

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Simonsen 12J-243**

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

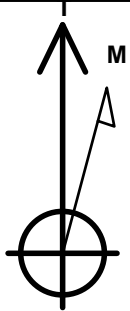
Ground Elevation: 4848.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1428710.20	3180843.55	40.508390	-104.849630	

RKB - Ensign 32 - 15' WELL @ 4863.0ft (RKB - Ensign 32 - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
HARDLINE BHL 460'FSL	1.0	-4670.5	-200.0	Polygon
HARDLINE SHL 460'FNL	1.0	-254.0	-400.0	Polygon
SECTION LINE 206'N OF SHL	1.0	206.0	-400.0	Polygon
BHL 500'FSL, 1230'FWL	7043.0	-4630.5	781.5	Point



Azimuths to True North
Magnetic North: 8.79°

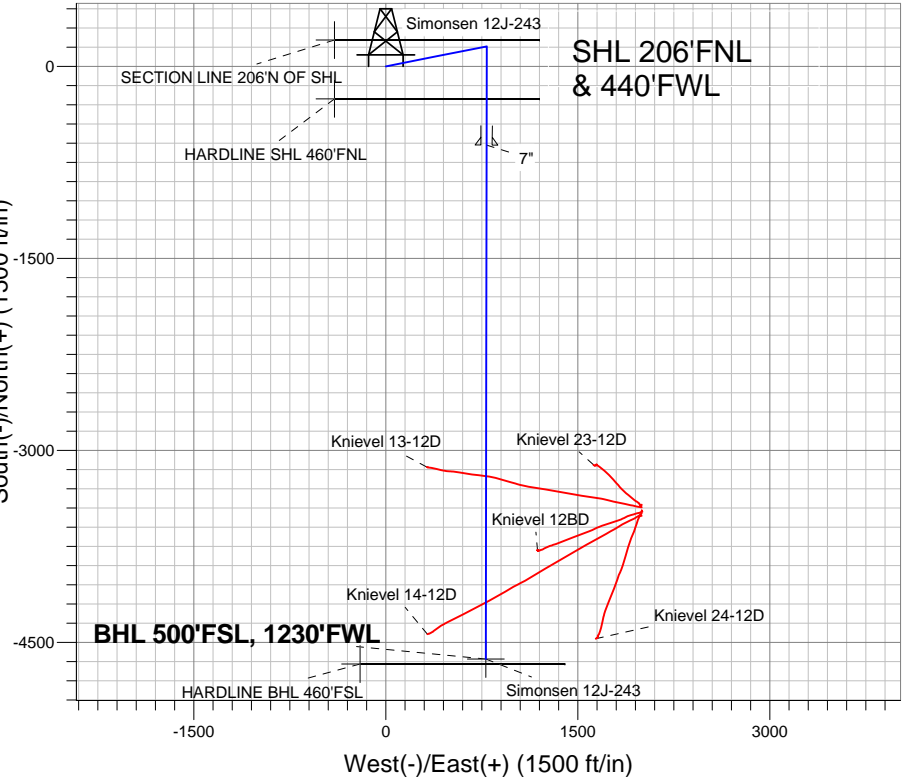
Magnetic Field
Strength: 53075.6nT
Dip Angle: 67.09°
Date: 6/7/2012
Model: IGRF2010

Simonsen NWNW-12 Pad Sec.12-T6N-R67W
Simonsen 12J-243
Plan #1 (6-07-12)
10:55, June 25 2012

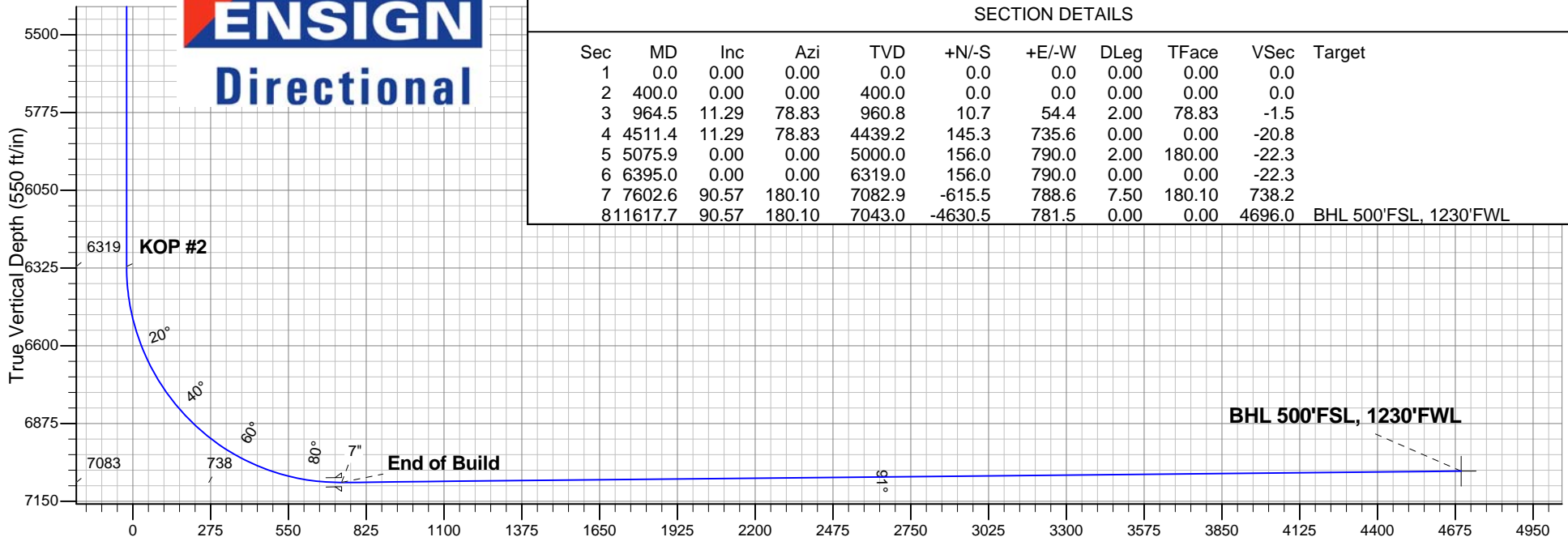
ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	KOP #1
6319.1	6395.0	KOP #2
7082.9	7602.6	End of Build

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



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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	964.5	11.29	78.83	960.8	10.7	54.4	2.00	78.83	-1.5	
4	4511.4	11.29	78.83	4439.2	145.3	735.6	0.00	0.00	-20.8	
5	5075.9	0.00	0.00	5000.0	156.0	790.0	2.00	180.00	-22.3	
6	6395.0	0.00	0.00	6319.0	156.0	790.0	0.00	0.00	-22.3	
7	7602.6	90.57	180.10	7082.9	-615.5	788.6	7.50	180.10	738.2	
8	811617.7	90.57	180.10	7043.0	-4630.5	781.5	0.00	0.00	4696.0	BHL 500'FSL, 1230'FWL

Vertical Section at 170.42° (550 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.12-T6N-R67W

Simonsen NWNW-12 Pad Sec.12-T6N-R67W

Simonsen 12J-243

Wellbore #1

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

Standard Planning Report

25 June, 2012

Database:	Landmark	Local Co-ordinate Reference:	Well Simonsen 12J-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Project:	SEC.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	North Reference:	True
Well:	Simonsen 12J-243	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 12J-243					
Well Position	+N-S	0.0 ft	Northing:	1,428,710.20 ft	Latitude:	40.508390
	+E-W	0.0 ft	Easting:	3,180,843.55 ft	Longitude:	-104.849630
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	170.42

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
964.5	11.29	78.83	960.8	10.7	54.4	2.00	2.00	0.00	78.83	
4,511.4	11.29	78.83	4,439.2	145.3	735.6	0.00	0.00	0.00	0.00	
5,075.9	0.00	0.00	5,000.0	156.0	790.0	2.00	-2.00	0.00	180.00	
6,395.0	0.00	0.00	6,319.0	156.0	790.0	0.00	0.00	0.00	0.00	
7,602.6	90.57	180.10	7,082.9	-615.5	788.6	7.50	7.50	0.00	180.10	
11,617.7	90.57	180.10	7,043.0	-4,630.5	781.5	0.00	0.00	0.00	0.00	BHL 500'FSL, 1230

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Project:	SEC.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	North Reference:	True
Well:	Simonsen 12J-243	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 SHL 460'FNL - HARDLINE BHL 460'FSL - SECTION LINE 206'N OF SHL									
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
KOP #1									
440.0	0.80	78.83	440.0	0.1	0.3	0.0	2.00	2.00	0.00
480.0	1.60	78.83	480.0	0.2	1.1	0.0	2.00	2.00	0.00
520.0	2.40	78.83	520.0	0.5	2.5	-0.1	2.00	2.00	0.00
560.0	3.20	78.83	559.9	0.9	4.4	-0.1	2.00	2.00	0.00
600.0	4.00	78.83	599.8	1.4	6.8	-0.2	2.00	2.00	0.00
640.0	4.80	78.83	639.7	1.9	9.9	-0.3	2.00	2.00	0.00
680.0	5.60	78.83	679.6	2.6	13.4	-0.4	2.00	2.00	0.00
720.0	6.40	78.83	719.3	3.5	17.5	-0.5	2.00	2.00	0.00
760.0	7.20	78.83	759.1	4.4	22.2	-0.6	2.00	2.00	0.00
800.0	8.00	78.83	798.7	5.4	27.4	-0.8	2.00	2.00	0.00
840.0	8.80	78.83	838.3	6.5	33.1	-0.9	2.00	2.00	0.00
880.0	9.60	78.83	877.8	7.8	39.4	-1.1	2.00	2.00	0.00
920.0	10.40	78.83	917.1	9.1	46.2	-1.3	2.00	2.00	0.00
960.0	11.20	78.83	956.4	10.6	53.5	-1.5	2.00	2.00	0.00
964.5	11.29	78.83	960.8	10.7	54.4	-1.5	2.00	2.00	0.00
1,000.0	11.29	78.83	995.7	12.1	61.2	-1.7	0.00	0.00	0.00
1,040.0	11.29	78.83	1,034.9	13.6	68.9	-1.9	0.00	0.00	0.00
1,080.0	11.29	78.83	1,074.1	15.1	76.6	-2.2	0.00	0.00	0.00
1,120.0	11.29	78.83	1,113.3	16.6	84.3	-2.4	0.00	0.00	0.00
1,160.0	11.29	78.83	1,152.6	18.2	91.9	-2.6	0.00	0.00	0.00
1,200.0	11.29	78.83	1,191.8	19.7	99.6	-2.8	0.00	0.00	0.00
1,240.0	11.29	78.83	1,231.0	21.2	107.3	-3.0	0.00	0.00	0.00
1,280.0	11.29	78.83	1,270.2	22.7	115.0	-3.3	0.00	0.00	0.00
1,320.0	11.29	78.83	1,309.5	24.2	122.7	-3.5	0.00	0.00	0.00
1,360.0	11.29	78.83	1,348.7	25.7	130.3	-3.7	0.00	0.00	0.00
1,400.0	11.29	78.83	1,387.9	27.3	138.0	-3.9	0.00	0.00	0.00
1,440.0	11.29	78.83	1,427.2	28.8	145.7	-4.1	0.00	0.00	0.00
1,480.0	11.29	78.83	1,466.4	30.3	153.4	-4.3	0.00	0.00	0.00
1,520.0	11.29	78.83	1,505.6	31.8	161.1	-4.6	0.00	0.00	0.00
1,560.0	11.29	78.83	1,544.8	33.3	168.8	-4.8	0.00	0.00	0.00
1,600.0	11.29	78.83	1,584.1	34.8	176.4	-5.0	0.00	0.00	0.00
1,640.0	11.29	78.83	1,623.3	36.4	184.1	-5.2	0.00	0.00	0.00
1,680.0	11.29	78.83	1,662.5	37.9	191.8	-5.4	0.00	0.00	0.00
1,720.0	11.29	78.83	1,701.7	39.4	199.5	-5.6	0.00	0.00	0.00
1,760.0	11.29	78.83	1,741.0	40.9	207.2	-5.9	0.00	0.00	0.00
1,800.0	11.29	78.83	1,780.2	42.4	214.9	-6.1	0.00	0.00	0.00
1,840.0	11.29	78.83	1,819.4	43.9	222.5	-6.3	0.00	0.00	0.00
1,880.0	11.29	78.83	1,858.6	45.5	230.2	-6.5	0.00	0.00	0.00
1,920.0	11.29	78.83	1,897.9	47.0	237.9	-6.7	0.00	0.00	0.00

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Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	North Reference:	True
Well:	Simonsen 12J-243	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)
1,960.0	11.29	78.83	1,937.1	48.5	245.6	-6.9	0.00	0.00	0.00
2,000.0	11.29	78.83	1,976.3	50.0	253.3	-7.2	0.00	0.00	0.00
2,040.0	11.29	78.83	2,015.5	51.5	260.9	-7.4	0.00	0.00	0.00
2,080.0	11.29	78.83	2,054.8	53.0	268.6	-7.6	0.00	0.00	0.00
2,120.0	11.29	78.83	2,094.0	54.6	276.3	-7.8	0.00	0.00	0.00
2,160.0	11.29	78.83	2,133.2	56.1	284.0	-8.0	0.00	0.00	0.00
2,200.0	11.29	78.83	2,172.4	57.6	291.7	-8.3	0.00	0.00	0.00
2,240.0	11.29	78.83	2,211.7	59.1	299.4	-8.5	0.00	0.00	0.00
2,280.0	11.29	78.83	2,250.9	60.6	307.0	-8.7	0.00	0.00	0.00
2,320.0	11.29	78.83	2,290.1	62.1	314.7	-8.9	0.00	0.00	0.00
2,360.0	11.29	78.83	2,329.4	63.7	322.4	-9.1	0.00	0.00	0.00
2,400.0	11.29	78.83	2,368.6	65.2	330.1	-9.3	0.00	0.00	0.00
2,440.0	11.29	78.83	2,407.8	66.7	337.8	-9.6	0.00	0.00	0.00
2,480.0	11.29	78.83	2,447.0	68.2	345.5	-9.8	0.00	0.00	0.00
2,520.0	11.29	78.83	2,486.3	69.7	353.1	-10.0	0.00	0.00	0.00
2,560.0	11.29	78.83	2,525.5	71.3	360.8	-10.2	0.00	0.00	0.00
2,600.0	11.29	78.83	2,564.7	72.8	368.5	-10.4	0.00	0.00	0.00
2,640.0	11.29	78.83	2,603.9	74.3	376.2	-10.6	0.00	0.00	0.00
2,680.0	11.29	78.83	2,643.2	75.8	383.9	-10.9	0.00	0.00	0.00
2,720.0	11.29	78.83	2,682.4	77.3	391.6	-11.1	0.00	0.00	0.00
2,760.0	11.29	78.83	2,721.6	78.8	399.2	-11.3	0.00	0.00	0.00
2,800.0	11.29	78.83	2,760.8	80.4	406.9	-11.5	0.00	0.00	0.00
2,840.0	11.29	78.83	2,800.1	81.9	414.6	-11.7	0.00	0.00	0.00
2,880.0	11.29	78.83	2,839.3	83.4	422.3	-11.9	0.00	0.00	0.00
2,920.0	11.29	78.83	2,878.5	84.9	430.0	-12.2	0.00	0.00	0.00
2,960.0	11.29	78.83	2,917.7	86.4	437.6	-12.4	0.00	0.00	0.00
3,000.0	11.29	78.83	2,957.0	87.9	445.3	-12.6	0.00	0.00	0.00
3,040.0	11.29	78.83	2,996.2	89.5	453.0	-12.8	0.00	0.00	0.00
3,080.0	11.29	78.83	3,035.4	91.0	460.7	-13.0	0.00	0.00	0.00
3,120.0	11.29	78.83	3,074.6	92.5	468.4	-13.2	0.00	0.00	0.00
3,160.0	11.29	78.83	3,113.9	94.0	476.1	-13.5	0.00	0.00	0.00
3,200.0	11.29	78.83	3,153.1	95.5	483.7	-13.7	0.00	0.00	0.00
3,240.0	11.29	78.83	3,192.3	97.0	491.4	-13.9	0.00	0.00	0.00
3,280.0	11.29	78.83	3,231.5	98.6	499.1	-14.1	0.00	0.00	0.00
3,320.0	11.29	78.83	3,270.8	100.1	506.8	-14.3	0.00	0.00	0.00
3,360.0	11.29	78.83	3,310.0	101.6	514.5	-14.6	0.00	0.00	0.00
3,400.0	11.29	78.83	3,349.2	103.1	522.2	-14.8	0.00	0.00	0.00
3,440.0	11.29	78.83	3,388.5	104.6	529.8	-15.0	0.00	0.00	0.00
3,480.0	11.29	78.83	3,427.7	106.1	537.5	-15.2	0.00	0.00	0.00
3,520.0	11.29	78.83	3,466.9	107.7	545.2	-15.4	0.00	0.00	0.00
3,560.0	11.29	78.83	3,506.1	109.2	552.9	-15.6	0.00	0.00	0.00
3,600.0	11.29	78.83	3,545.4	110.7	560.6	-15.9	0.00	0.00	0.00
3,640.0	11.29	78.83	3,584.6	112.2	568.2	-16.1	0.00	0.00	0.00
3,680.0	11.29	78.83	3,623.8	113.7	575.9	-16.3	0.00	0.00	0.00
3,720.0	11.29	78.83	3,663.0	115.2	583.6	-16.5	0.00	0.00	0.00
3,760.0	11.29	78.83	3,702.3	116.8	591.3	-16.7	0.00	0.00	0.00
3,800.0	11.29	78.83	3,741.5	118.3	599.0	-16.9	0.00	0.00	0.00
3,840.0	11.29	78.83	3,780.7	119.8	606.7	-17.2	0.00	0.00	0.00
3,880.0	11.29	78.83	3,819.9	121.3	614.3	-17.4	0.00	0.00	0.00
3,920.0	11.29	78.83	3,859.2	122.8	622.0	-17.6	0.00	0.00	0.00
3,960.0	11.29	78.83	3,898.4	124.3	629.7	-17.8	0.00	0.00	0.00
4,000.0	11.29	78.83	3,937.6	125.9	637.4	-18.0	0.00	0.00	0.00
4,040.0	11.29	78.83	3,976.8	127.4	645.1	-18.2	0.00	0.00	0.00

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Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	North Reference:	True
Well:	Simonsen 12J-243	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	11.29	78.83	4,016.1	128.9	652.8	-18.5	0.00	0.00	0.00
4,120.0	11.29	78.83	4,055.3	130.4	660.4	-18.7	0.00	0.00	0.00
4,160.0	11.29	78.83	4,094.5	131.9	668.1	-18.9	0.00	0.00	0.00
4,200.0	11.29	78.83	4,133.7	133.4	675.8	-19.1	0.00	0.00	0.00
4,240.0	11.29	78.83	4,173.0	135.0	683.5	-19.3	0.00	0.00	0.00
4,280.0	11.29	78.83	4,212.2	136.5	691.2	-19.6	0.00	0.00	0.00
4,320.0	11.29	78.83	4,251.4	138.0	698.8	-19.8	0.00	0.00	0.00
4,360.0	11.29	78.83	4,290.7	139.5	706.5	-20.0	0.00	0.00	0.00
4,400.0	11.29	78.83	4,329.9	141.0	714.2	-20.2	0.00	0.00	0.00
4,440.0	11.29	78.83	4,369.1	142.6	721.9	-20.4	0.00	0.00	0.00
4,480.0	11.29	78.83	4,408.3	144.1	729.6	-20.6	0.00	0.00	0.00
4,511.4	11.29	78.83	4,439.2	145.3	735.6	-20.8	0.00	0.00	0.00
4,520.0	11.12	78.83	4,447.6	145.6	737.2	-20.9	2.00	-2.00	0.00
4,560.0	10.32	78.83	4,486.9	147.0	744.5	-21.1	2.00	-2.00	0.00
4,600.0	9.52	78.83	4,526.3	148.4	751.3	-21.3	2.00	-2.00	0.00
4,640.0	8.72	78.83	4,565.8	149.6	757.5	-21.4	2.00	-2.00	0.00
4,680.0	7.92	78.83	4,605.3	150.7	763.2	-21.6	2.00	-2.00	0.00
4,720.0	7.12	78.83	4,645.0	151.7	768.3	-21.7	2.00	-2.00	0.00
4,760.0	6.32	78.83	4,684.7	152.6	772.9	-21.9	2.00	-2.00	0.00
4,800.0	5.52	78.83	4,724.5	153.4	777.0	-22.0	2.00	-2.00	0.00
4,840.0	4.72	78.83	4,764.3	154.1	780.5	-22.1	2.00	-2.00	0.00
4,880.0	3.92	78.83	4,804.2	154.7	783.4	-22.2	2.00	-2.00	0.00
4,920.0	3.12	78.83	4,844.2	155.2	785.8	-22.2	2.00	-2.00	0.00
4,960.0	2.32	78.83	4,884.1	155.5	787.7	-22.3	2.00	-2.00	0.00
5,000.0	1.52	78.83	4,924.1	155.8	789.0	-22.3	2.00	-2.00	0.00
5,040.0	0.72	78.83	4,964.1	156.0	789.8	-22.3	2.00	-2.00	0.00
5,075.9	0.00	0.00	5,000.0	156.0	790.0	-22.3	2.00	-2.00	0.00
5,080.0	0.00	0.00	5,004.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,120.0	0.00	0.00	5,044.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,160.0	0.00	0.00	5,084.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,200.0	0.00	0.00	5,124.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,240.0	0.00	0.00	5,164.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,280.0	0.00	0.00	5,204.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,320.0	0.00	0.00	5,244.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,360.0	0.00	0.00	5,284.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,400.0	0.00	0.00	5,324.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,440.0	0.00	0.00	5,364.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,480.0	0.00	0.00	5,404.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,520.0	0.00	0.00	5,444.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,560.0	0.00	0.00	5,484.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,600.0	0.00	0.00	5,524.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,640.0	0.00	0.00	5,564.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,680.0	0.00	0.00	5,604.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,720.0	0.00	0.00	5,644.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,760.0	0.00	0.00	5,684.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,800.0	0.00	0.00	5,724.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,840.0	0.00	0.00	5,764.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,880.0	0.00	0.00	5,804.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,920.0	0.00	0.00	5,844.1	156.0	790.0	-22.3	0.00	0.00	0.00
5,960.0	0.00	0.00	5,884.1	156.0	790.0	-22.3	0.00	0.00	0.00
6,000.0	0.00	0.00	5,924.1	156.0	790.0	-22.3	0.00	0.00	0.00
6,040.0	0.00	0.00	5,964.1	156.0	790.0	-22.3	0.00	0.00	0.00
6,080.0	0.00	0.00	6,004.1	156.0	790.0	-22.3	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Simonsen 12J-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Project:	SEC.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	North Reference:	True
Well:	Simonsen 12J-243	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	6,044.1	156.0	790.0	-22.3	0.00	0.00	0.00
6,160.0	0.00	0.00	6,084.1	156.0	790.0	-22.3	0.00	0.00	0.00
6,200.0	0.00	0.00	6,124.1	156.0	790.0	-22.3	0.00	0.00	0.00
6,240.0	0.00	0.00	6,164.1	156.0	790.0	-22.3	0.00	0.00	0.00
6,280.0	0.00	0.00	6,204.1	156.0	790.0	-22.3	0.00	0.00	0.00
6,320.0	0.00	0.00	6,244.1	156.0	790.0	-22.3	0.00	0.00	0.00
6,360.0	0.00	0.00	6,284.1	156.0	790.0	-22.3	0.00	0.00	0.00
6,395.0	0.00	0.00	6,319.1	156.0	790.0	-22.3	0.00	0.00	0.00
KOP #2									
6,400.0	0.38	180.10	6,324.1	156.0	790.0	-22.3	7.56	7.56	0.00
6,440.0	3.38	180.10	6,364.0	154.7	790.0	-21.0	7.50	7.50	0.00
6,480.0	6.38	180.10	6,403.9	151.3	790.0	-17.7	7.50	7.50	0.00
6,520.0	9.38	180.10	6,443.5	145.8	790.0	-12.3	7.50	7.50	0.00
6,560.0	12.38	180.10	6,482.8	138.2	790.0	-4.8	7.50	7.50	0.00
6,600.0	15.38	180.10	6,521.6	128.6	790.0	4.6	7.50	7.50	0.00
6,640.0	18.38	180.10	6,559.9	117.0	789.9	16.1	7.50	7.50	0.00
6,680.0	21.38	180.10	6,597.5	103.4	789.9	29.5	7.50	7.50	0.00
6,720.0	24.38	180.10	6,634.4	87.9	789.9	44.8	7.50	7.50	0.00
6,760.0	27.38	180.10	6,670.3	70.4	789.8	62.0	7.50	7.50	0.00
6,800.0	30.38	180.10	6,705.4	51.1	789.8	81.0	7.50	7.50	0.00
6,840.0	33.38	180.10	6,739.3	30.0	789.8	101.9	7.50	7.50	0.00
6,880.0	36.38	180.10	6,772.1	7.1	789.7	124.4	7.50	7.50	0.00
6,920.0	39.38	180.10	6,803.7	-17.4	789.7	148.6	7.50	7.50	0.00
6,960.0	42.38	180.10	6,833.9	-43.6	789.6	174.4	7.50	7.50	0.00
7,000.0	45.38	180.10	6,862.8	-71.3	789.6	201.7	7.50	7.50	0.00
7,040.0	48.38	180.10	6,890.1	-100.5	789.5	230.5	7.50	7.50	0.00
7,080.0	51.38	180.10	6,915.9	-131.1	789.5	260.7	7.50	7.50	0.00
7,120.0	54.38	180.10	6,940.0	-163.0	789.4	292.1	7.50	7.50	0.00
7,160.0	57.38	180.10	6,962.5	-196.1	789.4	324.7	7.50	7.50	0.00
7,200.0	60.38	180.10	6,983.1	-230.3	789.3	358.5	7.50	7.50	0.00
7,240.0	63.38	180.10	7,002.0	-265.6	789.3	393.3	7.50	7.50	0.00
7,280.0	66.38	180.10	7,019.0	-301.8	789.2	429.0	7.50	7.50	0.00
7,320.0	69.38	180.10	7,034.0	-338.9	789.1	465.5	7.50	7.50	0.00
7,360.0	72.38	180.10	7,047.1	-376.7	789.1	502.7	7.50	7.50	0.00
7,400.0	75.38	180.10	7,058.2	-415.1	789.0	540.6	7.50	7.50	0.00
7,440.0	78.38	180.10	7,067.3	-454.0	788.9	579.0	7.50	7.50	0.00
7,480.0	81.38	180.10	7,074.3	-493.4	788.9	617.8	7.50	7.50	0.00
7,520.0	84.38	180.10	7,079.3	-533.1	788.8	656.9	7.50	7.50	0.00
7,560.0	87.38	180.10	7,082.2	-573.0	788.7	696.3	7.50	7.50	0.00
7,600.0	90.38	180.10	7,083.0	-613.0	788.6	735.7	7.50	7.50	0.00
7,602.6	90.57	180.10	7,082.9	-615.6	788.6	738.2	7.40	7.40	0.00
End of Build - 7"									
7,640.0	90.57	180.10	7,082.6	-653.0	788.6	775.1	0.00	0.00	0.00
7,680.0	90.57	180.10	7,082.2	-693.0	788.5	814.5	0.00	0.00	0.00
7,720.0	90.57	180.10	7,081.8	-733.0	788.4	854.0	0.00	0.00	0.00
7,760.0	90.57	180.10	7,081.4	-773.0	788.4	893.4	0.00	0.00	0.00
7,800.0	90.57	180.10	7,081.0	-813.0	788.3	932.8	0.00	0.00	0.00
7,840.0	90.57	180.10	7,080.6	-853.0	788.2	972.3	0.00	0.00	0.00
7,880.0	90.57	180.10	7,080.2	-893.0	788.1	1,011.7	0.00	0.00	0.00
7,920.0	90.57	180.10	7,079.8	-933.0	788.1	1,051.1	0.00	0.00	0.00
7,960.0	90.57	180.10	7,079.4	-973.0	788.0	1,090.5	0.00	0.00	0.00
8,000.0	90.57	180.10	7,079.0	-1,013.0	787.9	1,130.0	0.00	0.00	0.00
8,040.0	90.57	180.10	7,078.6	-1,053.0	787.9	1,169.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Simonsen 12J-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Project:	SEC.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	North Reference:	True
Well:	Simonsen 12J-243	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	7,078.2	-1,093.0	787.8	1,208.8	0.00	0.00	0.00
8,120.0	90.57	180.10	7,077.8	-1,133.0	787.7	1,248.3	0.00	0.00	0.00
8,160.0	90.57	180.10	7,077.4	-1,173.0	787.7	1,287.7	0.00	0.00	0.00
8,200.0	90.57	180.10	7,077.0	-1,212.9	787.6	1,327.1	0.00	0.00	0.00
8,240.0	90.57	180.10	7,076.6	-1,252.9	787.5	1,366.5	0.00	0.00	0.00
8,280.0	90.57	180.10	7,076.2	-1,292.9	787.4	1,406.0	0.00	0.00	0.00
8,320.0	90.57	180.10	7,075.8	-1,332.9	787.4	1,445.4	0.00	0.00	0.00
8,360.0	90.57	180.10	7,075.4	-1,372.9	787.3	1,484.8	0.00	0.00	0.00
8,400.0	90.57	180.10	7,075.0	-1,412.9	787.2	1,524.3	0.00	0.00	0.00
8,440.0	90.57	180.10	7,074.6	-1,452.9	787.2	1,563.7	0.00	0.00	0.00
8,480.0	90.57	180.10	7,074.2	-1,492.9	787.1	1,603.1	0.00	0.00	0.00
8,520.0	90.57	180.10	7,073.8	-1,532.9	787.0	1,642.5	0.00	0.00	0.00
8,560.0	90.57	180.10	7,073.4	-1,572.9	786.9	1,682.0	0.00	0.00	0.00
8,600.0	90.57	180.10	7,073.0	-1,612.9	786.9	1,721.4	0.00	0.00	0.00
8,640.0	90.57	180.10	7,072.6	-1,652.9	786.8	1,760.8	0.00	0.00	0.00
8,680.0	90.57	180.10	7,072.2	-1,692.9	786.7	1,800.2	0.00	0.00	0.00
8,720.0	90.57	180.10	7,071.8	-1,732.9	786.7	1,839.7	0.00	0.00	0.00
8,760.0	90.57	180.10	7,071.4	-1,772.9	786.6	1,879.1	0.00	0.00	0.00
8,800.0	90.57	180.10	7,071.0	-1,812.9	786.5	1,918.5	0.00	0.00	0.00
8,840.0	90.57	180.10	7,070.6	-1,852.9	786.4	1,958.0	0.00	0.00	0.00
8,880.0	90.57	180.10	7,070.2	-1,892.9	786.4	1,997.4	0.00	0.00	0.00
8,920.0	90.57	180.10	7,069.8	-1,932.9	786.3	2,036.8	0.00	0.00	0.00
8,960.0	90.57	180.10	7,069.4	-1,972.9	786.2	2,076.2	0.00	0.00	0.00
9,000.0	90.57	180.10	7,069.0	-2,012.9	786.2	2,115.7	0.00	0.00	0.00
9,040.0	90.57	180.10	7,068.6	-2,052.9	786.1	2,155.1	0.00	0.00	0.00
9,080.0	90.57	180.10	7,068.2	-2,092.9	786.0	2,194.5	0.00	0.00	0.00
9,120.0	90.57	180.10	7,067.8	-2,132.9	786.0	2,234.0	0.00	0.00	0.00
9,160.0	90.57	180.10	7,067.4	-2,172.9	785.9	2,273.4	0.00	0.00	0.00
9,200.0	90.57	180.10	7,067.1	-2,212.9	785.8	2,312.8	0.00	0.00	0.00
9,240.0	90.57	180.10	7,066.7	-2,252.9	785.7	2,352.2	0.00	0.00	0.00
9,280.0	90.57	180.10	7,066.3	-2,292.9	785.7	2,391.7	0.00	0.00	0.00
9,320.0	90.57	180.10	7,065.9	-2,332.9	785.6	2,431.1	0.00	0.00	0.00
9,360.0	90.57	180.10	7,065.5	-2,372.9	785.5	2,470.5	0.00	0.00	0.00
9,400.0	90.57	180.10	7,065.1	-2,412.9	785.5	2,510.0	0.00	0.00	0.00
9,440.0	90.57	180.10	7,064.7	-2,452.9	785.4	2,549.4	0.00	0.00	0.00
9,480.0	90.57	180.10	7,064.3	-2,492.9	785.3	2,588.8	0.00	0.00	0.00
9,520.0	90.57	180.10	7,063.9	-2,532.9	785.2	2,628.2	0.00	0.00	0.00
9,560.0	90.57	180.10	7,063.5	-2,572.9	785.2	2,667.7	0.00	0.00	0.00
9,600.0	90.57	180.10	7,063.1	-2,612.9	785.1	2,707.1	0.00	0.00	0.00
9,640.0	90.57	180.10	7,062.7	-2,652.9	785.0	2,746.5	0.00	0.00	0.00
9,680.0	90.57	180.10	7,062.3	-2,692.9	785.0	2,786.0	0.00	0.00	0.00
9,720.0	90.57	180.10	7,061.9	-2,732.9	784.9	2,825.4	0.00	0.00	0.00
9,760.0	90.57	180.10	7,061.5	-2,772.9	784.8	2,864.8	0.00	0.00	0.00
9,800.0	90.57	180.10	7,061.1	-2,812.9	784.8	2,904.2	0.00	0.00	0.00
9,840.0	90.57	180.10	7,060.7	-2,852.9	784.7	2,943.7	0.00	0.00	0.00
9,880.0	90.57	180.10	7,060.3	-2,892.9	784.6	2,983.1	0.00	0.00	0.00
9,920.0	90.57	180.10	7,059.9	-2,932.9	784.5	3,022.5	0.00	0.00	0.00
9,960.0	90.57	180.10	7,059.5	-2,972.9	784.5	3,062.0	0.00	0.00	0.00
10,000.0	90.57	180.10	7,059.1	-3,012.9	784.4	3,101.4	0.00	0.00	0.00
10,040.0	90.57	180.10	7,058.7	-3,052.9	784.3	3,140.8	0.00	0.00	0.00
10,080.0	90.57	180.10	7,058.3	-3,092.9	784.3	3,180.2	0.00	0.00	0.00
10,120.0	90.57	180.10	7,057.9	-3,132.9	784.2	3,219.7	0.00	0.00	0.00
10,160.0	90.57	180.10	7,057.5	-3,172.8	784.1	3,259.1	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Simonsen 12J-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Project:	SEC.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	North Reference:	True
Well:	Simonsen 12J-243	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	7,057.1	-3,212.8	784.0	3,298.5	0.00	0.00	0.00
10,240.0	90.57	180.10	7,056.7	-3,252.8	784.0	3,338.0	0.00	0.00	0.00
10,280.0	90.57	180.10	7,056.3	-3,292.8	783.9	3,377.4	0.00	0.00	0.00
10,320.0	90.57	180.10	7,055.9	-3,332.8	783.8	3,416.8	0.00	0.00	0.00
10,360.0	90.57	180.10	7,055.5	-3,372.8	783.8	3,456.2	0.00	0.00	0.00
10,400.0	90.57	180.10	7,055.1	-3,412.8	783.7	3,495.7	0.00	0.00	0.00
10,440.0	90.57	180.10	7,054.7	-3,452.8	783.6	3,535.1	0.00	0.00	0.00
10,480.0	90.57	180.10	7,054.3	-3,492.8	783.5	3,574.5	0.00	0.00	0.00
10,520.0	90.57	180.10	7,053.9	-3,532.8	783.5	3,614.0	0.00	0.00	0.00
10,560.0	90.57	180.10	7,053.5	-3,572.8	783.4	3,653.4	0.00	0.00	0.00
10,600.0	90.57	180.10	7,053.1	-3,612.8	783.3	3,692.8	0.00	0.00	0.00
10,640.0	90.57	180.10	7,052.7	-3,652.8	783.3	3,732.2	0.00	0.00	0.00
10,680.0	90.57	180.10	7,052.3	-3,692.8	783.2	3,771.7	0.00	0.00	0.00
10,720.0	90.57	180.10	7,051.9	-3,732.8	783.1	3,811.1	0.00	0.00	0.00
10,760.0	90.57	180.10	7,051.5	-3,772.8	783.1	3,850.5	0.00	0.00	0.00
10,800.0	90.57	180.10	7,051.1	-3,812.8	783.0	3,890.0	0.00	0.00	0.00
10,840.0	90.57	180.10	7,050.7	-3,852.8	782.9	3,929.4	0.00	0.00	0.00
10,880.0	90.57	180.10	7,050.3	-3,892.8	782.8	3,968.8	0.00	0.00	0.00
10,920.0	90.57	180.10	7,049.9	-3,932.8	782.8	4,008.2	0.00	0.00	0.00
10,960.0	90.57	180.10	7,049.5	-3,972.8	782.7	4,047.7	0.00	0.00	0.00
11,000.0	90.57	180.10	7,049.1	-4,012.8	782.6	4,087.1	0.00	0.00	0.00
11,040.0	90.57	180.10	7,048.7	-4,052.8	782.6	4,126.5	0.00	0.00	0.00
11,080.0	90.57	180.10	7,048.3	-4,092.8	782.5	4,166.0	0.00	0.00	0.00
11,120.0	90.57	180.10	7,048.0	-4,132.8	782.4	4,205.4	0.00	0.00	0.00
11,160.0	90.57	180.10	7,047.6	-4,172.8	782.3	4,244.8	0.00	0.00	0.00
11,200.0	90.57	180.10	7,047.2	-4,212.8	782.3	4,284.2	0.00	0.00	0.00
11,240.0	90.57	180.10	7,046.8	-4,252.8	782.2	4,323.7	0.00	0.00	0.00
11,280.0	90.57	180.10	7,046.4	-4,292.8	782.1	4,363.1	0.00	0.00	0.00
11,320.0	90.57	180.10	7,046.0	-4,332.8	782.1	4,402.5	0.00	0.00	0.00
11,360.0	90.57	180.10	7,045.6	-4,372.8	782.0	4,441.9	0.00	0.00	0.00
11,400.0	90.57	180.10	7,045.2	-4,412.8	781.9	4,481.4	0.00	0.00	0.00
11,440.0	90.57	180.10	7,044.8	-4,452.8	781.9	4,520.8	0.00	0.00	0.00
11,480.0	90.57	180.10	7,044.4	-4,492.8	781.8	4,560.2	0.00	0.00	0.00
11,520.0	90.57	180.10	7,044.0	-4,532.8	781.7	4,599.7	0.00	0.00	0.00
11,560.0	90.57	180.10	7,043.6	-4,572.8	781.6	4,639.1	0.00	0.00	0.00
11,600.0	90.57	180.10	7,043.2	-4,612.8	781.6	4,678.5	0.00	0.00	0.00
11,617.7	90.57	180.10	7,043.0	-4,630.5	781.5	4,696.0	0.00	0.00	0.00
BHL 500'FSL, 1230'FWL									

Database:	Landmark	Local Co-ordinate Reference:	Well Simonsen 12J-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Project:	SEC.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	North Reference:	True
Well:	Simonsen 12J-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (6-07-12)		

Targets

Target Name

- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
HARDLINE SHL 460'f	0.00	0.00	1.0	-254.0	-400.0	1,428,453.29	3,180,445.44	40.507693	-104.851068
- plan misses target center by 473.8ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			1.0	0.0	0.0	1,428,453.29	3,180,445.44		
Point 2			1.0	0.0	1,600.0	1,428,465.02	3,182,045.34		
BHL 500'FSL, 1230'F	0.00	0.00	7,043.0	-4,630.5	781.5	1,424,085.75	3,181,659.00	40.495680	-104.846820
- plan hits target center									
- Point									
HARDLINE BHL 460'f	0.00	0.00	1.0	-4,670.5	-200.0	1,424,038.53	3,180,677.82	40.495570	-104.850349
- plan misses target center by 4674.8ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			1.0	0.0	0.0	1,424,038.53	3,180,677.82		
Point 2			1.0	0.0	1,600.0	1,424,050.26	3,182,277.72		
SECTION LINE 206'N	0.00	0.00	1.0	206.0	-400.0	1,428,913.26	3,180,442.07	40.508955	-104.851068
- plan misses target center by 449.9ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			1.0	0.0	0.0	1,428,913.26	3,180,442.07		
Point 2			1.0	0.0	1,600.0	1,428,924.99	3,182,041.97		

Casing Points

Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(ft)	(ft)		(")	(")
7,602.6	7,082.9	7"	7	7-1/2

Plan Annotations

Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S	+E/-W	
(ft)	(ft)	(ft)	(ft)	
400.0	400.0	0.0	0.0	KOP #1
6,395.0	6,319.1	156.0	790.0	KOP #2
7,602.6	7,082.9	-615.6	788.6	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.12-T6N-R67W

Simonsen NWNW-12 Pad Sec.12-T6N-R67W

Simonsen 12J-243

Wellbore #1

Plan #1 (6-07-12)

Anticollision Report

25 June, 2012



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Simonsen 12J-243
Project:	SEC.12-T6N-R67W	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simonsen 12J-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 (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	11,617.7	Plan #1 (6-07-12) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Knievel 23-12D Pad Sec.12-T6N-R67W						
Knievel 12BD - Wellbore #1 - Wellbore #1	10,766.5	7,173.9	401.3	310.5	4.420	CC, ES
Knievel 12BD - Wellbore #1 - Wellbore #1	10,800.0	7,173.6	402.7	311.3	4.405	SF
Knievel 13-12D - Wellbore #1 - Wellbore #1	10,118.7	7,367.9	461.4	379.9	5.662	CC, ES
Knievel 13-12D - Wellbore #1 - Wellbore #1	10,200.0	7,367.1	468.5	385.5	5.644	SF
Knievel 14-12D - Wellbore #1 - Wellbore #1	11,421.2	7,397.9	448.7	336.1	3.984	CC, ES, SF
Knievel 23-12D - Wellbore #1 - Wellbore #1	10,099.2	7,117.4	840.8	763.2	10.842	CC
Knievel 23-12D - Wellbore #1 - Wellbore #1	10,100.0	7,117.4	840.8	763.2	10.840	ES
Knievel 23-12D - Wellbore #1 - Wellbore #1	10,300.0	7,113.7	864.4	783.1	10.634	SF
Knievel 24-12D - Wellbore #1 - Wellbore #1	11,453.4	7,197.7	866.1	756.4	7.897	CC, ES
Knievel 24-12D - Wellbore #1 - Wellbore #1	11,600.0	7,198.7	878.4	766.0	7.812	SF
Simonsen NWNW-12 Pad Sec.12-T6N-R67W						
Simonsen 1I-421 - Wellbore #1 - Plan #1 (6-07-12)	200.0	200.0	58.4	57.7	86.602	CC
Simonsen 1I-421 - Wellbore #1 - Plan #1 (6-07-12)	300.0	299.6	58.8	57.7	53.323	ES
Simonsen 1I-421 - Wellbore #1 - Plan #1 (6-07-12)	7,400.0	6,994.4	947.8	914.3	28.293	SF
Simonsen 1L-241 - Wellbore #1 - Plan #1 (6-07-12)	400.0	400.0	27.8	26.2	17.674	CC, ES
Simonsen 1L-241 - Wellbore #1 - Plan #1 (6-07-12)	7,111.6	7,069.1	276.8	244.8	8.658	SF

Offset Design	Knievel 23-12D Pad Sec.12-T6N-R67W - Knievel 12BD - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0 ft
Survey Program:	770-MWD											Offset Well Error:	0.0 ft
Reference	Vertical Depth (ft)	Measured Depth (ft)	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
9,900.0	7,060.1	7,179.9	7,072.5	59.9	21.2	-90.58	-3,780.0	1,184.4	954.9	880.3	74.63	12.796	
10,000.0	7,059.1	7,179.3	7,071.8	61.7	21.2	-90.48	-3,780.0	1,184.4	865.2	788.7	76.48	11.313	
10,100.0	7,058.1	7,178.6	7,071.2	63.5	21.2	-90.39	-3,780.0	1,184.4	778.0	699.7	78.34	9.931	
10,200.0	7,057.1	7,177.9	7,070.5	65.3	21.2	-90.29	-3,780.0	1,184.4	694.2	614.0	80.20	8.656	
10,300.0	7,056.1	7,177.2	7,069.8	67.2	21.2	-90.19	-3,780.0	1,184.4	615.4	533.3	82.06	7.499	
10,400.0	7,055.1	7,176.5	7,069.1	69.0	21.2	-90.09	-3,780.0	1,184.4	543.5	459.6	83.93	6.475	
10,500.0	7,054.1	7,175.8	7,068.4	70.9	21.2	-89.99	-3,780.0	1,184.4	481.8	396.0	85.80	5.615	
10,600.0	7,053.1	7,175.1	7,067.7	72.7	21.2	-89.88	-3,780.0	1,184.4	434.5	346.8	87.68	4.956	
10,700.0	7,052.1	7,174.3	7,066.9	74.5	21.2	-89.78	-3,780.0	1,184.4	406.8	317.3	89.55	4.543	
10,766.5	7,051.5	7,173.9	7,066.4	75.8	21.2	-89.71	-3,780.0	1,184.4	401.3	310.5	90.80	4.420	CC, ES

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 Simonsen 12J-243
Project:	SEC.12-T6N-R67W	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simonsen 12J-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 (6-07-12)	Offset TVD Reference:	Offset Datum

Offset Design Knieval 23-12D Pad Sec.12-T6N-R67W - Knieval 12BD - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 770-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)			
10,800.0	7,051.1	7,173.6	7,066.2	76.4	21.2	-89.67	-3,780.0	1,184.4	402.7	311.3	91.43	4.405 SF	
10,900.0	7,050.1	7,172.9	7,065.4	78.3	21.2	-89.57	-3,780.0	1,184.4	423.0	329.7	93.31	4.533	
11,000.0	7,049.1	7,172.1	7,064.7	80.1	21.2	-89.46	-3,780.0	1,184.4	464.3	369.1	95.19	4.878	
11,100.0	7,048.2	7,171.3	7,063.9	82.0	21.2	-89.35	-3,780.0	1,184.4	521.8	424.7	97.07	5.376	
11,200.0	7,047.2	7,170.6	7,063.1	83.8	21.2	-89.24	-3,780.0	1,184.4	590.8	491.8	98.96	5.970	
11,300.0	7,046.2	7,169.8	7,062.3	85.7	21.2	-89.13	-3,780.0	1,184.4	667.6	566.8	100.84	6.620	
11,400.0	7,045.2	7,169.0	7,061.6	87.6	21.2	-89.01	-3,780.0	1,184.4	749.9	647.2	102.73	7.300	
11,500.0	7,044.2	7,168.2	7,060.7	89.4	21.2	-88.90	-3,780.0	1,184.4	836.1	731.5	104.62	7.992	
11,600.0	7,043.2	7,167.3	7,059.9	91.3	21.2	-88.78	-3,780.0	1,184.4	925.1	818.6	106.51	8.686	
11,617.7	7,043.0	7,167.2	7,059.8	91.6	21.2	-88.76	-3,780.0	1,184.4	941.1	834.2	106.84	8.808	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Simonsen 12J-243
Project:	SEC.12-T6N-R67W	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simonsen 12J-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 (6-07-12)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 705-MWD													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)						
9,300.0	7,066.1	7,375.9	7,076.1	49.2	36.0	90.27	-3,130.6	322.7	939.7	873.3	66.44	14.144		
9,400.0	7,065.1	7,374.9	7,075.1	51.0	36.0	90.15	-3,130.6	322.7	854.0	785.8	68.26	12.512		
9,500.0	7,064.1	7,374.0	7,074.2	52.7	36.0	90.03	-3,130.6	322.7	771.8	701.7	70.08	11.012		
9,600.0	7,063.1	7,373.0	7,073.2	54.5	36.0	89.91	-3,130.6	322.7	694.2	622.3	71.91	9.653		
9,700.0	7,062.1	7,372.0	7,072.2	56.3	36.0	89.79	-3,130.6	322.7	623.0	549.3	73.75	8.448		
9,800.0	7,061.1	7,371.0	7,071.3	58.1	36.0	89.67	-3,130.6	322.8	560.8	485.2	75.59	7.418		
9,900.0	7,060.1	7,370.1	7,070.3	59.9	36.0	89.55	-3,130.6	322.8	510.6	433.2	77.44	6.594		
10,000.0	7,059.1	7,369.1	7,069.3	61.7	36.0	89.43	-3,130.6	322.8	476.4	397.1	79.29	6.009		
10,100.0	7,058.1	7,368.1	7,068.3	63.5	36.0	89.31	-3,130.6	322.8	461.8	380.7	81.15	5.691		
10,118.7	7,057.9	7,367.9	7,068.2	63.9	36.0	89.28	-3,130.6	322.8	461.4	379.9	81.50	5.662 CC, ES		
10,200.0	7,057.1	7,367.1	7,067.4	65.3	36.0	89.19	-3,130.6	322.8	468.5	385.5	83.01	5.644 SF		
10,300.0	7,056.1	7,366.2	7,066.4	67.2	36.0	89.07	-3,130.6	322.8	495.8	410.9	84.87	5.841		
10,400.0	7,055.1	7,365.2	7,065.4	69.0	36.0	88.94	-3,130.6	322.8	540.4	453.7	86.74	6.230		
10,500.0	7,054.1	7,364.2	7,064.4	70.9	36.0	88.82	-3,130.6	322.8	598.6	510.0	88.61	6.755		
10,600.0	7,053.1	7,363.2	7,063.4	72.7	36.0	88.70	-3,130.6	322.9	666.8	576.3	90.48	7.369		
10,700.0	7,052.1	7,362.2	7,062.5	74.5	36.0	88.58	-3,130.6	322.9	742.2	649.8	92.35	8.036		
10,800.0	7,051.1	7,361.3	7,061.5	76.4	36.0	88.46	-3,130.6	322.9	822.9	728.6	94.23	8.733		
10,900.0	7,050.1	7,360.3	7,060.5	78.3	36.0	88.33	-3,130.6	322.9	907.4	811.3	96.11	9.441		
11,000.0	7,049.1	7,359.3	7,059.5	80.1	36.0	88.21	-3,130.6	322.9	994.8	896.8	97.98	10.152		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Simonsen 12J-243
Project:	SEC.12-T6N-R67W	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simonsen 12J-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 (6-07-12)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 119-MWD												Offset Well Error:	0.0 ft
Reference													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,600.0	7,053.1	7,401.8	7,058.3	72.7	38.8	89.41	-4,433.1	333.2	935.8	838.6	97.17	9.630	
10,700.0	7,052.1	7,401.3	7,057.9	74.5	38.8	89.35	-4,433.1	333.2	849.4	750.3	99.05	8.575	
10,800.0	7,051.1	7,400.9	7,057.4	76.4	38.8	89.29	-4,433.1	333.2	766.3	665.4	100.93	7.592	
10,900.0	7,050.1	7,400.4	7,057.0	78.3	38.8	89.23	-4,433.1	333.2	687.7	584.9	102.81	6.689	
11,000.0	7,049.1	7,399.9	7,056.5	80.1	38.8	89.18	-4,433.1	333.2	615.4	510.7	104.69	5.879	
11,100.0	7,048.2	7,399.5	7,056.0	82.0	38.8	89.11	-4,433.1	333.2	551.8	445.2	106.57	5.178	
11,200.0	7,047.2	7,399.0	7,055.5	83.8	38.8	89.05	-4,433.1	333.2	500.3	391.8	108.46	4.613	
11,300.0	7,046.2	7,398.5	7,055.1	85.7	38.8	88.99	-4,433.1	333.2	464.8	354.4	110.34	4.212	
11,400.0	7,045.2	7,398.0	7,054.6	87.6	38.8	88.93	-4,433.1	333.2	449.2	337.0	112.23	4.003	
11,421.2	7,045.0	7,397.9	7,054.4	88.0	38.8	88.91	-4,433.1	333.2	448.7	336.1	112.63	3.984 CC, ES, SF	
11,500.0	7,044.2	7,397.5	7,054.0	89.4	38.8	88.86	-4,433.1	333.3	455.6	341.5	114.12	3.992	
11,600.0	7,043.2	7,397.0	7,053.5	91.3	38.8	88.80	-4,433.1	333.3	483.0	367.0	116.01	4.164	
11,617.7	7,043.0	7,396.9	7,053.4	91.6	38.8	88.78	-4,433.1	333.3	489.9	373.5	116.34	4.211	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Simonsen 12J-243
Project:	SEC.12-T6N-R67W	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simonsen 12J-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 (6-07-12)	Offset TVD Reference:	Offset Datum

Offset Design Knievel 23-12D Pad Sec.12-T6N-R67W - Knievel 23-12D - Wellbore #1 - Wellbore #1											Offset Site Error:		0.0 ft
Survey Program: 738-MWD											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
9,600.0	7,063.1	7,126.4	7,082.8	54.5	16.6	-90.59	-3,113.5	1,625.0	977.8	909.5	68.32	14.312	
9,700.0	7,062.1	7,124.6	7,081.0	56.3	16.6	-90.47	-3,113.5	1,625.0	930.7	860.6	70.16	13.266	
9,800.0	7,061.1	7,122.8	7,079.2	58.1	16.6	-90.35	-3,113.5	1,625.0	892.4	820.4	72.00	12.395	
9,900.0	7,060.1	7,121.0	7,077.4	59.9	16.5	-90.22	-3,113.5	1,625.0	864.0	790.2	73.85	11.700	
10,000.0	7,059.1	7,119.2	7,075.6	61.7	16.5	-90.10	-3,113.6	1,625.0	846.6	770.9	75.70	11.183	
10,099.2	7,058.1	7,117.4	7,073.8	63.5	16.5	-89.98	-3,113.6	1,625.0	840.8	763.2	77.55	10.842 CC	
10,100.0	7,058.1	7,117.4	7,073.8	63.5	16.5	-89.98	-3,113.6	1,625.0	840.8	763.2	77.56	10.840 ES	
10,200.0	7,057.1	7,115.6	7,071.9	65.3	16.5	-89.85	-3,113.6	1,625.0	846.8	767.4	79.42	10.662	
10,300.0	7,056.1	7,113.7	7,070.1	67.2	16.5	-89.73	-3,113.6	1,625.0	864.4	783.1	81.29	10.634 SF	
10,400.0	7,055.1	7,111.9	7,068.3	69.0	16.5	-89.60	-3,113.6	1,625.0	892.9	809.8	83.15	10.739	
10,500.0	7,054.1	7,110.0	7,066.4	70.9	16.5	-89.48	-3,113.6	1,625.0	931.4	846.4	85.02	10.954	
10,600.0	7,053.1	7,108.2	7,064.6	72.7	16.5	-89.35	-3,113.6	1,625.0	978.6	891.7	86.89	11.261	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Simonsen 12J-243
Project:	SEC.12-T6N-R67W	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simonsen 12J-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 (6-07-12)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 743-MWD												Offset Well Error:	0.0 ft
Reference													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,000.0	7,049.1	7,194.6	7,075.3	80.1	22.8	-90.83	-4,467.9	1,647.9	977.6	876.5	101.14	9.667	
11,100.0	7,048.2	7,195.3	7,075.9	82.0	22.8	-90.88	-4,467.9	1,647.9	935.5	832.4	103.02	9.081	
11,200.0	7,047.2	7,196.0	7,076.6	83.8	22.8	-90.93	-4,467.9	1,647.8	902.4	797.5	104.90	8.603	
11,300.0	7,046.2	7,196.7	7,077.3	85.7	22.8	-90.97	-4,467.9	1,647.8	879.6	772.8	106.79	8.237	
11,400.0	7,045.2	7,197.4	7,078.0	87.6	22.8	-91.02	-4,467.9	1,647.8	867.8	759.1	108.68	7.985	
11,453.4	7,044.6	7,197.7	7,078.3	88.6	22.8	-91.04	-4,467.9	1,647.8	866.1	756.4	109.69	7.897 CC, ES	
11,500.0	7,044.2	7,198.0	7,078.7	89.4	22.8	-91.06	-4,467.9	1,647.8	867.4	756.8	110.56	7.845	
11,600.0	7,043.2	7,198.7	7,079.3	91.3	22.8	-91.10	-4,467.9	1,647.8	878.4	766.0	112.45	7.812 SF	
11,617.7	7,043.0	7,198.8	7,079.4	91.6	22.8	-91.11	-4,467.9	1,647.8	881.6	768.8	112.79	7.816	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Simonsen 12J-243
Project:	SEC.12-T6N-R67W	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simonsen 12J-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 (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
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	0.0	0.0	0.0	0.0	-90.01	-90.01	0.0	-58.4	58.4				
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	-90.01	0.0	-58.4	58.4	58.2	0.22	259.807	
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	-90.01	0.0	-58.4	58.4	57.7	0.67	86.602 CC	
300.0	300.0	299.6	299.5	0.6	0.5	-91.66	-91.66	-1.7	-58.7	58.8	57.7	1.10	53.323 ES	
400.0	400.0	398.9	398.7	0.8	0.7	-96.47	-96.47	-6.8	-59.7	60.1	58.6	1.54	39.176	
500.0	500.0	497.7	497.2	1.0	1.0	177.38	177.38	-15.2	-61.4	65.1	63.1	1.99	32.629	
600.0	599.8	596.9	595.8	1.2	1.3	170.55	170.55	-25.0	-63.4	75.1	72.7	2.47	30.421	
700.0	699.5	695.6	694.1	1.5	1.5	165.90	165.90	-34.8	-65.4	89.3	86.4	2.95	30.309	
800.0	798.7	793.9	791.8	1.7	1.8	163.04	163.04	-44.6	-67.3	107.2	103.8	3.43	31.271	
900.0	897.5	891.5	889.0	2.0	2.1	161.45	161.45	-54.2	-69.2	128.6	124.7	3.92	32.814	
964.5	960.8	954.1	951.2	2.3	2.3	160.89	160.89	-60.5	-70.5	144.1	139.8	4.24	33.995	
1,000.0	995.7	988.5	985.4	2.4	2.4	160.73	160.73	-63.9	-71.2	153.0	148.5	4.42	34.634	
1,100.0	1,093.7	1,085.3	1,081.8	2.8	2.7	160.36	160.36	-73.5	-73.1	178.0	173.1	4.93	36.133	
1,200.0	1,191.8	1,182.1	1,178.1	3.2	3.0	160.08	160.08	-83.1	-75.0	203.1	197.6	5.45	37.294	
1,300.0	1,289.9	1,278.9	1,274.4	3.6	3.2	159.86	159.86	-92.7	-76.9	228.2	222.2	5.97	38.207	
1,400.0	1,387.9	1,375.7	1,370.7	4.0	3.5	159.69	159.69	-102.3	-78.9	253.2	246.7	6.50	38.954	
1,500.0	1,486.0	1,472.5	1,467.0	4.4	3.8	159.55	159.55	-111.9	-80.8	278.3	271.3	7.03	39.565	
1,600.0	1,584.1	1,569.3	1,563.3	4.8	4.1	159.43	159.43	-121.5	-82.7	303.4	295.8	7.57	40.074	
1,700.0	1,682.1	1,666.1	1,659.6	5.3	4.4	159.33	159.33	-131.1	-84.6	328.4	320.3	8.11	40.505	
1,800.0	1,780.2	1,762.9	1,755.9	5.7	4.7	159.24	159.24	-140.7	-86.5	353.5	344.9	8.65	40.874	
1,900.0	1,878.3	1,859.7	1,852.2	6.1	5.0	159.16	159.16	-150.3	-88.5	378.6	369.4	9.19	41.192	
2,000.0	1,976.3	1,956.5	1,948.5	6.6	5.3	159.10	159.10	-160.0	-90.4	403.7	393.9	9.73	41.469	
2,100.0	2,074.4	2,053.3	2,044.8	7.0	5.5	159.04	159.04	-169.6	-92.3	428.8	418.5	10.28	41.713	
2,200.0	2,172.4	2,150.1	2,141.1	7.4	5.8	158.99	158.99	-179.2	-94.2	453.8	443.0	10.82	41.928	
2,300.0	2,270.5	2,247.0	2,237.4	7.8	6.1	158.94	158.94	-188.8	-96.1	478.9	467.5	11.37	42.120	
2,400.0	2,368.6	2,343.8	2,333.7	8.3	6.4	158.90	158.90	-198.4	-98.1	504.0	492.1	11.92	42.292	
2,500.0	2,466.6	2,440.6	2,430.0	8.7	6.7	158.86	158.86	-208.0	-100.0	529.1	516.6	12.46	42.447	
2,600.0	2,564.7	2,537.4	2,526.4	9.1	7.0	158.83	158.83	-217.6	-101.9	554.1	541.1	13.01	42.587	
2,700.0	2,662.8	2,634.2	2,622.7	9.6	7.3	158.80	158.80	-227.2	-103.8	579.2	565.7	13.56	42.714	
2,800.0	2,760.8	2,731.0	2,719.0	10.0	7.6	158.77	158.77	-236.8	-105.8	604.3	590.2	14.11	42.830	
2,900.0	2,858.9	2,827.8	2,815.3	10.5	7.9	158.74	158.74	-246.4	-107.7	629.4	614.7	14.66	42.936	
3,000.0	2,957.0	2,924.6	2,911.6	10.9	8.2	158.72	158.72	-256.0	-109.6	654.5	639.3	15.21	43.034	
3,100.0	3,055.0	3,021.4	3,007.9	11.3	8.4	158.70	158.70	-265.6	-111.5	679.5	663.8	15.76	43.124	
3,200.0	3,153.1	3,118.2	3,104.2	11.8	8.7	158.67	158.67	-275.3	-113.4	704.6	688.3	16.31	43.207	
3,300.0	3,251.2	3,215.0	3,200.5	12.2	9.0	158.65	158.65	-284.9	-115.4	729.7	712.8	16.86	43.284	
3,400.0	3,349.2	3,311.8	3,296.8	12.6	9.3	158.64	158.64	-294.5	-117.3	754.8	737.4	17.41	43.356	
3,500.0	3,447.3	3,408.6	3,393.1	13.1	9.6	158.62	158.62	-304.1	-119.2	779.9	761.9	17.96	43.422	
3,600.0	3,545.4	3,505.4	3,489.4	13.5	9.9	158.60	158.60	-313.7	-121.1	804.9	786.4	18.51	43.484	
3,700.0	3,643.4	3,602.2	3,585.7	13.9	10.2	158.59	158.59	-323.3	-123.1	830.0	811.0	19.06	43.543	
3,800.0	3,741.5	3,699.0	3,682.0	14.4	10.5	158.57	158.57	-332.9	-125.0	855.1	835.5	19.61	43.597	
3,900.0	3,839.6	3,795.8	3,778.3	14.8	10.8	158.56	158.56	-342.5	-126.9	880.2	860.0	20.17	43.648	
4,000.0	3,937.6	3,892.6	3,874.6	15.2	11.1	158.55	158.55	-352.1	-128.8	905.3	884.5	20.72	43.696	
4,100.0	4,035.7	3,989.4	3,970.9	15.7	11.3	158.54	158.54	-361.7	-130.7	930.3	909.1	21.27	43.741	
4,200.0	4,133.7	4,086.2	4,067.3	16.1	11.6	158.52	158.52	-371.3	-132.7	955.4	933.6	21.82	43.784	
4,300.0	4,231.8	4,183.0	4,163.6	16.5	11.9	158.51	158.51	-380.9	-134.6	980.5	958.1	22.37	43.824	
6,850.0	6,747.6	7,006.2	6,952.9	20.9	15.7	83.15	83.15	-247.6	-138.0	988.4	957.6	30.85	32.038	
6,900.0	6,788.1	7,030.2	6,971.9	21.0	15.7	85.78	85.78	-232.9	-138.0	972.8	941.8	31.01	31.368	
6,950.0	6,826.5	7,045.1	6,983.4	21.0	15.7	87.75	87.75	-223.5	-138.0	959.1	928.0	31.17	30.772	
7,000.0	6,862.8	7,053.0	6,989.4	21.1	15.7	89.12	89.12	-218.4	-138.0	947.7	916.3	31.33	30.250	
7,050.0	6,896.7	7,055.6	6,991.4	21.1	15.7	89.96	89.96	-216.7	-138.0	938.7	907.2	31.50	29.801	
7,100.0	6,928.2	7,054.1	6,990.3	21.2	15.7	90.36	90.36	-217.7	-138.0	932.2	900.5	31.69	29.419	

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 Simonsen 12J-243
Project:	SEC.12-T6N-R67W	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simonsen 12J-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 (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
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	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
7,150.0	6,957.0	7,049.3	6,986.6	21.3	15.7	90.35	-220.8	-138.0	928.4	896.5	31.91	29.095	
7,196.1	6,981.2	7,042.5	6,981.4	21.5	15.7	90.02	-225.1	-138.0	927.3	895.2	32.15	28.843	
7,200.0	6,983.1	7,041.9	6,980.9	21.5	15.7	89.98	-225.5	-138.0	927.3	895.2	32.17	28.825	
7,250.0	7,006.4	7,032.3	6,973.5	21.7	15.7	89.29	-231.6	-138.0	928.8	896.4	32.47	28.607	
7,300.0	7,026.7	7,021.1	6,964.7	21.9	15.7	88.31	-238.6	-138.0	932.8	900.0	32.80	28.443	
7,350.0	7,044.0	7,008.3	6,954.6	22.1	15.7	87.08	-246.3	-138.0	939.2	906.1	33.15	28.336	
7,400.0	7,058.2	6,994.4	6,943.4	22.4	15.7	85.62	-254.6	-138.1	947.8	914.3	33.50	28.293 SF	
7,450.0	7,069.3	6,979.5	6,931.2	22.7	15.7	83.96	-263.2	-138.1	958.4	924.6	33.84	28.319	
7,500.0	7,077.1	6,963.6	6,918.1	23.1	15.7	82.14	-272.1	-138.1	970.9	936.7	34.16	28.422	
7,550.0	7,081.7	6,950.0	6,906.7	23.5	15.8	80.33	-279.6	-138.1	984.9	950.4	34.44	28.595	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Simonsen 12J-243
Project:	SEC.12-T6N-R67W	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simonsen 12J-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 (6-07-12)	Offset TVD Reference:	Offset Datum

Offset Design													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)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.02	-90.02	0.0	-27.8	27.8				
100.0	100.0	100.0	100.0	0.1	0.1	-90.02	-90.02	0.0	-27.8	27.8	27.6	0.22	123.717	
200.0	200.0	200.0	200.0	0.3	0.3	-90.02	-90.02	0.0	-27.8	27.8	27.1	0.67	41.239	
300.0	300.0	300.0	300.0	0.6	0.6	-90.02	-90.02	0.0	-27.8	27.8	26.7	1.12	24.743	
400.0	400.0	400.0	400.0	0.8	0.8	-90.02	-90.02	0.0	-27.8	27.8	26.2	1.57	17.674 CC, ES	
500.0	500.0	500.0	500.0	1.0	1.0	-169.50	-169.50	0.0	-27.8	29.5	27.5	2.02	14.646	
600.0	599.8	599.8	599.8	1.2	1.2	-171.06	-171.06	0.0	-27.8	34.7	32.2	2.46	14.125	
700.0	699.5	699.5	699.5	1.5	1.5	-172.83	-172.83	0.0	-27.8	43.3	40.4	2.90	14.940	
800.0	798.7	798.7	798.7	1.7	1.7	-174.38	-174.38	0.0	-27.8	55.4	52.1	3.34	16.571	
900.0	897.5	897.5	897.5	2.0	1.9	-175.59	-175.59	0.0	-27.8	71.0	67.2	3.79	18.728	
964.5	960.8	960.8	960.8	2.3	2.0	-176.21	-176.21	0.0	-27.8	82.9	78.8	4.08	20.315	
1,000.0	995.7	995.7	995.7	2.4	2.1	-176.50	-176.50	0.0	-27.8	89.8	85.6	4.24	21.181	
1,100.0	1,093.7	1,093.7	1,093.7	2.8	2.3	-177.13	-177.13	0.0	-27.8	109.4	104.7	4.70	23.285	
1,200.0	1,191.8	1,191.8	1,191.8	3.2	2.6	-177.56	-177.56	0.0	-27.8	128.9	123.8	5.16	24.994	
1,300.0	1,289.9	1,289.9	1,289.9	3.6	2.8	-177.88	-177.88	0.0	-27.8	148.5	142.9	5.62	26.408	
1,400.0	1,387.9	1,387.9	1,387.9	4.0	3.0	-178.13	-178.13	0.0	-27.8	168.1	162.0	6.09	27.595	
1,500.0	1,486.0	1,486.0	1,486.0	4.4	3.2	-178.32	-178.32	0.0	-27.8	187.6	181.1	6.56	28.604	
1,600.0	1,584.1	1,588.5	1,588.4	4.8	3.4	-178.77	-178.77	-0.8	-26.7	206.3	199.3	7.02	29.396	
1,700.0	1,682.1	1,692.4	1,692.2	5.3	3.6	-179.84	-179.84	-3.9	-22.6	222.6	215.1	7.46	29.836	
1,800.0	1,780.2	1,796.8	1,796.2	5.7	3.8	-178.54	-178.54	-9.1	-15.5	236.6	228.7	7.92	29.882	
1,900.0	1,878.3	1,901.4	1,900.1	6.1	4.1	-176.43	-176.43	-16.7	-5.2	248.4	240.0	8.40	29.575	
2,000.0	1,976.3	2,006.0	2,003.4	6.6	4.3	-173.85	-173.85	-26.5	8.0	258.3	249.4	8.92	28.958	
2,100.0	2,074.4	2,109.3	2,104.7	7.0	4.6	-170.84	-170.84	-38.4	24.0	266.7	257.2	9.50	28.086	
2,200.0	2,172.4	2,208.0	2,201.3	7.4	4.9	-167.93	-167.93	-50.5	40.3	275.1	265.0	10.12	27.201	
2,300.0	2,270.5	2,306.7	2,297.9	7.8	5.3	-165.20	-165.20	-62.5	56.6	284.2	273.4	10.77	26.380	
2,400.0	2,368.6	2,405.3	2,394.5	8.3	5.6	-162.64	-162.64	-74.6	72.8	293.9	282.4	11.47	25.619	
2,500.0	2,466.6	2,504.0	2,491.1	8.7	6.0	-160.25	-160.25	-86.6	89.1	304.1	291.9	12.20	24.924	
2,600.0	2,564.7	2,602.7	2,587.6	9.1	6.3	-158.01	-158.01	-98.7	105.4	314.9	301.9	12.96	24.295	
2,700.0	2,662.8	2,701.4	2,684.2	9.6	6.7	-155.92	-155.92	-110.7	121.6	326.1	312.3	13.74	23.729	
2,800.0	2,760.8	2,800.1	2,780.8	10.0	7.1	-153.97	-153.97	-122.8	137.9	337.7	323.1	14.54	23.220	
2,900.0	2,858.9	2,898.8	2,877.4	10.5	7.5	-152.15	-152.15	-134.8	154.2	349.6	334.3	15.36	22.766	
3,000.0	2,957.0	2,997.4	2,974.0	10.9	7.9	-150.45	-150.45	-146.9	170.4	361.9	345.7	16.19	22.360	
3,100.0	3,055.0	3,096.1	3,070.6	11.3	8.3	-148.87	-148.87	-158.9	186.7	374.5	357.5	17.02	21.999	
3,200.0	3,153.1	3,194.8	3,167.1	11.8	8.8	-147.38	-147.38	-171.0	203.0	387.3	369.5	17.87	21.677	
3,300.0	3,251.2	3,293.5	3,263.7	12.2	9.2	-145.99	-145.99	-183.0	219.2	400.4	381.7	18.72	21.389	
3,400.0	3,349.2	3,392.2	3,360.3	12.6	9.6	-144.69	-144.69	-195.1	235.5	413.8	394.2	19.58	21.133	
3,500.0	3,447.3	3,490.8	3,456.9	13.1	10.0	-143.47	-143.47	-207.1	251.8	427.3	406.8	20.44	20.904	
3,600.0	3,545.4	3,589.5	3,553.5	13.5	10.5	-142.32	-142.32	-219.2	268.0	440.9	419.6	21.30	20.700	
3,700.0	3,643.4	3,688.2	3,650.1	13.9	10.9	-141.25	-141.25	-231.2	284.3	454.8	432.6	22.17	20.516	
3,800.0	3,741.5	3,786.9	3,746.6	14.4	11.3	-140.24	-140.24	-243.3	300.6	468.8	445.8	23.03	20.352	
3,900.0	3,839.6	3,885.6	3,843.2	14.8	11.8	-139.28	-139.28	-255.3	316.8	482.9	459.0	23.90	20.205	
4,000.0	3,937.6	3,984.3	3,939.8	15.2	12.2	-138.38	-138.38	-267.4	333.1	497.2	472.4	24.77	20.072	
4,100.0	4,035.7	4,082.9	4,036.4	15.7	12.6	-137.53	-137.53	-279.4	349.4	511.6	485.9	25.64	19.953	
4,200.0	4,133.7	4,181.6	4,133.0	16.1	13.1	-136.73	-136.73	-291.5	365.7	526.1	499.6	26.51	19.845	
4,300.0	4,231.8	4,280.3	4,229.6	16.5	13.5	-135.97	-135.97	-303.5	381.9	540.6	513.3	27.38	19.748	
4,400.0	4,329.9	4,379.0	4,326.1	17.0	13.9	-135.25	-135.25	-315.6	398.2	555.3	527.1	28.24	19.660	
4,500.0	4,427.9	4,477.7	4,422.7	17.4	14.4	-134.56	-134.56	-327.6	414.5	570.1	540.9	29.11	19.581	
4,511.4	4,439.2	4,489.0	4,433.8	17.5	14.4	-134.49	-134.49	-329.0	416.3	571.7	542.5	29.21	19.572	
4,600.0	4,526.3	4,576.4	4,519.4	17.8	14.8	-133.99	-133.99	-339.7	430.7	583.9	554.0	29.96	19.492	
4,700.0	4,625.2	4,675.2	4,616.1	18.1	15.3	-133.21	-133.21	-351.7	447.0	595.6	564.8	30.74	19.375	
4,800.0	4,724.5	4,774.1	4,712.8	18.3	15.7	-132.19	-132.19	-363.8	463.3	605.0	573.5	31.50	19.206	

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 Simonsen 12J-243
Project:	SEC.12-T6N-R67W	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simonsen 12J-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 (6-07-12)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Simonsen NWNW-12 Pad Sec.12-T6N-R67W - Simonsen 1L-241 - Wellbore #1 - Plan #1 (6-07-12)													
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)					
4,900.0	4,824.2	4,875.2	4,812.2	18.5	16.1	131.07	-375.1	478.6	612.2	580.1	32.12	19.058	
5,000.0	4,924.1	4,977.1	4,912.9	18.7	16.3	130.02	-384.4	491.1	617.0	584.3	32.65	18.896	
5,075.9	5,000.0	5,054.9	4,990.1	18.7	16.5	-151.92	-390.0	498.7	618.9	585.9	33.01	18.752	
5,100.0	5,024.1	5,079.7	5,014.7	18.8	16.6	-152.15	-391.5	500.8	619.3	586.2	33.12	18.701	
5,200.0	5,124.1	5,182.9	5,117.6	18.9	16.8	-152.92	-396.5	507.5	620.6	587.1	33.53	18.507	
5,300.0	5,224.1	5,286.6	5,221.1	19.0	17.0	-153.35	-399.4	511.3	621.4	587.5	33.89	18.336	
5,400.0	5,324.1	5,389.5	5,324.1	19.2	17.1	-153.45	-400.0	512.2	621.5	587.4	34.19	18.181	
5,500.0	5,424.1	5,489.5	5,424.1	19.3	17.3	-153.45	-400.0	512.2	621.5	587.1	34.47	18.031	
5,600.0	5,524.1	5,589.5	5,524.1	19.4	17.4	-153.45	-400.0	512.2	621.5	586.8	34.76	17.882	
5,700.0	5,624.1	5,689.5	5,624.1	19.6	17.6	-153.45	-400.0	512.2	621.5	586.5	35.05	17.734	
5,800.0	5,724.1	5,789.5	5,724.1	19.7	17.7	-153.45	-400.0	512.2	621.5	586.2	35.34	17.586	
5,900.0	5,824.1	5,889.5	5,824.1	19.8	17.8	-153.45	-400.0	512.2	621.5	585.9	35.64	17.439	
6,000.0	5,924.1	5,989.5	5,924.1	20.0	18.0	-153.45	-400.0	512.2	621.5	585.6	35.94	17.293	
6,100.0	6,024.1	6,089.5	6,024.1	20.1	18.1	-153.45	-400.0	512.2	621.5	585.3	36.25	17.148	
6,200.0	6,124.1	6,189.5	6,124.1	20.3	18.3	-153.45	-400.0	512.2	621.5	585.0	36.55	17.004	
6,300.0	6,224.1	6,289.5	6,224.1	20.4	18.4	-153.45	-400.0	512.2	621.5	584.7	36.86	16.861	
6,395.0	6,319.0	6,384.5	6,319.0	20.5	18.6	-153.45	-400.0	512.2	621.5	584.4	37.16	16.726	
6,400.0	6,324.1	6,389.5	6,324.1	20.5	18.6	26.45	-400.0	512.2	621.5	584.4	37.16	16.724	
6,450.0	6,374.0	6,439.5	6,374.0	20.6	18.7	26.59	-400.0	512.2	619.8	582.6	37.19	16.666	
6,500.0	6,423.7	6,610.8	6,543.9	20.7	18.8	28.54	-381.1	512.2	610.2	573.2	37.08	16.459	
6,550.0	6,473.0	6,756.5	6,682.1	20.7	18.8	33.11	-335.6	512.3	589.3	552.9	36.45	16.170	
6,600.0	6,521.6	6,866.8	6,779.6	20.7	18.7	39.98	-284.1	512.4	560.3	525.0	35.35	15.850	
6,650.0	6,569.4	6,945.8	6,844.3	20.8	18.6	48.65	-238.9	512.5	526.3	492.3	34.00	15.481	
6,700.0	6,616.0	7,000.7	6,886.4	20.8	18.6	58.23	-203.7	512.6	489.7	456.9	32.72	14.966	
6,750.0	6,661.4	7,037.8	6,913.3	20.8	18.5	67.63	-178.2	512.6	452.1	420.3	31.83	14.205	
6,800.0	6,705.4	7,061.9	6,930.2	20.9	18.5	75.87	-160.9	512.7	415.1	383.7	31.41	13.218	
6,850.0	6,747.6	7,076.6	6,940.2	20.9	18.5	82.40	-150.2	512.7	379.9	348.6	31.31	12.134	
6,900.0	6,788.1	7,084.1	6,945.2	21.0	18.5	87.08	-144.6	512.7	347.8	316.4	31.36	11.089	
6,950.0	6,826.5	7,086.3	6,946.7	21.0	18.5	90.04	-142.9	512.7	320.0	288.5	31.46	10.171	
7,000.0	6,862.8	7,084.4	6,945.4	21.1	18.5	91.47	-144.4	512.7	298.1	266.5	31.58	9.438	
7,050.0	6,896.7	7,079.1	6,941.9	21.1	18.5	91.55	-148.3	512.7	283.4	251.7	31.73	8.931	
7,100.0	6,928.2	7,071.3	6,936.6	21.2	18.5	90.43	-154.1	512.7	277.0	245.1	31.92	8.679	
7,111.6	6,935.1	7,069.1	6,935.1	21.3	18.5	90.01	-155.7	512.7	276.8	244.8	31.97	8.658 SF	
7,150.0	6,957.0	7,061.3	6,929.8	21.3	18.5	88.24	-161.4	512.7	279.3	247.2	32.13	8.694	
7,200.0	6,983.1	7,050.0	6,921.9	21.5	18.5	85.17	-169.5	512.6	289.8	257.5	32.32	8.967	
7,250.0	7,006.4	7,036.5	6,912.5	21.7	18.5	81.15	-179.1	512.6	307.3	274.9	32.42	9.479	
7,300.0	7,026.7	7,022.2	6,902.2	21.9	18.5	76.56	-189.1	512.6	330.5	298.1	32.35	10.217	
7,350.0	7,044.0	7,006.9	6,891.0	22.1	18.6	71.51	-199.5	512.6	357.7	325.7	31.99	11.181	
7,400.0	7,058.2	6,990.8	6,879.0	22.4	18.6	66.24	-210.3	512.6	387.9	356.6	31.32	12.387	
7,450.0	7,069.3	6,973.9	6,866.2	22.7	18.6	60.94	-221.3	512.5	420.1	389.8	30.31	13.857	
7,500.0	7,077.1	6,950.0	6,847.6	23.1	18.6	55.05	-236.3	512.5	453.5	424.7	28.83	15.729	
7,550.0	7,081.7	6,938.3	6,838.4	23.5	18.6	51.01	-243.5	512.5	487.4	459.8	27.58	17.671	
7,602.6	7,082.9	6,918.8	6,822.7	23.9	18.7	46.38	-255.1	512.5	523.3	497.3	26.00	20.132	
7,700.0	7,082.0	6,884.5	6,794.5	24.9	18.7	43.48	-274.6	512.4	592.5	566.6	25.85	22.922	
7,800.0	7,081.0	6,850.0	6,765.2	26.0	18.7	40.78	-292.9	512.4	668.1	642.3	25.79	25.906	
7,900.0	7,080.0	6,826.0	6,744.4	27.2	18.8	39.02	-304.8	512.4	747.3	721.2	26.07	28.661	
8,000.0	7,079.0	6,800.0	6,721.4	28.4	18.8	37.22	-317.0	512.4	829.5	803.2	26.35	31.488	
8,100.0	7,078.0	6,780.0	6,703.5	29.8	18.8	35.91	-325.8	512.3	914.2	887.3	26.81	34.102	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Simonsen 12J-243
Project:	SEC.12-T6N-R67W	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simonsen 12J-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 (6-07-12)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4863.0ft (RKB - Ensign 32 - Coordinates are relative to: Simonsen 12J-243
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °
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 12J-243
Project:	SEC.12-T6N-R67W	TVD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Reference Site:	Simonsen NWNW-12 Pad Sec.12-T6N-R67W	MD Reference:	WELL @ 4863.0ft (RKB - Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simonsen 12J-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 (6-07-12)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4863.0ft (RKB - Ensign 32 - Coordinates are relative to: Simonsen 12J-243
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.42°

