

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Peterson 14Y-304**

Surface Location: Peterson 14WX-HZ Pad Sec.14-T5N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

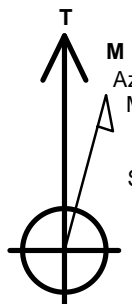
Ground Elevation: 4571.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1388502.84	3275960.19	40.395610	-104.509200	

RKB - 15' WELL @ 4586.0ft (RKB - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 1307'FSL & 310'FEL	1.0	0.0	0.0	Point
BHL 75'FSL, 500'FWL	6586.0	-1216.4	-4298.1	Point



Azimuths to True North
Magnetic North: 8.36°

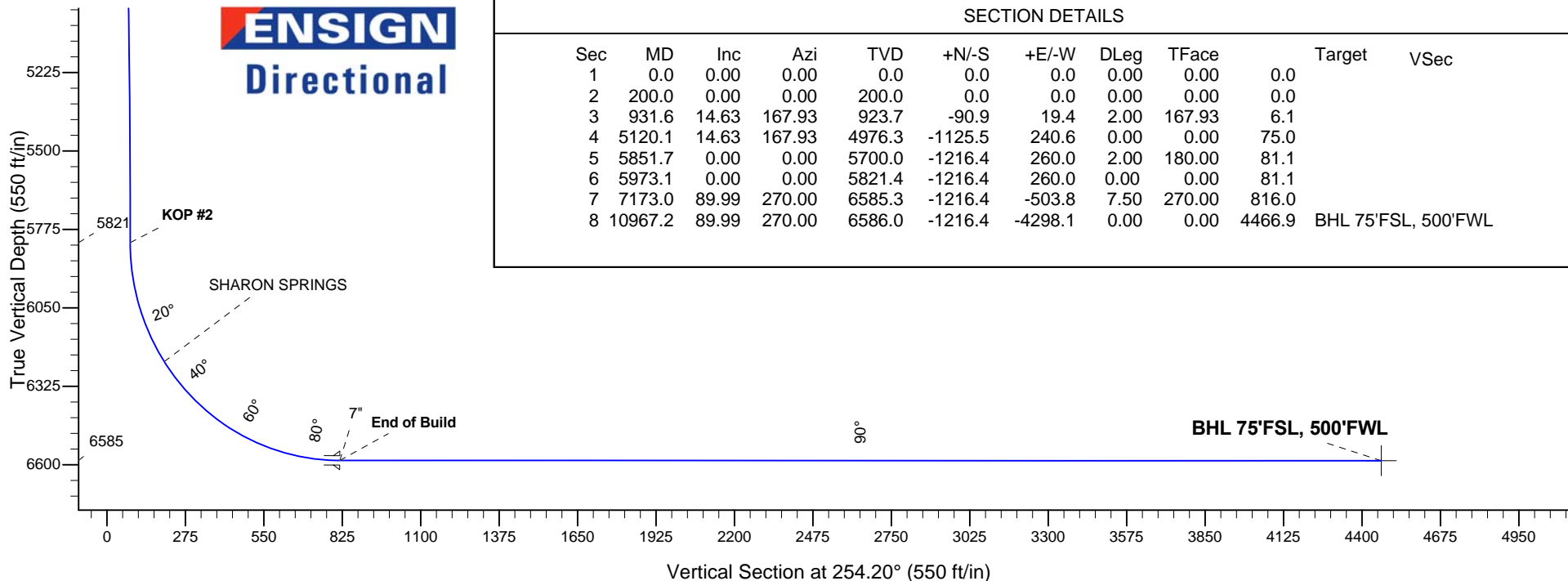
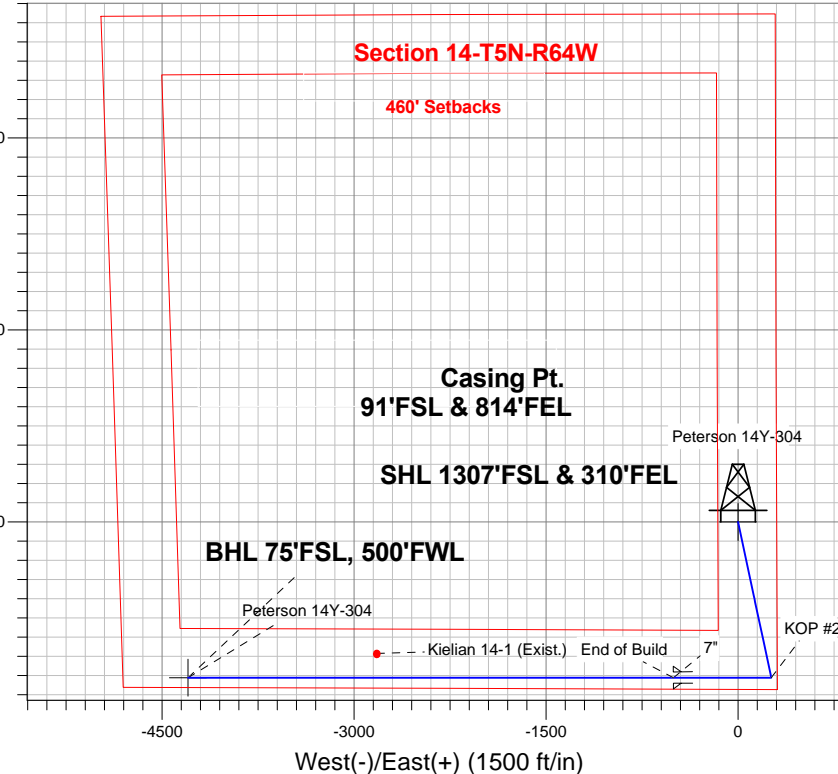
Magnetic Field
Strength: 52870.5snT
Dip Angle: 66.99°
Date: 3/7/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	KOP #1
5821.4	5973.1	KOP #2
6585.3	7173.0	End of Build

Peterson 14WX-HZ Pad Sec.14-T5N-R64W
Peterson 14Y-304
Plan #1 (3-07-14)
13:33, March 10 2014

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



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	931.6	14.63	167.93	923.7	-90.9	19.4	2.00	167.93	6.1	
4	5120.1	14.63	167.93	4976.3	-1125.5	240.6	0.00	0.00	75.0	
5	5851.7	0.00	0.00	5700.0	-1216.4	260.0	2.00	180.00	81.1	
6	5973.1	0.00	0.00	5821.4	-1216.4	260.0	0.00	0.00	81.1	
7	7173.0	89.99	270.00	6585.3	-1216.4	-503.8	7.50	270.00	816.0	
8	10967.2	89.99	270.00	6586.0	-1216.4	-4298.1	0.00	0.00	4466.9	BHL 75'FSL, 500'FWL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.14-T5N-R64W

Peterson 14WX-HZ Pad Sec.14-T5N-R64W

Peterson 14Y-304

Wellbore #1

Plan: Plan #1 (3-07-14)

Standard Planning Report

10 March, 2014

Database:	Landmark	Local Co-ordinate Reference:	Well Peterson 14Y-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4586.0ft (RKB - 15')
Project:	SEC.14-T5N-R64W	MD Reference:	WELL @ 4586.0ft (RKB - 15')
Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	North Reference:	True
Well:	Peterson 14Y-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-07-14)		

Project	SEC.14-T5N-R64W, Weld County, CO		
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						Peterson 14WX-HZ Pad Sec.14-T5N-R64W											
Site Position:						Northing:			1,388,684.96 ft			Latitude:			40.396110		
From:			Lat/Long			Easting:			3,275,955.37 ft			Longitude:			-104.509210		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.64 °		

Well	Peterson 14Y-304					
Well Position	+N/-S	-182.2 ft	Northing:	1,388,502.84 ft	Latitude:	40.395610
	+E/-W	2.8 ft	Easting:	3,275,960.19 ft	Longitude:	-104.509200
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,571.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/7/2014	8.36	66.99	52,870

Design	Plan #1 (3-07-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	254.20

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
931.6	14.63	167.93	923.7	-90.9	19.4	2.00	2.00	0.00	167.93	
5,120.1	14.63	167.93	4,976.3	-1,125.5	240.6	0.00	0.00	0.00	0.00	
5,851.7	0.00	0.00	5,700.0	-1,216.4	260.0	2.00	-2.00	0.00	180.00	
5,973.1	0.00	0.00	5,821.4	-1,216.4	260.0	0.00	0.00	0.00	0.00	
7,173.0	89.99	270.00	6,585.3	-1,216.4	-503.8	7.50	7.50	0.00	270.00	
10,967.2	89.99	270.00	6,586.0	-1,216.4	-4,298.1	0.00	0.00	0.00	0.00	BHL 75'FSL, 500'F

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Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	North Reference:	True
Well:	Peterson 14Y-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-07-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 1457'FSL, 310'FEL - SHL 1307'FSL & 310'FEL									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
300.0	2.00	167.93	300.0	-1.7	0.4	0.1	2.00	2.00	0.00
400.0	4.00	167.93	399.8	-6.8	1.5	0.5	2.00	2.00	0.00
500.0	6.00	167.93	499.5	-15.3	3.3	1.0	2.00	2.00	0.00
600.0	8.00	167.93	598.7	-27.3	5.8	1.8	2.00	2.00	0.00
700.0	10.00	167.93	697.5	-42.6	9.1	2.8	2.00	2.00	0.00
800.0	12.00	167.93	795.6	-61.2	13.1	4.1	2.00	2.00	0.00
900.0	14.00	167.93	893.1	-83.2	17.8	5.5	2.00	2.00	0.00
931.6	14.63	167.93	923.7	-90.9	19.4	6.1	2.00	2.00	0.00
1,000.0	14.63	167.93	989.9	-107.8	23.0	7.2	0.00	0.00	0.00
1,100.0	14.63	167.93	1,086.6	-132.5	28.3	8.8	0.00	0.00	0.00
1,200.0	14.63	167.93	1,183.4	-157.2	33.6	10.5	0.00	0.00	0.00
1,300.0	14.63	167.93	1,280.1	-181.9	38.9	12.1	0.00	0.00	0.00
1,400.0	14.63	167.93	1,376.9	-206.6	44.2	13.8	0.00	0.00	0.00
1,500.0	14.63	167.93	1,473.6	-231.3	49.4	15.4	0.00	0.00	0.00
1,600.0	14.63	167.93	1,570.4	-256.0	54.7	17.1	0.00	0.00	0.00
1,700.0	14.63	167.93	1,667.2	-280.7	60.0	18.7	0.00	0.00	0.00
1,800.0	14.63	167.93	1,763.9	-305.4	65.3	20.4	0.00	0.00	0.00
1,900.0	14.63	167.93	1,860.7	-330.1	70.6	22.0	0.00	0.00	0.00
2,000.0	14.63	167.93	1,957.4	-354.8	75.8	23.6	0.00	0.00	0.00
2,100.0	14.63	167.93	2,054.2	-379.5	81.1	25.3	0.00	0.00	0.00
2,200.0	14.63	167.93	2,150.9	-404.2	86.4	26.9	0.00	0.00	0.00
2,300.0	14.63	167.93	2,247.7	-428.9	91.7	28.6	0.00	0.00	0.00
2,400.0	14.63	167.93	2,344.5	-453.6	97.0	30.2	0.00	0.00	0.00
2,500.0	14.63	167.93	2,441.2	-478.3	102.2	31.9	0.00	0.00	0.00
2,600.0	14.63	167.93	2,538.0	-503.0	107.5	33.5	0.00	0.00	0.00
2,700.0	14.63	167.93	2,634.7	-527.7	112.8	35.2	0.00	0.00	0.00
2,800.0	14.63	167.93	2,731.5	-552.4	118.1	36.8	0.00	0.00	0.00
2,900.0	14.63	167.93	2,828.2	-577.1	123.4	38.5	0.00	0.00	0.00
3,000.0	14.63	167.93	2,925.0	-601.8	128.6	40.1	0.00	0.00	0.00
3,100.0	14.63	167.93	3,021.7	-626.5	133.9	41.8	0.00	0.00	0.00
3,200.0	14.63	167.93	3,118.5	-651.2	139.2	43.4	0.00	0.00	0.00
3,300.0	14.63	167.93	3,215.3	-675.9	144.5	45.1	0.00	0.00	0.00
3,400.0	14.63	167.93	3,312.0	-700.6	149.8	46.7	0.00	0.00	0.00
3,499.2	14.63	167.93	3,408.0	-725.1	155.0	48.3	0.00	0.00	0.00
PARKMAN									
3,500.0	14.63	167.93	3,408.8	-725.3	155.0	48.3	0.00	0.00	0.00
3,600.0	14.63	167.93	3,505.5	-750.0	160.3	50.0	0.00	0.00	0.00
3,700.0	14.63	167.93	3,602.3	-774.7	165.6	51.6	0.00	0.00	0.00
3,800.0	14.63	167.93	3,699.0	-799.4	170.9	53.3	0.00	0.00	0.00
3,900.0	14.63	167.93	3,795.8	-824.1	176.2	54.9	0.00	0.00	0.00
4,000.0	14.63	167.93	3,892.6	-848.8	181.4	56.6	0.00	0.00	0.00
4,100.0	14.63	167.93	3,989.3	-873.5	186.7	58.2	0.00	0.00	0.00
4,200.0	14.63	167.93	4,086.1	-898.3	192.0	59.9	0.00	0.00	0.00
4,266.1	14.63	167.93	4,150.0	-914.6	195.5	61.0	0.00	0.00	0.00
SUSSEX									
4,300.0	14.63	167.93	4,182.8	-923.0	197.3	61.5	0.00	0.00	0.00
4,400.0	14.63	167.93	4,279.6	-947.7	202.6	63.2	0.00	0.00	0.00

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Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	North Reference:	True
Well:	Peterson 14Y-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-07-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	14.63	167.93	4,376.3	-972.4	207.8	64.8	0.00	0.00	0.00
4,600.0	14.63	167.93	4,473.1	-997.1	213.1	66.5	0.00	0.00	0.00
4,700.0	14.63	167.93	4,569.9	-1,021.8	218.4	68.1	0.00	0.00	0.00
4,700.1	14.63	167.93	4,570.0	-1,021.8	218.4	68.1	0.00	0.00	0.00
SHANNON									
4,800.0	14.63	167.93	4,666.6	-1,046.5	223.7	69.7	0.00	0.00	0.00
4,900.0	14.63	167.93	4,763.4	-1,071.2	229.0	71.4	0.00	0.00	0.00
5,000.0	14.63	167.93	4,860.1	-1,095.9	234.2	73.0	0.00	0.00	0.00
5,100.0	14.63	167.93	4,956.9	-1,120.6	239.5	74.7	0.00	0.00	0.00
5,120.1	14.63	167.93	4,976.3	-1,125.5	240.6	75.0	0.00	0.00	0.00
5,200.0	13.03	167.93	5,053.9	-1,144.2	244.6	76.3	2.00	-2.00	0.00
5,300.0	11.03	167.93	5,151.7	-1,164.6	248.9	77.6	2.00	-2.00	0.00
5,400.0	9.03	167.93	5,250.2	-1,181.6	252.6	78.8	2.00	-2.00	0.00
5,500.0	7.03	167.93	5,349.2	-1,195.3	255.5	79.7	2.00	-2.00	0.00
5,600.0	5.03	167.93	5,448.6	-1,205.6	257.7	80.4	2.00	-2.00	0.00
5,700.0	3.03	167.93	5,548.4	-1,212.5	259.2	80.8	2.00	-2.00	0.00
5,800.0	1.03	167.93	5,648.3	-1,215.9	259.9	81.0	2.00	-2.00	0.00
5,851.7	0.00	0.00	5,700.0	-1,216.4	260.0	81.1	2.00	-2.00	0.00
5,900.0	0.00	0.00	5,748.3	-1,216.4	260.0	81.1	0.00	0.00	0.00
5,973.1	0.00	0.00	5,821.4	-1,216.4	260.0	81.1	0.00	0.00	0.00
KOP #2									
6,000.0	2.02	270.00	5,848.3	-1,216.4	259.5	81.5	7.50	7.50	0.00
6,100.0	9.52	270.00	5,947.7	-1,216.4	249.5	91.2	7.50	7.50	0.00
6,200.0	17.02	270.00	6,045.0	-1,216.4	226.5	113.3	7.50	7.50	0.00
6,300.0	24.52	270.00	6,138.4	-1,216.4	191.1	147.4	7.50	7.50	0.00
6,400.0	32.02	270.00	6,226.4	-1,216.4	143.8	192.9	7.50	7.50	0.00
6,414.9	33.14	270.00	6,239.0	-1,216.4	135.8	200.6	7.50	7.50	0.00
SHARON SPRINGS									
6,500.0	39.52	270.00	6,307.5	-1,216.4	85.4	249.1	7.50	7.50	0.00
6,600.0	47.02	270.00	6,380.3	-1,216.4	16.9	315.0	7.50	7.50	0.00
6,700.0	54.52	270.00	6,443.5	-1,216.4	-60.5	389.5	7.50	7.50	0.00
6,800.0	62.02	270.00	6,496.0	-1,216.4	-145.5	471.3	7.50	7.50	0.00
6,900.0	69.52	270.00	6,537.0	-1,216.4	-236.6	558.9	7.50	7.50	0.00
7,000.0	77.02	270.00	6,565.8	-1,216.4	-332.3	651.0	7.50	7.50	0.00
7,100.0	84.52	270.00	6,581.8	-1,216.4	-431.0	745.9	7.50	7.50	0.00
7,173.0	89.99	270.00	6,585.3	-1,216.4	-503.9	816.1	7.50	7.50	0.00
End of Build - 7"									
7,200.0	89.99	270.00	6,585.3	-1,216.4	-530.9	842.0	0.00	0.00	0.00
7,300.0	89.99	270.00	6,585.4	-1,216.4	-630.9	938.3	0.00	0.00	0.00
7,400.0	89.99	270.00	6,585.4	-1,216.4	-730.9	1,034.5	0.00	0.00	0.00
7,500.0	89.99	270.00	6,585.4	-1,216.4	-830.9	1,130.7	0.00	0.00	0.00
7,600.0	89.99	270.00	6,585.4	-1,216.4	-930.9	1,226.9	0.00	0.00	0.00
7,700.0	89.99	270.00	6,585.4	-1,216.4	-1,030.9	1,323.1	0.00	0.00	0.00
7,800.0	89.99	270.00	6,585.4	-1,216.4	-1,130.9	1,419.4	0.00	0.00	0.00
7,900.0	89.99	270.00	6,585.5	-1,216.4	-1,230.9	1,515.6	0.00	0.00	0.00
8,000.0	89.99	270.00	6,585.5	-1,216.4	-1,330.9	1,611.8	0.00	0.00	0.00
8,100.0	89.99	270.00	6,585.5	-1,216.4	-1,430.9	1,708.0	0.00	0.00	0.00
8,200.0	89.99	270.00	6,585.5	-1,216.4	-1,530.9	1,804.3	0.00	0.00	0.00
8,300.0	89.99	270.00	6,585.5	-1,216.4	-1,630.9	1,900.5	0.00	0.00	0.00
8,400.0	89.99	270.00	6,585.6	-1,216.4	-1,730.9	1,996.7	0.00	0.00	0.00
8,500.0	89.99	270.00	6,585.6	-1,216.4	-1,830.9	2,092.9	0.00	0.00	0.00
8,600.0	89.99	270.00	6,585.6	-1,216.4	-1,930.9	2,189.1	0.00	0.00	0.00

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Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	North Reference:	True
Well:	Peterson 14Y-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-07-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,700.0	89.99	270.00	6,585.6	-1,216.4	-2,030.9	2,285.4	0.00	0.00	0.00
8,800.0	89.99	270.00	6,585.6	-1,216.4	-2,130.9	2,381.6	0.00	0.00	0.00
8,900.0	89.99	270.00	6,585.6	-1,216.4	-2,230.9	2,477.8	0.00	0.00	0.00
9,000.0	89.99	270.00	6,585.7	-1,216.4	-2,330.9	2,574.0	0.00	0.00	0.00
9,100.0	89.99	270.00	6,585.7	-1,216.4	-2,430.9	2,670.2	0.00	0.00	0.00
9,200.0	89.99	270.00	6,585.7	-1,216.4	-2,530.9	2,766.5	0.00	0.00	0.00
9,300.0	89.99	270.00	6,585.7	-1,216.4	-2,630.9	2,862.7	0.00	0.00	0.00
9,400.0	89.99	270.00	6,585.7	-1,216.4	-2,730.9	2,958.9	0.00	0.00	0.00
9,500.0	89.99	270.00	6,585.7	-1,216.4	-2,830.9	3,055.1	0.00	0.00	0.00
9,600.0	89.99	270.00	6,585.8	-1,216.4	-2,930.9	3,151.3	0.00	0.00	0.00
9,700.0	89.99	270.00	6,585.8	-1,216.4	-3,030.9	3,247.6	0.00	0.00	0.00
9,800.0	89.99	270.00	6,585.8	-1,216.4	-3,130.9	3,343.8	0.00	0.00	0.00
9,900.0	89.99	270.00	6,585.8	-1,216.4	-3,230.9	3,440.0	0.00	0.00	0.00
10,000.0	89.99	270.00	6,585.8	-1,216.4	-3,330.9	3,536.2	0.00	0.00	0.00
10,100.0	89.99	270.00	6,585.8	-1,216.4	-3,430.9	3,632.4	0.00	0.00	0.00
10,200.0	89.99	270.00	6,585.9	-1,216.4	-3,530.9	3,728.7	0.00	0.00	0.00
10,300.0	89.99	270.00	6,585.9	-1,216.4	-3,630.9	3,824.9	0.00	0.00	0.00
10,400.0	89.99	270.00	6,585.9	-1,216.4	-3,730.9	3,921.1	0.00	0.00	0.00
10,500.0	89.99	270.00	6,585.9	-1,216.4	-3,830.9	4,017.3	0.00	0.00	0.00
10,600.0	89.99	270.00	6,585.9	-1,216.4	-3,930.9	4,113.6	0.00	0.00	0.00
10,700.0	89.99	270.00	6,586.0	-1,216.4	-4,030.9	4,209.8	0.00	0.00	0.00
10,800.0	89.99	270.00	6,586.0	-1,216.4	-4,130.9	4,306.0	0.00	0.00	0.00
10,900.0	89.99	270.00	6,586.0	-1,216.4	-4,230.9	4,402.2	0.00	0.00	0.00
10,967.2	89.99	270.00	6,586.0	-1,216.4	-4,298.1	4,466.9	0.00	0.00	0.00
BHL 75'FSL, 500'FWL									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,173.0	6,585.3	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,499.2	3,408.0	PARKMAN			
4,266.1	4,150.0	SUSSEX			
4,700.1	4,570.0	SHANNON			
6,414.9	6,239.0	SHARON SPRINGS			

Database:	Landmark	Local Co-ordinate Reference:	Well Peterson 14Y-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4586.0ft (RKB - 15')
Project:	SEC.14-T5N-R64W	MD Reference:	WELL @ 4586.0ft (RKB - 15')
Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	North Reference:	True
Well:	Peterson 14Y-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-07-14)		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP #1
5,973.1	5,821.4	-1,216.4	260.0	KOP #2
7,173.0	6,585.3	-1,216.4	-503.9	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.14-T5N-R64W

Peterson 14WX-HZ Pad Sec.14-T5N-R64W

Peterson 14Y-304

Wellbore #1

Plan #1 (3-07-14)

Anticollision Report

10 March, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peterson 14Y-304
Project:	SEC.14-T5N-R64W	TVD Reference:	WELL @ 4586.0ft (RKB - 15')
Reference Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	MD Reference:	WELL @ 4586.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson 14Y-304	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 (3-07-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (3-07-14)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	3/7/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	10,967.2	Plan #1 (3-07-14) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Peterson 14WX-HZ Pad (Exist) Sec.14-T5N-R64W						
Kielian 14-1 (Exist.) - Wellbore #1 - Wellbore #1	9,490.9	6,570.7	189.2	-25.1	0.883	Level 1, CC
Kielian 14-1 (Exist.) - Wellbore #1 - Wellbore #1	9,500.0	6,570.7	189.4	-25.1	0.883	Level 1, ES, SF
Peterson 14WX-HZ Pad Sec.14-T5N-R64W						
Peterson 14W-434 - Wellbore #1 - Plan #1 (3-07-14)	200.0	200.0	211.3	210.6	313.391	CC, ES
Peterson 14W-434 - Wellbore #1 - Plan #1 (3-07-14)	1,200.0	1,140.7	391.5	386.3	74.779	SF
Peterson 14X-234 - Wellbore #1 - Plan #1 (3-07-14)	200.0	200.0	61.9	61.3	91.848	CC, ES
Peterson 14X-234 - Wellbore #1 - Plan #1 (3-07-14)	10,967.2	10,803.3	594.0	347.7	2.412	SF
Peterson 14Y-414 - Wellbore #1 - Plan #1 (3-07-14)	200.0	200.0	32.8	32.1	48.625	CC, ES
Peterson 14Y-414 - Wellbore #1 - Plan #1 (3-07-14)	10,967.2	10,972.4	346.3	107.3	1.449	Level 3, SF

Offset Design		Peterson 14WX-HZ Pad (Exist) Sec.14-T5N-R64W - Kielian 14-1 (Exist.) - Wellbore #1 - Wellbore #1										Offset Site Error:		0.0 ft			
Survey Program: 6808-UNKNOWN														Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis		Distance								Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
8,600.0	6,585.6	6,570.6	6,570.6	59.7	131.4	89.95	-1,027.2	-2,821.7	910.7	720.7	190.00	4.793					
8,700.0	6,585.6	6,570.6	6,570.6	62.3	131.4	89.96	-1,027.2	-2,821.7	813.2	620.5	192.70	4.220					
8,800.0	6,585.6	6,570.6	6,570.6	65.0	131.4	89.96	-1,027.2	-2,821.7	716.3	520.9	195.40	3.666					
8,900.0	6,585.6	6,570.6	6,570.6	67.7	131.4	89.97	-1,027.2	-2,821.7	620.4	422.3	198.12	3.132					
9,000.0	6,585.7	6,570.7	6,570.7	70.4	131.4	89.97	-1,027.2	-2,821.7	526.1	325.2	200.84	2.619					
9,100.0	6,585.7	6,570.7	6,570.7	73.1	131.4	89.98	-1,027.2	-2,821.7	434.3	230.7	203.57	2.133					
9,200.0	6,585.7	6,570.7	6,570.7	75.8	131.4	89.98	-1,027.2	-2,821.7	347.0	140.7	206.30	1.682					
9,300.0	6,585.7	6,570.7	6,570.7	78.5	131.4	89.99	-1,027.2	-2,821.7	268.8	59.7	209.04	1.286	Level 3				
9,400.0	6,585.7	6,570.7	6,570.7	81.2	131.4	90.00	-1,027.2	-2,821.7	209.9	-1.9	211.79	0.991	Level 1				
9,490.9	6,585.7	6,570.7	6,570.7	83.7	131.4	90.00	-1,027.2	-2,821.7	189.2	-25.1	214.29	0.883	Level 1, CC				
9,500.0	6,585.7	6,570.7	6,570.7	83.9	131.4	90.00	-1,027.2	-2,821.7	189.4	-25.1	214.54	0.883	Level 1, ES, SF				
9,600.0	6,585.8	6,570.8	6,570.8	86.6	131.4	90.01	-1,027.2	-2,821.7	218.4	1.1	217.29	1.005	Level 2				
9,700.0	6,585.8	6,570.8	6,570.8	89.4	131.4	90.01	-1,027.2	-2,821.7	282.0	62.0	220.05	1.282	Level 3				
9,800.0	6,585.8	6,570.8	6,570.8	92.1	131.4	90.02	-1,027.2	-2,821.7	362.4	139.6	222.81	1.627					
9,900.0	6,585.8	6,570.8	6,570.8	94.9	131.4	90.02	-1,027.2	-2,821.7	450.8	225.2	225.57	1.998					
10,000.0	6,585.8	6,570.8	6,570.8	97.6	131.4	90.03	-1,027.2	-2,821.7	543.2	314.8	228.34	2.379					
10,100.0	6,585.8	6,570.8	6,570.8	100.3	131.4	90.03	-1,027.2	-2,821.7	637.8	406.7	231.11	2.760					

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 Peterson 14Y-304
Project:	SEC.14-T5N-R64W	TVD Reference:	WELL @ 4586.0ft (RKB - 15')
Reference Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	MD Reference:	WELL @ 4586.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson 14Y-304	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 (3-07-14)	Offset TVD Reference:	Offset Datum

Offset Design Peterson 14WX-HZ Pad (Exist) Sec.14-T5N-R64W - Kielian 14-1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6808-UNKNOWN													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance									Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,200.0	6,585.9	6,570.9	6,570.9	103.1	131.4	90.04	-1,027.2	-2,821.7	733.9	500.1	233.88	3.138		
10,300.0	6,585.9	6,570.9	6,570.9	105.9	131.4	90.04	-1,027.2	-2,821.7	831.0	594.3	236.65	3.511		
10,400.0	6,585.9	6,570.9	6,570.9	108.6	131.4	90.05	-1,027.2	-2,821.7	928.6	689.2	239.42	3.879		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peterson 14Y-304
Project:	SEC.14-T5N-R64W	TVD Reference:	WELL @ 4586.0ft (RKB - 15')
Reference Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	MD Reference:	WELL @ 4586.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson 14Y-304	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 (3-07-14)	Offset TVD Reference:	Offset Datum

Offset Design Peterson 14WX-HZ Pad Sec.14-T5N-R64W - Peterson 14W-434 - Wellbore #1 - Plan #1 (3-07-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-0.76	211.3	-2.8	211.3					
100.0	100.0	100.0	100.0	0.1	0.1	-0.76	211.3	-2.8	211.3	211.1	0.22	940.174		
200.0	200.0	200.0	200.0	0.3	0.3	-0.76	211.3	-2.8	211.3	210.6	0.67	313.391 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.6	-168.78	211.3	-2.8	213.0	211.9	1.11	192.294		
400.0	399.8	399.8	399.8	0.8	0.8	-169.02	211.3	-2.8	218.2	216.6	1.54	141.468		
500.0	499.5	499.5	499.5	1.0	1.0	-169.41	211.3	-2.8	226.7	224.7	1.99	113.956		
600.0	598.7	598.7	598.7	1.3	1.2	-169.91	211.3	-2.8	238.7	236.3	2.44	97.664		
700.0	697.5	697.5	697.5	1.6	1.5	-170.47	211.3	-2.8	254.1	251.2	2.90	87.512		
800.0	795.6	795.6	795.6	2.0	1.7	-171.08	211.3	-2.8	273.0	269.6	3.37	81.053		
900.0	893.1	884.8	884.8	2.5	1.9	-171.54	212.5	-2.4	296.5	292.7	3.83	77.509		
1,000.0	989.9	971.7	971.6	2.9	2.1	-171.86	216.2	-1.3	325.4	321.1	4.29	75.792		
1,100.0	1,086.6	1,057.0	1,056.7	3.5	2.3	-172.00	222.4	0.5	357.2	352.4	4.76	74.967		
1,200.0	1,183.4	1,140.7	1,139.9	4.0	2.5	-171.97	230.7	2.9	391.5	386.3	5.24	74.779 SF		
1,300.0	1,280.1	1,222.7	1,221.2	4.5	2.7	-171.83	241.2	6.0	428.4	422.7	5.71	75.051		
1,400.0	1,376.9	1,300.0	1,297.5	5.0	2.9	-171.61	253.0	9.5	467.7	461.5	6.17	75.753		
1,500.0	1,473.6	1,381.2	1,377.3	5.5	3.1	-171.32	267.7	13.8	509.4	502.7	6.66	76.517		
1,600.0	1,570.4	1,470.1	1,464.3	6.1	3.4	-170.98	285.1	19.0	552.5	545.3	7.16	77.204		
1,700.0	1,667.2	1,560.3	1,552.6	6.6	3.8	-170.69	302.7	24.2	595.6	588.0	7.65	77.832		
1,800.0	1,763.9	1,650.5	1,640.8	7.1	4.1	-170.44	320.4	29.4	638.8	630.6	8.15	78.367		
1,900.0	1,860.7	1,740.7	1,729.1	7.7	4.5	-170.22	338.0	34.6	681.9	673.2	8.66	78.711		
2,000.0	1,957.4	1,830.9	1,817.4	8.2	4.8	-170.03	355.7	39.8	725.1	715.9	9.17	79.052		
2,100.0	2,054.2	1,921.0	1,905.7	8.7	5.2	-169.86	373.4	45.0	768.2	758.5	9.68	79.324		
2,200.0	2,150.9	2,011.2	1,994.0	9.3	5.5	-169.70	391.0	50.2	811.4	801.2	10.20	79.547		
2,300.0	2,247.7	2,101.4	2,082.3	9.8	5.9	-169.57	408.7	55.4	854.5	843.8	10.72	79.733		
2,400.0	2,344.5	2,191.6	2,170.6	10.3	6.3	-169.44	426.4	60.6	897.7	886.5	11.24	79.886		
2,500.0	2,441.2	2,281.8	2,258.8	10.9	6.6	-169.33	444.0	65.8	940.9	929.1	11.76	80.014		
2,600.0	2,538.0	2,372.0	2,347.1	11.4	7.0	-169.22	461.7	71.0	984.1	971.8	12.28	80.123		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peterson 14Y-304
Project:	SEC.14-T5N-R64W	TVD Reference:	WELL @ 4586.0ft (RKB - 15')
Reference Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	MD Reference:	WELL @ 4586.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson 14Y-304	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 (3-07-14)	Offset TVD Reference:	Offset Datum

Offset Design Peterson 14WX-HZ Pad Sec.14-T5N-R64W - Peterson 14X-234 - Wellbore #1 - Plan #1 (3-07-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	0.00	61.9	0.0	61.9					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	61.9	0.0	61.9	61.7	0.22	275.544		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	61.9	0.0	61.9	61.3	0.67	91.848 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.6	-168.26	61.9	0.0	63.6	62.5	1.11	57.447		
400.0	399.8	399.8	399.8	0.8	0.8	-169.12	61.9	0.0	68.8	67.2	1.54	44.595		
500.0	499.5	499.5	499.5	1.0	1.0	-170.31	61.9	0.0	77.3	75.4	1.99	38.878		
600.0	598.7	598.7	598.7	1.3	1.2	-171.59	61.9	0.0	89.4	86.9	2.44	36.580		
700.0	697.5	697.5	697.5	1.6	1.5	-172.80	61.9	0.0	104.9	102.0	2.90	36.144		
800.0	795.6	795.6	795.6	2.0	1.7	-173.87	61.9	0.0	123.8	120.5	3.36	36.818		
900.0	893.1	893.1	893.1	2.5	1.9	-174.77	61.9	0.0	146.2	142.4	3.83	38.197		
1,000.0	989.9	989.9	989.9	2.9	2.1	-175.52	61.9	0.0	171.2	166.9	4.30	39.850		
1,100.0	1,086.6	1,092.8	1,092.8	3.5	2.3	-176.03	60.5	0.5	195.1	190.3	4.75	41.029		
1,200.0	1,183.4	1,198.1	1,197.9	4.0	2.5	-176.21	55.5	2.4	215.5	210.3	5.19	41.480		
1,300.0	1,280.1	1,304.8	1,304.2	4.5	2.7	-176.16	46.8	5.7	232.3	226.6	5.65	41.086		
1,400.0	1,376.9	1,412.7	1,411.3	5.0	3.0	-175.90	34.2	10.5	245.5	239.4	6.13	40.022		
1,500.0	1,473.6	1,520.4	1,517.5	5.5	3.2	-175.48	17.9	16.7	255.1	248.5	6.63	38.457		
1,600.0	1,570.4	1,620.0	1,615.6	6.1	3.5	-175.03	1.4	22.9	263.3	256.1	7.13	36.907		
1,700.0	1,667.2	1,719.7	1,713.7	6.6	3.8	-174.62	-15.1	29.2	271.4	263.8	7.64	35.510		
1,800.0	1,763.9	1,819.3	1,811.8	7.1	4.2	-174.23	-31.5	35.4	279.6	271.5	8.16	34.247		
1,900.0	1,860.7	1,919.0	1,909.9	7.7	4.5	-173.86	-48.0	41.6	287.8	279.1	8.69	33.134		
2,000.0	1,957.4	2,018.6	2,007.9	8.2	4.9	-173.51	-64.4	47.9	296.0	286.8	9.22	32.110		
2,100.0	2,054.2	2,118.3	2,106.0	8.7	5.2	-173.18	-80.9	54.1	304.3	294.5	9.76	31.184		
2,200.0	2,150.9	2,217.9	2,204.1	9.3	5.6	-172.87	-97.4	60.3	312.5	302.2	10.30	30.341		
2,300.0	2,247.7	2,317.6	2,302.2	9.8	6.0	-172.58	-113.8	66.6	320.7	309.9	10.85	29.573		
2,400.0	2,344.5	2,417.2	2,400.3	10.3	6.4	-172.29	-130.3	72.8	329.0	317.6	11.40	28.869		
2,500.0	2,441.2	2,516.9	2,498.3	10.9	6.7	-172.03	-146.8	79.0	337.2	325.3	11.95	28.222		
2,600.0	2,538.0	2,616.5	2,596.4	11.4	7.1	-171.77	-163.2	85.3	345.5	333.0	12.51	27.626		
2,700.0	2,634.7	2,716.2	2,694.5	11.9	7.5	-171.53	-179.7	91.5	353.8	340.7	13.07	27.075		
2,800.0	2,731.5	2,815.8	2,792.6	12.5	7.9	-171.30	-196.1	97.7	362.0	348.4	13.63	26.565		
2,900.0	2,828.2	2,915.4	2,890.7	13.0	8.3	-171.08	-212.6	104.0	370.3	356.1	14.19	26.091		
3,000.0	2,925.0	3,015.1	2,988.7	13.6	8.7	-170.87	-229.1	110.2	378.6	363.8	14.76	25.650		
3,100.0	3,021.7	3,114.7	3,086.8	14.1	9.1	-170.66	-245.5	116.4	386.9	371.6	15.33	25.239		
3,200.0	3,118.5	3,214.4	3,184.9	14.6	9.5	-170.47	-262.0	122.7	395.2	379.3	15.90	24.854		
3,300.0	3,215.3	3,314.0	3,283.0	15.2	9.9	-170.28	-278.5	128.9	403.5	387.0	16.47	24.493		
3,400.0	3,312.0	3,413.7	3,381.0	15.7	10.3	-170.10	-294.9	135.2	411.8	394.7	17.05	24.155		
3,500.0	3,408.8	3,513.3	3,479.1	16.2	10.7	-169.93	-311.4	141.4	420.1	402.5	17.62	23.837		
3,600.0	3,505.5	3,613.0	3,577.2	16.8	11.1	-169.77	-327.8	147.6	428.4	410.2	18.20	23.537		
3,700.0	3,602.3	3,712.6	3,675.3	17.3	11.5	-169.61	-344.3	153.9	436.7	417.9	18.78	23.254		
3,800.0	3,699.0	3,812.3	3,773.4	17.8	11.9	-169.46	-360.8	160.1	445.0	425.7	19.36	22.987		
3,900.0	3,795.8	3,911.9	3,871.4	18.4	12.3	-169.31	-377.2	166.3	453.4	433.4	19.94	22.734		
4,000.0	3,892.6	4,011.6	3,969.5	18.9	12.7	-169.17	-393.7	172.6	461.7	441.2	20.53	22.494		
4,100.0	3,989.3	4,111.2	4,067.6	19.5	13.1	-169.03	-410.2	178.8	470.0	448.9	21.11	22.266		
4,200.0	4,086.1	4,210.9	4,165.7	20.0	13.5	-168.90	-426.6	185.0	478.3	456.7	21.69	22.050		
4,300.0	4,182.8	4,310.5	4,263.8	20.5	13.9	-168.77	-443.1	191.3	486.7	464.4	22.28	21.844		
4,400.0	4,279.6	4,410.1	4,361.8	21.1	14.3	-168.65	-459.6	197.5	495.0	472.1	22.87	21.649		
4,500.0	4,376.3	4,509.8	4,459.9	21.6	14.7	-168.53	-476.0	203.7	503.4	479.9	23.45	21.462		
4,600.0	4,473.1	4,609.4	4,558.0	22.1	15.1	-168.42	-492.5	210.0	511.7	487.6	24.04	21.283		
4,700.0	4,569.9	4,709.1	4,656.1	22.7	15.5	-168.30	-508.9	216.2	520.0	495.4	24.63	21.113		
4,800.0	4,666.6	4,808.7	4,754.2	23.2	15.9	-168.20	-525.4	222.4	528.4	503.2	25.22	20.950		
4,900.0	4,763.4	4,908.4	4,852.2	23.7	16.3	-168.09	-541.9	228.7	536.7	510.9	25.81	20.794		
5,000.0	4,860.1	5,008.0	4,950.3	24.3	16.7	-167.99	-558.3	234.9	545.1	518.7	26.40	20.644		

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 Peterson 14Y-304
Project:	SEC.14-T5N-R64W	TVD Reference:	WELL @ 4586.0ft (RKB - 15')
Reference Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	MD Reference:	WELL @ 4586.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson 14Y-304	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 (3-07-14)	Offset TVD Reference:	Offset Datum

Offset Design		Peterson 14WX-HZ Pad Sec.14-T5N-R64W - Peterson 14X-234 - Wellbore #1 - Plan #1 (3-07-14)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
5,100.0	4,956.9	5,107.7	5,048.4		24.8	17.1	-167.89	-574.8	241.1	553.4	526.4	26.99	20.501		
5,200.0	5,053.9	5,200.0	5,139.3		25.3	17.5	-167.82	-589.7	246.8	561.1	533.5	27.56	20.359		
5,300.0	5,151.7	5,283.4	5,221.8		25.6	17.7	-167.78	-601.1	251.1	567.8	539.8	28.00	20.279		
5,400.0	5,250.2	5,367.5	5,305.3		25.9	17.9	-167.77	-610.4	254.6	574.0	545.6	28.39	20.217		
5,500.0	5,349.2	5,451.5	5,389.1		26.1	18.0	-167.77	-617.3	257.2	579.4	550.7	28.72	20.172		
5,600.0	5,448.6	5,535.5	5,472.9		26.3	18.2	-167.80	-621.9	259.0	584.2	555.2	29.00	20.144		
5,700.0	5,548.4	5,619.4	5,556.7		26.5	18.3	-167.86	-624.3	259.9	588.3	559.0	29.22	20.130		
5,800.0	5,648.3	5,711.0	5,648.3		26.6	18.5	-167.92	-624.6	260.0	591.4	562.0	29.41	20.107		
5,900.0	5,748.3	5,811.0	5,748.3		26.7	18.6	0.00	-624.6	260.0	591.8	547.5	44.34	13.349		
5,900.0	5,748.3	5,811.0	5,748.3		26.7	18.6	0.00	-624.6	260.0	591.8	547.5	44.34	13.349		
6,000.0	5,848.3	5,910.4	5,847.5		26.8	18.7	89.39	-624.6	253.2	591.9	562.0	29.83	19.844		
6,100.0	5,947.7	6,008.5	5,943.6		26.9	18.7	88.46	-624.6	234.0	592.0	562.2	29.84	19.839		
6,200.0	6,045.0	6,105.5	6,035.4		26.9	18.8	87.56	-624.6	203.1	592.4	562.6	29.79	19.882		
6,300.0	6,138.4	6,201.3	6,121.6		26.9	18.8	86.70	-624.6	161.3	592.8	563.1	29.76	19.921		
6,400.0	6,226.4	6,296.2	6,201.1		26.9	18.7	85.91	-624.6	109.7	593.4	563.5	29.83	19.891		
6,500.0	6,307.5	6,390.2	6,273.0		26.9	18.7	85.18	-624.6	49.2	593.9	563.8	30.13	19.713		
6,600.0	6,380.3	6,483.5	6,336.4		26.9	18.7	84.54	-624.6	-19.1	594.5	563.8	30.78	19.313		
6,700.0	6,443.5	6,576.1	6,390.7		26.9	18.8	83.98	-624.6	-94.1	595.1	563.2	31.91	18.650		
6,800.0	6,496.0	6,668.1	6,435.3		27.0	18.9	83.52	-624.6	-174.5	595.6	562.1	33.57	17.741		
6,900.0	6,537.0	6,759.8	6,469.8		27.1	19.2	83.16	-624.6	-259.4	596.1	560.3	35.81	16.643		
7,000.0	6,565.8	6,850.0	6,493.6		27.3	20.1	82.92	-624.6	-346.3	596.4	557.8	38.57	15.463		
7,100.0	6,581.8	6,942.2	6,507.1		27.7	21.5	82.78	-624.6	-437.5	596.6	554.8	41.82	14.266		
7,200.0	6,585.3	7,036.2	6,510.2		28.5	23.4	82.77	-624.6	-531.4	596.6	551.1	45.49	13.114		
7,300.0	6,585.4	7,136.2	6,510.9		29.6	25.5	82.83	-624.6	-631.4	596.5	546.8	49.70	12.003		
7,400.0	6,585.4	7,236.2	6,511.6		31.1	27.7	82.89	-624.6	-731.4	596.4	542.3	54.15	11.015		
7,500.0	6,585.4	7,336.2	6,512.3		32.9	30.0	82.95	-624.6	-831.4	596.3	537.5	58.80	10.143		
7,600.0	6,585.4	7,436.2	6,512.9		35.0	32.4	83.02	-624.6	-931.4	596.3	532.7	63.60	9.376		
7,700.0	6,585.4	7,536.1	6,513.6		37.1	34.9	83.08	-624.6	-1,031.3	596.2	527.7	68.52	8.701		
7,800.0	6,585.4	7,636.1	6,514.3		39.4	37.4	83.14	-624.6	-1,131.3	596.1	522.6	73.54	8.106		
7,900.0	6,585.5	7,736.1	6,515.0		41.8	40.0	83.21	-624.6	-1,231.3	596.0	517.4	78.64	7.580		
8,000.0	6,585.5	7,836.1	6,515.7		44.3	42.6	83.27	-624.6	-1,331.3	595.9	512.1	83.80	7.112		
8,100.0	6,585.5	7,936.1	6,516.3		46.8	45.2	83.33	-624.6	-1,431.3	595.9	506.9	89.01	6.694		
8,200.0	6,585.5	8,036.1	6,517.0		49.3	47.8	83.40	-624.6	-1,531.3	595.8	501.5	94.27	6.320		
8,300.0	6,585.5	8,136.1	6,517.7		51.9	50.5	83.46	-624.6	-1,631.3	595.7	496.1	99.57	5.983		
8,400.0	6,585.6	8,236.1	6,518.4		54.5	53.1	83.52	-624.6	-1,731.3	595.6	490.7	104.91	5.678		
8,500.0	6,585.6	8,336.1	6,519.1		57.1	55.8	83.59	-624.6	-1,831.3	595.6	485.3	110.26	5.401		
8,600.0	6,585.6	8,436.1	6,519.7		59.7	58.5	83.65	-624.6	-1,931.3	595.5	479.8	115.65	5.149		
8,700.0	6,585.6	8,536.1	6,520.4		62.3	61.2	83.71	-624.6	-2,031.3	595.4	474.4	121.05	4.919		
8,800.0	6,585.6	8,636.1	6,521.1		65.0	63.9	83.78	-624.6	-2,131.3	595.3	468.9	126.47	4.707		
8,900.0	6,585.6	8,736.1	6,521.8		67.7	66.6	83.84	-624.6	-2,231.3	595.3	463.4	131.91	4.513		
9,000.0	6,585.7	8,836.1	6,522.5		70.4	69.4	83.91	-624.6	-2,331.3	595.2	457.8	137.37	4.333		
9,100.0	6,585.7	8,936.1	6,523.1		73.1	72.1	83.97	-624.6	-2,431.3	595.1	452.3	142.83	4.167		
9,200.0	6,585.7	9,036.1	6,523.8		75.8	74.8	84.03	-624.6	-2,531.3	595.1	446.8	148.31	4.012		
9,300.0	6,585.7	9,136.1	6,524.5		78.5	77.6	84.10	-624.6	-2,631.3	595.0	441.2	153.80	3.869		
9,400.0	6,585.7	9,236.1	6,525.2		81.2	80.3	84.16	-624.6	-2,731.3	594.9	435.6	159.30	3.735		
9,500.0	6,585.7	9,336.1	6,525.9		83.9	83.1	84.22	-624.6	-2,831.3	594.9	430.1	164.81	3.610		
9,600.0	6,585.8	9,436.1	6,526.5		86.6	85.8	84.29	-624.6	-2,931.3	594.8	424.5	170.32	3.492		
9,700.0	6,585.8	9,536.1	6,527.2		89.4	88.6	84.35	-624.6	-3,031.3	594.7	418.9	175.84	3.382		
9,800.0	6,585.8	9,636.1	6,527.9		92.1	91.4	84.41	-624.6	-3,131.3	594.7	413.3	181.37	3.279		
9,900.0	6,585.8	9,736.1	6,528.6		94.9	94.1	84.48	-624.6	-3,231.2	594.6	407.7	186.90	3.181		
10,000.0	6,585.8	9,836.1	6,529.3		97.6	96.9	84.54	-624.6	-3,331.2	594.5	402.1	192.44	3.089		

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 Peterson 14Y-304
Project:	SEC.14-T5N-R64W	TVD Reference:	WELL @ 4586.0ft (RKB - 15')
Reference Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	MD Reference:	WELL @ 4586.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson 14Y-304	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 (3-07-14)	Offset TVD Reference:	Offset Datum

Offset Design Peterson 14WX-HZ Pad Sec.14-T5N-R64W - Peterson 14X-234 - Wellbore #1 - Plan #1 (3-07-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,585.8	9,936.1	6,529.9	100.3	99.7	84.60	-624.6	-3,431.2	594.5	396.5	197.99	3.003	
10,200.0	6,585.9	10,036.1	6,530.6	103.1	102.4	84.67	-624.6	-3,531.2	594.4	390.9	203.54	2.920	
10,300.0	6,585.9	10,136.1	6,531.3	105.9	105.2	84.73	-624.6	-3,631.2	594.4	385.3	209.09	2.843	
10,400.0	6,585.9	10,236.1	6,532.0	108.6	108.0	84.80	-624.6	-3,731.2	594.3	379.6	214.65	2.769	
10,500.0	6,585.9	10,336.1	6,532.7	111.4	110.8	84.86	-624.6	-3,831.2	594.2	374.0	220.22	2.698	
10,600.0	6,585.9	10,436.1	6,533.4	114.1	113.6	84.92	-624.6	-3,931.2	594.2	368.4	225.78	2.632	
10,700.0	6,586.0	10,536.1	6,534.0	116.9	116.3	84.99	-624.6	-4,031.2	594.1	362.8	231.35	2.568	
10,800.0	6,586.0	10,636.1	6,534.7	119.7	119.1	85.05	-624.6	-4,131.2	594.1	357.1	236.93	2.507	
10,900.0	6,586.0	10,736.1	6,535.4	122.4	121.9	85.11	-624.6	-4,231.2	594.0	351.5	242.50	2.450	
10,967.2	6,586.0	10,803.3	6,535.9	124.3	123.8	85.16	-624.6	-4,298.4	594.0	347.7	246.25	2.412 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peterson 14Y-304
Project:	SEC.14-T5N-R64W	TVD Reference:	WELL @ 4586.0ft (RKB - 15')
Reference Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	MD Reference:	WELL @ 4586.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson 14Y-304	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 (3-07-14)	Offset TVD Reference:	Offset Datum

Offset Design Peterson 14WX-HZ Pad Sec.14-T5N-R64W - Peterson 14Y-414 - Wellbore #1 - Plan #1 (3-07-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	0.00	32.8	0.0	32.8					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	32.8	0.0	32.8	32.6	0.22	145.876		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	32.8	0.0	32.8	32.1	0.67	48.625 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.6	-168.53	32.8	0.0	34.5	33.4	1.11	31.139		
400.0	399.8	399.8	399.8	0.8	0.8	-170.02	32.8	0.0	39.6	38.1	1.54	25.703		
500.0	499.5	499.5	499.5	1.0	1.0	-171.79	32.8	0.0	48.2	46.3	1.99	24.251		
600.0	598.7	598.7	598.7	1.3	1.2	-173.41	32.8	0.0	60.3	57.9	2.44	24.696		
700.0	697.5	697.5	697.5	1.6	1.5	-174.74	32.8	0.0	75.9	73.0	2.90	26.164		
800.0	795.6	795.6	795.6	2.0	1.7	-175.77	32.8	0.0	94.9	91.6	3.36	28.233		
900.0	893.1	897.0	896.9	2.5	1.9	-176.48	31.2	0.4	115.8	112.0	3.80	30.472		
1,000.0	989.9	999.4	999.2	2.9	2.1	-176.86	26.1	1.9	135.9	131.6	4.22	32.182		
1,100.0	1,086.6	1,103.2	1,102.6	3.5	2.3	-177.00	17.4	4.4	152.6	147.9	4.67	32.686		
1,200.0	1,183.4	1,208.1	1,206.7	4.0	2.5	-176.95	4.9	7.9	165.7	160.6	5.14	32.260		
1,300.0	1,280.1	1,313.9	1,311.2	4.5	2.8	-176.76	-11.4	12.5	175.2	169.6	5.63	31.140		
1,400.0	1,376.9	1,419.9	1,415.1	5.0	3.1	-176.44	-31.5	18.2	181.1	174.9	6.13	29.517		
1,500.0	1,473.6	1,519.8	1,512.7	5.5	3.5	-176.09	-51.9	24.0	185.3	178.7	6.65	27.874		
1,600.0	1,570.4	1,619.7	1,610.3	6.1	3.9	-175.76	-72.4	29.8	189.6	182.4	7.17	26.436		
1,700.0	1,667.2	1,719.6	1,707.9	6.6	4.3	-175.44	-92.8	35.6	193.8	186.1	7.70	25.167		
1,800.0	1,763.9	1,819.5	1,805.6	7.1	4.7	-175.13	-113.2	41.4	198.1	189.8	8.23	24.054		
1,900.0	1,860.7	1,919.4	1,903.2	7.7	5.1	-174.84	-133.7	47.2	202.3	193.6	8.78	23.055		
2,000.0	1,957.4	2,019.3	2,000.8	8.2	5.6	-174.56	-154.1	52.9	206.6	197.3	9.32	22.162		
2,100.0	2,054.2	2,119.2	2,098.4	8.7	6.0	-174.29	-174.5	58.7	210.9	201.0	9.87	21.360		
2,200.0	2,150.9	2,219.1	2,196.0	9.3	6.4	-174.03	-195.0	64.5	215.1	204.7	10.43	20.635		
2,300.0	2,247.7	2,319.0	2,293.7	9.8	6.9	-173.78	-215.4	70.3	219.4	208.4	10.98	19.978		
2,400.0	2,344.5	2,418.9	2,391.3	10.3	7.3	-173.54	-235.8	76.1	223.7	212.2	11.54	19.379		
2,500.0	2,441.2	2,518.8	2,488.9	10.9	7.8	-173.31	-256.3	81.9	228.0	215.9	12.11	18.832		
2,600.0	2,538.0	2,618.7	2,586.5	11.4	8.2	-173.09	-276.7	87.7	232.3	219.6	12.67	18.330		
2,700.0	2,634.7	2,718.6	2,684.1	11.9	8.7	-172.88	-297.1	93.5	236.6	223.4	13.24	17.869		
2,800.0	2,731.5	2,818.6	2,781.8	12.5	9.1	-172.67	-317.6	99.3	240.9	227.1	13.81	17.442		
2,900.0	2,828.2	2,918.5	2,879.4	13.0	9.6	-172.47	-338.0	105.1	245.2	230.8	14.38	17.048		
3,000.0	2,925.0	3,018.4	2,977.0	13.6	10.1	-172.28	-358.4	110.8	249.5	234.5	14.96	16.681		
3,100.0	3,021.7	3,118.3	3,074.6	14.1	10.5	-172.10	-378.9	116.6	253.8	238.3	15.53	16.340		
3,200.0	3,118.5	3,218.2	3,172.2	14.6	11.0	-171.92	-399.3	122.4	258.1	242.0	16.11	16.022		
3,300.0	3,215.3	3,318.1	3,269.9	15.2	11.4	-171.75	-419.8	128.2	262.4	245.7	16.69	15.725		
3,400.0	3,312.0	3,418.0	3,367.5	15.7	11.9	-171.58	-440.2	134.0	266.7	249.5	17.27	15.446		
3,500.0	3,408.8	3,517.9	3,465.1	16.2	12.4	-171.42	-460.6	139.8	271.1	253.2	17.85	15.185		
3,600.0	3,505.5	3,617.8	3,562.7	16.8	12.8	-171.26	-481.1	145.6	275.4	256.9	18.43	14.939		
3,700.0	3,602.3	3,717.7	3,660.3	17.3	13.3	-171.11	-501.5	151.4	279.7	260.7	19.02	14.707		
3,800.0	3,699.0	3,817.6	3,758.0	17.8	13.8	-170.96	-521.9	157.2	284.0	264.4	19.60	14.488		
3,900.0	3,795.8	3,917.5	3,855.6	18.4	14.2	-170.82	-542.4	162.9	288.4	268.2	20.19	14.281		
4,000.0	3,892.6	4,017.4	3,953.2	18.9	14.7	-170.68	-562.8	168.7	292.7	271.9	20.78	14.085		
4,100.0	3,989.3	4,117.3	4,050.8	19.5	15.1	-170.54	-583.2	174.5	297.0	275.6	21.37	13.900		
4,200.0	4,086.1	4,217.2	4,148.4	20.0	15.6	-170.41	-603.7	180.3	301.3	279.4	21.96	13.724		
4,300.0	4,182.8	4,317.1	4,246.1	20.5	16.1	-170.28	-624.1	186.1	305.7	283.1	22.55	13.556		
4,400.0	4,279.6	4,417.0	4,343.7	21.1	16.5	-170.16	-644.5	191.9	310.0	286.9	23.14	13.397		
4,500.0	4,376.3	4,516.9	4,441.3	21.6	17.0	-170.04	-665.0	197.7	314.3	290.6	23.73	13.245		
4,600.0	4,473.1	4,616.8	4,538.9	22.1	17.5	-169.92	-685.4	203.5	318.7	294.3	24.33	13.100		
4,700.0	4,569.9	4,716.7	4,636.5	22.7	17.9	-169.81	-705.8	209.3	323.0	298.1	24.92	12.962		
4,800.0	4,666.6	4,816.6	4,734.2	23.2	18.4	-169.70	-726.3	215.1	327.3	301.8	25.52	12.829		
4,900.0	4,763.4	4,916.5	4,831.8	23.7	18.9	-169.59	-746.7	220.8	331.7	305.6	26.11	12.703		
5,000.0	4,860.1	5,016.4	4,929.4	24.3	19.3	-169.48	-767.1	226.6	336.0	309.3	26.71	12.582		

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 Peterson 14Y-304
Project:	SEC.14-T5N-R64W	TVD Reference:	WELL @ 4586.0ft (RKB - 15')
Reference Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	MD Reference:	WELL @ 4586.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson 14Y-304	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 (3-07-14)	Offset TVD Reference:	Offset Datum

Offset Design Peterson 14WX-HZ Pad Sec.14-T5N-R64W - Peterson 14Y-414 - Wellbore #1 - Plan #1 (3-07-14)													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,100.0	4,956.9	5,116.3	5,027.0	24.8	19.8	-169.38	-787.6	232.4	340.4	313.1	27.31	12.465		
5,200.0	5,053.9	5,216.3	5,124.7	25.3	20.3	-169.25	-808.0	238.2	343.6	315.7	27.91	12.314		
5,300.0	5,151.7	5,312.9	5,219.1	25.6	20.7	-169.03	-827.7	243.8	343.7	315.2	28.44	12.083		
5,400.0	5,250.2	5,400.0	5,304.7	25.9	21.0	-168.81	-843.4	248.2	342.6	313.8	28.88	11.865		
5,500.0	5,349.2	5,492.2	5,395.7	26.1	21.2	-168.60	-857.3	252.2	341.2	311.9	29.27	11.657		
5,600.0	5,448.6	5,581.9	5,484.7	26.3	21.4	-168.41	-868.2	255.3	339.4	309.8	29.60	11.466		
5,700.0	5,548.4	5,671.6	5,574.0	26.5	21.6	-168.24	-876.3	257.6	337.1	307.3	29.87	11.288		
5,800.0	5,648.3	5,761.4	5,663.6	26.6	21.8	-168.08	-881.8	259.1	334.5	304.4	30.08	11.120		
5,900.0	5,748.3	5,851.3	5,753.5	26.7	21.9	-0.02	-884.5	259.9	331.9	284.1	47.75	6.951		
5,968.9	5,817.2	5,915.1	5,817.2	26.8	22.0	90.14	-884.9	260.0	331.5	300.9	30.58	10.841		
6,000.0	5,848.3	5,946.1	5,848.3	26.8	22.0	90.08	-884.9	260.0	331.5	300.8	30.66	10.813		
6,100.0	5,947.7	6,046.3	5,948.4	26.9	22.1	91.30	-884.9	257.0	331.6	300.4	31.15	10.643		
6,200.0	6,045.0	6,147.5	6,048.3	26.9	22.2	92.62	-884.9	241.4	331.8	300.3	31.55	10.516		
6,300.0	6,138.4	6,249.8	6,146.3	26.9	22.2	93.89	-884.9	212.3	332.3	300.4	31.83	10.440		
6,400.0	6,226.4	6,353.1	6,240.4	26.9	22.2	95.10	-884.9	170.0	332.8	300.8	32.01	10.396		
6,500.0	6,307.5	6,457.4	6,328.8	26.9	22.2	96.23	-884.9	114.7	333.5	301.2	32.22	10.349		
6,600.0	6,380.3	6,562.6	6,409.5	26.9	22.2	97.24	-884.9	47.3	334.2	301.6	32.61	10.247		
6,700.0	6,443.5	6,668.7	6,480.7	26.9	22.2	98.13	-884.9	-31.2	334.9	301.5	33.40	10.027		
6,800.0	6,496.0	6,775.6	6,540.8	27.0	22.2	98.87	-884.9	-119.5	335.5	300.7	34.79	9.644		
6,900.0	6,537.0	6,883.0	6,588.1	27.1	22.4	99.45	-884.9	-215.8	336.1	299.1	36.92	9.103		
7,000.0	6,565.8	6,991.0	6,621.7	27.3	22.7	99.85	-884.9	-318.3	336.5	296.6	39.83	8.448		
7,100.0	6,581.8	7,099.2	6,640.4	27.7	23.5	100.08	-884.9	-424.8	336.7	293.3	43.43	7.752		
7,200.0	6,585.3	7,200.5	6,650.7	28.5	24.9	101.15	-884.9	-525.6	337.9	290.6	47.36	7.136		
7,300.0	6,585.4	7,305.3	6,654.5	29.6	26.8	101.79	-884.9	-630.3	338.6	287.1	51.50	6.575		
7,400.0	6,585.4	7,405.3	6,655.4	31.1	28.8	101.93	-884.9	-730.3	338.8	283.0	55.80	6.072		
7,500.0	6,585.4	7,505.3	6,656.2	32.9	31.0	102.06	-884.9	-830.2	339.0	278.7	60.29	5.622		
7,600.0	6,585.4	7,605.2	6,657.1	35.0	33.3	102.20	-884.9	-930.2	339.2	274.2	64.93	5.223		
7,700.0	6,585.4	7,705.2	6,658.0	37.1	35.7	102.34	-884.9	-1,030.2	339.3	269.7	69.69	4.869		
7,800.0	6,585.4	7,805.2	6,658.8	39.4	38.2	102.48	-884.9	-1,130.2	339.5	265.0	74.54	4.555		
7,900.0	6,585.5	7,905.2	6,659.7	41.8	40.7	102.62	-884.9	-1,230.2	339.7	260.2	79.47	4.275		
8,000.0	6,585.5	8,005.2	6,660.5	44.3	43.2	102.75	-884.9	-1,330.2	339.9	255.4	84.45	4.025		
8,100.0	6,585.5	8,105.2	6,661.4	46.8	45.8	102.89	-884.9	-1,430.2	340.1	250.6	89.49	3.800		
8,200.0	6,585.5	8,205.2	6,662.2	49.3	48.4	103.03	-884.9	-1,530.2	340.3	245.7	94.57	3.598		
8,300.0	6,585.5	8,305.2	6,663.1	51.9	51.0	103.17	-884.9	-1,630.2	340.5	240.8	99.68	3.415		
8,400.0	6,585.6	8,405.2	6,663.9	54.5	53.6	103.30	-884.9	-1,730.2	340.6	235.8	104.82	3.250		
8,500.0	6,585.6	8,505.2	6,664.8	57.1	56.3	103.44	-884.9	-1,830.2	340.8	230.9	109.98	3.099		
8,600.0	6,585.6	8,605.2	6,665.7	59.7	59.0	103.58	-884.9	-1,930.2	341.0	225.9	115.16	2.961		
8,700.0	6,585.6	8,705.2	6,666.5	62.3	61.6	103.72	-884.9	-2,030.2	341.2	220.9	120.36	2.835		
8,800.0	6,585.6	8,805.2	6,667.4	65.0	64.3	103.85	-884.9	-2,130.2	341.4	215.9	125.56	2.719		
8,900.0	6,585.6	8,905.2	6,668.2	67.7	67.0	103.99	-884.9	-2,230.1	341.6	210.9	130.78	2.612		
9,000.0	6,585.7	9,005.2	6,669.1	70.4	69.7	104.12	-884.9	-2,330.1	341.8	205.8	136.01	2.513		
9,100.0	6,585.7	9,105.2	6,669.9	73.1	72.5	104.26	-884.9	-2,430.1	342.1	200.8	141.24	2.422		
9,200.0	6,585.7	9,205.2	6,670.8	75.8	75.2	104.40	-884.9	-2,530.1	342.3	195.8	146.48	2.337		
9,300.0	6,585.7	9,305.2	6,671.6	78.5	77.9	104.53	-884.9	-2,630.1	342.5	190.8	151.72	2.257		
9,400.0	6,585.7	9,405.2	6,672.5	81.2	80.7	104.67	-884.9	-2,730.1	342.7	185.7	156.96	2.183		
9,500.0	6,585.7	9,505.2	6,673.4	83.9	83.4	104.80	-884.9	-2,830.1	342.9	180.7	162.21	2.114		
9,600.0	6,585.8	9,605.2	6,674.2	86.6	86.1	104.94	-884.9	-2,930.1	343.1	175.7	167.45	2.049		
9,700.0	6,585.8	9,705.2	6,675.1	89.4	88.9	105.07	-884.9	-3,030.1	343.3	170.6	172.70	1.988		
9,800.0	6,585.8	9,805.2	6,675.9	92.1	91.6	105.21	-884.9	-3,130.1	343.5	165.6	177.94	1.931		
9,900.0	6,585.8	9,905.2	6,676.8	94.9	94.4	105.34	-884.9	-3,230.1	343.8	160.6	183.18	1.877		
10,000.0	6,585.8	10,005.2	6,677.6	97.6	97.2	105.48	-884.9	-3,330.1	344.0	155.6	188.42	1.826		

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

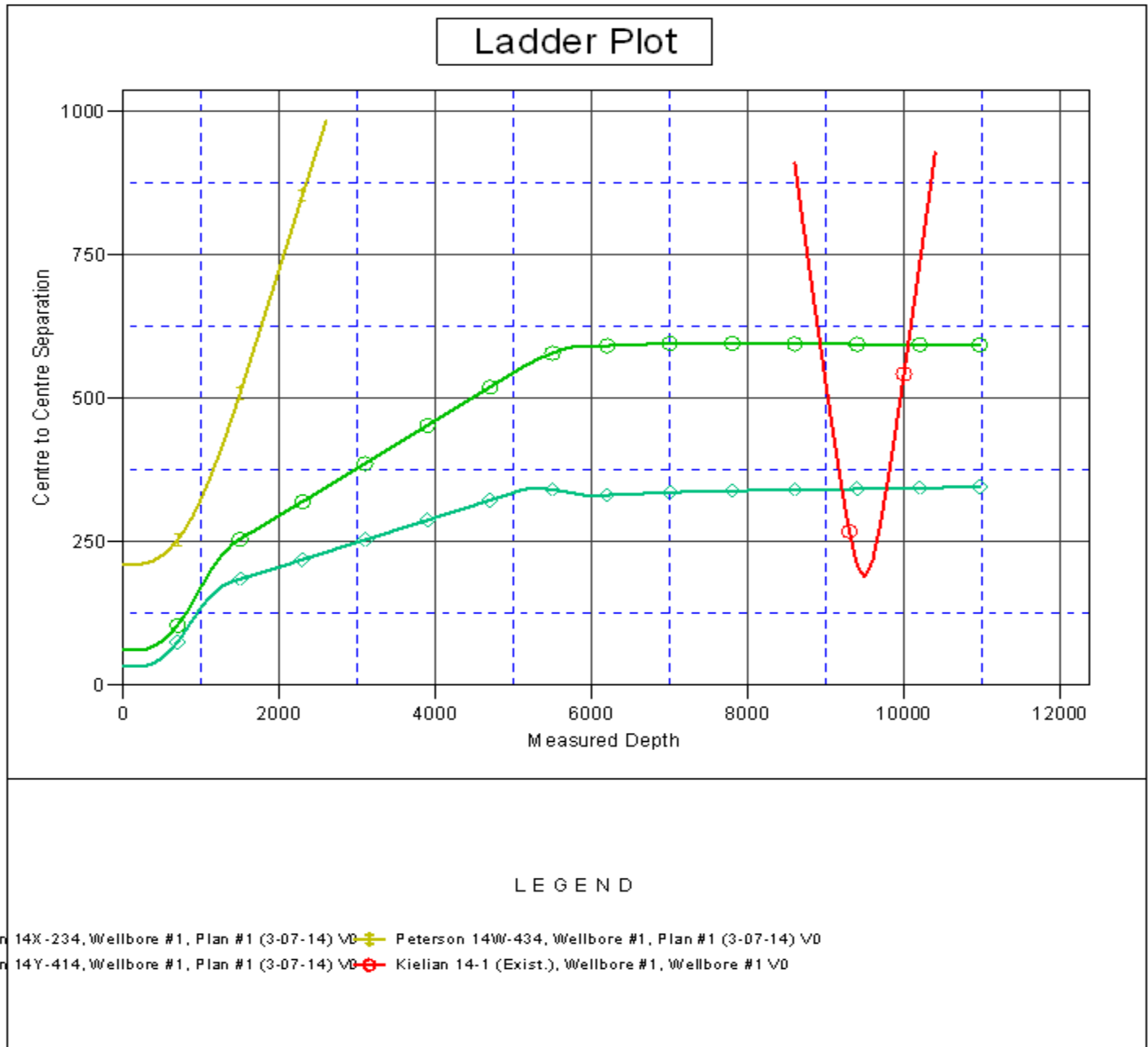
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peterson 14Y-304
Project:	SEC.14-T5N-R64W	TVD Reference:	WELL @ 4586.0ft (RKB - 15')
Reference Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	MD Reference:	WELL @ 4586.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson 14Y-304	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 (3-07-14)	Offset TVD Reference:	Offset Datum

Offset Design Peterson 14WX-HZ Pad Sec.14-T5N-R64W - Peterson 14Y-414 - Wellbore #1 - Plan #1 (3-07-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,585.8	10,105.2	6,678.5	100.3	99.9	105.61	-884.9	-3,430.1	344.2	150.6	193.66	1.777	
10,200.0	6,585.9	10,205.2	6,679.3	103.1	102.7	105.75	-884.9	-3,530.1	344.4	145.5	198.90	1.732	
10,300.0	6,585.9	10,305.2	6,680.2	105.9	105.5	105.88	-884.9	-3,630.0	344.7	140.5	204.13	1.689	
10,400.0	6,585.9	10,405.2	6,681.0	108.6	108.2	106.01	-884.9	-3,730.0	344.9	135.5	209.36	1.647	
10,500.0	6,585.9	10,505.1	6,681.9	111.4	111.0	106.15	-884.9	-3,830.0	345.1	130.6	214.58	1.608	
10,600.0	6,585.9	10,605.1	6,682.8	114.1	113.8	106.28	-884.9	-3,930.0	345.4	125.6	219.80	1.571	
10,700.0	6,586.0	10,705.1	6,683.6	116.9	116.5	106.41	-884.9	-4,030.0	345.6	120.6	225.01	1.536	
10,800.0	6,586.0	10,805.1	6,684.5	119.7	119.3	106.55	-884.9	-4,130.0	345.8	115.6	230.22	1.502	
10,900.0	6,586.0	10,905.1	6,685.3	122.4	122.1	106.68	-884.9	-4,230.0	346.1	110.7	235.43	1.470 Level 3	
10,967.2	6,586.0	10,972.4	6,685.9	124.3	124.0	106.77	-884.9	-4,297.2	346.3	107.3	238.92	1.449 Level 3, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peterson 14Y-304
Project:	SEC.14-T5N-R64W	TVD Reference:	WELL @ 4586.0ft (RKB - 15')
Reference Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	MD Reference:	WELL @ 4586.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson 14Y-304	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 (3-07-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4586.0ft (RKB - 15')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Peterson 14Y-304
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.64°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peterson 14Y-304
Project:	SEC.14-T5N-R64W	TVD Reference:	WELL @ 4586.0ft (RKB - 15')
Reference Site:	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	MD Reference:	WELL @ 4586.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peterson 14Y-304	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 (3-07-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4586.0ft (RKB - 15')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Peterson 14Y-304
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.64°

