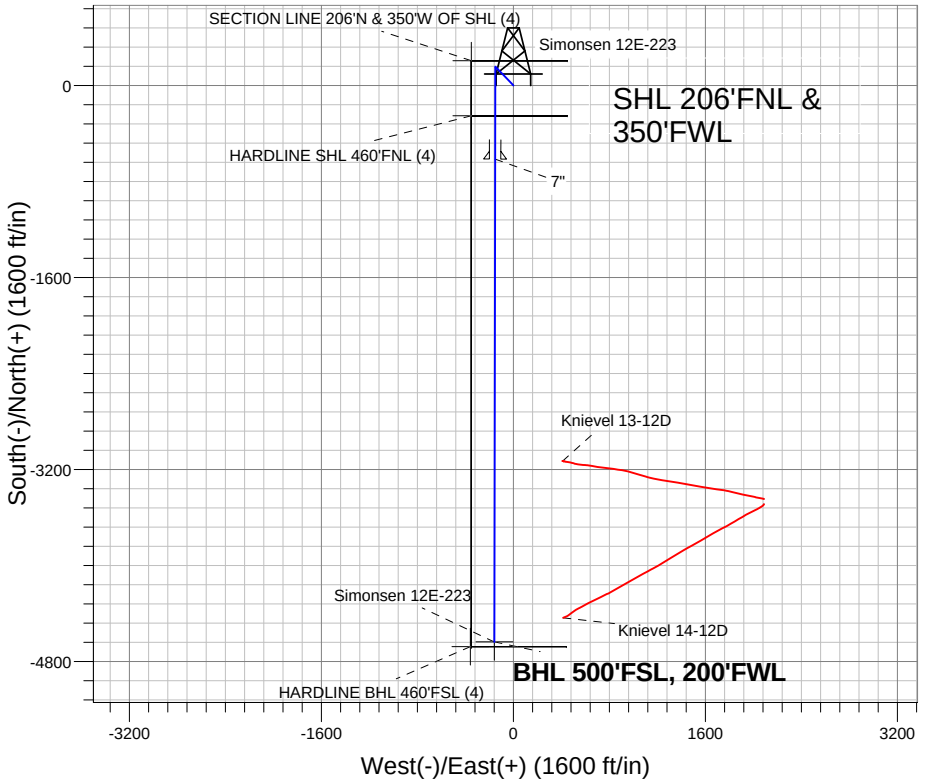
Azimuths to True North
Magnetic North: 8.79°

Magnetic Field
Strength: 53075.5snT
Dip Angle: 67.09°
Date: 6/7/2012
Model: IGRF2010

Simonsen NWNW-12 Pad Sec.12-T6N-R67W
Simonsen 12E-223
Plan #1 (6-07-12)
13:02, June 25 2012

ANNOTATIONS

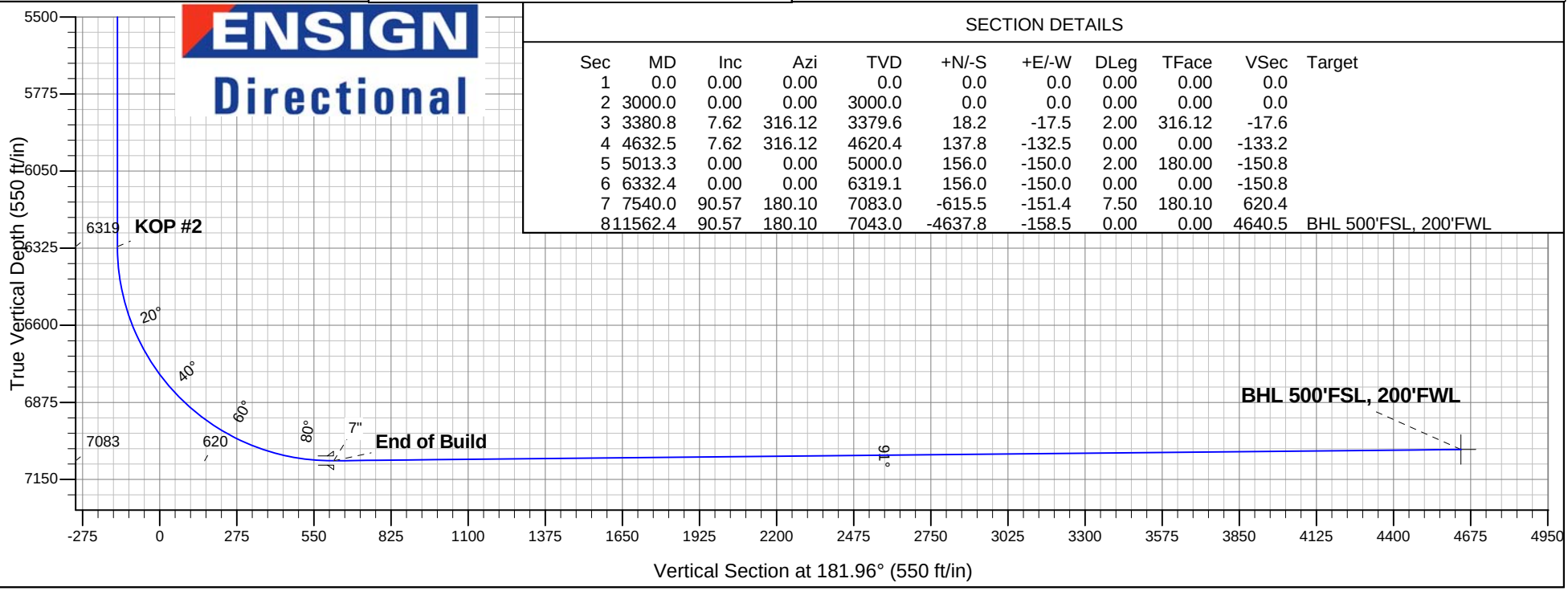
TVD	MD	Annotation
3000.0	3000.0	KOP #1
6319.1	6332.4	KOP #2
7083.0	7540.0	End of Build



ENSIGN Directional

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0	
3	3380.8	7.62	316.12	3379.6	18.2	-17.5	2.00	316.12	-17.6	
4	4632.5	7.62	316.12	4620.4	137.8	-132.5	0.00	0.00	-133.2	
5	5013.3	0.00	0.00	5000.0	156.0	-150.0	2.00	180.00	-150.8	
6	6332.4	0.00	0.00	6319.1	156.0	-150.0	0.00	0.00	-150.8	
7	7540.0	90.57	180.10	7083.0	-615.5	-151.4	7.50	180.10	620.4	
8	11562.4	90.57	180.10	7043.0	-4637.8	-158.5	0.00	0.00	4640.5	BHL 500'FSL, 200'FWL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.12-T6N-R67W
Simonsen NWNW-12 Pad Sec.12-T6N-R67W
Simonsen 12E-223

Wellbore #1

Plan: Plan #1 (6-07-12)

Standard Planning Report

25 June, 2012

PDC ENERGY
Growing E&P Value

Database:	Landmark	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Project:	SEC.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**North Reference:**	True
Well:	Simonsen 12E-223	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (6-07-12)		

Project SEC.12-T6N-R67W, 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 Simonsen NWNW-12 Pad Sec.12-T6N-R67W

Site Position:		**Northing:**	1,428,710.21 ft	**Latitude:**	40.508390
From:	Lat/Long	**Easting:**	3,180,843.55 ft	**Longitude:**	-104.849630
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.42 °

Well Simonsen 12E-223

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,428,709.54 ft	**Latitude:**	40.508390
	+E/-W	-89.0 ft	**Easting:**	3,180,754.57 ft	**Longitude:**	-104.849950
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,848.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/7/2012	8.79	67.09	53,076

Design Plan #1 (6-07-12)

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	181.96

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	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,380.8	7.62	316.12	3,379.6	18.2	-17.5	2.00	2.00	0.00	316.12	
4,632.5	7.62	316.12	4,620.4	137.8	-132.5	0.00	0.00	0.00	0.00	
5,013.3	0.00	0.00	5,000.0	156.0	-150.0	2.00	-2.00	0.00	180.00	
6,332.4	0.00	0.00	6,319.1	156.0	-150.0	0.00	0.00	0.00	0.00	
7,540.0	90.57	180.10	7,083.0	-615.5	-151.4	7.50	7.50	0.00	180.10	
11,562.4	90.57	180.10	7,043.0	-4,637.8	-158.5	0.00	0.00	0.00	0.00	BHL 500'FSL, 200'F

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Project:	SEC.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**North Reference:**	True
Well:	Simonsen 12E-223	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (6-07-12)		

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
HARDLINE BHL 460'FSL (4) - HARDLINE SHL 460'FNL (4) - SECTION LINE 206'N & 350'W OF SHL (4)									
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	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
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	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
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	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
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	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
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	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
1,040.0	0.00	0.00	1,040.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.00	0.00	1,080.0	0.0	0.0	0.0	0.00	0.00	0.00
1,120.0	0.00	0.00	1,120.0	0.0	0.0	0.0	0.00	0.00	0.00
1,160.0	0.00	0.00	1,160.0	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
1,240.0	0.00	0.00	1,240.0	0.0	0.0	0.0	0.00	0.00	0.00
1,280.0	0.00	0.00	1,280.0	0.0	0.0	0.0	0.00	0.00	0.00
1,320.0	0.00	0.00	1,320.0	0.0	0.0	0.0	0.00	0.00	0.00
1,360.0	0.00	0.00	1,360.0	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
1,440.0	0.00	0.00	1,440.0	0.0	0.0	0.0	0.00	0.00	0.00
1,480.0	0.00	0.00	1,480.0	0.0	0.0	0.0	0.00	0.00	0.00
1,520.0	0.00	0.00	1,520.0	0.0	0.0	0.0	0.00	0.00	0.00
1,560.0	0.00	0.00	1,560.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,640.0	0.00	0.00	1,640.0	0.0	0.0	0.0	0.00	0.00	0.00
1,680.0	0.00	0.00	1,680.0	0.0	0.0	0.0	0.00	0.00	0.00
1,720.0	0.00	0.00	1,720.0	0.0	0.0	0.0	0.00	0.00	0.00
1,760.0	0.00	0.00	1,760.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,840.0	0.00	0.00	1,840.0	0.0	0.0	0.0	0.00	0.00	0.00
1,880.0	0.00	0.00	1,880.0	0.0	0.0	0.0	0.00	0.00	0.00
1,920.0	0.00	0.00	1,920.0	0.0	0.0	0.0	0.00	0.00	0.00
1,960.0	0.00	0.00	1,960.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00

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Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**North Reference:**	True
Well:	Simonsen 12E-223	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (6-07-12)		

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)
2,040.0	0.00	0.00	2,040.0	0.0	0.0	0.0	0.00	0.00	0.00
2,080.0	0.00	0.00	2,080.0	0.0	0.0	0.0	0.00	0.00	0.00
2,120.0	0.00	0.00	2,120.0	0.0	0.0	0.0	0.00	0.00	0.00
2,160.0	0.00	0.00	2,160.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,240.0	0.00	0.00	2,240.0	0.0	0.0	0.0	0.00	0.00	0.00
2,280.0	0.00	0.00	2,280.0	0.0	0.0	0.0	0.00	0.00	0.00
2,320.0	0.00	0.00	2,320.0	0.0	0.0	0.0	0.00	0.00	0.00
2,360.0	0.00	0.00	2,360.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,440.0	0.00	0.00	2,440.0	0.0	0.0	0.0	0.00	0.00	0.00
2,480.0	0.00	0.00	2,480.0	0.0	0.0	0.0	0.00	0.00	0.00
2,520.0	0.00	0.00	2,520.0	0.0	0.0	0.0	0.00	0.00	0.00
2,560.0	0.00	0.00	2,560.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,640.0	0.00	0.00	2,640.0	0.0	0.0	0.0	0.00	0.00	0.00
2,680.0	0.00	0.00	2,680.0	0.0	0.0	0.0	0.00	0.00	0.00
2,720.0	0.00	0.00	2,720.0	0.0	0.0	0.0	0.00	0.00	0.00
2,760.0	0.00	0.00	2,760.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,840.0	0.00	0.00	2,840.0	0.0	0.0	0.0	0.00	0.00	0.00
2,880.0	0.00	0.00	2,880.0	0.0	0.0	0.0	0.00	0.00	0.00
2,920.0	0.00	0.00	2,920.0	0.0	0.0	0.0	0.00	0.00	0.00
2,960.0	0.00	0.00	2,960.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
3,040.0	0.80	316.12	3,040.0	0.2	-0.2	-0.2	2.00	2.00	0.00
3,080.0	1.60	316.12	3,080.0	0.8	-0.8	-0.8	2.00	2.00	0.00
3,120.0	2.40	316.12	3,120.0	1.8	-1.7	-1.8	2.00	2.00	0.00
3,160.0	3.20	316.12	3,159.9	3.2	-3.1	-3.1	2.00	2.00	0.00
3,200.0	4.00	316.12	3,199.8	5.0	-4.8	-4.9	2.00	2.00	0.00
3,240.0	4.80	316.12	3,239.7	7.2	-7.0	-7.0	2.00	2.00	0.00
3,280.0	5.60	316.12	3,279.6	9.9	-9.5	-9.5	2.00	2.00	0.00
3,320.0	6.40	316.12	3,319.3	12.9	-12.4	-12.4	2.00	2.00	0.00
3,360.0	7.20	316.12	3,359.1	16.3	-15.7	-15.7	2.00	2.00	0.00
3,380.8	7.62	316.12	3,379.6	18.2	-17.5	-17.6	2.00	2.00	0.00
3,400.0	7.62	316.12	3,398.7	20.1	-19.3	-19.4	0.00	0.00	0.00
3,440.0	7.62	316.12	3,438.4	23.9	-23.0	-23.1	0.00	0.00	0.00
3,480.0	7.62	316.12	3,478.0	27.7	-26.6	-26.8	0.00	0.00	0.00
3,520.0	7.62	316.12	3,517.7	31.5	-30.3	-30.5	0.00	0.00	0.00
3,560.0	7.62	316.12	3,557.3	35.3	-34.0	-34.2	0.00	0.00	0.00
3,600.0	7.62	316.12	3,596.9	39.2	-37.6	-37.8	0.00	0.00	0.00
3,640.0	7.62	316.12	3,636.6	43.0	-41.3	-41.5	0.00	0.00	0.00
3,680.0	7.62	316.12	3,676.2	46.8	-45.0	-45.2	0.00	0.00	0.00
3,720.0	7.62	316.12	3,715.9	50.6	-48.7	-48.9	0.00	0.00	0.00
3,760.0	7.62	316.12	3,755.5	54.4	-52.3	-52.6	0.00	0.00	0.00
3,800.0	7.62	316.12	3,795.2	58.3	-56.0	-56.3	0.00	0.00	0.00
3,840.0	7.62	316.12	3,834.8	62.1	-59.7	-60.0	0.00	0.00	0.00
3,880.0	7.62	316.12	3,874.5	65.9	-63.4	-63.7	0.00	0.00	0.00
3,920.0	7.62	316.12	3,914.1	69.7	-67.0	-67.4	0.00	0.00	0.00
3,960.0	7.62	316.12	3,953.8	73.5	-70.7	-71.1	0.00	0.00	0.00
4,000.0	7.62	316.12	3,993.4	77.4	-74.4	-74.8	0.00	0.00	0.00
4,040.0	7.62	316.12	4,033.1	81.2	-78.1	-78.5	0.00	0.00	0.00

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Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**North Reference:**	True
Well:	Simonsen 12E-223	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (6-07-12)		

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)
4,080.0	7.62	316.12	4,072.7	85.0	-81.7	-82.2	0.00	0.00	0.00
4,120.0	7.62	316.12	4,112.4	88.8	-85.4	-85.9	0.00	0.00	0.00
4,160.0	7.62	316.12	4,152.0	92.6	-89.1	-89.6	0.00	0.00	0.00
4,200.0	7.62	316.12	4,191.7	96.5	-92.8	-93.2	0.00	0.00	0.00
4,240.0	7.62	316.12	4,231.3	100.3	-96.4	-96.9	0.00	0.00	0.00
4,280.0	7.62	316.12	4,270.9	104.1	-100.1	-100.6	0.00	0.00	0.00
4,320.0	7.62	316.12	4,310.6	107.9	-103.8	-104.3	0.00	0.00	0.00
4,360.0	7.62	316.12	4,350.2	111.8	-107.5	-108.0	0.00	0.00	0.00
4,400.0	7.62	316.12	4,389.9	115.6	-111.1	-111.7	0.00	0.00	0.00
4,440.0	7.62	316.12	4,429.5	119.4	-114.8	-115.4	0.00	0.00	0.00
4,480.0	7.62	316.12	4,469.2	123.2	-118.5	-119.1	0.00	0.00	0.00
4,520.0	7.62	316.12	4,508.8	127.0	-122.2	-122.8	0.00	0.00	0.00
4,560.0	7.62	316.12	4,548.5	130.9	-125.8	-126.5	0.00	0.00	0.00
4,600.0	7.62	316.12	4,588.1	134.7	-129.5	-130.2	0.00	0.00	0.00
4,632.5	7.62	316.12	4,620.4	137.8	-132.5	-133.2	0.00	0.00	0.00
4,640.0	7.47	316.12	4,627.8	138.5	-133.2	-133.9	2.00	-2.00	0.00
4,680.0	6.67	316.12	4,667.5	142.0	-136.6	-137.3	2.00	-2.00	0.00
4,720.0	5.87	316.12	4,707.2	145.2	-139.6	-140.3	2.00	-2.00	0.00
4,760.0	5.07	316.12	4,747.0	147.9	-142.2	-143.0	2.00	-2.00	0.00
4,800.0	4.27	316.12	4,786.9	150.3	-144.5	-145.3	2.00	-2.00	0.00
4,840.0	3.47	316.12	4,826.8	152.2	-146.4	-147.1	2.00	-2.00	0.00
4,880.0	2.67	316.12	4,866.8	153.8	-147.9	-148.6	2.00	-2.00	0.00
4,920.0	1.87	316.12	4,906.7	154.9	-148.9	-149.7	2.00	-2.00	0.00
4,960.0	1.07	316.12	4,946.7	155.6	-149.7	-150.4	2.00	-2.00	0.00
5,000.0	0.27	316.12	4,986.7	156.0	-150.0	-150.8	2.00	-2.00	0.00
5,013.3	0.00	0.00	5,000.0	156.0	-150.0	-150.8	2.00	-2.00	0.00
5,040.0	0.00	0.00	5,026.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,080.0	0.00	0.00	5,066.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,120.0	0.00	0.00	5,106.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,160.0	0.00	0.00	5,146.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,200.0	0.00	0.00	5,186.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,240.0	0.00	0.00	5,226.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,280.0	0.00	0.00	5,266.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,320.0	0.00	0.00	5,306.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,360.0	0.00	0.00	5,346.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,400.0	0.00	0.00	5,386.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,440.0	0.00	0.00	5,426.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,480.0	0.00	0.00	5,466.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,520.0	0.00	0.00	5,506.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,560.0	0.00	0.00	5,546.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,600.0	0.00	0.00	5,586.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,640.0	0.00	0.00	5,626.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,680.0	0.00	0.00	5,666.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,720.0	0.00	0.00	5,706.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,760.0	0.00	0.00	5,746.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,786.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,840.0	0.00	0.00	5,826.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,880.0	0.00	0.00	5,866.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,920.0	0.00	0.00	5,906.7	156.0	-150.0	-150.8	0.00	0.00	0.00
5,960.0	0.00	0.00	5,946.7	156.0	-150.0	-150.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,986.7	156.0	-150.0	-150.8	0.00	0.00	0.00
6,040.0	0.00	0.00	6,026.7	156.0	-150.0	-150.8	0.00	0.00	0.00
6,080.0	0.00	0.00	6,066.7	156.0	-150.0	-150.8	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Project:	SEC.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**North Reference:**	True
Well:	Simonsen 12E-223	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (6-07-12)		

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)
6,120.0	0.00	0.00	6,106.7	156.0	-150.0	-150.8	0.00	0.00	0.00
6,160.0	0.00	0.00	6,146.7	156.0	-150.0	-150.8	0.00	0.00	0.00
6,200.0	0.00	0.00	6,186.7	156.0	-150.0	-150.8	0.00	0.00	0.00
6,240.0	0.00	0.00	6,226.7	156.0	-150.0	-150.8	0.00	0.00	0.00
6,280.0	0.00	0.00	6,266.7	156.0	-150.0	-150.8	0.00	0.00	0.00
6,320.0	0.00	0.00	6,306.7	156.0	-150.0	-150.8	0.00	0.00	0.00
6,332.4	0.00	0.00	6,319.1	156.0	-150.0	-150.8	0.00	0.00	0.00
KOP #2									
6,360.0	2.07	180.10	6,346.7	155.5	-150.0	-150.3	7.50	7.50	0.00
6,400.0	5.07	180.10	6,386.6	153.0	-150.0	-147.8	7.50	7.50	0.00
6,440.0	8.07	180.10	6,426.4	148.4	-150.0	-143.2	7.50	7.50	0.00
6,480.0	11.07	180.10	6,465.8	141.8	-150.0	-136.6	7.50	7.50	0.00
6,520.0	14.07	180.10	6,504.8	133.1	-150.0	-127.9	7.50	7.50	0.00
6,560.0	17.07	180.10	6,543.4	122.3	-150.1	-117.1	7.50	7.50	0.00
6,600.0	20.07	180.10	6,581.3	109.6	-150.1	-104.4	7.50	7.50	0.00
6,640.0	23.07	180.10	6,618.5	94.9	-150.1	-89.7	7.50	7.50	0.00
6,680.0	26.07	180.10	6,654.8	78.3	-150.1	-73.1	7.50	7.50	0.00
6,720.0	29.07	180.10	6,690.3	59.8	-150.2	-54.6	7.50	7.50	0.00
6,760.0	32.07	180.10	6,724.7	39.4	-150.2	-34.3	7.50	7.50	0.00
6,800.0	35.07	180.10	6,758.1	17.3	-150.2	-12.2	7.50	7.50	0.00
6,840.0	38.07	180.10	6,790.2	-6.5	-150.3	11.7	7.50	7.50	0.00
6,880.0	41.07	180.10	6,821.0	-32.0	-150.3	37.1	7.50	7.50	0.00
6,920.0	44.07	180.10	6,850.5	-59.1	-150.4	64.2	7.50	7.50	0.00
6,960.0	47.07	180.10	6,878.5	-87.6	-150.4	92.7	7.50	7.50	0.00
7,000.0	50.07	180.10	6,904.9	-117.6	-150.5	122.7	7.50	7.50	0.00
7,040.0	53.07	180.10	6,929.8	-148.9	-150.5	154.0	7.50	7.50	0.00
7,080.0	56.07	180.10	6,953.0	-181.5	-150.6	186.6	7.50	7.50	0.00
7,120.0	59.07	180.10	6,974.4	-215.3	-150.7	220.3	7.50	7.50	0.00
7,160.0	62.07	180.10	6,994.1	-250.1	-150.7	255.1	7.50	7.50	0.00
7,200.0	65.07	180.10	7,011.9	-285.9	-150.8	290.9	7.50	7.50	0.00
7,240.0	68.07	180.10	7,027.8	-322.6	-150.9	327.6	7.50	7.50	0.00
7,280.0	71.07	180.10	7,041.7	-360.1	-150.9	365.1	7.50	7.50	0.00
7,320.0	74.07	180.10	7,053.7	-398.3	-151.0	403.2	7.50	7.50	0.00
7,360.0	77.07	180.10	7,063.7	-437.0	-151.1	441.9	7.50	7.50	0.00
7,400.0	80.07	180.10	7,071.6	-476.2	-151.1	481.1	7.50	7.50	0.00
7,440.0	83.07	180.10	7,077.5	-515.8	-151.2	520.6	7.50	7.50	0.00
7,480.0	86.07	180.10	7,081.3	-555.6	-151.3	560.4	7.50	7.50	0.00
7,520.0	89.07	180.10	7,083.0	-595.6	-151.3	600.4	7.50	7.50	0.00
7,540.0	90.57	180.10	7,083.0	-615.6	-151.4	620.4	7.50	7.50	0.00
End of Build - 7"									
7,560.0	90.57	180.10	7,082.8	-635.6	-151.4	640.4	0.00	0.00	0.00
7,600.0	90.57	180.10	7,082.4	-675.5	-151.5	680.3	0.00	0.00	0.00
7,640.0	90.57	180.10	7,082.0	-715.5	-151.6	720.3	0.00	0.00	0.00
7,680.0	90.57	180.10	7,081.6	-755.5	-151.6	760.3	0.00	0.00	0.00
7,720.0	90.57	180.10	7,081.2	-795.5	-151.7	800.3	0.00	0.00	0.00
7,760.0	90.57	180.10	7,080.8	-835.5	-151.8	840.2	0.00	0.00	0.00
7,800.0	90.57	180.10	7,080.4	-875.5	-151.8	880.2	0.00	0.00	0.00
7,840.0	90.57	180.10	7,080.0	-915.5	-151.9	920.2	0.00	0.00	0.00
7,880.0	90.57	180.10	7,079.6	-955.5	-152.0	960.2	0.00	0.00	0.00
7,920.0	90.57	180.10	7,079.2	-995.5	-152.0	1,000.1	0.00	0.00	0.00
7,960.0	90.57	180.10	7,078.8	-1,035.5	-152.1	1,040.1	0.00	0.00	0.00
8,000.0	90.57	180.10	7,078.4	-1,075.5	-152.2	1,080.1	0.00	0.00	0.00
8,040.0	90.57	180.10	7,078.0	-1,115.5	-152.3	1,120.1	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Project:	SEC.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**North Reference:**	True
Well:	Simonsen 12E-223	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (6-07-12)		

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)
8,080.0	90.57	180.10	7,077.6	-1,155.5	-152.3	1,160.1	0.00	0.00	0.00
8,120.0	90.57	180.10	7,077.2	-1,195.5	-152.4	1,200.0	0.00	0.00	0.00
8,160.0	90.57	180.10	7,076.8	-1,235.5	-152.5	1,240.0	0.00	0.00	0.00
8,200.0	90.57	180.10	7,076.4	-1,275.5	-152.5	1,280.0	0.00	0.00	0.00
8,240.0	90.57	180.10	7,076.1	-1,315.5	-152.6	1,320.0	0.00	0.00	0.00
8,280.0	90.57	180.10	7,075.7	-1,355.5	-152.7	1,359.9	0.00	0.00	0.00
8,320.0	90.57	180.10	7,075.3	-1,395.5	-152.8	1,399.9	0.00	0.00	0.00
8,360.0	90.57	180.10	7,074.9	-1,435.5	-152.8	1,439.9	0.00	0.00	0.00
8,400.0	90.57	180.10	7,074.5	-1,475.5	-152.9	1,479.9	0.00	0.00	0.00
8,440.0	90.57	180.10	7,074.1	-1,515.5	-153.0	1,519.8	0.00	0.00	0.00
8,480.0	90.57	180.10	7,073.7	-1,555.5	-153.0	1,559.8	0.00	0.00	0.00
8,520.0	90.57	180.10	7,073.3	-1,595.5	-153.1	1,599.8	0.00	0.00	0.00
8,560.0	90.57	180.10	7,072.9	-1,635.5	-153.2	1,639.8	0.00	0.00	0.00
8,600.0	90.57	180.10	7,072.5	-1,675.5	-153.3	1,679.8	0.00	0.00	0.00
8,640.0	90.57	180.10	7,072.1	-1,715.5	-153.3	1,719.7	0.00	0.00	0.00
8,680.0	90.57	180.10	7,071.7	-1,755.5	-153.4	1,759.7	0.00	0.00	0.00
8,720.0	90.57	180.10	7,071.3	-1,795.5	-153.5	1,799.7	0.00	0.00	0.00
8,760.0	90.57	180.10	7,070.9	-1,835.5	-153.5	1,839.7	0.00	0.00	0.00
8,800.0	90.57	180.10	7,070.5	-1,875.5	-153.6	1,879.6	0.00	0.00	0.00
8,840.0	90.57	180.10	7,070.1	-1,915.5	-153.7	1,919.6	0.00	0.00	0.00
8,880.0	90.57	180.10	7,069.7	-1,955.5	-153.8	1,959.6	0.00	0.00	0.00
8,920.0	90.57	180.10	7,069.3	-1,995.5	-153.8	1,999.6	0.00	0.00	0.00
8,960.0	90.57	180.10	7,068.9	-2,035.5	-153.9	2,039.5	0.00	0.00	0.00
9,000.0	90.57	180.10	7,068.5	-2,075.5	-154.0	2,079.5	0.00	0.00	0.00
9,040.0	90.57	180.10	7,068.1	-2,115.5	-154.0	2,119.5	0.00	0.00	0.00
9,080.0	90.57	180.10	7,067.7	-2,155.5	-154.1	2,159.5	0.00	0.00	0.00
9,120.0	90.57	180.10	7,067.3	-2,195.5	-154.2	2,199.5	0.00	0.00	0.00
9,160.0	90.57	180.10	7,066.9	-2,235.5	-154.3	2,239.4	0.00	0.00	0.00
9,200.0	90.57	180.10	7,066.5	-2,275.5	-154.3	2,279.4	0.00	0.00	0.00
9,240.0	90.57	180.10	7,066.1	-2,315.5	-154.4	2,319.4	0.00	0.00	0.00
9,280.0	90.57	180.10	7,065.7	-2,355.5	-154.5	2,359.4	0.00	0.00	0.00
9,320.0	90.57	180.10	7,065.3	-2,395.5	-154.5	2,399.3	0.00	0.00	0.00
9,360.0	90.57	180.10	7,064.9	-2,435.5	-154.6	2,439.3	0.00	0.00	0.00
9,400.0	90.57	180.10	7,064.5	-2,475.5	-154.7	2,479.3	0.00	0.00	0.00
9,440.0	90.57	180.10	7,064.1	-2,515.5	-154.8	2,519.3	0.00	0.00	0.00
9,480.0	90.57	180.10	7,063.7	-2,555.5	-154.8	2,559.3	0.00	0.00	0.00
9,520.0	90.57	180.10	7,063.3	-2,595.5	-154.9	2,599.2	0.00	0.00	0.00
9,560.0	90.57	180.10	7,062.9	-2,635.4	-155.0	2,639.2	0.00	0.00	0.00
9,600.0	90.57	180.10	7,062.5	-2,675.4	-155.0	2,679.2	0.00	0.00	0.00
9,640.0	90.57	180.10	7,062.1	-2,715.4	-155.1	2,719.2	0.00	0.00	0.00
9,680.0	90.57	180.10	7,061.7	-2,755.4	-155.2	2,759.1	0.00	0.00	0.00
9,720.0	90.57	180.10	7,061.3	-2,795.4	-155.3	2,799.1	0.00	0.00	0.00
9,760.0	90.57	180.10	7,060.9	-2,835.4	-155.3	2,839.1	0.00	0.00	0.00
9,800.0	90.57	180.10	7,060.5	-2,875.4	-155.4	2,879.1	0.00	0.00	0.00
9,840.0	90.57	180.10	7,060.1	-2,915.4	-155.5	2,919.0	0.00	0.00	0.00
9,880.0	90.57	180.10	7,059.7	-2,955.4	-155.5	2,959.0	0.00	0.00	0.00
9,920.0	90.57	180.10	7,059.3	-2,995.4	-155.6	2,999.0	0.00	0.00	0.00
9,960.0	90.57	180.10	7,058.9	-3,035.4	-155.7	3,039.0	0.00	0.00	0.00
10,000.0	90.57	180.10	7,058.5	-3,075.4	-155.8	3,079.0	0.00	0.00	0.00
10,040.0	90.57	180.10	7,058.1	-3,115.4	-155.8	3,118.9	0.00	0.00	0.00
10,080.0	90.57	180.10	7,057.7	-3,155.4	-155.9	3,158.9	0.00	0.00	0.00
10,120.0	90.57	180.10	7,057.3	-3,195.4	-156.0	3,198.9	0.00	0.00	0.00
10,160.0	90.57	180.10	7,057.0	-3,235.4	-156.0	3,238.9	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Project:	SEC.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**North Reference:**	True
Well:	Simonsen 12E-223	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (6-07-12)		

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)
10,200.0	90.57	180.10	7,056.6	-3,275.4	-156.1	3,278.8	0.00	0.00	0.00
10,240.0	90.57	180.10	7,056.2	-3,315.4	-156.2	3,318.8	0.00	0.00	0.00
10,280.0	90.57	180.10	7,055.8	-3,355.4	-156.3	3,358.8	0.00	0.00	0.00
10,320.0	90.57	180.10	7,055.4	-3,395.4	-156.3	3,398.8	0.00	0.00	0.00
10,360.0	90.57	180.10	7,055.0	-3,435.4	-156.4	3,438.7	0.00	0.00	0.00
10,400.0	90.57	180.10	7,054.6	-3,475.4	-156.5	3,478.7	0.00	0.00	0.00
10,440.0	90.57	180.10	7,054.2	-3,515.4	-156.5	3,518.7	0.00	0.00	0.00
10,480.0	90.57	180.10	7,053.8	-3,555.4	-156.6	3,558.7	0.00	0.00	0.00
10,520.0	90.57	180.10	7,053.4	-3,595.4	-156.7	3,598.7	0.00	0.00	0.00
10,560.0	90.57	180.10	7,053.0	-3,635.4	-156.7	3,638.6	0.00	0.00	0.00
10,600.0	90.57	180.10	7,052.6	-3,675.4	-156.8	3,678.6	0.00	0.00	0.00
10,640.0	90.57	180.10	7,052.2	-3,715.4	-156.9	3,718.6	0.00	0.00	0.00
10,680.0	90.57	180.10	7,051.8	-3,755.4	-157.0	3,758.6	0.00	0.00	0.00
10,720.0	90.57	180.10	7,051.4	-3,795.4	-157.0	3,798.5	0.00	0.00	0.00
10,760.0	90.57	180.10	7,051.0	-3,835.4	-157.1	3,838.5	0.00	0.00	0.00
10,800.0	90.57	180.10	7,050.6	-3,875.4	-157.2	3,878.5	0.00	0.00	0.00
10,840.0	90.57	180.10	7,050.2	-3,915.4	-157.2	3,918.5	0.00	0.00	0.00
10,880.0	90.57	180.10	7,049.8	-3,955.4	-157.3	3,958.4	0.00	0.00	0.00
10,920.0	90.57	180.10	7,049.4	-3,995.4	-157.4	3,998.4	0.00	0.00	0.00
10,960.0	90.57	180.10	7,049.0	-4,035.4	-157.5	4,038.4	0.00	0.00	0.00
11,000.0	90.57	180.10	7,048.6	-4,075.4	-157.5	4,078.4	0.00	0.00	0.00
11,040.0	90.57	180.10	7,048.2	-4,115.4	-157.6	4,118.4	0.00	0.00	0.00
11,080.0	90.57	180.10	7,047.8	-4,155.4	-157.7	4,158.3	0.00	0.00	0.00
11,120.0	90.57	180.10	7,047.4	-4,195.4	-157.7	4,198.3	0.00	0.00	0.00
11,160.0	90.57	180.10	7,047.0	-4,235.4	-157.8	4,238.3	0.00	0.00	0.00
11,200.0	90.57	180.10	7,046.6	-4,275.4	-157.9	4,278.3	0.00	0.00	0.00
11,240.0	90.57	180.10	7,046.2	-4,315.4	-158.0	4,318.2	0.00	0.00	0.00
11,280.0	90.57	180.10	7,045.8	-4,355.4	-158.0	4,358.2	0.00	0.00	0.00
11,320.0	90.57	180.10	7,045.4	-4,395.4	-158.1	4,398.2	0.00	0.00	0.00
11,360.0	90.57	180.10	7,045.0	-4,435.4	-158.2	4,438.2	0.00	0.00	0.00
11,400.0	90.57	180.10	7,044.6	-4,475.4	-158.2	4,478.1	0.00	0.00	0.00
11,440.0	90.57	180.10	7,044.2	-4,515.4	-158.3	4,518.1	0.00	0.00	0.00
11,480.0	90.57	180.10	7,043.8	-4,555.4	-158.4	4,558.1	0.00	0.00	0.00
11,520.0	90.57	180.10	7,043.4	-4,595.3	-158.5	4,598.1	0.00	0.00	0.00
11,560.0	90.57	180.10	7,043.0	-4,635.3	-158.5	4,638.1	0.00	0.00	0.00
11,562.4	90.57	180.10	7,043.0	-4,637.8	-158.5	4,640.5	0.00	0.00	0.00
BHL 500'FSL, 200'FWL									

Database:	Landmark	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Project:	SEC.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**North Reference:**	True
Well:	Simonsen 12E-223	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (6-07-12)		

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
HARDLINE BHL 460'F	0.00	0.00	1.0	-4,677.8	-358.5	1,424,029.40	3,180,430.39	40.495550	-104.851239
- plan misses target center by 4691.5ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			1.0	0.0	0.0	1,424,029.40	3,180,430.39		
Point 2			1.0	0.0	800.0	1,424,035.26	3,181,230.34		
HARDLINE SHL 460'F	0.00	0.00	1.0	-254.0	-350.0	1,428,452.99	3,180,406.46	40.507693	-104.851209
- plan misses target center by 432.5ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			1.0	0.0	0.0	1,428,452.99	3,180,406.46		
Point 2			1.0	0.0	800.0	1,428,458.85	3,181,206.41		
BHL 500'FSL, 200'FW	0.00	0.00	7,043.0	-4,637.8	-158.5	1,424,070.91	3,180,630.05	40.495660	-104.850520
- plan hits target center									
- Point									
SECTION LINE 206'N	0.00	0.00	1.0	206.0	-350.0	1,428,912.96	3,180,403.09	40.508955	-104.851209
- plan misses target center by 406.1ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			1.0	0.0	0.0	1,428,912.96	3,180,403.09		
Point 2			1.0	-4,890.0	0.0	1,424,023.26	3,180,438.93		
Point 3			1.0	0.0	0.0	1,428,912.96	3,180,403.09		
Point 4			1.0	0.0	800.0	1,428,918.82	3,181,203.04		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,540.0	7,083.0	7"	7	7-1/2

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
3,000.0	3,000.0	0.0	0.0	KOP #1
6,332.4	6,319.1	156.0	-150.0	KOP #2
7,540.0	7,083.0	-615.6	-151.4	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.12-T6N-R67W
Simonsen NWNW-12 Pad Sec.12-T6N-R67W
Simonsen 12E-223

Wellbore #1
Plan #1 (6-07-12)

Anticollision Report

25 June, 2012

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Project:	SEC.12-T6N-R67W	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Simonsen 12E-223	**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 (6-07-12)	**Offset TVD Reference:**	Offset Datum

Reference Plan #1 (6-07-12)

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**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** 6/25/2012

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,562.4	Plan #1 (6-07-12) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Knievel 23-12D Pad Sec.12-T6N-R67W						
Knievel 13-12D - Wellbore #1 - Wellbore #1	10,054.1	7,380.4	567.5	486.2	6.979	CC, ES
Knievel 13-12D - Wellbore #1 - Wellbore #1	10,100.0	7,379.9	569.4	487.2	6.929	SF
Knievel 14-12D - Wellbore #1 - Wellbore #1	11,356.7	7,417.9	580.1	467.6	5.155	CC, ES
Knievel 14-12D - Wellbore #1 - Wellbore #1	11,400.0	7,417.7	581.8	468.4	5.132	SF
Simonsen NWNW-12 Pad Sec.12-T6N-R67W						
Simonsen 12J-243 - Wellbore #1 - Plan #1 (6-07-12)	400.0	400.0	89.0	87.4	56.557	CC, ES
Simonsen 12J-243 - Wellbore #1 - Plan #1 (6-07-12)	900.0	880.7	130.5	126.6	34.000	SF
Simonsen 1I-421 - Wellbore #1 - Plan #1 (6-07-12)	385.4	385.5	30.0	28.5	20.374	CC
Simonsen 1I-421 - Wellbore #1 - Plan #1 (6-07-12)	400.0	400.1	30.0	28.5	19.543	ES
Simonsen 1I-421 - Wellbore #1 - Plan #1 (6-07-12)	7,131.5	7,041.2	101.7	70.3	3.241	SF
Simonsen 1L-241 - Wellbore #1 - Plan #1 (6-07-12)	1,500.0	1,500.0	61.2	54.7	9.385	CC, ES
Simonsen 1L-241 - Wellbore #1 - Plan #1 (6-07-12)	1,600.0	1,598.3	62.6	55.6	9.012	SF

Offset Design Knievel 23-12D Pad Sec.12-T6N-R67W - Knievel 13-12D - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 705-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,300.0	7,065.5	7,387.1	7,087.3	48.5	36.0	-91.34	-3,130.6	411.6	943.8	876.4	67.44	13.994	
9,400.0	7,064.5	7,386.2	7,086.4	50.3	36.0	-91.25	-3,130.6	411.6	866.0	796.7	69.26	12.503	
9,500.0	7,063.5	7,385.3	7,085.5	52.1	36.0	-91.16	-3,130.6	411.6	793.2	722.1	71.09	11.157	
9,600.0	7,062.5	7,384.4	7,084.6	54.0	36.0	-91.07	-3,130.6	411.6	726.8	653.9	72.93	9.967	
9,700.0	7,061.5	7,383.5	7,083.7	55.8	36.0	-90.98	-3,130.6	411.6	668.9	594.2	74.77	8.947	
9,800.0	7,060.5	7,382.6	7,082.8	57.7	36.0	-90.89	-3,130.6	411.6	621.8	545.2	76.61	8.116	
9,900.0	7,059.5	7,381.7	7,081.9	59.5	36.0	-90.80	-3,130.6	411.6	588.1	509.6	78.46	7.495	
10,000.0	7,058.5	7,380.8	7,081.1	61.4	36.0	-90.71	-3,130.6	411.6	570.1	489.8	80.32	7.098	
10,054.1	7,058.0	7,380.4	7,080.6	62.4	36.0	-90.66	-3,130.6	411.6	567.5	486.2	81.32	6.979	CC, ES
10,100.0	7,057.5	7,379.9	7,080.2	63.3	36.0	-90.62	-3,130.6	411.6	569.4	487.2	82.17	6.929	SF
10,200.0	7,056.6	7,379.0	7,079.3	65.1	36.0	-90.53	-3,130.6	411.7	586.0	501.9	84.03	6.973	
10,300.0	7,055.6	7,378.1	7,078.4	67.0	36.0	-90.44	-3,130.6	411.7	618.5	532.6	85.90	7.200	
10,400.0	7,054.6	7,377.2	7,077.5	68.9	36.0	-90.35	-3,130.6	411.7	664.6	576.8	87.76	7.573	
10,500.0	7,053.6	7,376.3	7,076.6	70.7	36.0	-90.26	-3,130.6	411.7	721.7	632.1	89.63	8.052	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Project:	SEC.12-T6N-R67W	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Simonsen 12E-223	**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 (6-07-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Knievel 23-12D Pad Sec.12-T6N-R67W - Knievel 13-12D - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 705-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,600.0	7,052.6	7,375.4	7,075.7	72.6	36.0	-90.17	-3,130.6	411.7	787.4	695.9	91.50	8.605	
10,700.0	7,051.6	7,374.5	7,074.7	74.5	36.0	-90.08	-3,130.6	411.7	859.8	766.4	93.38	9.208	
10,800.0	7,050.6	7,373.6	7,073.8	76.4	36.0	-89.98	-3,130.6	411.7	937.2	842.0	95.25	9.839	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Project:	SEC.12-T6N-R67W	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Simonsen 12E-223	**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 (6-07-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Knievel 23-12D Pad Sec.12-T6N-R67W - Knievel 14-12D - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 119-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,600.0	7,052.6	7,420.3	7,076.8	72.6	38.8	-91.36	-4,433.2	421.8	953.5	855.2	98.27	9.702	
10,700.0	7,051.6	7,420.0	7,076.5	74.5	38.8	-91.33	-4,433.2	421.8	876.2	776.1	100.15	8.749	
10,800.0	7,050.6	7,419.7	7,076.2	76.4	38.8	-91.30	-4,433.2	421.8	804.0	702.0	102.04	7.880	
10,900.0	7,049.6	7,419.4	7,075.9	78.3	38.8	-91.27	-4,433.2	421.8	738.3	634.4	103.92	7.105	
11,000.0	7,048.6	7,419.1	7,075.6	80.2	38.8	-91.24	-4,433.2	421.8	681.0	575.2	105.80	6.436	
11,100.0	7,047.6	7,418.7	7,075.3	82.0	38.8	-91.21	-4,433.2	421.8	634.4	526.7	107.69	5.891	
11,200.0	7,046.6	7,418.4	7,075.0	83.9	38.8	-91.18	-4,433.2	421.8	600.9	491.3	109.58	5.484	
11,300.0	7,045.6	7,418.1	7,074.6	85.8	38.8	-91.14	-4,433.2	421.9	582.9	471.4	111.47	5.229	
11,356.7	7,045.0	7,417.9	7,074.4	86.9	38.8	-91.13	-4,433.2	421.9	580.1	467.6	112.54	5.155	CC, ES
11,400.0	7,044.6	7,417.7	7,074.3	87.7	38.8	-91.11	-4,433.2	421.9	581.8	468.4	113.36	5.132	SF
11,500.0	7,043.6	7,417.4	7,074.0	89.6	38.8	-91.08	-4,433.2	421.9	597.6	482.3	115.25	5.185	
11,562.4	7,043.0	7,417.2	7,073.7	90.8	38.8	-91.06	-4,433.2	421.9	615.5	499.1	116.44	5.287	
11,563.1	7,043.0	7,417.2	7,073.7	90.8	38.8	-91.06	-4,433.2	421.9	615.8	499.3	116.45	5.288	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Project:	SEC.12-T6N-R67W	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Simonsen 12E-223	**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 (6-07-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Simonsen NWNW-12 Pad Sec.12-T6N-R67W - Simonsen 12J-243 - Wellbore #1 - Plan #1 (6-07-12)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	89.0	89.0				
100.0	100.0	100.0	100.0	0.1	0.1	89.99	0.0	89.0	89.0	88.8	0.22	395.896	
200.0	200.0	200.0	200.0	0.3	0.3	89.99	0.0	89.0	89.0	88.3	0.67	131.965	
300.0	300.0	300.0	300.0	0.6	0.6	89.99	0.0	89.0	89.0	87.9	1.12	79.179	
400.0	400.0	400.0	400.0	0.8	0.8	89.99	0.0	89.0	89.0	87.4	1.57	56.557	CC, ES
500.0	500.0	497.0	497.0	1.0	1.0	89.79	0.3	90.6	90.6	88.6	2.01	45.167	
600.0	600.0	593.8	593.6	1.2	1.2	89.23	1.3	95.4	95.6	93.2	2.44	39.181	
700.0	700.0	690.1	689.6	1.5	1.4	88.42	2.9	103.4	103.9	101.1	2.89	35.992	
800.0	800.0	785.8	784.7	1.7	1.7	87.48	5.0	114.4	115.6	112.2	3.35	34.478	
900.0	900.0	880.7	878.4	1.9	2.0	86.52	7.8	128.4	130.5	126.6	3.84	34.000	SF
1,000.0	1,000.0	974.9	971.1	2.1	2.3	85.61	11.2	145.4	148.6	144.3	4.35	34.192	
1,100.0	1,100.0	1,073.0	1,067.3	2.4	2.7	84.83	14.9	164.2	168.1	163.2	4.88	34.420	
1,200.0	1,200.0	1,171.1	1,163.4	2.6	3.1	84.20	18.6	183.0	187.6	182.2	5.43	34.562	
1,300.0	1,300.0	1,269.1	1,259.6	2.8	3.5	83.69	22.3	201.9	207.1	201.1	5.98	34.646	
1,400.0	1,400.0	1,367.2	1,355.8	3.0	3.9	83.27	26.0	220.7	226.6	220.1	6.53	34.694	
1,500.0	1,500.0	1,465.3	1,451.9	3.3	4.3	82.92	29.7	239.5	246.1	239.0	7.09	34.721	
1,600.0	1,600.0	1,563.3	1,548.1	3.5	4.7	82.62	33.5	258.4	265.7	258.0	7.65	34.735	
1,700.0	1,700.0	1,661.4	1,644.3	3.7	5.1	82.36	37.2	277.2	285.2	277.0	8.21	34.740	
1,800.0	1,800.0	1,759.5	1,740.4	3.9	5.5	82.13	40.9	296.1	304.7	296.0	8.77	34.740	
1,900.0	1,900.0	1,857.5	1,836.6	4.2	5.9	81.93	44.6	314.9	324.3	315.0	9.34	34.736	
2,000.0	2,000.0	1,955.6	1,932.8	4.4	6.4	81.76	48.3	333.7	343.8	333.9	9.90	34.730	
2,100.0	2,100.0	2,053.7	2,028.9	4.6	6.8	81.60	52.1	352.6	363.4	352.9	10.47	34.723	
2,200.0	2,200.0	2,151.7	2,125.1	4.8	7.2	81.46	55.8	371.4	383.0	371.9	11.03	34.715	
2,300.0	2,300.0	2,249.8	2,221.3	5.1	7.6	81.33	59.5	390.2	402.5	390.9	11.60	34.706	
2,400.0	2,400.0	2,347.9	2,317.4	5.3	8.1	81.21	63.2	409.1	422.1	409.9	12.16	34.698	
2,500.0	2,500.0	2,445.9	2,413.6	5.5	8.5	81.11	66.9	427.9	441.6	428.9	12.73	34.689	
2,600.0	2,600.0	2,544.0	2,509.8	5.7	8.9	81.01	70.7	446.7	461.2	447.9	13.30	34.680	
2,700.0	2,700.0	2,642.0	2,605.9	6.0	9.3	80.92	74.4	465.6	480.8	466.9	13.87	34.672	
2,800.0	2,800.0	2,740.1	2,702.1	6.2	9.8	80.84	78.1	484.4	500.3	485.9	14.43	34.664	
2,900.0	2,900.0	2,838.2	2,798.3	6.4	10.2	80.77	81.8	503.2	519.9	504.9	15.00	34.655	
3,000.0	3,000.0	2,936.2	2,894.4	6.6	10.6	80.70	85.5	522.1	539.5	523.9	15.57	34.648	
3,100.0	3,100.0	3,034.1	2,990.4	6.9	11.0	124.31	89.2	540.9	560.0	545.9	14.11	39.687	
3,200.0	3,199.8	3,131.5	3,085.9	7.1	11.5	124.30	92.9	559.6	582.5	567.9	14.55	40.036	
3,300.0	3,299.5	3,228.2	3,180.8	7.3	11.9	124.50	96.6	578.1	606.9	591.9	14.98	40.514	
3,380.8	3,379.6	3,305.9	3,256.9	7.5	12.2	124.80	99.6	593.1	628.1	612.7	15.32	40.990	
3,400.0	3,398.7	3,324.3	3,275.0	7.5	12.3	124.97	100.3	596.6	633.3	617.9	15.41	41.090	
3,500.0	3,497.8	3,420.1	3,368.9	7.8	12.7	125.82	103.9	615.0	660.4	644.6	15.88	41.588	
3,600.0	3,596.9	3,515.9	3,462.9	8.0	13.1	126.60	107.5	633.4	687.7	671.4	16.36	42.047	
3,700.0	3,696.1	3,611.7	3,556.8	8.3	13.5	127.32	111.2	651.8	715.1	698.3	16.84	42.470	
3,800.0	3,795.2	3,707.5	3,650.8	8.5	14.0	127.99	114.8	670.2	742.6	725.3	17.33	42.862	
3,900.0	3,894.3	3,803.3	3,744.7	8.8	14.4	128.61	118.4	688.6	770.2	752.3	17.82	43.225	
4,000.0	3,993.4	3,899.1	3,838.7	9.0	14.8	129.18	122.1	707.0	797.8	779.5	18.31	43.563	
4,100.0	4,092.5	3,994.9	3,932.6	9.3	15.2	129.72	125.7	725.4	825.5	806.7	18.81	43.878	
4,200.0	4,191.7	4,090.7	4,026.5	9.6	15.6	130.23	129.3	743.8	853.3	834.0	19.32	44.171	
4,300.0	4,290.8	4,186.5	4,120.5	9.9	16.1	130.70	133.0	762.2	881.2	861.3	19.83	44.446	
4,400.0	4,389.9	4,282.3	4,214.4	10.1	16.5	131.14	136.6	780.6	909.1	888.7	20.34	44.703	
4,500.0	4,489.0	4,378.1	4,308.4	10.4	16.9	131.56	140.2	799.0	937.0	916.2	20.85	44.944	
4,600.0	4,588.1	4,473.9	4,402.3	10.7	17.3	131.96	143.9	817.4	965.0	943.6	21.36	45.171	
4,632.5	4,620.4	4,505.0	4,432.9	10.8	17.4	132.08	145.0	823.4	974.1	952.6	21.53	45.242	
4,700.0	4,687.3	4,600.0	4,526.2	11.0	17.8	132.67	148.4	840.3	991.6	969.6	21.97	45.125	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Project:	SEC.12-T6N-R67W	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Simonsen 12E-223	**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 (6-07-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Simonsen NWNW-12 Pad Sec.12-T6N-R67W - Simonsen 1I-421 - Wellbore #1 - Plan #1 (6-07-12)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	89.98	0.0	30.6	30.6				
100.0	100.0	100.0	100.0	0.1	0.1	89.98	0.0	30.6	30.6	30.4	0.22	136.089	
200.0	200.0	200.0	200.0	0.3	0.3	89.98	0.0	30.6	30.6	29.9	0.67	45.363	
300.0	300.0	300.2	300.1	0.6	0.5	93.23	-1.7	30.2	30.3	29.2	1.10	27.502	
385.4	385.4	385.5	385.4	0.8	0.7	101.31	-5.9	29.4	30.0	28.5	1.47	20.374	CC
400.0	400.0	400.1	399.9	0.8	0.8	103.18	-6.8	29.2	30.0	28.5	1.54	19.543	ES
500.0	500.0	499.6	499.0	1.0	1.0	119.11	-15.3	27.5	31.5	29.5	2.00	15.786	
600.0	600.0	599.1	598.0	1.2	1.3	134.60	-25.2	25.5	35.9	33.5	2.44	14.747	
700.0	700.0	698.5	697.0	1.5	1.5	146.09	-35.1	23.6	42.4	39.5	2.88	14.717	
800.0	800.0	798.0	795.9	1.7	1.8	154.33	-44.9	21.6	50.0	46.7	3.33	15.025	
900.0	900.0	897.5	894.9	1.9	2.1	160.31	-54.8	19.6	58.4	54.7	3.79	15.417	
1,000.0	1,000.0	997.0	993.9	2.1	2.4	164.74	-64.7	17.6	67.3	63.1	4.26	15.807	
1,100.0	1,100.0	1,096.5	1,092.9	2.4	2.7	168.13	-74.6	15.7	76.5	71.8	4.73	16.165	
1,200.0	1,200.0	1,196.0	1,191.8	2.6	3.0	170.79	-84.4	13.7	85.9	80.7	5.21	16.485	
1,300.0	1,300.0	1,295.5	1,290.8	2.8	3.3	172.92	-94.3	11.7	95.5	89.8	5.69	16.769	
1,400.0	1,400.0	1,394.9	1,389.8	3.0	3.6	174.66	-104.2	9.7	105.1	99.0	6.18	17.020	
1,500.0	1,500.0	1,494.4	1,488.8	3.3	3.9	176.10	-114.1	7.8	114.9	108.2	6.66	17.243	
1,600.0	1,600.0	1,593.9	1,587.8	3.5	4.2	177.32	-123.9	5.8	124.7	117.5	7.15	17.441	
1,700.0	1,700.0	1,693.4	1,686.7	3.7	4.5	178.36	-133.8	3.8	134.5	126.9	7.64	17.618	
1,800.0	1,800.0	1,792.9	1,785.7	3.9	4.8	179.26	-143.7	1.8	144.4	136.3	8.12	17.777	
1,900.0	1,900.0	1,892.4	1,884.7	4.2	5.1	-179.95	-153.6	-0.1	154.3	145.7	8.61	17.921	
2,000.0	2,000.0	1,991.9	1,983.7	4.4	5.4	-179.26	-163.4	-2.1	164.3	155.2	9.10	18.051	
2,100.0	2,100.0	2,091.3	2,082.6	4.6	5.7	-178.65	-173.3	-4.1	174.2	164.6	9.59	18.169	
2,200.0	2,200.0	2,190.8	2,181.6	4.8	6.0	-178.11	-183.2	-6.1	184.2	174.1	10.08	18.277	
2,300.0	2,300.0	2,290.3	2,280.6	5.1	6.3	-177.62	-193.1	-8.0	194.2	183.6	10.57	18.376	
2,400.0	2,400.0	2,389.8	2,379.6	5.3	6.6	-177.18	-202.9	-10.0	204.2	193.2	11.06	18.467	
2,500.0	2,500.0	2,489.3	2,478.5	5.5	6.9	-176.78	-212.8	-12.0	214.2	202.7	11.55	18.551	
2,600.0	2,600.0	2,588.8	2,577.5	5.7	7.1	-176.42	-222.7	-14.0	224.3	212.2	12.04	18.628	
2,700.0	2,700.0	2,688.3	2,676.5	6.0	7.4	-176.08	-232.6	-15.9	234.3	221.8	12.53	18.700	
2,800.0	2,800.0	2,787.8	2,775.5	6.2	7.7	-175.78	-242.4	-17.9	244.3	231.3	13.02	18.767	
2,900.0	2,900.0	2,887.2	2,874.4	6.4	8.0	-175.50	-252.3	-19.9	254.4	240.9	13.51	18.829	
3,000.0	3,000.0	2,986.7	2,973.4	6.6	8.3	-175.24	-262.2	-21.9	264.4	250.4	14.00	18.887	
3,100.0	3,100.0	3,086.1	3,072.3	6.9	8.6	-131.22	-272.1	-23.8	275.6	261.8	13.83	19.930	
3,200.0	3,199.8	3,185.1	3,170.8	7.1	8.9	-131.57	-281.9	-25.8	289.1	274.9	14.26	20.272	
3,300.0	3,299.5	3,283.7	3,268.9	7.3	9.2	-132.33	-291.7	-27.7	305.0	290.3	14.69	20.760	
3,380.8	3,379.6	3,363.0	3,347.7	7.5	9.5	-133.18	-299.5	-29.3	319.6	304.5	15.03	21.255	
3,400.0	3,398.7	3,381.8	3,366.4	7.5	9.5	-133.46	-301.4	-29.7	323.2	308.1	15.12	21.371	
3,500.0	3,497.8	3,479.6	3,463.8	7.8	9.8	-134.80	-311.1	-31.6	342.4	326.8	15.60	21.954	
3,600.0	3,596.9	3,577.5	3,561.1	8.0	10.1	-135.99	-320.8	-33.6	361.8	345.7	16.07	22.506	
3,700.0	3,696.1	3,675.3	3,658.5	8.3	10.4	-137.06	-330.5	-35.5	381.3	364.7	16.56	23.029	
3,800.0	3,795.2	3,773.2	3,755.8	8.5	10.7	-138.03	-340.2	-37.5	400.9	383.8	17.04	23.524	
3,900.0	3,894.3	3,871.0	3,853.1	8.8	11.0	-138.91	-350.0	-39.4	420.6	403.1	17.53	23.994	
4,000.0	3,993.4	3,968.8	3,950.5	9.0	11.3	-139.71	-359.7	-41.3	440.4	422.4	18.02	24.441	
4,100.0	4,092.5	4,066.7	4,047.8	9.3	11.6	-140.45	-369.4	-43.3	460.3	441.7	18.51	24.865	
4,200.0	4,191.7	4,164.5	4,145.2	9.6	11.9	-141.12	-379.1	-45.2	480.2	461.2	19.00	25.269	
4,300.0	4,290.8	4,268.9	4,249.0	9.9	12.2	-141.78	-389.2	-47.3	500.0	480.5	19.50	25.637	
4,400.0	4,389.9	4,387.3	4,367.1	10.1	12.4	-142.61	-397.0	-48.8	516.8	496.8	19.98	25.862	
4,500.0	4,489.0	4,506.9	4,486.7	10.4	12.6	-143.55	-400.0	-49.4	529.9	509.4	20.45	25.905	
4,600.0	4,588.1	4,608.3	4,588.1	10.7	12.7	-144.40	-400.0	-49.4	540.6	519.7	20.91	25.857	
4,632.5	4,620.4	4,640.6	4,620.4	10.8	12.8	-144.67	-400.0	-49.4	544.2	523.1	21.05	25.852	
4,700.0	4,687.3	4,707.5	4,687.3	11.0	12.9	-145.23	-400.0	-49.4	550.8	529.5	21.36	25.785	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Project:	SEC.12-T6N-R67W	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Simonsen 12E-223	**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 (6-07-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Simonsen NWNW-12 Pad Sec.12-T6N-R67W - Simonsen 1I-421 - Wellbore #1 - Plan #1 (6-07-12)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,800.0	4,786.9	4,807.1	4,786.9	11.2	13.0	-145.85	-400.0	-49.4	558.4	536.6	21.78	25.638	
4,900.0	4,886.7	4,906.9	4,886.7	11.4	13.1	-146.23	-400.0	-49.4	563.2	541.0	22.18	25.393	
5,000.0	4,986.7	5,006.9	4,986.7	11.6	13.3	-146.38	-400.0	-49.4	565.0	542.4	22.55	25.055	
5,013.3	5,000.0	5,020.2	5,000.0	11.6	13.3	169.75	-400.0	-49.4	565.0	542.4	22.60	25.002	
5,100.0	5,086.7	5,106.9	5,086.7	11.8	13.4	169.75	-400.0	-49.4	565.0	542.1	22.92	24.656	
5,200.0	5,186.7	5,206.9	5,186.7	12.0	13.6	169.75	-400.0	-49.4	565.0	541.7	23.31	24.241	
5,300.0	5,286.7	5,306.9	5,286.7	12.2	13.7	169.75	-400.0	-49.4	565.0	541.3	23.70	23.837	
5,400.0	5,386.7	5,406.9	5,386.7	12.4	13.9	169.75	-400.0	-49.4	565.0	540.9	24.10	23.446	
5,500.0	5,486.7	5,506.9	5,486.7	12.6	14.0	169.75	-400.0	-49.4	565.0	540.5	24.50	23.065	
5,600.0	5,586.7	5,606.9	5,586.7	12.8	14.2	169.75	-400.0	-49.4	565.0	540.1	24.90	22.695	
5,700.0	5,686.7	5,706.9	5,686.7	13.0	14.3	169.75	-400.0	-49.4	565.0	539.7	25.30	22.335	
5,800.0	5,786.7	5,806.9	5,786.7	13.2	14.5	169.75	-400.0	-49.4	565.0	539.3	25.70	21.985	
5,900.0	5,886.7	5,906.9	5,886.7	13.5	14.7	169.75	-400.0	-49.4	565.0	538.9	26.10	21.644	
6,000.0	5,986.7	6,006.9	5,986.7	13.7	14.8	169.75	-400.0	-49.4	565.0	538.5	26.51	21.313	
6,100.0	6,086.7	6,106.9	6,086.7	13.9	15.0	169.75	-400.0	-49.4	565.0	538.1	26.92	20.991	
6,200.0	6,186.7	6,206.9	6,186.7	14.1	15.1	169.75	-400.0	-49.4	565.0	537.7	27.33	20.677	
6,300.0	6,286.7	6,306.9	6,286.7	14.3	15.3	169.75	-400.0	-49.4	565.0	537.3	27.74	20.372	
6,332.4	6,319.1	6,339.3	6,319.1	14.4	15.4	169.75	-400.0	-49.4	565.0	537.1	27.87	20.275	
6,350.0	6,336.7	6,356.9	6,336.7	14.4	15.4	-10.36	-400.0	-49.4	564.8	536.9	27.94	20.217	
6,400.0	6,386.6	6,406.8	6,386.6	14.5	15.5	-10.45	-400.0	-49.4	562.1	534.0	28.07	20.027	
6,450.0	6,436.3	6,456.5	6,436.3	14.6	15.6	-10.65	-400.0	-49.4	556.1	528.0	28.10	19.788	
6,500.0	6,485.4	6,505.6	6,485.4	14.6	15.6	-10.96	-400.0	-49.4	547.0	519.0	28.05	19.500	
6,550.0	6,533.8	6,639.8	6,619.1	14.7	15.8	-12.19	-389.7	-49.4	531.6	503.5	28.08	18.930	
6,600.0	6,581.3	6,766.2	6,741.4	14.7	15.8	-14.79	-358.9	-49.3	505.3	477.3	28.00	18.043	
6,650.0	6,627.6	6,861.5	6,829.4	14.8	15.8	-18.91	-322.5	-49.2	471.0	443.1	27.83	16.922	
6,700.0	6,672.7	6,930.2	6,889.7	14.8	15.8	-25.05	-289.6	-49.2	431.4	403.7	27.69	15.581	
6,750.0	6,716.2	6,978.3	6,930.1	14.9	15.7	-33.80	-263.4	-49.1	388.4	360.7	27.75	13.999	
6,800.0	6,758.1	7,011.2	6,956.7	14.9	15.7	-45.57	-244.1	-49.1	343.5	315.3	28.23	12.169	
6,850.0	6,798.0	7,032.7	6,973.6	15.0	15.7	-59.58	-230.8	-49.0	297.7	268.6	29.12	10.224	
6,900.0	6,835.9	7,045.6	6,983.6	15.0	15.7	-73.31	-222.6	-49.0	252.0	222.0	30.00	8.400	
6,950.0	6,871.6	7,052.2	6,988.6	15.1	15.7	-84.05	-218.4	-49.0	207.5	177.0	30.51	6.799	
7,000.0	6,904.9	7,053.7	6,989.8	15.2	15.7	-90.65	-217.4	-49.0	165.7	135.0	30.74	5.391	
7,050.0	6,935.7	7,051.4	6,988.0	15.4	15.7	-93.23	-218.9	-49.0	129.9	99.0	30.92	4.203	
7,100.0	6,963.9	7,045.9	6,983.9	15.6	15.7	-92.26	-222.4	-49.0	106.3	75.2	31.17	3.411	
7,131.5	6,980.3	7,041.2	6,980.2	15.8	15.7	-89.98	-225.4	-49.0	101.7	70.3	31.37	3.241	SF
7,150.0	6,989.3	7,038.0	6,977.8	15.9	15.7	-88.10	-227.4	-49.0	103.3	71.8	31.46	3.283	
7,200.0	7,011.9	7,028.1	6,970.1	16.2	15.7	-81.16	-233.7	-49.0	121.8	90.2	31.56	3.859	
7,250.0	7,031.5	7,016.5	6,961.0	16.6	15.7	-72.14	-240.8	-49.1	153.8	122.6	31.12	4.940	
7,300.0	7,048.0	7,000.0	6,947.8	17.0	15.7	-60.66	-250.8	-49.1	192.1	162.4	29.66	6.477	
7,350.0	7,061.4	6,989.4	6,939.2	17.5	15.7	-52.35	-257.0	-49.1	233.1	205.0	28.08	8.298	
7,400.0	7,071.6	6,974.3	6,926.8	18.0	15.7	-43.72	-265.7	-49.1	275.1	249.2	25.97	10.594	
7,450.0	7,078.6	6,958.3	6,913.6	18.5	15.7	-36.56	-274.6	-49.1	317.4	293.4	23.95	13.249	
7,500.0	7,082.4	6,941.6	6,899.5	19.1	15.8	-30.83	-283.6	-49.1	359.3	337.1	22.26	16.144	
7,540.0	7,083.0	6,927.8	6,887.7	19.5	15.8	-27.11	-290.8	-49.2	392.5	371.3	21.19	18.522	
7,600.0	7,082.4	6,900.0	6,863.6	20.3	15.8	-24.55	-304.7	-49.2	442.5	421.8	20.75	21.327	
7,700.0	7,081.4	6,877.9	6,844.1	21.6	15.8	-22.79	-315.2	-49.2	528.0	507.2	20.83	25.353	
7,800.0	7,080.4	6,850.0	6,819.1	23.0	15.8	-20.85	-327.5	-49.2	615.8	594.9	20.86	29.522	
7,900.0	7,079.4	6,829.0	6,800.0	24.5	15.8	-19.57	-336.1	-49.3	705.3	684.2	21.11	33.406	
8,000.0	7,078.4	6,800.0	6,773.2	26.0	15.8	-18.01	-347.2	-49.3	796.4	775.1	21.28	37.424	
8,100.0	7,077.4	6,800.0	6,773.2	27.6	15.8	-18.01	-347.2	-49.3	888.4	866.4	21.99	40.405	
8,200.0	7,076.4	6,775.1	6,749.8	29.2	15.8	-16.84	-356.0	-49.3	981.3	959.0	22.29	44.026	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Project:	SEC.12-T6N-R67W	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Simonsen 12E-223	**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 (6-07-12)	**Offset TVD Reference:**	Offset Datum

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Project:	SEC.12-T6N-R67W	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Simonsen 12E-223	**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 (6-07-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Simonsen NWNW-12 Pad Sec.12-T6N-R67W - Simonsen 1L-241 - Wellbore #1 - Plan #1 (6-07-12)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	61.2	61.2				
100.0	100.0	100.0	100.0	0.1	0.1	89.99	0.0	61.2	61.2	61.0	0.22	272.178	
200.0	200.0	200.0	200.0	0.3	0.3	89.99	0.0	61.2	61.2	60.5	0.67	90.726	
300.0	300.0	300.0	300.0	0.6	0.6	89.99	0.0	61.2	61.2	60.1	1.12	54.436	
400.0	400.0	400.0	400.0	0.8	0.8	89.99	0.0	61.2	61.2	59.6	1.57	38.883	
500.0	500.0	500.0	500.0	1.0	1.0	89.99	0.0	61.2	61.2	59.2	2.02	30.242	
600.0	600.0	600.0	600.0	1.2	1.2	89.99	0.0	61.2	61.2	58.7	2.47	24.743	
700.0	700.0	700.0	700.0	1.5	1.5	89.99	0.0	61.2	61.2	58.3	2.92	20.937	
800.0	800.0	800.0	800.0	1.7	1.7	89.99	0.0	61.2	61.2	57.8	3.37	18.145	
900.0	900.0	900.0	900.0	1.9	1.9	89.99	0.0	61.2	61.2	57.4	3.82	16.010	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.99	0.0	61.2	61.2	56.9	4.27	14.325	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	89.99	0.0	61.2	61.2	56.5	4.72	12.961	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	89.99	0.0	61.2	61.2	56.0	5.17	11.834	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	89.99	0.0	61.2	61.2	55.6	5.62	10.887	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	89.99	0.0	61.2	61.2	55.1	6.07	10.081	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	89.99	0.0	61.2	61.2	54.7	6.52	9.385	CC, ES
1,600.0	1,600.0	1,598.3	1,598.3	3.5	3.5	90.91	-1.0	62.5	62.6	55.6	6.94	9.012	SF
1,700.0	1,700.0	1,696.3	1,696.2	3.7	3.6	93.43	-4.0	66.6	66.8	59.5	7.35	9.091	
1,800.0	1,800.0	1,793.9	1,793.4	3.9	3.8	96.97	-9.0	73.3	74.1	66.4	7.76	9.550	
1,900.0	1,900.0	1,890.8	1,889.6	4.2	4.0	100.86	-15.8	82.6	84.7	76.5	8.18	10.355	
2,000.0	2,000.0	1,986.8	1,984.5	4.4	4.3	104.59	-24.6	94.3	98.7	90.1	8.61	11.467	
2,100.0	2,100.0	2,081.7	2,077.8	4.6	4.5	107.90	-35.0	108.5	116.1	107.1	9.05	12.839	
2,200.0	2,200.0	2,179.2	2,173.2	4.8	4.8	110.65	-46.9	124.5	135.8	126.3	9.50	14.283	
2,300.0	2,300.0	2,277.1	2,269.0	5.1	5.2	112.71	-58.9	140.7	155.6	145.6	9.97	15.603	
2,400.0	2,400.0	2,375.0	2,364.8	5.3	5.5	114.31	-70.8	156.8	175.6	165.2	10.46	16.798	
2,500.0	2,500.0	2,472.8	2,460.5	5.5	5.9	115.58	-82.8	172.9	195.7	184.8	10.95	17.878	
2,600.0	2,600.0	2,570.7	2,556.3	5.7	6.2	116.61	-94.7	189.1	215.9	204.5	11.45	18.856	
2,700.0	2,700.0	2,668.6	2,652.1	6.0	6.6	117.47	-106.7	205.2	236.2	224.2	11.96	19.742	
2,800.0	2,800.0	2,766.5	2,747.9	6.2	7.0	118.19	-118.6	221.3	256.5	244.0	12.48	20.547	
2,900.0	2,900.0	2,864.3	2,843.7	6.4	7.4	118.81	-130.6	237.5	276.8	263.8	13.01	21.280	
3,000.0	3,000.0	2,962.2	2,939.5	6.6	7.8	119.34	-142.5	253.6	297.1	283.6	13.54	21.948	
3,100.0	3,100.0	3,059.7	3,034.9	6.9	8.2	163.64	-154.4	269.7	319.2	305.7	13.46	23.720	
3,200.0	3,199.8	3,156.4	3,129.5	7.1	8.6	164.14	-166.2	285.6	344.4	330.6	13.87	24.843	
3,300.0	3,299.5	3,252.1	3,223.2	7.3	9.0	164.68	-177.9	301.4	373.0	358.8	14.26	26.167	
3,380.8	3,379.6	3,328.7	3,298.2	7.5	9.3	165.14	-187.3	314.0	398.5	383.9	14.56	27.375	
3,400.0	3,398.7	3,346.8	3,315.9	7.5	9.4	165.28	-189.5	317.0	404.8	390.2	14.64	27.651	
3,500.0	3,497.8	3,441.1	3,408.2	7.8	9.8	165.94	-201.0	332.6	437.7	422.6	15.08	29.032	
3,600.0	3,596.9	3,535.5	3,500.6	8.0	10.2	166.51	-212.5	348.1	470.6	455.1	15.51	30.332	
3,700.0	3,696.1	3,629.8	3,592.9	8.3	10.6	167.01	-224.1	363.7	503.5	487.6	15.96	31.556	
3,800.0	3,795.2	3,724.1	3,685.2	8.5	11.0	167.45	-235.6	379.2	536.5	520.1	16.40	32.711	
3,900.0	3,894.3	3,818.5	3,777.5	8.8	11.5	167.83	-247.1	394.8	569.5	552.7	16.85	33.801	
4,000.0	3,993.4	3,912.8	3,869.9	9.0	11.9	168.18	-258.6	410.3	602.6	585.3	17.30	34.831	
4,100.0	4,092.5	4,007.1	3,962.2	9.3	12.3	168.49	-270.1	425.9	635.6	617.9	17.75	35.805	
4,200.0	4,191.7	4,101.4	4,054.5	9.6	12.7	168.76	-281.7	441.4	668.7	650.5	18.21	36.728	
4,300.0	4,290.8	4,195.8	4,146.8	9.9	13.1	169.01	-293.2	457.0	701.8	683.1	18.66	37.604	
4,400.0	4,389.9	4,290.1	4,239.1	10.1	13.5	169.24	-304.7	472.5	734.8	715.7	19.12	38.434	
4,500.0	4,489.0	4,384.4	4,331.5	10.4	14.0	169.45	-316.2	488.1	767.9	748.4	19.58	39.224	
4,600.0	4,588.1	4,478.8	4,423.8	10.7	14.4	169.64	-327.7	503.6	801.0	781.0	20.04	39.975	
4,632.5	4,620.4	4,509.4	4,453.8	10.8	14.5	169.70	-331.5	508.7	811.8	791.6	20.19	40.211	
4,700.0	4,687.3	4,573.3	4,516.4	11.0	14.8	169.89	-339.3	519.2	833.4	812.9	20.55	40.552	
4,800.0	4,786.9	4,668.9	4,609.9	11.2	15.2	170.11	-351.0	535.0	862.7	841.6	21.06	40.972	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Project:	SEC.12-T6N-R67W	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Simonsen 12E-223	**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 (6-07-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Simonsen NWNW-12 Pad Sec.12-T6N-R67W - Simonsen 1L-241 - Wellbore #1 - Plan #1 (6-07-12)

Offset Site Error: 0.0 ft

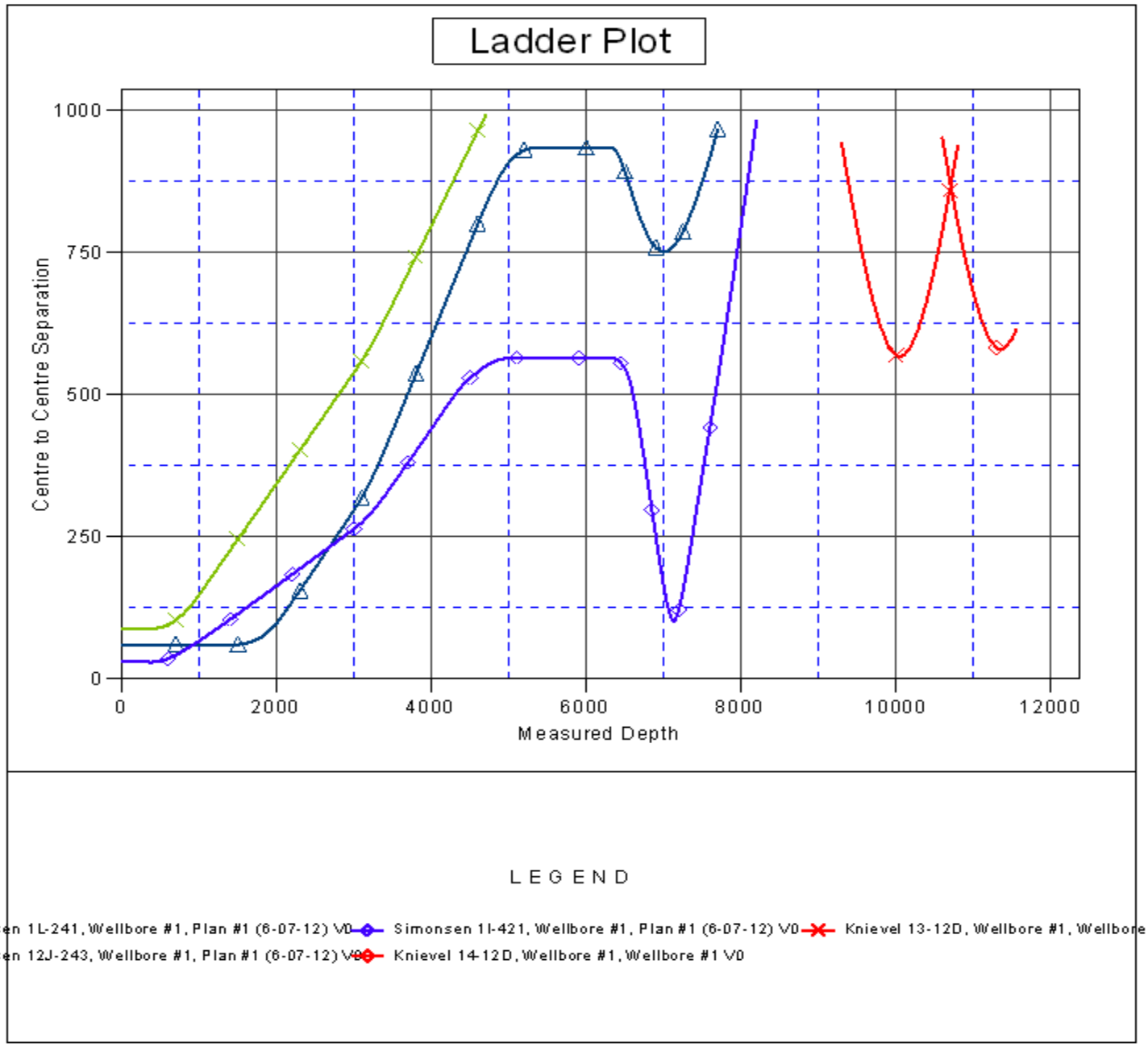
Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,886.7	4,765.5	4,704.4	11.4	15.7	170.27	-362.7	550.9	888.7	867.1	21.54	41.250	
5,000.0	4,986.7	4,904.5	4,841.1	11.6	16.1	170.38	-378.0	571.4	909.3	887.2	22.08	41.180	
5,013.3	5,000.0	4,923.7	4,860.0	11.6	16.2	126.51	-379.8	573.9	911.4	889.2	22.15	41.146	
5,100.0	5,086.7	5,050.2	4,985.4	11.8	16.5	126.51	-389.7	587.3	922.8	900.2	22.59	40.854	
5,200.0	5,186.7	5,197.5	5,132.2	12.0	16.8	126.51	-397.1	597.2	931.2	908.1	23.10	40.305	
5,300.0	5,286.7	5,345.7	5,280.3	12.2	17.1	126.51	-400.0	601.1	934.5	910.9	23.61	39.588	
5,400.0	5,386.7	5,452.2	5,386.7	12.4	17.2	126.51	-400.0	601.2	934.6	910.5	24.03	38.895	
5,500.0	5,486.7	5,552.2	5,486.7	12.6	17.4	126.51	-400.0	601.2	934.6	910.1	24.44	38.241	
5,600.0	5,586.7	5,652.2	5,586.7	12.8	17.5	126.51	-400.0	601.2	934.6	909.7	24.85	37.607	
5,700.0	5,686.7	5,752.2	5,686.7	13.0	17.7	126.51	-400.0	601.2	934.6	909.3	25.26	36.992	
5,800.0	5,786.7	5,852.2	5,786.7	13.2	17.8	126.51	-400.0	601.2	934.6	908.9	25.68	36.394	
5,900.0	5,886.7	5,952.2	5,886.7	13.5	17.9	126.51	-400.0	601.2	934.6	908.5	26.09	35.815	
6,000.0	5,986.7	6,052.2	5,986.7	13.7	18.1	126.51	-400.0	601.2	934.6	908.0	26.51	35.251	
6,100.0	6,086.7	6,152.2	6,086.7	13.9	18.2	126.51	-400.0	601.2	934.6	907.6	26.93	34.705	
6,200.0	6,186.7	6,252.2	6,186.7	14.1	18.4	126.51	-400.0	601.2	934.6	907.2	27.35	34.173	
6,300.0	6,286.7	6,352.2	6,286.7	14.3	18.5	126.51	-400.0	601.2	934.6	906.8	27.77	33.657	
6,332.4	6,319.1	6,385.2	6,319.7	14.4	18.6	126.51	-400.0	601.2	934.6	906.7	27.90	33.491	
6,350.0	6,336.7	6,449.2	6,383.7	14.4	18.7	-53.80	-397.2	601.2	934.0	905.9	28.07	33.270	
6,400.0	6,386.6	6,620.2	6,551.1	14.5	18.7	-56.44	-363.9	601.2	926.6	898.1	28.46	32.555	
6,450.0	6,436.3	6,761.0	6,680.5	14.6	18.7	-61.30	-309.0	601.4	912.2	883.4	28.78	31.700	
6,500.0	6,485.4	6,866.6	6,769.8	14.6	18.6	-67.09	-252.7	601.5	893.3	864.3	29.08	30.721	
6,550.0	6,533.8	6,941.9	6,828.3	14.7	18.5	-72.77	-205.4	601.6	872.3	842.9	29.39	29.685	
6,600.0	6,581.3	6,994.0	6,865.9	14.7	18.4	-77.77	-169.3	601.6	850.8	821.1	29.67	28.672	
6,650.0	6,627.6	7,029.2	6,889.8	14.8	18.4	-81.87	-143.6	601.7	830.0	800.1	29.92	27.739	
6,700.0	6,672.7	7,051.9	6,904.7	14.8	18.3	-85.07	-126.4	601.7	810.8	780.7	30.12	26.923	
6,750.0	6,716.2	7,065.5	6,913.3	14.9	18.3	-87.45	-115.9	601.7	793.7	763.5	30.27	26.221	
6,800.0	6,758.1	7,072.3	6,917.6	14.9	18.3	-89.09	-110.6	601.7	779.3	748.9	30.39	25.640	
6,850.0	6,798.0	7,073.9	6,918.5	15.0	18.3	-90.10	-109.3	601.7	767.7	737.2	30.50	25.171	
6,900.0	6,835.9	7,071.4	6,917.0	15.0	18.3	-90.56	-111.2	601.7	759.3	728.7	30.61	24.806	
6,950.0	6,871.6	7,065.8	6,913.5	15.1	18.3	-90.52	-115.6	601.7	754.1	723.4	30.74	24.536	
7,000.0	6,904.9	7,057.7	6,908.4	15.2	18.3	-90.06	-121.9	601.7	752.2	721.3	30.89	24.353	
7,004.7	6,907.9	7,056.8	6,907.8	15.2	18.3	-89.99	-122.6	601.7	752.2	721.3	30.91	24.338	
7,050.0	6,935.7	7,047.5	6,901.9	15.4	18.4	-89.20	-129.7	601.7	753.5	722.4	31.07	24.248	
7,100.0	6,963.9	7,035.7	6,894.1	15.6	18.4	-88.00	-138.7	601.7	757.9	726.6	31.30	24.214	
7,150.0	6,989.3	7,022.4	6,885.3	15.9	18.4	-86.49	-148.6	601.7	765.2	733.6	31.56	24.247	
7,200.0	7,011.9	7,008.0	6,875.5	16.2	18.4	-84.71	-159.3	601.6	775.1	743.3	31.84	24.346	
7,250.0	7,031.5	6,992.6	6,864.9	16.6	18.4	-82.69	-170.4	601.6	787.5	755.3	32.13	24.506	
7,300.0	7,048.0	6,976.3	6,853.4	17.0	18.4	-80.48	-181.9	601.6	801.9	769.5	32.43	24.726	
7,350.0	7,061.4	6,959.3	6,841.1	17.5	18.5	-78.11	-193.6	601.6	818.3	785.5	32.72	25.006	
7,400.0	7,071.6	6,941.8	6,828.1	18.0	18.5	-75.62	-205.5	601.6	836.1	803.1	32.99	25.345	
7,450.0	7,078.6	6,923.6	6,814.5	18.5	18.5	-73.05	-217.4	601.5	855.2	822.0	33.23	25.736	
7,500.0	7,082.4	6,900.0	6,796.3	19.1	18.5	-70.17	-232.4	601.5	875.4	842.0	33.40	26.210	
7,540.0	7,083.0	6,889.9	6,788.3	19.5	18.5	-68.36	-238.7	601.5	892.0	858.4	33.59	26.557	
7,600.0	7,082.4	6,867.8	6,770.7	20.3	18.6	-67.22	-252.0	601.5	918.4	884.3	34.08	26.946	
7,700.0	7,081.4	6,834.4	6,743.4	21.6	18.6	-65.48	-271.2	601.4	967.4	932.4	34.97	27.660	

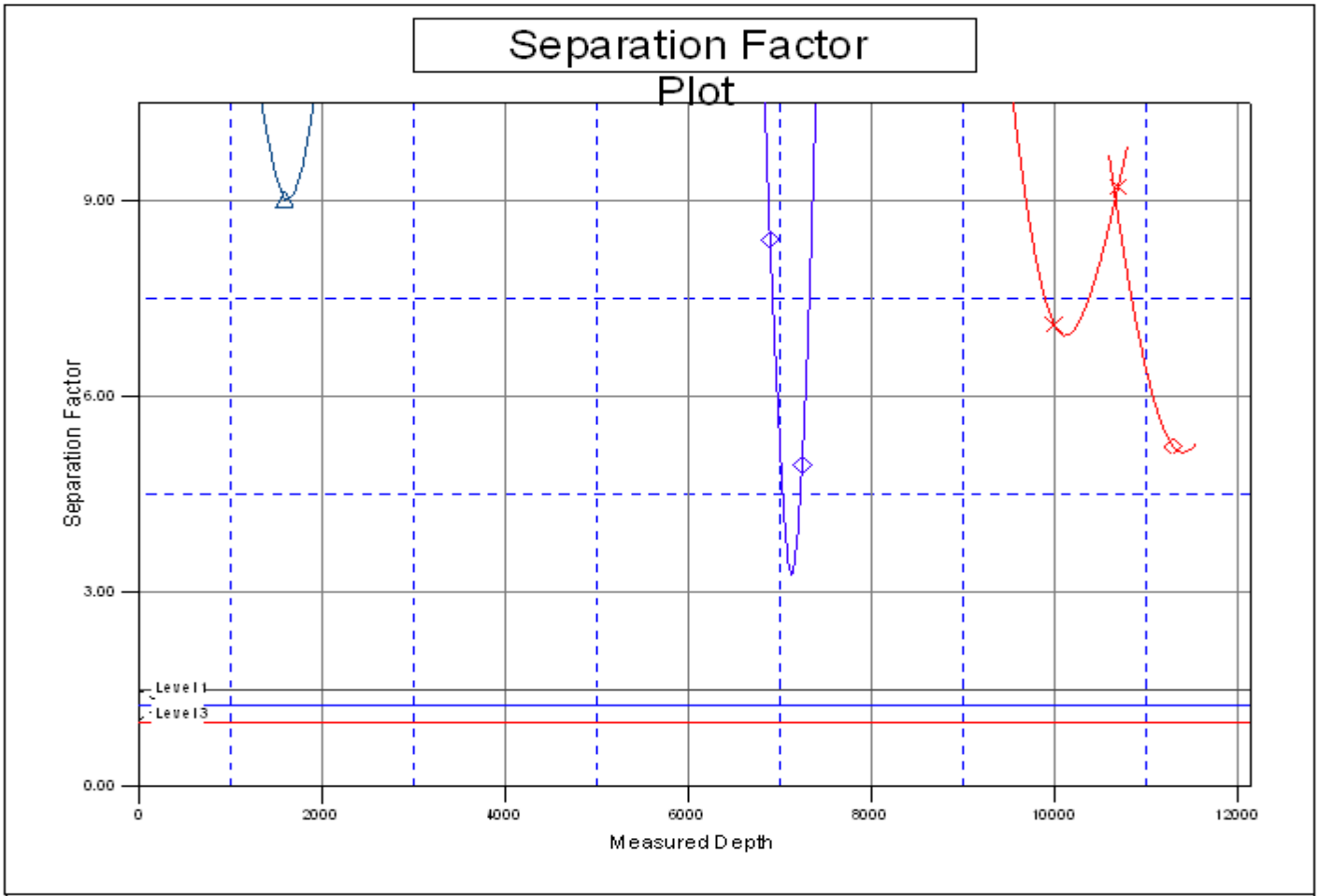
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Project:	SEC.12-T6N-R67W	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Simonsen 12E-223	**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 (6-07-12)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4863.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °
Coordinates are relative to: Simonsen 12E-223
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.42°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Simonsen 12E-223
Project:	SEC.12-T6N-R67W	**TVD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	**MD Reference:**	WELL @ 4863.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Simonsen 12E-223	**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 (6-07-12)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4863.0ft (Original Well Elev) Coordinates are relative to: Simonsen 12E-223
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.42°



LEGEND

nsen 1L-241, Wellbore #1, Plan #1 (6-07-12) V0 Simonsen 11-421, Wellbore #1, Plan #1 (6-07-12) V0 Knievel 13-12D, Wellbore #1, Wellbore
nsen 12J-243, Wellbore #1, Plan #1 (6-07-12) V0 Knievel 14-12D, Wellbore #1, Wellbore #1 V0