PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Peterson 14X-414**

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	Latittude	Longitude	Slot
0.0	0.0	1388652.17	3275955.73	40.396020	-104.509210	

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

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 1457'FSL, 310'FEL	1.0	0.0	0.0	Point
BHL 1725'FSL & 500'FWL	6686.0	284.6	-4350.7	Point

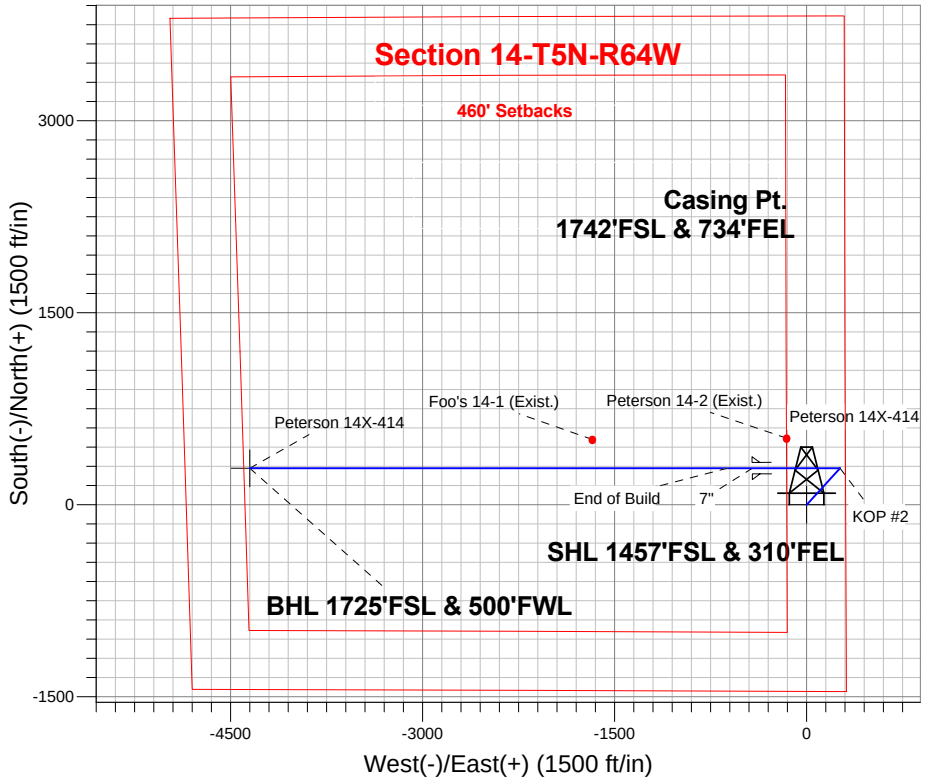
Azimuths to True North
Magnetic North: 8.36°

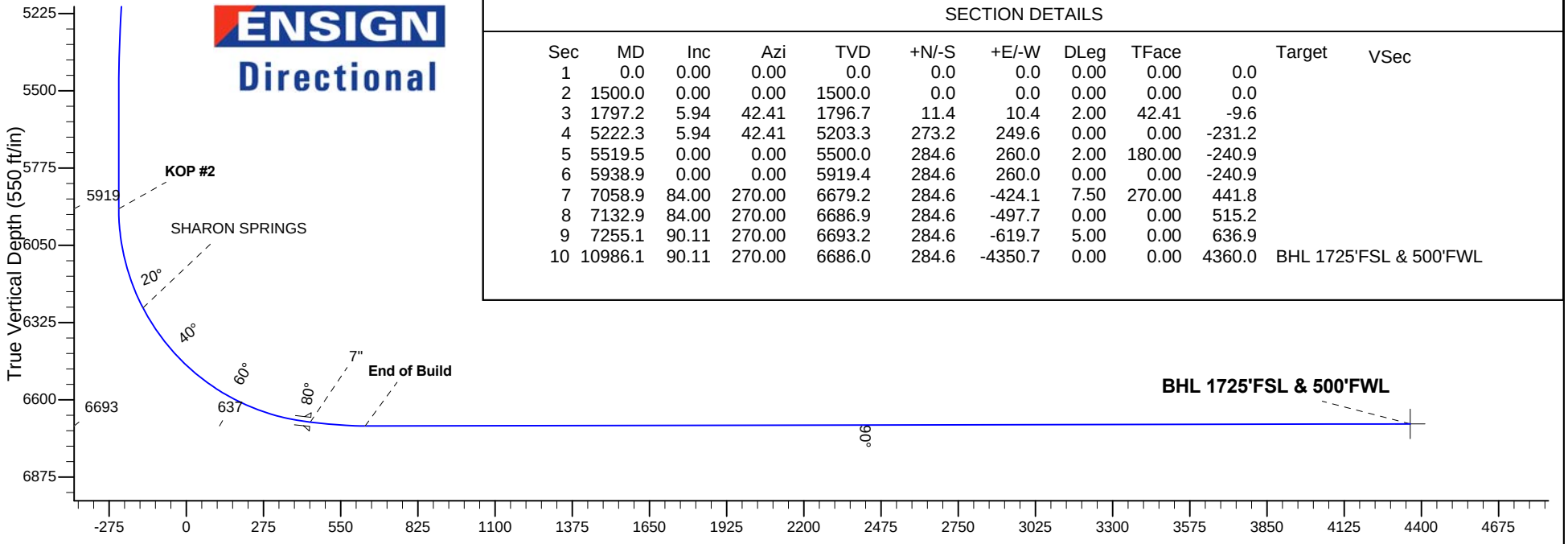
Magnetic Field
Strength: 52870.7snT
Dip Angle: 66.99°
Date: 3/7/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1500.0	1500.0	KOP #1
5919.4	5938.9	KOP #2
6693.2	7255.1	End of Build

Peterson 14WX-HZ Pad Sec.14-T5N-R64W
Peterson 14X-414
Plan #1 (3-07-14)
11:00, March 10 2014





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	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0		
3	1797.2	5.94	42.41	1796.7	11.4	10.4	2.00	42.41	-9.6		
4	5222.3	5.94	42.41	5203.3	273.2	249.6	0.00	0.00	-231.2		
5	5519.5	0.00	0.00	5500.0	284.6	260.0	2.00	180.00	-240.9		
6	5938.9	0.00	0.00	5919.4	284.6	260.0	0.00	0.00	-240.9		
7	7058.9	84.00	270.00	6679.2	284.6	-424.1	7.50	270.00	441.8		
8	7132.9	84.00	270.00	6686.9	284.6	-497.7	0.00	0.00	515.2		
9	7255.1	90.11	270.00	6693.2	284.6	-619.7	5.00	0.00	636.9		
10	10986.1	90.11	270.00	6686.0	284.6	-4350.7	0.00	0.00	4360.0	BHL 1725'FSL & 500'FWL	

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.14-T5N-R64W
Peterson 14WX-HZ Pad Sec.14-T5N-R64W
Peterson 14X-414

Wellbore #1

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

Standard Planning Report

10 March, 2014

Database:	Landmark	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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 14X-414

Well Position	**+N/-S**	-32.8 ft	**Northing:**	1,388,652.17 ft	**Latitude:**	40.396020
	+E/-W	0.0 ft	**Easting:**	3,275,955.73 ft	**Longitude:**	-104.509210
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	52,871

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	273.74

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,797.2	5.94	42.41	1,796.7	11.4	10.4	2.00	2.00	0.00	42.41	
5,222.3	5.94	42.41	5,203.3	273.2	249.6	0.00	0.00	0.00	0.00	
5,519.5	0.00	0.00	5,500.0	284.6	260.0	2.00	-2.00	0.00	180.00	
5,938.9	0.00	0.00	5,919.4	284.6	260.0	0.00	0.00	0.00	0.00	
7,058.9	84.00	270.00	6,679.2	284.6	-424.1	7.50	7.50	0.00	270.00	
7,132.9	84.00	270.00	6,686.9	284.6	-497.7	0.00	0.00	0.00	0.00	
7,255.1	90.11	270.00	6,693.2	284.6	-619.7	5.00	5.00	0.00	0.00	
10,986.1	90.11	270.00	6,686.0	284.6	-4,350.7	0.00	0.00	0.00	0.00	BHL 1725'FSL & 5(

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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 14X-414	**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 1607'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
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
1,600.0	2.00	42.41	1,600.0	1.3	1.2	-1.1	2.00	2.00	0.00
1,700.0	4.00	42.41	1,699.8	5.2	4.7	-4.4	2.00	2.00	0.00
1,797.2	5.94	42.41	1,796.7	11.4	10.4	-9.6	2.00	2.00	0.00
1,800.0	5.94	42.41	1,799.5	11.6	10.6	-9.8	0.00	0.00	0.00
1,900.0	5.94	42.41	1,898.9	19.2	17.6	-16.3	0.00	0.00	0.00
2,000.0	5.94	42.41	1,998.4	26.9	24.6	-22.7	0.00	0.00	0.00
2,100.0	5.94	42.41	2,097.8	34.5	31.5	-29.2	0.00	0.00	0.00
2,200.0	5.94	42.41	2,197.3	42.2	38.5	-35.7	0.00	0.00	0.00
2,300.0	5.94	42.41	2,296.8	49.8	45.5	-42.2	0.00	0.00	0.00
2,400.0	5.94	42.41	2,396.2	57.5	52.5	-48.6	0.00	0.00	0.00
2,500.0	5.94	42.41	2,495.7	65.1	59.5	-55.1	0.00	0.00	0.00
2,600.0	5.94	42.41	2,595.2	72.7	66.5	-61.6	0.00	0.00	0.00
2,700.0	5.94	42.41	2,694.6	80.4	73.4	-68.0	0.00	0.00	0.00
2,800.0	5.94	42.41	2,794.1	88.0	80.4	-74.5	0.00	0.00	0.00
2,900.0	5.94	42.41	2,893.5	95.7	87.4	-81.0	0.00	0.00	0.00
3,000.0	5.94	42.41	2,993.0	103.3	94.4	-87.5	0.00	0.00	0.00
3,100.0	5.94	42.41	3,092.5	111.0	101.4	-93.9	0.00	0.00	0.00
3,200.0	5.94	42.41	3,191.9	118.6	108.4	-100.4	0.00	0.00	0.00
3,300.0	5.94	42.41	3,291.4	126.3	115.4	-106.9	0.00	0.00	0.00
3,400.0	5.94	42.41	3,390.9	133.9	122.3	-113.3	0.00	0.00	0.00
3,417.2	5.94	42.41	3,408.0	135.2	123.5	-114.5	0.00	0.00	0.00
PARKMAN									
3,500.0	5.94	42.41	3,490.3	141.6	129.3	-119.8	0.00	0.00	0.00
3,600.0	5.94	42.41	3,589.8	149.2	136.3	-126.3	0.00	0.00	0.00
3,700.0	5.94	42.41	3,689.2	156.8	143.3	-132.7	0.00	0.00	0.00
3,800.0	5.94	42.41	3,788.7	164.5	150.3	-139.2	0.00	0.00	0.00
3,900.0	5.94	42.41	3,888.2	172.1	157.3	-145.7	0.00	0.00	0.00
4,000.0	5.94	42.41	3,987.6	179.8	164.2	-152.2	0.00	0.00	0.00
4,100.0	5.94	42.41	4,087.1	187.4	171.2	-158.6	0.00	0.00	0.00
4,163.3	5.94	42.41	4,150.0	192.3	175.6	-162.7	0.00	0.00	0.00
SUSSEX									
4,200.0	5.94	42.41	4,186.5	195.1	178.2	-165.1	0.00	0.00	0.00
4,300.0	5.94	42.41	4,286.0	202.7	185.2	-171.6	0.00	0.00	0.00
4,400.0	5.94	42.41	4,385.5	210.4	192.2	-178.0	0.00	0.00	0.00

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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 14X-414	**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	5.94	42.41	4,484.9	218.0	199.2	-184.5	0.00	0.00	0.00
4,585.5	5.94	42.41	4,570.0	224.5	205.1	-190.0	0.00	0.00	0.00
SHANNON									
4,600.0	5.94	42.41	4,584.4	225.7	206.1	-191.0	0.00	0.00	0.00
4,700.0	5.94	42.41	4,683.9	233.3	213.1	-197.5	0.00	0.00	0.00
4,800.0	5.94	42.41	4,783.3	240.9	220.1	-203.9	0.00	0.00	0.00
4,900.0	5.94	42.41	4,882.8	248.6	227.1	-210.4	0.00	0.00	0.00
5,000.0	5.94	42.41	4,982.2	256.2	234.1	-216.9	0.00	0.00	0.00
5,100.0	5.94	42.41	5,081.7	263.9	241.1	-223.3	0.00	0.00	0.00
5,200.0	5.94	42.41	5,181.2	271.5	248.1	-229.8	0.00	0.00	0.00
5,222.3	5.94	42.41	5,203.3	273.2	249.6	-231.2	0.00	0.00	0.00
5,300.0	4.39	42.41	5,280.7	278.4	254.3	-235.6	2.00	-2.00	0.00
5,400.0	2.39	42.41	5,380.6	282.8	258.3	-239.3	2.00	-2.00	0.00
5,500.0	0.39	42.41	5,480.5	284.6	260.0	-240.8	2.00	-2.00	0.00
5,519.5	0.00	0.00	5,500.0	284.6	260.0	-240.9	2.00	-2.00	0.00
5,600.0	0.00	0.00	5,580.5	284.6	260.0	-240.9	0.00	0.00	0.00
5,700.0	0.00	0.00	5,680.5	284.6	260.0	-240.9	0.00	0.00	0.00
5,800.0	0.00	0.00	5,780.5	284.6	260.0	-240.9	0.00	0.00	0.00
5,900.0	0.00	0.00	5,880.5	284.6	260.0	-240.9	0.00	0.00	0.00
5,938.9	0.00	0.00	5,919.4	284.6	260.0	-240.9	0.00	0.00	0.00
KOP #2									
6,000.0	4.58	270.00	5,980.5	284.6	257.6	-238.4	7.50	7.50	0.00
6,100.0	12.08	270.00	6,079.3	284.6	243.1	-224.0	7.50	7.50	0.00
6,200.0	19.58	270.00	6,175.5	284.6	215.8	-196.8	7.50	7.50	0.00
6,300.0	27.08	270.00	6,267.2	284.6	176.2	-157.3	7.50	7.50	0.00
6,306.5	27.57	270.00	6,273.0	284.6	173.2	-154.3	7.50	7.50	0.00
SHARON SPRINGS									
6,400.0	34.58	270.00	6,353.0	284.6	125.0	-106.2	7.50	7.50	0.00
6,500.0	42.08	270.00	6,431.4	284.6	63.0	-44.3	7.50	7.50	0.00
6,600.0	49.58	270.00	6,501.0	284.6	-8.7	27.2	7.50	7.50	0.00
6,700.0	57.08	270.00	6,560.7	284.6	-88.8	107.2	7.50	7.50	0.00
6,800.0	64.58	270.00	6,609.4	284.6	-176.1	194.3	7.50	7.50	0.00
6,900.0	72.08	270.00	6,646.3	284.6	-268.9	286.9	7.50	7.50	0.00
7,000.0	79.58	270.00	6,670.7	284.6	-365.8	383.6	7.50	7.50	0.00
7,058.9	84.00	270.00	6,679.2	284.6	-424.1	441.8	7.50	7.50	0.00
7"									
7,100.0	84.00	270.00	6,683.5	284.6	-465.0	482.6	0.00	0.00	0.00
7,132.9	84.00	270.00	6,686.9	284.6	-497.7	515.2	0.00	0.00	0.00
7,200.0	87.36	270.00	6,691.9	284.6	-564.6	582.0	5.00	5.00	0.00
7,255.1	90.11	270.00	6,693.2	284.6	-619.7	636.9	5.00	5.00	0.00
End of Build									
7,300.0	90.11	270.00	6,693.1	284.6	-664.6	681.7	0.00	0.00	0.00
7,400.0	90.11	270.00	6,692.9	284.6	-764.6	781.5	0.00	0.00	0.00
7,500.0	90.11	270.00	6,692.7	284.6	-864.6	881.3	0.00	0.00	0.00
7,600.0	90.11	270.00	6,692.5	284.6	-964.6	981.1	0.00	0.00	0.00
7,700.0	90.11	270.00	6,692.3	284.6	-1,064.6	1,080.9	0.00	0.00	0.00
7,800.0	90.11	270.00	6,692.1	284.6	-1,164.6	1,180.7	0.00	0.00	0.00
7,900.0	90.11	270.00	6,691.9	284.6	-1,264.6	1,280.5	0.00	0.00	0.00
8,000.0	90.11	270.00	6,691.7	284.6	-1,364.6	1,380.3	0.00	0.00	0.00
8,100.0	90.11	270.00	6,691.5	284.6	-1,464.6	1,480.0	0.00	0.00	0.00
8,200.0	90.11	270.00	6,691.3	284.6	-1,564.6	1,579.8	0.00	0.00	0.00
8,300.0	90.11	270.00	6,691.2	284.6	-1,664.6	1,679.6	0.00	0.00	0.00

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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 14X-414	**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)
8,400.0	90.11	270.00	6,691.0	284.6	-1,764.6	1,779.4	0.00	0.00	0.00
8,500.0	90.11	270.00	6,690.8	284.6	-1,864.6	1,879.2	0.00	0.00	0.00
8,600.0	90.11	270.00	6,690.6	284.6	-1,964.6	1,979.0	0.00	0.00	0.00
8,700.0	90.11	270.00	6,690.4	284.6	-2,064.6	2,078.8	0.00	0.00	0.00
8,800.0	90.11	270.00	6,690.2	284.6	-2,164.6	2,178.5	0.00	0.00	0.00
8,900.0	90.11	270.00	6,690.0	284.6	-2,264.6	2,278.3	0.00	0.00	0.00
9,000.0	90.11	270.00	6,689.8	284.6	-2,364.6	2,378.1	0.00	0.00	0.00
9,100.0	90.11	270.00	6,689.6	284.6	-2,464.6	2,477.9	0.00	0.00	0.00
9,200.0	90.11	270.00	6,689.4	284.6	-2,564.6	2,577.7	0.00	0.00	0.00
9,300.0	90.11	270.00	6,689.2	284.6	-2,664.6	2,677.5	0.00	0.00	0.00
9,400.0	90.11	270.00	6,689.0	284.6	-2,764.6	2,777.3	0.00	0.00	0.00
9,500.0	90.11	270.00	6,688.9	284.6	-2,864.6	2,877.1	0.00	0.00	0.00
9,600.0	90.11	270.00	6,688.7	284.6	-2,964.6	2,976.8	0.00	0.00	0.00
9,700.0	90.11	270.00	6,688.5	284.6	-3,064.6	3,076.6	0.00	0.00	0.00
9,800.0	90.11	270.00	6,688.3	284.6	-3,164.6	3,176.4	0.00	0.00	0.00
9,900.0	90.11	270.00	6,688.1	284.6	-3,264.6	3,276.2	0.00	0.00	0.00
10,000.0	90.11	270.00	6,687.9	284.6	-3,364.6	3,376.0	0.00	0.00	0.00
10,100.0	90.11	270.00	6,687.7	284.6	-3,464.6	3,475.8	0.00	0.00	0.00
10,200.0	90.11	270.00	6,687.5	284.6	-3,564.6	3,575.6	0.00	0.00	0.00
10,300.0	90.11	270.00	6,687.3	284.6	-3,664.6	3,675.3	0.00	0.00	0.00
10,400.0	90.11	270.00	6,687.1	284.6	-3,764.6	3,775.1	0.00	0.00	0.00
10,500.0	90.11	270.00	6,686.9	284.6	-3,864.6	3,874.9	0.00	0.00	0.00
10,600.0	90.11	270.00	6,686.7	284.6	-3,964.6	3,974.7	0.00	0.00	0.00
10,700.0	90.11	270.00	6,686.5	284.6	-4,064.6	4,074.5	0.00	0.00	0.00
10,800.0	90.11	270.00	6,686.4	284.6	-4,164.6	4,174.3	0.00	0.00	0.00
10,900.0	90.11	270.00	6,686.2	284.6	-4,264.6	4,274.1	0.00	0.00	0.00
10,986.1	90.11	270.00	6,686.0	284.6	-4,350.7	4,360.0	0.00	0.00	0.00
BHL 1725'FSL & 500'FWL									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,058.9	6,679.2	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,417.2	3,408.0	PARKMAN			
4,163.3	4,150.0	SUSSEX			
4,585.5	4,570.0	SHANNON			
6,306.5	6,273.0	SHARON SPRINGS			

Database:	Landmark	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-07-14)		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,500.0	1,500.0	0.0	0.0	KOP #1
5,938.9	5,919.4	284.6	260.0	KOP #2
7,255.1	6,693.2	284.6	-619.7	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.14-T5N-R64W
Peterson 14WX-HZ Pad Sec.14-T5N-R64W
Peterson 14X-414

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

Anticollision Report

10 March, 2014

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 3/7/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,986.1	Plan #1 (3-07-14) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Peterson 14WX-HZ Pad (Exist) Sec.14-T5N-R64W						
Foo's 14-1 (Exist.) - Wellbore #1 - Wellbore #1	8,309.4	6,681.1	225.5	40.5	1.219	Level 2, CC, ES, SF
Peterson 14-2 (Exist.) - Wellbore #1 - Wellbore #1	6,777.6	6,584.5	236.4	88.1	1.594	CC, ES, SF
Peterson 14WX-HZ Pad Sec.14-T5N-R64W						
Peterson 14W-234 - Wellbore #1 - Plan #1 (3-07-14)	1,000.0	1,000.0	32.8	28.5	7.678	CC, ES
Peterson 14W-234 - Wellbore #1 - Plan #1 (3-07-14)	10,986.1	10,852.1	363.9	133.3	1.578	SF
Peterson 14W-434 - Wellbore #1 - Plan #1 (3-07-14)	800.0	800.0	61.9	58.6	18.370	CC, ES
Peterson 14W-434 - Wellbore #1 - Plan #1 (3-07-14)	10,986.1	11,057.4	659.4	409.1	2.635	SF
Peterson 14X-304 - Wellbore #1 - Plan #1 (3-07-14)	1,500.0	1,500.0	29.1	22.6	4.471	CC, ES
Peterson 14X-304 - Wellbore #1 - Plan #1 (3-07-14)	10,986.1	10,881.3	343.0	104.3	1.437	Level 3, SF

Offset Design Peterson 14WX-HZ Pad (Exist) Sec.14-T5N-R64W - Foo's 14-1 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 6805-UNKNOWN **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,400.0	6,692.9	6,682.9	6,682.9	28.2	133.7	90.44	510.1	-1,674.0	936.9	775.1	161.80	5.791	
7,500.0	6,692.7	6,682.7	6,682.7	30.6	133.7	90.39	510.1	-1,674.0	840.2	676.0	164.17	5.118	
7,600.0	6,692.5	6,682.5	6,682.5	33.1	133.7	90.35	510.1	-1,674.0	744.4	577.8	166.61	4.468	
7,700.0	6,692.3	6,682.3	6,682.3	35.5	133.6	90.30	510.1	-1,674.0	649.8	480.7	169.10	3.843	
7,800.0	6,692.1	6,682.1	6,682.1	38.1	133.6	90.25	510.1	-1,674.0	557.1	385.4	171.64	3.246	
7,900.0	6,691.9	6,681.9	6,681.9	40.7	133.6	90.20	510.1	-1,674.0	467.4	293.2	174.21	2.683	
8,000.0	6,691.7	6,681.7	6,681.7	43.3	133.6	90.15	510.1	-1,674.0	382.9	206.0	176.81	2.165	
8,100.0	6,691.5	6,681.5	6,681.5	45.9	133.6	90.10	510.1	-1,674.0	307.7	128.3	179.44	1.715	
8,200.0	6,691.3	6,681.3	6,681.3	48.5	133.6	90.05	510.1	-1,674.0	250.6	68.6	182.09	1.377	Level 3
8,300.0	6,691.2	6,681.2	6,681.2	51.2	133.6	90.00	510.1	-1,674.0	225.7	41.0	184.75	1.222	Level 2
8,309.4	6,691.1	6,681.1	6,681.1	51.4	133.6	90.00	510.1	-1,674.0	225.5	40.5	185.00	1.219	Level 2, CC, ES, SF
8,400.0	6,691.0	6,681.0	6,681.0	53.9	133.6	89.96	510.1	-1,674.0	243.0	55.6	187.43	1.297	Level 3
8,500.0	6,690.8	6,680.8	6,680.8	56.6	133.6	89.91	510.1	-1,674.0	295.3	105.2	190.12	1.553	
8,600.0	6,690.6	6,680.6	6,680.6	59.3	133.6	89.86	510.1	-1,674.0	367.8	175.0	192.82	1.908	
8,700.0	6,690.4	6,680.4	6,680.4	62.0	133.6	89.81	510.1	-1,674.0	451.0	255.5	195.53	2.307	
8,800.0	6,690.2	6,680.2	6,680.2	64.7	133.6	89.76	510.1	-1,674.0	540.0	341.7	198.25	2.724	
8,900.0	6,690.0	6,680.0	6,680.0	67.4	133.6	89.71	510.1	-1,674.0	632.2	431.2	200.97	3.146	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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 - Foo's 14-1 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 6805-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,000.0	6,689.8	6,679.8	6,679.8	70.2	133.6	89.66	510.1	-1,674.0	726.5	522.8	203.70	3.566	
9,100.0	6,689.6	6,679.6	6,679.6	72.9	133.6	89.61	510.1	-1,674.0	822.1	615.7	206.44	3.983	
9,200.0	6,689.4	6,679.4	6,679.4	75.6	133.6	89.57	510.1	-1,674.0	918.7	709.5	209.18	4.392	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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 - Peterson 14-2 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 6866-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-16.67	521.0	-156.0	544.0				
100.0	100.0	85.0	85.0	0.1	1.7	-16.67	521.0	-156.0	543.8	542.0	1.81	300.025	
200.0	200.0	185.0	185.0	0.3	3.7	-16.67	521.0	-156.0	543.8	539.8	4.04	134.697	
300.0	300.0	285.0	285.0	0.6	5.7	-16.67	521.0	-156.0	543.8	537.6	6.26	86.843	
400.0	400.0	385.0	385.0	0.8	7.7	-16.67	521.0	-156.0	543.8	535.3	8.49	64.078	
500.0	500.0	485.0	485.0	1.0	9.7	-16.67	521.0	-156.0	543.8	533.1	10.71	50.769	
600.0	600.0	585.0	585.0	1.2	11.7	-16.67	521.0	-156.0	543.8	530.9	12.94	42.038	
700.0	700.0	685.0	685.0	1.5	13.7	-16.67	521.0	-156.0	543.8	528.7	15.16	35.869	
800.0	800.0	785.0	785.0	1.7	15.7	-16.67	521.0	-156.0	543.8	526.4	17.39	31.279	
900.0	900.0	885.0	885.0	1.9	17.7	-16.67	521.0	-156.0	543.8	524.2	19.61	27.731	
1,000.0	1,000.0	985.0	985.0	2.1	19.7	-16.67	521.0	-156.0	543.8	522.0	21.84	24.905	
1,100.0	1,100.0	1,085.0	1,085.0	2.4	21.7	-16.67	521.0	-156.0	543.8	519.8	24.06	22.602	
1,200.0	1,200.0	1,185.0	1,185.0	2.6	23.7	-16.67	521.0	-156.0	543.8	517.5	26.28	20.689	
1,300.0	1,300.0	1,285.0	1,285.0	2.8	25.7	-16.67	521.0	-156.0	543.8	515.3	28.51	19.075	
1,400.0	1,400.0	1,385.0	1,385.0	3.0	27.7	-16.67	521.0	-156.0	543.8	513.1	30.73	17.694	
1,500.0	1,500.0	1,485.0	1,485.0	3.3	29.7	-16.67	521.0	-156.0	543.8	510.9	32.96	16.500	
1,600.0	1,600.0	1,585.0	1,585.0	3.5	31.7	-59.25	521.0	-156.0	542.9	507.8	35.17	15.435	
1,700.0	1,699.8	1,684.8	1,684.8	3.7	33.7	-59.78	521.0	-156.0	540.3	502.9	37.37	14.455	
1,800.0	1,799.5	1,784.5	1,784.5	3.9	35.7	-60.65	521.0	-156.0	535.9	496.4	39.57	13.545	
1,900.0	1,898.9	1,883.9	1,883.9	4.2	37.7	-61.62	521.0	-156.0	530.9	489.1	41.79	12.704	
2,000.0	1,998.4	1,983.4	1,983.4	4.4	39.7	-62.61	521.0	-156.0	526.0	482.0	44.02	11.950	
2,100.0	2,097.8	2,082.8	2,082.8	4.6	41.7	-63.62	521.0	-156.0	521.3	475.1	46.25	11.271	
2,200.0	2,197.3	2,182.3	2,182.3	4.9	43.6	-64.64	521.0	-156.0	516.8	468.3	48.49	10.657	
2,300.0	2,296.8	2,281.8	2,281.8	5.2	45.6	-65.68	521.0	-156.0	512.4	461.7	50.74	10.099	
2,400.0	2,396.2	2,381.2	2,381.2	5.4	47.6	-66.74	521.0	-156.0	508.2	455.2	52.99	9.591	
2,500.0	2,495.7	2,480.7	2,480.7	5.7	49.6	-67.82	521.0	-156.0	504.2	449.0	55.24	9.127	
2,600.0	2,595.2	2,580.2	2,580.2	5.9	51.6	-68.91	521.0	-156.0	500.4	442.9	57.50	8.702	
2,700.0	2,694.6	2,679.6	2,679.6	6.2	53.6	-70.02	521.0	-156.0	496.7	437.0	59.76	8.312	
2,800.0	2,794.1	2,779.1	2,779.1	6.5	55.6	-71.15	521.0	-156.0	493.3	431.3	62.02	7.953	
2,900.0	2,893.5	2,878.5	2,878.5	6.8	57.6	-72.29	521.0	-156.0	490.0	425.7	64.29	7.622	
3,000.0	2,993.0	2,978.0	2,978.0	7.0	59.6	-73.44	521.0	-156.0	486.9	420.4	66.55	7.316	
3,100.0	3,092.5	3,077.5	3,077.5	7.3	61.5	-74.61	521.0	-156.0	484.1	415.3	68.82	7.034	
3,200.0	3,191.9	3,176.9	3,176.9	7.6	63.5	-75.79	521.0	-156.0	481.4	410.3	71.09	6.772	
3,300.0	3,291.4	3,276.4	3,276.4	7.9	65.5	-76.99	521.0	-156.0	479.0	405.6	73.37	6.528	
3,400.0	3,390.9	3,375.9	3,375.9	8.1	67.5	-78.19	521.0	-156.0	476.7	401.1	75.64	6.303	
3,500.0	3,490.3	3,475.3	3,475.3	8.4	69.5	-79.41	521.0	-156.0	474.7	396.8	77.92	6.093	
3,600.0	3,589.8	3,574.8	3,574.8	8.7	71.5	-80.64	521.0	-156.0	472.9	392.7	80.19	5.897	
3,700.0	3,689.2	3,674.2	3,674.2	9.0	73.5	-81.87	521.0	-156.0	471.3	388.9	82.47	5.715	
3,800.0	3,788.7	3,773.7	3,773.7	9.3	75.5	-83.12	521.0	-156.0	470.0	385.2	84.74	5.546	
3,900.0	3,888.2	3,873.2	3,873.2	9.6	77.5	-84.37	521.0	-156.0	468.8	381.8	87.02	5.388	
4,000.0	3,987.6	3,972.6	3,972.6	9.8	79.5	-85.62	521.0	-156.0	467.9	378.6	89.29	5.240	
4,100.0	4,087.1	4,072.1	4,072.1	10.1	81.4	-86.88	521.0	-156.0	467.2	375.7	91.57	5.103	
4,200.0	4,186.5	4,171.5	4,171.5	10.4	83.4	-88.14	521.0	-156.0	466.8	372.9	93.84	4.974	
4,300.0	4,286.0	4,271.0	4,271.0	10.7	85.4	-89.41	521.0	-156.0	466.6	370.4	96.12	4.854	
4,346.8	4,332.6	4,317.6	4,317.6	10.8	86.4	-90.00	521.0	-156.0	466.5	369.4	97.18	4.801	
4,400.0	4,385.5	4,370.5	4,370.5	11.0	87.4	-90.67	521.0	-156.0	466.6	368.2	98.39	4.742	
4,500.0	4,484.9	4,469.9	4,469.9	11.3	89.4	-91.94	521.0	-156.0	466.8	366.1	100.66	4.637	
4,600.0	4,584.4	4,569.4	4,569.4	11.6	91.4	-93.20	521.0	-156.0	467.3	364.3	102.93	4.540	
4,700.0	4,683.9	4,668.9	4,668.9	11.8	93.4	-94.46	521.0	-156.0	468.0	362.8	105.20	4.448	
4,800.0	4,783.3	4,768.3	4,768.3	12.1	95.4	-95.71	521.0	-156.0	468.9	361.4	107.47	4.363	
4,900.0	4,882.8	4,867.8	4,867.8	12.4	97.4	-96.96	521.0	-156.0	470.0	360.3	109.73	4.284	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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 - Peterson 14-2 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 6866-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,982.2	4,967.2	4,967.2	12.7	99.3	-98.21	521.0	-156.0	471.4	359.4	111.99	4.209	
5,100.0	5,081.7	5,066.7	5,066.7	13.0	101.3	-99.44	521.0	-156.0	473.0	358.8	114.25	4.140	
5,200.0	5,181.2	5,166.2	5,166.2	13.3	103.3	-100.67	521.0	-156.0	474.8	358.3	116.51	4.075	
5,300.0	5,280.7	5,265.7	5,265.7	13.5	105.3	-101.79	521.0	-156.0	476.7	357.9	118.75	4.014	
5,400.0	5,380.6	5,365.6	5,365.6	13.7	107.3	-102.51	521.0	-156.0	477.9	357.0	120.95	3.951	
5,500.0	5,480.5	5,465.5	5,465.5	13.9	109.3	-102.80	521.0	-156.0	478.4	355.3	123.12	3.886	
5,600.0	5,580.5	5,565.5	5,565.5	14.1	111.3	-60.39	521.0	-156.0	478.4	354.5	123.91	3.861	
5,678.9	5,659.4	5,644.4	5,644.4	14.2	112.9	-60.39	521.0	-156.0	478.4	352.8	125.66	3.807	
5,700.0	5,680.5	5,665.5	5,665.5	14.3	113.3	-60.39	521.0	-156.0	478.4	352.3	126.13	3.793	
5,778.9	5,759.4	5,744.4	5,744.4	14.4	114.9	-60.39	521.0	-156.0	478.4	350.6	127.87	3.742	
5,800.0	5,780.5	5,765.5	5,765.5	14.5	115.3	-60.39	521.0	-156.0	478.4	350.1	128.34	3.728	
5,878.9	5,859.4	5,844.4	5,844.4	14.6	116.9	-60.39	521.0	-156.0	478.4	348.4	130.09	3.678	
5,900.0	5,880.5	5,865.5	5,865.5	14.7	117.3	-60.39	521.0	-156.0	478.4	347.9	130.56	3.665	
6,000.0	5,980.5	5,965.5	5,965.5	14.8	119.3	29.83	521.0	-156.0	476.3	342.6	133.71	3.562	
6,100.0	6,079.3	6,064.3	6,064.3	14.9	121.3	31.21	521.0	-156.0	463.8	329.8	133.97	3.462	
6,200.0	6,175.5	6,160.5	6,160.5	15.0	123.2	34.01	521.0	-156.0	440.6	307.7	132.82	3.317	
6,300.0	6,267.2	6,252.2	6,252.2	15.0	125.0	38.63	521.0	-156.0	407.7	276.6	131.07	3.111	
6,400.0	6,353.0	6,338.0	6,338.0	15.0	126.8	45.62	521.0	-156.0	367.2	236.8	130.38	2.816	
6,500.0	6,431.4	6,416.4	6,416.4	15.0	128.3	55.49	521.0	-156.0	322.2	189.3	132.90	2.425	
6,600.0	6,501.0	6,486.0	6,486.0	15.1	129.7	68.00	521.0	-156.0	278.5	139.4	139.14	2.002	
6,700.0	6,560.7	6,545.7	6,545.7	15.8	130.9	81.22	521.0	-156.0	245.7	100.1	145.59	1.688	
6,777.6	6,599.5	6,584.5	6,584.5	16.6	131.7	90.00	521.0	-156.0	236.4	88.1	148.25	1.594	CC, ES, SF
6,800.0	6,609.4	6,594.4	6,594.4	16.8	131.9	92.09	521.0	-156.0	237.2	88.7	148.58	1.597	
6,900.0	6,646.3	6,631.3	6,631.3	18.2	132.6	98.36	521.0	-156.0	262.0	112.7	149.25	1.755	
7,000.0	6,670.7	6,655.7	6,655.7	19.8	133.1	99.12	521.0	-156.0	316.1	165.1	150.94	2.094	
7,100.0	6,683.5	6,668.5	6,668.5	21.7	133.4	97.78	521.0	-156.0	389.1	235.5	153.52	2.534	
7,200.0	6,691.9	6,676.9	6,676.9	23.8	133.5	94.56	521.0	-156.0	472.1	315.4	156.68	3.013	
7,300.0	6,693.1	6,678.1	6,678.1	26.0	133.6	89.76	521.0	-156.0	560.9	401.4	159.43	3.518	
7,400.0	6,692.9	6,677.9	6,677.9	28.2	133.6	89.72	521.0	-156.0	652.9	491.2	161.71	4.037	
7,500.0	6,692.7	6,677.7	6,677.7	30.6	133.6	89.67	521.0	-156.0	747.0	582.9	164.08	4.553	
7,600.0	6,692.5	6,677.5	6,677.5	33.1	133.6	89.62	521.0	-156.0	842.5	675.9	166.52	5.059	
7,700.0	6,692.3	6,677.3	6,677.3	35.5	133.5	89.58	521.0	-156.0	938.9	769.8	169.01	5.555	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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-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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	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	
300.0	300.0	300.0	300.0	0.6	0.6	0.00	32.8	0.0	32.8	31.7	1.12	29.175	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	32.8	0.0	32.8	31.2	1.57	20.839	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	32.8	0.0	32.8	30.8	2.02	16.208	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	32.8	0.0	32.8	30.3	2.47	13.261	
700.0	700.0	700.0	700.0	1.5	1.5	0.00	32.8	0.0	32.8	29.9	2.92	11.221	
800.0	800.0	800.0	800.0	1.7	1.7	0.00	32.8	0.0	32.8	29.4	3.37	9.725	
900.0	900.0	900.0	900.0	1.9	1.9	0.00	32.8	0.0	32.8	29.0	3.82	8.581	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	32.8	0.0	32.8	28.5	4.27	7.678	CC, ES
1,100.0	1,100.0	1,098.9	1,098.9	2.4	2.4	1.15	34.4	0.7	34.4	29.7	4.72	7.289	
1,200.0	1,200.0	1,197.6	1,197.5	2.6	2.6	4.03	39.0	2.8	39.2	34.0	5.16	7.593	
1,300.0	1,300.0	1,295.8	1,295.3	2.8	2.8	7.51	46.7	6.2	47.4	41.8	5.61	8.441	
1,400.0	1,400.0	1,393.4	1,392.1	3.0	3.0	10.74	57.5	10.9	59.0	52.9	6.07	9.713	
1,500.0	1,500.0	1,491.3	1,488.9	3.3	3.3	13.34	70.8	16.8	73.6	67.1	6.55	11.238	
1,600.0	1,600.0	1,590.3	1,586.8	3.5	3.6	-27.68	84.7	22.9	87.2	80.2	6.97	12.513	
1,700.0	1,699.8	1,689.8	1,685.1	3.7	3.9	-27.58	98.6	29.1	97.7	90.2	7.41	13.181	
1,800.0	1,799.5	1,789.5	1,783.6	3.9	4.2	-28.40	112.5	35.2	105.1	97.2	7.86	13.375	
1,900.0	1,898.9	1,889.3	1,882.2	4.2	4.5	-29.58	126.5	41.4	111.1	102.8	8.33	13.344	
2,000.0	1,998.4	1,989.1	1,980.9	4.4	4.8	-30.65	140.4	47.5	117.2	108.4	8.80	13.310	
2,100.0	2,097.8	2,088.8	2,079.5	4.6	5.1	-31.60	154.4	53.7	123.3	114.0	9.29	13.276	
2,200.0	2,197.3	2,188.6	2,178.1	4.9	5.5	-32.47	168.3	59.9	129.4	119.6	9.77	13.241	
2,300.0	2,296.8	2,288.4	2,276.7	5.2	5.8	-33.26	182.3	66.0	135.6	125.3	10.27	13.206	
2,400.0	2,396.2	2,388.2	2,375.3	5.4	6.1	-33.98	196.3	72.2	141.7	131.0	10.76	13.171	
2,500.0	2,495.7	2,488.0	2,474.0	5.7	6.5	-34.64	210.2	78.4	147.9	136.7	11.26	13.136	
2,600.0	2,595.2	2,587.8	2,572.6	5.9	6.8	-35.25	224.2	84.5	154.2	142.4	11.77	13.101	
2,700.0	2,694.6	2,687.6	2,671.2	6.2	7.1	-35.81	238.1	90.7	160.4	148.1	12.28	13.067	
2,800.0	2,794.1	2,787.4	2,769.8	6.5	7.5	-36.32	252.1	96.9	166.7	153.9	12.79	13.034	
2,900.0	2,893.5	2,887.2	2,868.4	6.8	7.8	-36.80	266.1	103.0	172.9	159.6	13.30	13.002	
3,000.0	2,993.0	2,987.0	2,967.1	7.0	8.2	-37.25	280.0	109.2	179.2	165.4	13.82	12.970	
3,100.0	3,092.5	3,086.8	3,065.7	7.3	8.5	-37.67	294.0	115.4	185.5	171.1	14.33	12.939	
3,200.0	3,191.9	3,186.6	3,164.3	7.6	8.9	-38.06	307.9	121.5	191.8	176.9	14.86	12.909	
3,300.0	3,291.4	3,286.4	3,262.9	7.9	9.2	-38.42	321.9	127.7	198.1	182.7	15.38	12.880	
3,400.0	3,390.9	3,386.2	3,361.5	8.1	9.6	-38.76	335.8	133.8	204.4	188.5	15.90	12.851	
3,500.0	3,490.3	3,486.0	3,460.2	8.4	9.9	-39.08	349.8	140.0	210.7	194.3	16.43	12.824	
3,600.0	3,589.8	3,585.7	3,558.8	8.7	10.3	-39.39	363.8	146.2	217.0	200.1	16.96	12.797	
3,700.0	3,689.2	3,685.5	3,657.4	9.0	10.6	-39.67	377.7	152.3	223.3	205.9	17.49	12.772	
3,800.0	3,788.7	3,785.3	3,756.0	9.3	11.0	-39.94	391.7	158.5	229.7	211.7	18.02	12.747	
3,900.0	3,888.2	3,885.1	3,854.6	9.6	11.3	-40.20	405.6	164.7	236.0	217.5	18.55	12.723	
4,000.0	3,987.6	3,984.9	3,953.3	9.8	11.7	-40.44	419.6	170.8	242.4	223.3	19.08	12.700	
4,100.0	4,087.1	4,084.7	4,051.9	10.1	12.0	-40.67	433.6	177.0	248.7	229.1	19.62	12.677	
4,200.0	4,186.5	4,184.5	4,150.5	10.4	12.4	-40.89	447.5	183.2	255.1	234.9	20.15	12.656	
4,300.0	4,286.0	4,284.3	4,249.1	10.7	12.7	-41.09	461.5	189.3	261.4	240.7	20.69	12.635	
4,400.0	4,385.5	4,384.1	4,347.8	11.0	13.1	-41.29	475.4	195.5	267.8	246.5	21.23	12.615	
4,500.0	4,484.9	4,483.9	4,446.4	11.3	13.5	-41.48	489.4	201.7	274.1	252.4	21.76	12.595	
4,600.0	4,584.4	4,583.7	4,545.0	11.6	13.8	-41.66	503.3	207.8	280.5	258.2	22.30	12.576	
4,700.0	4,683.9	4,683.5	4,643.6	11.8	14.2	-41.83	517.3	214.0	286.8	264.0	22.84	12.558	
4,800.0	4,783.3	4,783.3	4,742.2	12.1	14.5	-42.00	531.3	220.2	293.2	269.8	23.38	12.540	
4,900.0	4,882.8	4,883.1	4,840.9	12.4	14.9	-42.15	545.2	226.3	299.6	275.7	23.92	12.523	
5,000.0	4,982.2	4,982.9	4,939.5	12.7	15.2	-42.31	559.2	232.5	306.0	281.5	24.46	12.506	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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-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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,081.7	5,082.7	5,038.1	13.0	15.6	-42.45	573.1	238.6	312.3	287.3	25.01	12.490	
5,200.0	5,181.2	5,182.4	5,136.7	13.3	15.9	-42.59	587.1	244.8	318.7	293.2	25.55	12.474	
5,300.0	5,280.7	5,290.8	5,243.9	13.5	16.3	-42.74	601.2	251.0	324.9	298.8	26.05	12.472	
5,400.0	5,380.6	5,402.2	5,354.8	13.7	16.5	-42.76	611.9	255.8	330.1	303.7	26.43	12.492	
5,500.0	5,480.5	5,514.0	5,466.3	13.9	16.8	-42.61	618.6	258.7	334.4	307.6	26.75	12.502	
5,600.0	5,580.5	5,625.9	5,578.2	14.1	16.9	-0.01	621.4	260.0	336.8	307.2	29.63	11.367	
5,700.0	5,680.5	5,728.3	5,680.5	14.3	17.1	0.00	621.5	260.0	336.9	306.9	29.99	11.234	
5,800.0	5,780.5	5,828.3	5,780.5	14.5	17.2	-0.06	621.5	259.6	336.9	306.5	30.34	11.102	
5,811.3	5,791.8	5,839.6	5,791.8	14.5	17.3	-0.14	621.5	259.2	336.9	306.5	30.38	11.089	
5,900.0	5,880.5	5,927.3	5,879.0	14.7	17.3	-1.68	621.5	250.1	337.0	306.5	30.57	11.025	
6,000.0	5,980.5	6,022.9	5,972.2	14.8	17.4	85.05	621.5	228.9	338.2	309.3	28.85	11.723	
6,100.0	6,079.3	6,116.0	6,059.7	14.9	17.4	81.74	621.4	197.3	340.5	311.2	29.24	11.643	
6,200.0	6,175.5	6,207.2	6,141.0	15.0	17.4	78.64	621.4	156.2	343.7	314.2	29.51	11.649	
6,300.0	6,267.2	6,296.5	6,215.4	15.0	17.4	75.78	621.3	106.9	347.7	318.0	29.67	11.717	
6,400.0	6,353.0	6,384.3	6,282.4	15.0	17.4	73.20	621.2	50.2	352.0	322.2	29.81	11.807	
6,500.0	6,431.4	6,470.8	6,341.6	15.0	17.4	70.93	621.2	-12.7	356.5	326.4	30.05	11.863	
6,600.0	6,501.0	6,556.1	6,392.8	15.1	17.4	68.97	621.1	-81.0	360.8	330.3	30.54	11.813	
6,700.0	6,560.7	6,640.6	6,435.5	15.8	17.7	67.35	621.0	-153.8	364.8	333.3	31.45	11.600	
6,800.0	6,609.4	6,724.2	6,469.7	16.8	18.3	66.06	620.9	-230.1	368.2	335.3	32.89	11.194	
6,900.0	6,646.3	6,807.4	6,495.3	18.2	19.4	65.10	620.8	-309.2	370.8	335.9	34.93	10.616	
7,000.0	6,670.7	6,890.1	6,512.0	19.8	20.8	64.47	620.7	-390.1	372.5	335.0	37.57	9.915	
7,100.0	6,683.5	6,972.6	6,519.8	21.7	22.3	64.06	620.6	-472.2	373.8	333.2	40.64	9.199	
7,200.0	6,691.9	7,066.1	6,520.8	23.8	24.2	63.02	620.5	-565.7	377.0	333.0	44.00	8.570	
7,300.0	6,693.1	7,166.1	6,521.2	26.0	26.3	62.89	620.4	-665.7	377.3	329.3	47.94	7.870	
7,400.0	6,692.9	7,266.1	6,521.6	28.2	28.6	62.96	620.3	-765.7	376.9	324.8	52.04	7.242	
7,500.0	6,692.7	7,366.1	6,522.0	30.6	31.0	63.04	620.2	-865.7	376.5	320.2	56.31	6.687	
7,600.0	6,692.5	7,466.1	6,522.4	33.1	33.4	63.11	620.1	-965.7	376.1	315.4	60.70	6.196	
7,700.0	6,692.3	7,566.1	6,522.8	35.5	35.8	63.18	619.9	-1,065.7	375.8	310.6	65.21	5.763	
7,800.0	6,692.1	7,666.0	6,523.2	38.1	38.4	63.25	619.8	-1,165.7	375.4	305.6	69.80	5.379	
7,900.0	6,691.9	7,766.0	6,523.6	40.7	40.9	63.33	619.7	-1,265.7	375.0	300.6	74.46	5.037	
8,000.0	6,691.7	7,866.0	6,524.0	43.3	43.5	63.40	619.6	-1,365.7	374.7	295.5	79.18	4.732	
8,100.0	6,691.5	7,966.0	6,524.4	45.9	46.1	63.47	619.5	-1,465.7	374.3	290.3	83.95	4.459	
8,200.0	6,691.3	8,066.0	6,524.8	48.5	48.8	63.55	619.4	-1,565.7	373.9	285.2	88.76	4.213	
8,300.0	6,691.2	8,166.0	6,525.2	51.2	51.4	63.62	619.2	-1,665.6	373.6	279.9	93.62	3.990	
8,400.0	6,691.0	8,266.0	6,525.6	53.9	54.1	63.69	619.1	-1,765.6	373.2	274.7	98.50	3.789	
8,500.0	6,690.8	8,366.0	6,526.0	56.6	56.8	63.77	619.0	-1,865.6	372.8	269.4	103.42	3.605	
8,600.0	6,690.6	8,466.0	6,526.4	59.3	59.5	63.84	618.9	-1,965.6	372.5	264.1	108.36	3.437	
8,700.0	6,690.4	8,566.0	6,526.8	62.0	62.2	63.92	618.8	-2,065.6	372.1	258.8	113.33	3.283	
8,800.0	6,690.2	8,666.0	6,527.2	64.7	64.9	63.99	618.7	-2,165.6	371.7	253.4	118.31	3.142	
8,900.0	6,690.0	8,766.0	6,527.6	67.4	67.6	64.06	618.5	-2,265.6	371.4	248.0	123.32	3.011	
9,000.0	6,689.8	8,866.0	6,528.0	70.2	70.3	64.14	618.4	-2,365.6	371.0	242.7	128.34	2.891	
9,100.0	6,689.6	8,966.0	6,528.4	72.9	73.1	64.21	618.3	-2,465.6	370.6	237.2	133.38	2.779	
9,200.0	6,689.4	9,066.0	6,528.8	75.6	75.8	64.29	618.2	-2,565.6	370.3	231.8	138.44	2.675	
9,300.0	6,689.2	9,166.0	6,529.2	78.4	78.5	64.36	618.1	-2,665.6	369.9	226.4	143.51	2.578	
9,400.0	6,689.0	9,266.0	6,529.6	81.1	81.3	64.44	617.9	-2,765.6	369.5	221.0	148.60	2.487	
9,500.0	6,688.9	9,366.0	6,530.0	83.9	84.0	64.51	617.8	-2,865.6	369.2	215.5	153.69	2.402	
9,600.0	6,688.7	9,466.0	6,530.4	86.7	86.8	64.59	617.7	-2,965.6	368.8	210.0	158.80	2.323	
9,700.0	6,688.5	9,566.0	6,530.8	89.4	89.5	64.67	617.6	-3,065.6	368.5	204.5	163.92	2.248	
9,800.0	6,688.3	9,666.0	6,531.2	92.2	92.3	64.74	617.5	-3,165.6	368.1	199.1	169.05	2.177	
9,900.0	6,688.1	9,766.0	6,531.6	95.0	95.1	64.82	617.4	-3,265.6	367.8	193.6	174.20	2.111	
10,000.0	6,687.9	9,866.0	6,532.0	97.7	97.8	64.89	617.2	-3,365.6	367.4	188.0	179.35	2.049	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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-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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,687.7	9,966.0	6,532.4	100.5	100.6	64.97	617.1	-3,465.6	367.0	182.5	184.51	1.989	
10,200.0	6,687.5	10,066.0	6,532.8	103.3	103.4	65.05	617.0	-3,565.6	366.7	177.0	189.68	1.933	
10,300.0	6,687.3	10,166.0	6,533.2	106.0	106.2	65.12	616.9	-3,665.6	366.3	171.5	194.86	1.880	
10,400.0	6,687.1	10,266.0	6,533.6	108.8	108.9	65.20	616.8	-3,765.6	366.0	165.9	200.05	1.829	
10,500.0	6,686.9	10,366.0	6,534.0	111.6	111.7	65.28	616.7	-3,865.6	365.6	160.4	205.25	1.781	
10,600.0	6,686.7	10,466.0	6,534.4	114.4	114.5	65.35	616.5	-3,965.6	365.3	154.8	210.46	1.736	
10,700.0	6,686.5	10,566.0	6,534.8	117.2	117.3	65.43	616.4	-4,065.6	364.9	149.2	215.67	1.692	
10,800.0	6,686.4	10,666.0	6,535.2	120.0	120.0	65.51	616.3	-4,165.6	364.6	143.7	220.89	1.650	
10,900.0	6,686.2	10,766.0	6,535.6	122.7	122.8	65.58	616.2	-4,265.6	364.2	138.1	226.12	1.611	
10,986.1	6,686.0	10,852.1	6,536.0	125.1	125.2	65.65	616.1	-4,351.7	363.9	133.3	230.63	1.578 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	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	
300.0	300.0	300.0	300.0	0.6	0.6	0.00	61.9	0.0	61.9	60.8	1.12	55.109	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	61.9	0.0	61.9	60.4	1.57	39.363	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	61.9	0.0	61.9	59.9	2.02	30.616	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	61.9	0.0	61.9	59.5	2.47	25.049	
700.0	700.0	700.0	700.0	1.5	1.5	0.00	61.9	0.0	61.9	59.0	2.92	21.196	
800.0	800.0	800.0	800.0	1.7	1.7	0.00	61.9	0.0	61.9	58.6	3.37	18.370	CC, ES
900.0	900.0	897.9	897.9	1.9	1.9	0.43	63.5	0.5	63.6	59.8	3.82	16.662	
1,000.0	1,000.0	995.6	995.5	2.1	2.1	1.58	68.3	1.9	68.5	64.3	4.26	16.079	
1,100.0	1,100.0	1,092.9	1,092.4	2.4	2.4	3.17	76.3	4.2	76.8	72.1	4.71	16.295	
1,200.0	1,200.0	1,189.5	1,188.3	2.6	2.6	4.89	87.3	7.5	88.4	83.2	5.17	17.089	
1,300.0	1,300.0	1,285.2	1,282.8	2.8	2.9	6.53	101.2	11.6	103.3	97.7	5.65	18.298	
1,400.0	1,400.0	1,379.8	1,375.8	3.0	3.1	7.97	118.0	16.5	121.6	115.5	6.14	19.807	
1,500.0	1,500.0	1,477.3	1,471.3	3.3	3.5	9.18	137.1	22.2	141.8	135.2	6.66	21.308	
1,600.0	1,600.0	1,575.5	1,567.4	3.5	3.8	-32.45	156.3	27.8	160.6	153.7	6.98	23.000	
1,700.0	1,699.8	1,674.2	1,664.0	3.7	4.2	-32.44	175.7	33.5	176.6	169.1	7.44	23.736	
1,800.0	1,799.5	1,773.3	1,761.1	3.9	4.6	-33.01	195.1	39.2	189.6	181.7	7.90	24.000	
1,900.0	1,898.9	1,872.6	1,858.2	4.2	5.0	-33.88	214.5	45.0	201.3	193.0	8.38	24.012	
2,000.0	1,998.4	1,971.8	1,955.4	4.4	5.4	-34.66	233.9	50.7	213.1	204.2	8.87	24.010	
2,100.0	2,097.8	2,071.1	2,052.6	4.6	5.8	-35.36	253.4	56.4	224.9	215.5	9.37	23.997	
2,200.0	2,197.3	2,170.4	2,149.8	4.9	6.2	-35.99	272.8	62.2	236.7	226.8	9.87	23.974	
2,300.0	2,296.8	2,269.6	2,246.9	5.2	6.6	-36.56	292.3	67.9	248.5	238.2	10.38	23.944	
2,400.0	2,396.2	2,368.9	2,344.1	5.4	7.0	-37.08	311.7	73.6	260.4	249.5	10.89	23.909	
2,500.0	2,495.7	2,468.2	2,441.3	5.7	7.4	-37.55	331.1	79.4	272.3	260.9	11.41	23.871	
2,600.0	2,595.2	2,567.4	2,538.5	5.9	7.8	-37.98	350.6	85.1	284.2	272.2	11.93	23.830	
2,700.0	2,694.6	2,666.7	2,635.6	6.2	8.3	-38.38	370.0	90.8	296.1	283.6	12.45	23.787	
2,800.0	2,794.1	2,766.0	2,732.8	6.5	8.7	-38.75	389.5	96.6	308.0	295.0	12.97	23.744	
2,900.0	2,893.5	2,865.2	2,830.0	6.8	9.1	-39.09	408.9	102.3	320.0	306.5	13.50	23.700	
3,000.0	2,993.0	2,964.5	2,927.2	7.0	9.5	-39.40	428.3	108.0	331.9	317.9	14.03	23.655	
3,100.0	3,092.5	3,063.8	3,024.4	7.3	10.0	-39.70	447.8	113.7	343.9	329.3	14.56	23.612	
3,200.0	3,191.9	3,163.0	3,121.5	7.6	10.4	-39.97	467.2	119.5	355.8	340.7	15.10	23.568	
3,300.0	3,291.4	3,262.3	3,218.7	7.9	10.8	-40.23	486.7	125.2	367.8	352.2	15.63	23.525	
3,400.0	3,390.9	3,361.6	3,315.9	8.1	11.2	-40.47	506.1	130.9	379.8	363.6	16.17	23.483	
3,500.0	3,490.3	3,460.8	3,413.1	8.4	11.7	-40.69	525.6	136.7	391.8	375.0	16.71	23.442	
3,600.0	3,589.8	3,560.1	3,510.2	8.7	12.1	-40.90	545.0	142.4	403.7	386.5	17.25	23.402	
3,700.0	3,689.2	3,659.4	3,607.4	9.0	12.5	-41.10	564.4	148.1	415.7	398.0	17.80	23.363	
3,800.0	3,788.7	3,758.6	3,704.6	9.3	13.0	-41.29	583.9	153.9	427.7	409.4	18.34	23.325	
3,900.0	3,888.2	3,857.9	3,801.8	9.6	13.4	-41.47	603.3	159.6	439.8	420.9	18.88	23.287	
4,000.0	3,987.6	3,957.2	3,898.9	9.8	13.8	-41.64	622.8	165.3	451.8	432.3	19.43	23.251	
4,100.0	4,087.1	4,056.4	3,996.1	10.1	14.2	-41.80	642.2	171.1	463.8	443.8	19.98	23.216	
4,200.0	4,186.5	4,155.7	4,093.3	10.4	14.7	-41.95	661.6	176.8	475.8	455.3	20.52	23.182	
4,300.0	4,286.0	4,255.0	4,190.5	10.7	15.1	-42.09	681.1	182.5	487.8	466.7	21.07	23.149	
4,400.0	4,385.5	4,354.3	4,287.7	11.0	15.5	-42.23	700.5	188.2	499.8	478.2	21.62	23.117	
4,500.0	4,484.9	4,453.5	4,384.8	11.3	16.0	-42.36	720.0	194.0	511.9	489.7	22.17	23.085	
4,600.0	4,584.4	4,552.8	4,482.0	11.6	16.4	-42.49	739.4	199.7	523.9	501.2	22.72	23.055	
4,700.0	4,683.9	4,652.1	4,579.2	11.8	16.8	-42.60	758.8	205.4	535.9	512.6	23.27	23.026	
4,800.0	4,783.3	4,751.3	4,676.4	12.1	17.3	-42.72	778.3	211.2	547.9	524.1	23.83	22.997	
4,900.0	4,882.8	4,850.6	4,773.5	12.4	17.7	-42.83	797.7	216.9	560.0	535.6	24.38	22.969	
5,000.0	4,982.2	4,949.9	4,870.7	12.7	18.1	-42.93	817.2	222.6	572.0	547.1	24.93	22.943	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,081.7	5,049.1	4,967.9	13.0	18.6	-43.03	836.6	228.4	584.1	558.6	25.49	22.916	
5,200.0	5,181.2	5,148.4	5,065.1	13.3	19.0	-43.13	856.0	234.1	596.1	570.1	26.04	22.891	
5,300.0	5,280.7	5,247.6	5,162.1	13.5	19.4	-43.29	875.5	239.8	608.9	582.3	26.55	22.932	
5,400.0	5,380.6	5,358.1	5,270.5	13.7	19.9	-43.29	896.6	246.0	623.7	596.7	26.99	23.111	
5,500.0	5,480.5	5,483.5	5,394.1	13.9	20.3	-43.11	916.2	251.8	637.6	610.2	27.36	23.301	
5,600.0	5,580.5	5,609.9	5,519.7	14.1	20.6	-0.34	930.7	256.1	649.0	615.6	33.38	19.443	
5,700.0	5,680.5	5,737.5	5,646.9	14.3	20.8	-0.10	940.0	258.8	656.3	622.4	33.85	19.388	
5,800.0	5,780.5	5,865.7	5,775.0	14.5	21.0	0.00	943.8	260.0	659.3	625.0	34.25	19.249	
5,900.0	5,880.5	5,971.2	5,880.5	14.7	21.2	0.00	943.9	260.0	659.3	624.7	34.59	19.062	
5,908.7	5,889.2	5,979.9	5,889.2	14.7	21.2	90.00	943.9	260.0	659.3	630.4	28.96	22.768	
6,000.0	5,980.5	6,071.2	5,980.5	14.8	21.3	90.00	943.9	257.6	659.3	630.1	29.27	22.525	
6,100.0	6,079.3	6,171.2	6,079.3	14.9	21.3	90.00	943.9	243.1	659.3	629.8	29.49	22.360	
6,200.0	6,175.5	6,271.2	6,175.5	15.0	21.4	90.00	943.9	215.8	659.3	629.7	29.62	22.258	
6,300.0	6,267.2	6,371.2	6,267.2	15.0	21.4	90.00	943.9	176.2	659.3	629.6	29.74	22.171	
6,400.0	6,353.0	6,471.2	6,353.0	15.0	21.4	90.00	943.9	125.0	659.3	629.4	29.94	22.022	
6,500.0	6,431.4	6,571.2	6,431.4	15.0	21.4	90.00	943.9	63.0	659.3	629.0	30.36	21.717	
6,600.0	6,501.0	6,671.2	6,501.1	15.1	21.4	90.00	943.9	-8.6	659.3	628.2	31.16	21.160	
6,700.0	6,560.7	6,771.2	6,560.7	15.8	21.4	90.00	943.9	-88.8	659.3	626.9	32.49	20.295	
6,800.0	6,609.4	6,871.2	6,609.4	16.8	21.6	90.00	943.9	-176.1	659.3	624.9	34.45	19.142	
6,900.0	6,646.3	6,971.2	6,646.3	18.2	22.0	90.00	943.9	-268.9	659.3	622.3	37.05	17.794	
7,000.0	6,670.7	7,071.3	6,670.8	19.8	22.8	90.00	943.9	-365.8	659.3	619.1	40.25	16.380	
7,100.0	6,683.5	7,171.3	6,683.5	21.7	24.1	90.00	943.9	-465.0	659.3	615.4	43.93	15.007	
7,200.0	6,691.9	7,271.3	6,692.0	23.8	25.8	90.00	943.9	-564.6	659.3	611.4	47.97	13.745	
7,300.0	6,693.1	7,371.3	6,693.1	26.0	27.8	90.00	943.9	-664.6	659.3	607.1	52.26	12.616	
7,400.0	6,692.9	7,471.3	6,692.9	28.2	29.9	90.00	943.9	-764.6	659.3	602.6	56.79	11.611	
7,500.0	6,692.7	7,571.3	6,692.7	30.6	32.1	90.00	943.9	-864.6	659.4	597.9	61.49	10.723	
7,600.0	6,692.5	7,671.3	6,692.5	33.1	34.4	90.00	943.9	-964.6	659.4	593.0	66.33	9.940	
7,700.0	6,692.3	7,771.3	6,692.4	35.5	36.8	90.00	943.9	-1,064.6	659.4	588.1	71.29	9.249	
7,800.0	6,692.1	7,871.3	6,692.2	38.1	39.3	90.00	943.9	-1,164.6	659.4	583.0	76.34	8.637	
7,900.0	6,691.9	7,971.3	6,692.0	40.7	41.8	90.00	943.9	-1,264.6	659.4	577.9	81.46	8.094	
8,000.0	6,691.7	8,071.3	6,691.8	43.3	44.3	90.00	943.9	-1,364.6	659.4	572.7	86.65	7.610	
8,100.0	6,691.5	8,171.3	6,691.6	45.9	46.9	90.00	943.9	-1,464.6	659.4	567.5	91.89	7.176	
8,200.0	6,691.3	8,271.3	6,691.4	48.5	49.5	90.00	943.9	-1,564.6	659.4	562.2	97.16	6.786	
8,300.0	6,691.2	8,371.3	6,691.2	51.2	52.1	90.00	943.9	-1,664.6	659.4	556.9	102.48	6.434	
8,400.0	6,691.0	8,471.3	6,691.0	53.9	54.7	90.00	943.9	-1,764.6	659.4	551.5	107.83	6.115	
8,500.0	6,690.8	8,571.3	6,690.8	56.6	57.4	90.00	943.9	-1,864.6	659.4	546.2	113.20	5.825	
8,600.0	6,690.6	8,671.3	6,690.6	59.3	60.0	90.00	943.9	-1,964.6	659.4	540.8	118.59	5.560	
8,700.0	6,690.4	8,771.3	6,690.4	62.0	62.7	90.00	943.9	-2,064.6	659.4	535.4	124.01	5.317	
8,800.0	6,690.2	8,871.3	6,690.2	64.7	65.4	90.00	943.9	-2,164.6	659.4	529.9	129.44	5.094	
8,900.0	6,690.0	8,971.3	6,690.0	67.4	68.1	90.00	943.9	-2,264.6	659.4	524.5	134.89	4.888	
9,000.0	6,689.8	9,071.3	6,689.9	70.2	70.8	90.00	944.0	-2,364.6	659.4	519.0	140.35	4.698	
9,100.0	6,689.6	9,171.3	6,689.7	72.9	73.5	90.00	944.0	-2,464.6	659.4	513.6	145.82	4.522	
9,200.0	6,689.4	9,271.3	6,689.5	75.6	76.2	90.00	944.0	-2,564.6	659.4	508.1	151.31	4.358	
9,300.0	6,689.2	9,371.3	6,689.3	78.4	78.9	90.00	944.0	-2,664.6	659.4	502.6	156.80	4.205	
9,400.0	6,689.0	9,471.3	6,689.1	81.1	81.7	90.00	944.0	-2,764.6	659.4	497.1	162.30	4.063	
9,500.0	6,688.9	9,571.3	6,688.9	83.9	84.4	90.00	944.0	-2,864.6	659.4	491.6	167.81	3.929	
9,600.0	6,688.7	9,671.3	6,688.7	86.7	87.2	90.00	944.0	-2,964.6	659.4	486.1	173.33	3.804	
9,700.0	6,688.5	9,771.3	6,688.5	89.4	89.9	90.00	944.0	-3,064.6	659.4	480.5	178.85	3.687	
9,800.0	6,688.3	9,871.3	6,688.3	92.2	92.7	90.00	944.0	-3,164.6	659.4	475.0	184.38	3.576	
9,900.0	6,688.1	9,971.3	6,688.1	95.0	95.4	90.00	944.0	-3,264.6	659.4	469.5	189.92	3.472	
10,000.0	6,687.9	10,071.3	6,687.9	97.7	98.2	90.00	944.0	-3,364.6	659.4	463.9	195.45	3.374	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,687.7	10,171.3	6,687.7	100.5	100.9	90.00	944.0	-3,464.6	659.4	458.4	201.00	3.281	
10,200.0	6,687.5	10,271.3	6,687.6	103.3	103.7	90.00	944.0	-3,564.6	659.4	452.8	206.55	3.192	
10,300.0	6,687.3	10,371.3	6,687.4	106.0	106.4	90.00	944.0	-3,664.6	659.4	447.3	212.10	3.109	
10,400.0	6,687.1	10,471.3	6,687.2	108.8	109.2	90.00	944.0	-3,764.6	659.4	441.7	217.65	3.030	
10,500.0	6,686.9	10,571.3	6,687.0	111.6	112.0	90.00	944.0	-3,864.6	659.4	436.2	223.21	2.954	
10,600.0	6,686.7	10,671.3	6,686.8	114.4	114.8	90.00	944.0	-3,964.6	659.4	430.6	228.77	2.882	
10,700.0	6,686.5	10,771.3	6,686.6	117.2	117.5	90.00	944.0	-4,064.6	659.4	425.1	234.33	2.814	
10,800.0	6,686.4	10,871.3	6,686.4	120.0	120.3	90.00	944.0	-4,164.6	659.4	419.5	239.90	2.749	
10,900.0	6,686.2	10,971.3	6,686.2	122.7	123.1	90.00	944.0	-4,264.6	659.4	413.9	245.47	2.686	
10,986.1	6,686.0	11,057.4	6,686.0	125.1	125.5	90.00	944.0	-4,350.7	659.4	409.1	250.27	2.635	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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-304 - Wellbore #1 - Plan #1 (3-07-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-29.1	0.0	29.1				
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-29.1	0.0	29.1	28.9	0.22	129.650	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-29.1	0.0	29.1	28.5	0.67	43.217	
300.0	300.0	300.0	300.0	0.6	0.6	-180.00	-29.1	0.0	29.1	28.0	1.12	25.930	
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-29.1	0.0	29.1	27.6	1.57	18.521	
500.0	500.0	500.0	500.0	1.0	1.0	-180.00	-29.1	0.0	29.1	27.1	2.02	14.406	
600.0	600.0	600.0	600.0	1.2	1.2	-180.00	-29.1	0.0	29.1	26.7	2.47	11.786	
700.0	700.0	700.0	700.0	1.5	1.5	-180.00	-29.1	0.0	29.1	26.2	2.92	9.973	
800.0	800.0	800.0	800.0	1.7	1.7	-180.00	-29.1	0.0	29.1	25.8	3.37	8.643	
900.0	900.0	900.0	900.0	1.9	1.9	-180.00	-29.1	0.0	29.1	25.3	3.82	7.626	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-180.00	-29.1	0.0	29.1	24.9	4.27	6.824	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-180.00	-29.1	0.0	29.1	24.4	4.72	6.174	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-180.00	-29.1	0.0	29.1	24.0	5.17	5.637	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-180.00	-29.1	0.0	29.1	23.5	5.62	5.186	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-180.00	-29.1	0.0	29.1	23.1	6.07	4.802	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-180.00	-29.1	0.0	29.1	22.6	6.52	4.471	CC, ES
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	139.78	-29.1	0.0	30.5	23.5	6.96	4.373	
1,700.0	1,699.8	1,699.8	1,699.8	3.7	3.7	145.34	-29.1	0.0	34.6	27.2	7.40	4.677	
1,800.0	1,799.5	1,799.5	1,799.5	3.9	3.9	152.03	-29.1	0.0	42.1	34.2	7.83	5.372	
1,900.0	1,898.9	1,898.9	1,898.9	4.2	4.2	157.44	-29.1	0.0	51.5	43.2	8.28	6.218	
2,000.0	1,998.4	1,998.4	1,998.4	4.4	4.4	161.16	-29.1	0.0	61.2	52.4	8.72	7.012	
2,100.0	2,097.8	2,098.8	2,098.7	4.6	4.6	162.60	-29.2	1.7	70.4	61.2	9.16	7.686	
2,200.0	2,197.3	2,199.4	2,199.2	4.9	4.8	161.33	-29.5	6.9	78.4	68.8	9.59	8.171	
2,300.0	2,296.8	2,299.3	2,298.9	5.2	5.0	158.65	-29.9	14.7	85.5	75.5	10.03	8.523	
2,400.0	2,396.2	2,399.0	2,398.2	5.4	5.2	156.32	-30.4	22.6	92.8	82.3	10.49	8.848	
2,500.0	2,495.7	2,498.7	2,497.6	5.7	5.4	154.33	-30.8	30.5	100.2	89.3	10.95	9.152	
2,600.0	2,595.2	2,598.3	2,596.9	5.9	5.7	152.61	-31.2	38.4	107.7	96.3	11.42	9.435	
2,700.0	2,694.6	2,698.0	2,696.3	6.2	5.9	151.12	-31.7	46.3	115.3	103.4	11.89	9.698	
2,800.0	2,794.1	2,797.7	2,795.6	6.5	6.1	149.82	-32.1	54.2	123.0	110.6	12.37	9.942	
2,900.0	2,893.5	2,897.3	2,895.0	6.8	6.3	148.67	-32.5	62.1	130.7	117.8	12.85	10.168	
3,000.0	2,993.0	2,997.0	2,994.4	7.0	6.6	147.64	-33.0	70.0	138.5	125.1	13.34	10.378	
3,100.0	3,092.5	3,096.7	3,093.7	7.3	6.8	146.73	-33.4	77.9	146.3	132.4	13.83	10.573	
3,200.0	3,191.9	3,196.4	3,193.1	7.6	7.1	145.91	-33.8	85.7	154.1	139.8	14.33	10.754	
3,300.0	3,291.4	3,296.0	3,292.4	7.9	7.3	145.16	-34.3	93.6	162.0	147.2	14.83	10.923	
3,400.0	3,390.9	3,395.7	3,391.8	8.1	7.6	144.49	-34.7	101.5	169.9	154.5	15.33	11.081	
3,500.0	3,490.3	3,495.4	3,491.1	8.4	7.8	143.88	-35.1	109.4	177.8	162.0	15.83	11.228	
3,600.0	3,589.8	3,595.0	3,590.5	8.7	8.0	143.32	-35.5	117.3	185.7	169.4	16.34	11.366	
3,700.0	3,689.2	3,694.7	3,689.8	9.0	8.3	142.80	-36.0	125.2	193.7	176.8	16.85	11.494	
3,800.0	3,788.7	3,794.4	3,789.2	9.3	8.5	142.33	-36.4	133.1	201.6	184.3	17.36	11.615	
3,900.0	3,888.2	3,894.0	3,888.5	9.6	8.8	141.89	-36.8	141.0	209.6	191.7	17.87	11.729	
4,000.0	3,987.6	3,993.7	3,987.9	9.8	9.0	141.48	-37.3	148.9	217.6	199.2	18.38	11.836	
4,100.0	4,087.1	4,093.4	4,087.3	10.1	9.3	141.11	-37.7	156.8	225.6	206.7	18.90	11.936	
4,200.0	4,186.5	4,193.0	4,186.6	10.4	9.6	140.75	-38.1	164.7	233.6	214.2	19.42	12.031	
4,300.0	4,286.0	4,292.7	4,286.0	10.7	9.8	140.43	-38.6	172.6	241.6	221.7	19.93	12.121	
4,400.0	4,385.5	4,392.4	4,385.3	11.0	10.1	140.12	-39.0	180.5	249.6	229.2	20.45	12.206	
4,500.0	4,484.9	4,492.1	4,484.7	11.3	10.3	139.83	-39.4	188.4	257.7	236.7	20.97	12.286	
4,600.0	4,584.4	4,591.7	4,584.0	11.6	10.6	139.56	-39.9	196.3	265.7	244.2	21.49	12.362	
4,700.0	4,683.9	4,691.4	4,683.4	11.8	10.8	139.31	-40.3	204.2	273.7	251.7	22.01	12.435	
4,800.0	4,783.3	4,791.1	4,782.7	12.1	11.1	139.07	-40.7	212.1	281.8	259.2	22.54	12.503	
4,900.0	4,882.8	4,890.7	4,882.1	12.4	11.4	138.84	-41.2	219.9	289.8	266.8	23.06	12.569	
5,000.0	4,982.2	4,990.4	4,981.5	12.7	11.6	138.62	-41.6	227.8	297.9	274.3	23.58	12.631	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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-304 - Wellbore #1 - Plan #1 (3-07-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,081.7	5,090.1	5,080.8	13.0	11.9	138.42	-42.0	235.7	305.9	281.8	24.11	12.690	
5,200.0	5,181.2	5,189.7	5,180.2	13.3	12.1	138.23	-42.4	243.6	314.0	289.4	24.63	12.747	
5,300.0	5,280.7	5,289.5	5,279.6	13.5	12.4	137.99	-42.9	251.5	321.3	296.1	25.15	12.777	
5,400.0	5,380.6	5,389.9	5,379.8	13.7	12.6	137.71	-43.2	257.5	326.0	300.4	25.55	12.760	
5,500.0	5,480.5	5,490.5	5,480.4	13.9	12.8	137.59	-43.3	259.9	327.9	302.0	25.90	12.661	
5,600.0	5,580.5	5,590.6	5,580.5	14.1	13.0	180.00	-43.3	260.0	327.9	302.6	25.39	12.917	
5,700.0	5,680.5	5,690.6	5,680.5	14.3	13.2	180.00	-43.3	260.0	327.9	302.1	25.80	12.712	
5,800.0	5,780.5	5,790.6	5,780.5	14.5	13.4	180.00	-43.3	260.0	327.9	301.7	26.21	12.512	
5,856.1	5,836.6	5,846.7	5,836.6	14.6	13.5	-180.00	-43.3	260.0	327.9	301.5	26.44	12.403	
5,900.0	5,880.5	5,890.6	5,880.4	14.7	13.5	-179.77	-43.3	258.7	327.9	301.3	26.61	12.322	
6,000.0	5,980.5	5,989.3	5,978.4	14.8	13.7	-88.05	-43.3	246.5	328.1	300.4	27.70	11.846	
6,100.0	6,079.3	6,086.6	6,072.5	14.9	13.7	-86.20	-43.3	222.3	328.7	300.8	27.84	11.806	
6,200.0	6,175.5	6,182.7	6,161.8	15.0	13.8	-84.44	-43.3	186.8	329.5	301.6	27.93	11.800	
6,300.0	6,267.2	6,277.7	6,244.9	15.0	13.9	-82.78	-43.3	141.0	330.6	302.5	28.03	11.793	
6,400.0	6,353.0	6,371.6	6,320.9	15.0	14.1	-81.26	-43.3	85.9	331.8	303.6	28.26	11.743	
6,500.0	6,431.4	6,464.6	6,388.9	15.0	14.4	-79.89	-43.3	22.6	333.1	304.4	28.73	11.597	
6,600.0	6,501.0	6,556.8	6,448.3	15.1	14.9	-78.69	-43.3	-47.9	334.5	304.9	29.57	11.311	
6,700.0	6,560.7	6,650.0	6,499.3	15.8	15.7	-77.67	-43.3	-125.8	335.7	304.8	30.91	10.859	
6,800.0	6,609.4	6,739.4	6,538.9	16.8	16.8	-76.86	-43.3	-206.0	336.8	304.0	32.80	10.266	
6,900.0	6,646.3	6,830.0	6,569.2	18.2	18.1	-76.25	-43.3	-291.3	337.6	302.3	35.27	9.572	
7,000.0	6,670.7	6,920.4	6,589.2	19.8	19.7	-75.85	-43.3	-379.3	338.2	299.9	38.25	8.841	
7,100.0	6,683.5	7,010.5	6,598.6	21.7	21.4	-75.50	-43.3	-468.9	338.8	297.1	41.66	8.132	
7,200.0	6,691.9	7,105.9	6,599.2	23.8	23.4	-74.22	-43.3	-564.3	340.8	295.5	45.27	7.528	
7,300.0	6,693.1	7,205.9	6,598.8	26.0	25.6	-73.97	-43.3	-664.3	341.2	291.8	49.41	6.905	
7,400.0	6,692.9	7,305.9	6,598.5	28.2	27.9	-73.94	-43.3	-764.3	341.2	287.4	53.83	6.339	
7,500.0	6,692.7	7,405.9	6,598.1	30.6	30.3	-73.91	-43.3	-864.3	341.3	282.9	58.42	5.842	
7,600.0	6,692.5	7,505.9	6,597.8	33.1	32.7	-73.89	-43.3	-964.3	341.3	278.2	63.13	5.407	
7,700.0	6,692.3	7,605.9	6,597.4	35.5	35.3	-73.86	-43.3	-1,064.3	341.4	273.4	67.95	5.024	
7,800.0	6,692.1	7,705.9	6,597.1	38.1	37.8	-73.84	-43.3	-1,164.3	341.4	268.6	72.84	4.687	
7,900.0	6,691.9	7,805.9	6,596.7	40.7	40.4	-73.81	-43.3	-1,264.3	341.5	263.7	77.81	4.389	
8,000.0	6,691.7	7,905.9	6,596.4	43.3	43.0	-73.79	-43.3	-1,364.3	341.5	258.7	82.82	4.123	
8,100.0	6,691.5	8,005.9	6,596.0	45.9	45.7	-73.76	-43.3	-1,464.3	341.5	253.7	87.88	3.886	
8,200.0	6,691.3	8,105.9	6,595.7	48.5	48.3	-73.74	-43.3	-1,564.3	341.6	248.6	92.98	3.674	
8,300.0	6,691.2	8,205.9	6,595.3	51.2	51.0	-73.71	-43.3	-1,664.3	341.6	243.5	98.11	3.482	
8,400.0	6,691.0	8,305.9	6,595.0	53.9	53.7	-73.69	-43.3	-1,764.3	341.7	238.4	103.26	3.309	
8,500.0	6,690.8	8,405.9	6,594.6	56.6	56.4	-73.66	-43.3	-1,864.3	341.7	233.3	108.44	3.151	
8,600.0	6,690.6	8,505.9	6,594.3	59.3	59.1	-73.64	-43.3	-1,964.3	341.8	228.1	113.63	3.008	
8,700.0	6,690.4	8,605.9	6,593.9	62.0	61.8	-73.61	-43.3	-2,064.3	341.8	223.0	118.84	2.876	
8,800.0	6,690.2	8,705.9	6,593.6	64.7	64.5	-73.58	-43.3	-2,164.3	341.8	217.8	124.07	2.755	
8,900.0	6,690.0	8,805.9	6,593.2	67.4	67.3	-73.56	-43.3	-2,264.3	341.9	212.6	129.31	2.644	
9,000.0	6,689.8	8,905.9	6,592.9	70.2	70.0	-73.53	-43.3	-2,364.3	341.9	207.4	134.55	2.541	
9,100.0	6,689.6	9,005.9	6,592.5	72.9	72.8	-73.51	-43.3	-2,464.3	342.0	202.2	139.81	2.446	
9,200.0	6,689.4	9,105.9	6,592.2	75.6	75.5	-73.48	-43.3	-2,564.3	342.0	196.9	145.07	2.358	
9,300.0	6,689.2	9,205.9	6,591.8	78.4	78.3	-73.46	-43.3	-2,664.3	342.1	191.7	150.35	2.275	
9,400.0	6,689.0	9,305.9	6,591.5	81.1	81.0	-73.43	-43.3	-2,764.2	342.1	186.5	155.62	2.198	
9,500.0	6,688.9	9,405.9	6,591.2	83.9	83.8	-73.41	-43.3	-2,864.2	342.1	181.2	160.91	2.126	
9,600.0	6,688.7	9,505.9	6,590.8	86.7	86.5	-73.38	-43.3	-2,964.2	342.2	176.0	166.20	2.059	
9,700.0	6,688.5	9,605.9	6,590.5	89.4	89.3	-73.36	-43.3	-3,064.2	342.2	170.7	171.49	1.996	
9,800.0	6,688.3	9,705.9	6,590.1	92.2	92.1	-73.33	-43.3	-3,164.2	342.3	165.5	176.78	1.936	
9,900.0	6,688.1	9,805.9	6,589.8	95.0	94.9	-73.31	-43.3	-3,264.2	342.3	160.2	182.08	1.880	
10,000.0	6,687.9	9,905.9	6,589.4	97.7	97.6	-73.28	-43.3	-3,364.2	342.4	155.0	187.39	1.827	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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-304 - Wellbore #1 - Plan #1 (3-07-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

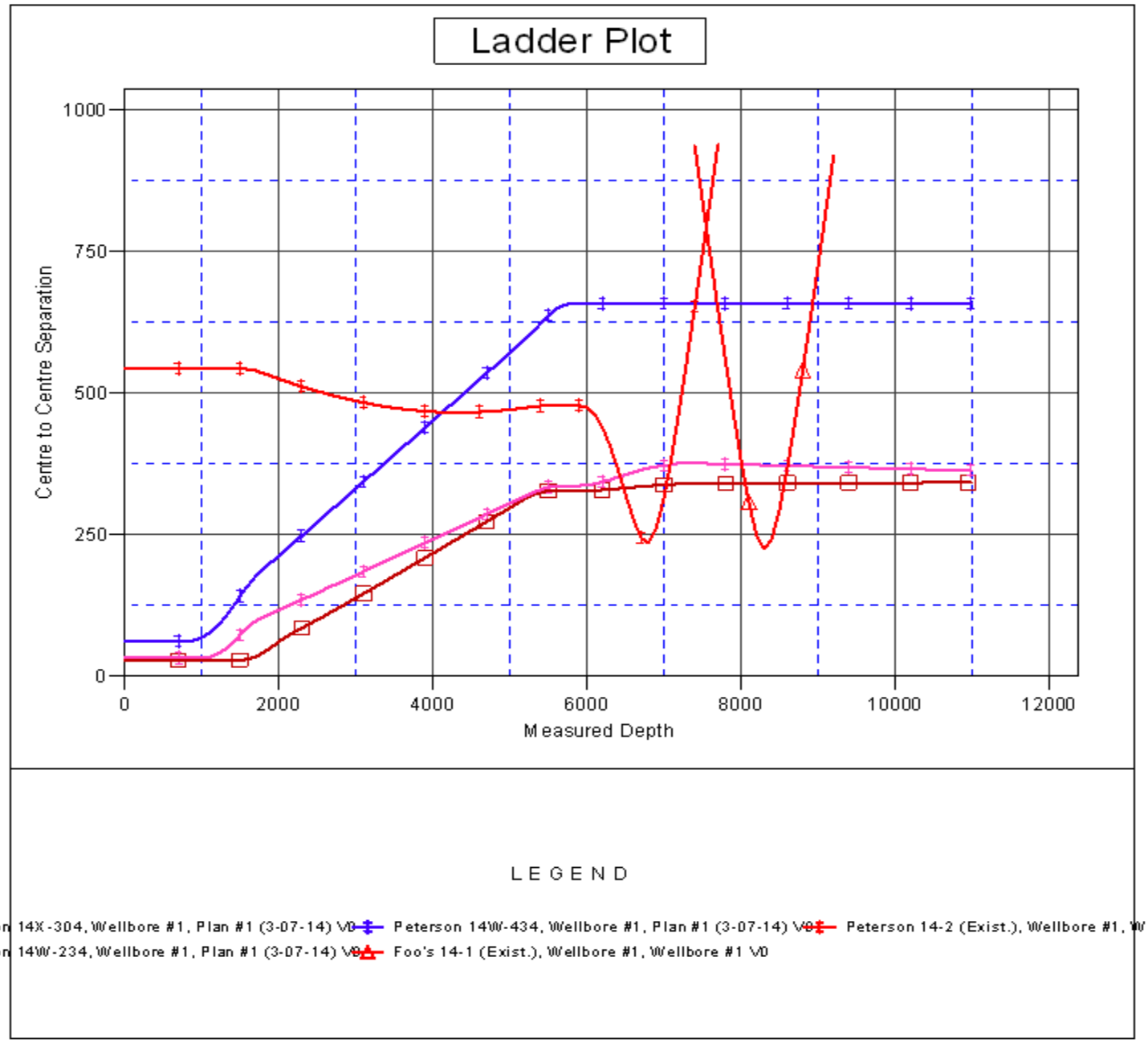
Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,687.7	10,005.9	6,589.1	100.5	100.4	-73.26	-43.3	-3,464.2	342.4	149.7	192.69	1.777	
10,200.0	6,687.5	10,105.9	6,588.7	103.3	103.2	-73.23	-43.3	-3,564.2	342.5	144.5	198.00	1.730	
10,300.0	6,687.3	10,205.9	6,588.4	106.0	106.0	-73.21	-43.3	-3,664.2	342.5	139.2	203.31	1.685	
10,400.0	6,687.1	10,305.9	6,588.0	108.8	108.7	-73.18	-43.3	-3,764.2	342.5	133.9	208.62	1.642	
10,500.0	6,686.9	10,405.9	6,587.7	111.6	111.5	-73.16	-43.3	-3,864.2	342.6	128.7	213.93	1.601	
10,600.0	6,686.7	10,505.9	6,587.3	114.4	114.3	-73.13	-43.3	-3,964.2	342.6	123.4	219.24	1.563	
10,700.0	6,686.5	10,605.9	6,587.0	117.2	117.1	-73.10	-43.3	-4,064.2	342.7	118.1	224.56	1.526	
10,800.0	6,686.4	10,705.9	6,586.6	120.0	119.9	-73.08	-43.3	-4,164.2	342.7	112.8	229.87	1.491	Level 3
10,900.0	6,686.2	10,805.9	6,586.3	122.7	122.6	-73.05	-43.3	-4,264.2	342.8	107.6	235.13	1.458	Level 3
10,947.0	6,686.1	10,852.9	6,586.1	124.1	123.5	-73.04	-43.3	-4,311.3	342.8	105.6	237.19	1.445	Level 3
10,986.1	6,686.0	10,881.3	6,586.0	125.1	124.0	-73.04	-43.3	-4,339.6	343.0	104.3	238.71	1.437	Level 3, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Peterson 14X-414
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 14X-414	**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 14X-414
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 14X-414
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 14X-414	**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')	Coordinates are relative to: Peterson 14X-414
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 °	Grid Convergence at Surface is: 0.64°