

# PETROLEUM DEVELOPMENT CORP Weld County CO

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

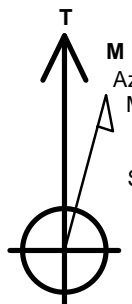
Surface Location: Peterson 14WX-HZ Pad Sec.14-T5N-R64W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4571.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1388535.63	3275959.82	40.395700	-104.509200	
RKB - 15' WELL @ 4586.0ft (RKB - 15')						

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 1337'FSL & 310'FEL	1.0	0.0	0.0	Point
BHL 405'FSL, 500'FWL	6686.0	-917.7	-4309.2	Point



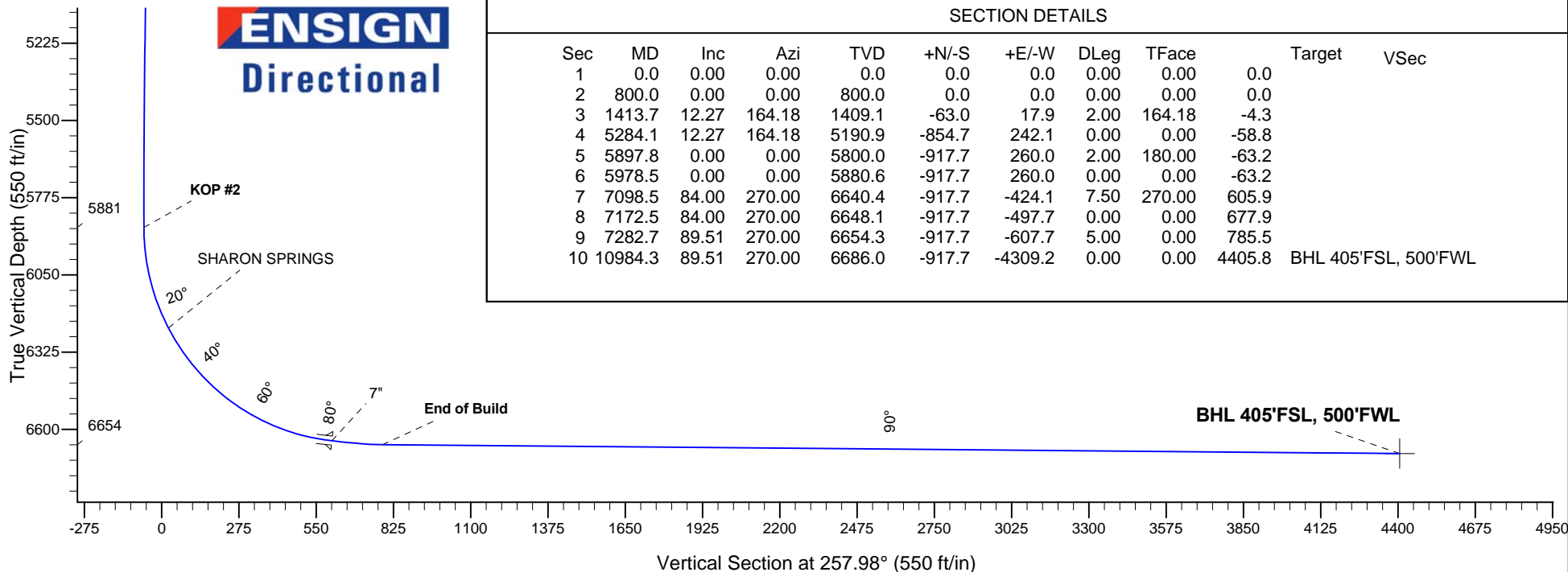
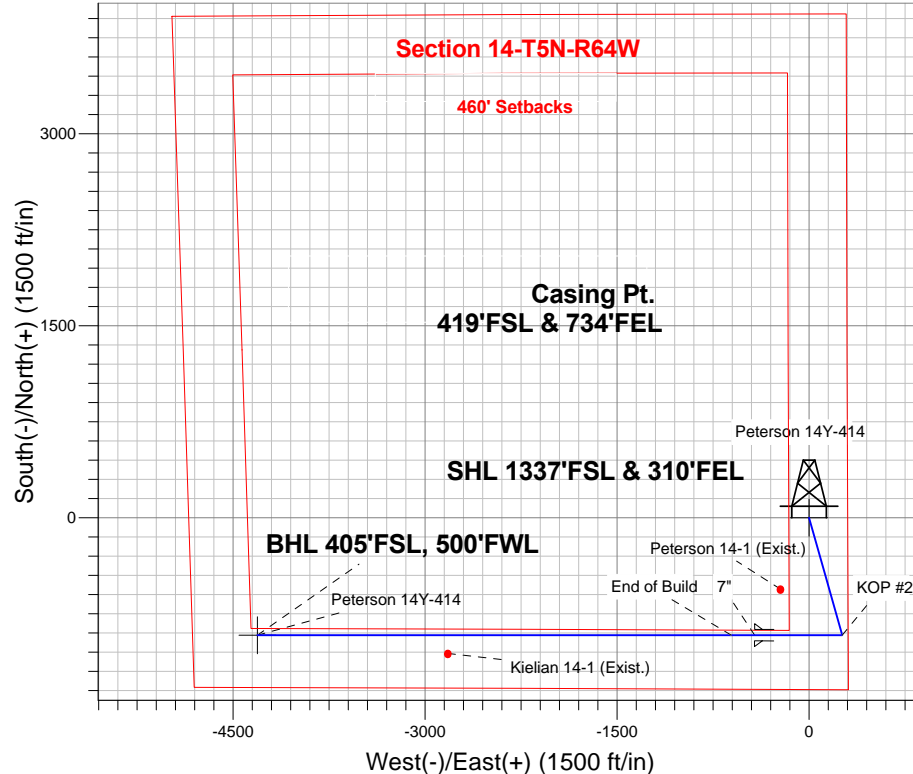
Azimuths to True North  
Magnetic North: 8.36°

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

## ANNOTATIONS

TVD	MD	Annotation
800.0	800.0	KOP #1
5880.7	5978.5	KOP #2
6654.3	7282.7	End of Build

Peterson 14WX-HZ Pad Sec.14-T5N-R64W  
Peterson 14Y-414  
Plan #1 (3-07-14)  
13:15, 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	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1413.7	12.27	164.18	1409.1	-63.0	17.9	2.00	164.18	-4.3	
4	5284.1	12.27	164.18	5190.9	-854.7	242.1	0.00	0.00	-58.8	
5	5897.8	0.00	0.00	5800.0	-917.7	260.0	2.00	180.00	-63.2	
6	5978.5	0.00	0.00	5880.6	-917.7	260.0	0.00	0.00	-63.2	
7	7098.5	84.00	270.00	6640.4	-917.7	-424.1	7.50	270.00	605.9	
8	7172.5	84.00	270.00	6648.1	-917.7	-497.7	0.00	0.00	677.9	
9	7282.7	89.51	270.00	6654.3	-917.7	-607.7	5.00	0.00	785.5	
10	10984.3	89.51	270.00	6686.0	-917.7	-4309.2	0.00	0.00	4405.8	BHL 405'FSL, 500'FWL



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.14-T5N-R64W**

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

**Peterson 14Y-414**

**Wellbore #1**

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

## **Standard Planning Report**

**10 March, 2014**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Project:</b>	SEC.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-07-14)		

<b>Project</b>	SEC.14-T5N-R64W, Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	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-414					
Well Position	+N/-S	-149.4 ft	Northing:	1,388,535.63 ft	Latitude:	40.395700
	+E/-W	2.8 ft	Easting:	3,275,959.82 ft	Longitude:	-104.509200
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,571.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	3/7/2014	8.36	66.99	52,871

<b>Design</b>	Plan #1 (3-07-14)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	257.98

<b>Plan Sections</b>										
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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,413.7	12.27	164.18	1,409.1	-63.0	17.9	2.00	2.00	0.00	164.18	
5,284.1	12.27	164.18	5,190.9	-854.7	242.1	0.00	0.00	0.00	0.00	
5,897.8	0.00	0.00	5,800.0	-917.7	260.0	2.00	-2.00	0.00	180.00	
5,978.5	0.00	0.00	5,880.6	-917.7	260.0	0.00	0.00	0.00	0.00	
7,098.5	84.00	270.00	6,640.4	-917.7	-424.1	7.50	7.50	0.00	270.00	
7,172.5	84.00	270.00	6,648.1	-917.7	-497.7	0.00	0.00	0.00	0.00	
7,282.7	89.51	270.00	6,654.3	-917.7	-607.7	5.00	5.00	0.00	0.00	
10,984.3	89.51	270.00	6,686.0	-917.7	-4,309.2	0.00	0.00	0.00	0.00	BHL 405'FSL, 500'F

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Project:</b>	SEC.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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
<b>SHL 1487'FSL, 310'FEL - SHL 1337'FSL &amp; 310'FEL</b>									
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
<b>KOP #1</b>									
900.0	2.00	164.18	900.0	-1.7	0.5	-0.1	2.00	2.00	0.00
1,000.0	4.00	164.18	999.8	-6.7	1.9	-0.5	2.00	2.00	0.00
1,100.0	6.00	164.18	1,099.5	-15.1	4.3	-1.0	2.00	2.00	0.00
1,200.0	8.00	164.18	1,198.7	-26.8	7.6	-1.8	2.00	2.00	0.00
1,300.0	10.00	164.18	1,297.5	-41.9	11.9	-2.9	2.00	2.00	0.00
1,400.0	12.00	164.18	1,395.6	-60.2	17.1	-4.1	2.00	2.00	0.00
1,413.7	12.27	164.18	1,409.1	-63.0	17.9	-4.3	2.00	2.00	0.00
1,500.0	12.27	164.18	1,493.3	-80.7	22.9	-5.6	0.00	0.00	0.00
1,600.0	12.27	164.18	1,591.1	-101.1	28.6	-7.0	0.00	0.00	0.00
1,700.0	12.27	164.18	1,688.8	-121.6	34.4	-8.4	0.00	0.00	0.00
1,800.0	12.27	164.18	1,786.5	-142.0	40.2	-9.8	0.00	0.00	0.00
1,900.0	12.27	164.18	1,884.2	-162.5	46.0	-11.2	0.00	0.00	0.00
2,000.0	12.27	164.18	1,981.9	-182.9	51.8	-12.6	0.00	0.00	0.00
2,100.0	12.27	164.18	2,079.6	-203.4	57.6	-14.0	0.00	0.00	0.00
2,200.0	12.27	164.18	2,177.3	-223.8	63.4	-15.4	0.00	0.00	0.00
2,300.0	12.27	164.18	2,275.1	-244.3	69.2	-16.8	0.00	0.00	0.00
2,400.0	12.27	164.18	2,372.8	-264.7	75.0	-18.2	0.00	0.00	0.00
2,500.0	12.27	164.18	2,470.5	-285.2	80.8	-19.6	0.00	0.00	0.00
2,600.0	12.27	164.18	2,568.2	-305.7	86.6	-21.0	0.00	0.00	0.00
2,700.0	12.27	164.18	2,665.9	-326.1	92.4	-22.4	0.00	0.00	0.00
2,800.0	12.27	164.18	2,763.6	-346.6	98.2	-23.8	0.00	0.00	0.00
2,900.0	12.27	164.18	2,861.3	-367.0	104.0	-25.3	0.00	0.00	0.00
3,000.0	12.27	164.18	2,959.1	-387.5	109.8	-26.7	0.00	0.00	0.00
3,100.0	12.27	164.18	3,056.8	-407.9	115.6	-28.1	0.00	0.00	0.00
3,200.0	12.27	164.18	3,154.5	-428.4	121.4	-29.5	0.00	0.00	0.00
3,300.0	12.27	164.18	3,252.2	-448.8	127.2	-30.9	0.00	0.00	0.00
3,400.0	12.27	164.18	3,349.9	-469.3	133.0	-32.3	0.00	0.00	0.00
3,459.5	12.27	164.18	3,408.0	-481.5	136.4	-33.1	0.00	0.00	0.00
<b>PARKMAN</b>									
3,500.0	12.27	164.18	3,447.6	-489.8	138.8	-33.7	0.00	0.00	0.00
3,600.0	12.27	164.18	3,545.3	-510.2	144.6	-35.1	0.00	0.00	0.00
3,700.0	12.27	164.18	3,643.1	-530.7	150.3	-36.5	0.00	0.00	0.00
3,800.0	12.27	164.18	3,740.8	-551.1	156.1	-37.9	0.00	0.00	0.00
3,900.0	12.27	164.18	3,838.5	-571.6	161.9	-39.3	0.00	0.00	0.00
4,000.0	12.27	164.18	3,936.2	-592.0	167.7	-40.7	0.00	0.00	0.00
4,100.0	12.27	164.18	4,033.9	-612.5	173.5	-42.1	0.00	0.00	0.00
4,200.0	12.27	164.18	4,131.6	-632.9	179.3	-43.6	0.00	0.00	0.00
4,218.8	12.27	164.18	4,150.0	-636.8	180.4	-43.8	0.00	0.00	0.00
<b>SUSSEX</b>									
4,300.0	12.27	164.18	4,229.3	-653.4	185.1	-45.0	0.00	0.00	0.00
4,400.0	12.27	164.18	4,327.0	-673.8	190.9	-46.4	0.00	0.00	0.00

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<b>Project:</b>	SEC.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	12.27	164.18	4,424.8	-694.3	196.7	-47.8	0.00	0.00	0.00
4,600.0	12.27	164.18	4,522.5	-714.8	202.5	-49.2	0.00	0.00	0.00
4,648.6	12.27	164.18	4,570.0	-724.7	205.3	-49.9	0.00	0.00	0.00
<b>SHANNON</b>									
4,700.0	12.27	164.18	4,620.2	-735.2	208.3	-50.6	0.00	0.00	0.00
4,800.0	12.27	164.18	4,717.9	-755.7	214.1	-52.0	0.00	0.00	0.00
4,900.0	12.27	164.18	4,815.6	-776.1	219.9	-53.4	0.00	0.00	0.00
5,000.0	12.27	164.18	4,913.3	-796.6	225.7	-54.8	0.00	0.00	0.00
5,100.0	12.27	164.18	5,011.0	-817.0	231.5	-56.2	0.00	0.00	0.00
5,200.0	12.27	164.18	5,108.8	-837.5	237.3	-57.6	0.00	0.00	0.00
5,284.1	12.27	164.18	5,190.9	-854.7	242.1	-58.8	0.00	0.00	0.00
5,300.0	11.96	164.18	5,206.5	-857.9	243.1	-59.0	2.00	-2.00	0.00
5,400.0	9.96	164.18	5,304.7	-876.2	248.2	-60.3	2.00	-2.00	0.00
5,500.0	7.96	164.18	5,403.4	-891.2	252.5	-61.3	2.00	-2.00	0.00
5,600.0	5.96	164.18	5,502.7	-902.8	255.8	-62.1	2.00	-2.00	0.00
5,700.0	3.96	164.18	5,602.3	-911.1	258.1	-62.7	2.00	-2.00	0.00
5,800.0	1.96	164.18	5,702.2	-916.1	259.5	-63.0	2.00	-2.00	0.00
5,897.8	0.00	0.00	5,800.0	-917.7	260.0	-63.2	2.00	-2.00	0.00
5,900.0	0.00	0.00	5,802.2	-917.7	260.0	-63.2	0.00	0.00	0.00
5,978.5	0.00	0.00	5,880.7	-917.7	260.0	-63.2	0.00	0.00	0.00
<b>KOP #2</b>									
6,000.0	1.62	270.00	5,902.2	-917.7	259.7	-62.9	7.51	7.51	0.00
6,100.0	9.12	270.00	6,001.6	-917.7	250.4	-53.7	7.50	7.50	0.00
6,200.0	16.62	270.00	6,099.1	-917.7	228.1	-32.0	7.50	7.50	0.00
6,300.0	24.12	270.00	6,192.7	-917.7	193.3	2.1	7.50	7.50	0.00
6,351.5	27.98	270.00	6,239.0	-917.7	170.7	24.2	7.50	7.50	0.00
<b>SHARON SPRINGS</b>									
6,400.0	31.62	270.00	6,281.1	-917.7	146.6	47.7	7.50	7.50	0.00
6,500.0	39.12	270.00	6,362.6	-917.7	88.8	104.3	7.50	7.50	0.00
6,600.0	46.62	270.00	6,435.8	-917.7	20.8	170.8	7.50	7.50	0.00
6,700.0	54.12	270.00	6,499.6	-917.7	-56.2	246.1	7.50	7.50	0.00
6,800.0	61.62	270.00	6,552.7	-917.7	-140.8	328.8	7.50	7.50	0.00
6,900.0	69.12	270.00	6,594.4	-917.7	-231.6	417.7	7.50	7.50	0.00
7,000.0	76.62	270.00	6,623.8	-917.7	-327.1	511.1	7.50	7.50	0.00
7,098.5	84.00	270.00	6,640.4	-917.7	-424.1	606.0	7.50	7.50	0.00
<b>7"</b>									
7,100.0	84.00	270.00	6,640.5	-917.7	-425.6	607.4	0.00	0.00	0.00
7,172.5	84.00	270.00	6,648.1	-917.7	-497.7	677.9	0.00	0.00	0.00
7,200.0	85.38	270.00	6,650.7	-917.7	-525.1	704.7	5.00	5.00	0.00
7,282.7	89.51	270.00	6,654.3	-917.7	-607.7	785.5	5.00	5.00	0.00
<b>End of Build</b>									
7,300.0	89.51	270.00	6,654.5	-917.7	-625.0	802.4	0.00	0.00	0.00
7,400.0	89.51	270.00	6,655.3	-917.7	-725.0	900.2	0.00	0.00	0.00
7,500.0	89.51	270.00	6,656.2	-917.7	-825.0	998.0	0.00	0.00	0.00
7,600.0	89.51	270.00	6,657.1	-917.7	-925.0	1,095.9	0.00	0.00	0.00
7,700.0	89.51	270.00	6,657.9	-917.7	-1,025.0	1,193.7	0.00	0.00	0.00
7,800.0	89.51	270.00	6,658.8	-917.7	-1,125.0	1,291.5	0.00	0.00	0.00
7,900.0	89.51	270.00	6,659.6	-917.7	-1,225.0	1,389.3	0.00	0.00	0.00
8,000.0	89.51	270.00	6,660.5	-917.7	-1,325.0	1,487.1	0.00	0.00	0.00
8,100.0	89.51	270.00	6,661.3	-917.7	-1,425.0	1,584.9	0.00	0.00	0.00
8,200.0	89.51	270.00	6,662.2	-917.7	-1,525.0	1,682.7	0.00	0.00	0.00
8,300.0	89.51	270.00	6,663.0	-917.7	-1,625.0	1,780.5	0.00	0.00	0.00

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<b>Project:</b>	SEC.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	89.51	270.00	6,663.9	-917.7	-1,725.0	1,878.3	0.00	0.00	0.00
8,500.0	89.51	270.00	6,664.8	-917.7	-1,825.0	1,976.1	0.00	0.00	0.00
8,600.0	89.51	270.00	6,665.6	-917.7	-1,925.0	2,073.9	0.00	0.00	0.00
8,700.0	89.51	270.00	6,666.5	-917.7	-2,025.0	2,171.7	0.00	0.00	0.00
8,800.0	89.51	270.00	6,667.3	-917.7	-2,124.9	2,269.5	0.00	0.00	0.00
8,900.0	89.51	270.00	6,668.2	-917.7	-2,224.9	2,367.3	0.00	0.00	0.00
9,000.0	89.51	270.00	6,669.0	-917.7	-2,324.9	2,465.1	0.00	0.00	0.00
9,100.0	89.51	270.00	6,669.9	-917.7	-2,424.9	2,562.9	0.00	0.00	0.00
9,200.0	89.51	270.00	6,670.7	-917.7	-2,524.9	2,660.7	0.00	0.00	0.00
9,300.0	89.51	270.00	6,671.6	-917.7	-2,624.9	2,758.5	0.00	0.00	0.00
9,400.0	89.51	270.00	6,672.5	-917.7	-2,724.9	2,856.3	0.00	0.00	0.00
9,500.0	89.51	270.00	6,673.3	-917.7	-2,824.9	2,954.1	0.00	0.00	0.00
9,600.0	89.51	270.00	6,674.2	-917.7	-2,924.9	3,051.9	0.00	0.00	0.00
9,700.0	89.51	270.00	6,675.0	-917.7	-3,024.9	3,149.7	0.00	0.00	0.00
9,800.0	89.51	270.00	6,675.9	-917.7	-3,124.9	3,247.5	0.00	0.00	0.00
9,900.0	89.51	270.00	6,676.7	-917.7	-3,224.9	3,345.3	0.00	0.00	0.00
10,000.0	89.51	270.00	6,677.6	-917.7	-3,324.9	3,443.1	0.00	0.00	0.00
10,100.0	89.51	270.00	6,678.4	-917.7	-3,424.9	3,540.9	0.00	0.00	0.00
10,200.0	89.51	270.00	6,679.3	-917.7	-3,524.9	3,638.7	0.00	0.00	0.00
10,300.0	89.51	270.00	6,680.1	-917.7	-3,624.9	3,736.5	0.00	0.00	0.00
10,400.0	89.51	270.00	6,681.0	-917.7	-3,724.9	3,834.3	0.00	0.00	0.00
10,500.0	89.51	270.00	6,681.9	-917.7	-3,824.9	3,932.1	0.00	0.00	0.00
10,600.0	89.51	270.00	6,682.7	-917.7	-3,924.9	4,029.9	0.00	0.00	0.00
10,700.0	89.51	270.00	6,683.6	-917.7	-4,024.9	4,127.7	0.00	0.00	0.00
10,800.0	89.51	270.00	6,684.4	-917.7	-4,124.9	4,225.6	0.00	0.00	0.00
10,900.0	89.51	270.00	6,685.3	-917.7	-4,224.9	4,323.4	0.00	0.00	0.00
10,984.3	89.51	270.00	6,686.0	-917.7	-4,309.2	4,405.8	0.00	0.00	0.00
BHL 405'FSL, 500'FWL									

## Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,098.5	6,640.4	7"	7	7-1/2

## Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,459.5	3,408.0	PARKMAN			
4,218.8	4,150.0	SUSSEX			
4,648.6	4,570.0	SHANNON			
6,351.5	6,239.0	SHARON SPRINGS			

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Project:</b>	SEC.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-07-14)		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
800.0	800.0	0.0	0.0	KOP #1
5,978.5	5,880.7	-917.7	260.0	KOP #2
7,282.7	6,654.3	-917.7	-607.7	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.14-T5N-R64W**

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

**Peterson 14Y-414**

**Wellbore #1**

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

## **Anticollision Report**

**10 March, 2014**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	Offset Datum

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

<b>Survey Tool Program</b>	<b>Date</b>	3/7/2014		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	10,984.3	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)	Distance 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	9,496.8	6,658.3	142.3	-73.6	0.659	Level 1, CC
Kielian 14-1 (Exist.) - Wellbore #1 - Wellbore #1	9,500.0	6,658.3	142.3	-73.7	0.659	Level 1, ES, SF
Peterson 14-1 (Exist.) - Wellbore #1 - Wellbore #1	6,890.6	6,573.0	360.3	211.0	2.413	CC
Peterson 14-1 (Exist.) - Wellbore #1 - Wellbore #1	6,900.0	6,576.4	360.4	210.9	2.411	ES, SF
Peterson 14WX-HZ Pad Sec.14-T5N-R64W						
Peterson 14X-234 - Wellbore #1 - Plan #1 (3-07-14)	800.0	800.0	29.1	25.8	8.645	CC, ES
Peterson 14X-234 - Wellbore #1 - Plan #1 (3-07-14)	10,984.3	10,815.1	300.5	84.4	1.390	Level 3, SF
Peterson 14X-434 - Wellbore #1 - Plan #1 (3-07-14)	800.0	800.0	58.4	55.0	17.309	CC, ES
Peterson 14X-434 - Wellbore #1 - Plan #1 (3-07-14)	10,984.3	10,914.4	569.4	321.6	2.298	SF
Peterson 14Y-304 - Wellbore #1 - Plan #1 (3-07-14)	200.0	200.0	32.8	32.1	48.625	CC, ES
Peterson 14Y-304 - Wellbore #1 - Plan #1 (3-07-14)	10,984.3	10,967.2	346.5	107.3	1.448	Level 3, SF

<b>Offset Design</b>												
Peterson 14WX-HZ Pad (Exist) Sec.14-T5N-R64W - Kielian 14-1 (Exist.) - Wellbore #1 - Wellbore #1												
Survey Program: 6808-UNKNOWN												
Reference Offset Semi Major Axis Distance												
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
8,600.0	6,665.6	6,650.6	6,650.6	58.8	133.0	-86.92	-1,060.0	-2,821.7	908.0	716.9	191.08	4.752
8,700.0	6,666.5	6,651.5	6,651.5	61.5	133.0	-87.26	-1,060.0	-2,821.7	809.4	615.5	193.84	4.176
8,800.0	6,667.3	6,652.3	6,652.3	64.2	133.0	-87.60	-1,060.0	-2,821.7	711.2	514.6	196.61	3.617
8,900.0	6,668.2	6,653.2	6,653.2	66.9	133.1	-87.95	-1,060.0	-2,821.7	613.5	414.1	199.38	3.077
9,000.0	6,669.0	6,654.0	6,654.0	69.6	133.1	-88.29	-1,060.0	-2,821.7	516.8	314.6	202.15	2.556
9,100.0	6,669.9	6,654.9	6,654.9	72.3	133.1	-88.63	-1,060.0	-2,821.7	421.5	216.6	204.92	2.057
9,200.0	6,670.7	6,655.7	6,655.7	75.0	133.1	-88.98	-1,060.0	-2,821.7	329.1	121.5	207.69	1.585
9,300.0	6,671.6	6,656.6	6,656.6	77.8	133.1	-89.32	-1,060.0	-2,821.7	242.9	32.4	210.46	1.154 Level 2
9,400.0	6,672.5	6,657.5	6,657.5	80.5	133.1	-89.67	-1,060.0	-2,821.7	172.1	-41.1	213.22	0.807 Level 1
9,496.8	6,673.3	6,658.3	6,658.3	83.2	133.2	-90.00	-1,060.0	-2,821.7	142.3	-73.6	215.90	0.659 Level 1, CC
9,500.0	6,673.3	6,658.3	6,658.3	83.3	133.2	-90.01	-1,060.0	-2,821.7	142.3	-73.7	215.99	0.659 Level 1, ES, SF
9,600.0	6,674.2	6,659.2	6,659.2	86.0	133.2	-90.36	-1,060.0	-2,821.7	175.8	-43.0	218.75	0.804 Level 1
9,700.0	6,675.0	6,660.0	6,660.0	88.7	133.2	-90.70	-1,060.0	-2,821.7	248.1	26.6	221.50	1.120 Level 2
9,800.0	6,675.9	6,660.9	6,660.9	91.5	133.2	-91.04	-1,060.0	-2,821.7	334.9	110.7	224.25	1.493 Level 3
9,900.0	6,676.7	6,661.7	6,661.7	94.3	133.2	-91.39	-1,060.0	-2,821.7	427.6	200.6	227.00	1.884

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>												<b>Offset Site Error:</b>	0.0 ft
Peterson 14WX-HZ Pad (Exist) Sec.14-T5N-R64W - Kielian 14-1 (Exist.) - Wellbore #1 - Wellbore #1												<b>Offset Well Error:</b>	0.0 ft
Survey Program: 6808-UNKNOWN													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,677.6	6,662.6	6,662.6	97.0	133.3	-91.73	-1,060.0	-2,821.7	522.9	293.2	229.74	2.276	
10,100.0	6,678.4	6,663.4	6,663.4	99.8	133.3	-92.08	-1,060.0	-2,821.7	619.7	387.3	232.47	2.666	
10,200.0	6,679.3	6,664.3	6,664.3	102.5	133.3	-92.42	-1,060.0	-2,821.7	717.4	482.2	235.19	3.050	
10,300.0	6,680.1	6,665.1	6,665.1	105.3	133.3	-92.76	-1,060.0	-2,821.7	815.7	577.8	237.91	3.428	
10,400.0	6,681.0	6,666.0	6,666.0	108.1	133.3	-93.11	-1,060.0	-2,821.7	914.3	673.7	240.62	3.800	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Peterson 14WX-HZ Pad (Exist) Sec.14-T5N-R64W - Peterson 14-1 (Exist.) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0 ft	
Survey Program: 6900-UNKNOWN														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)					
0.0	0.0	0.0	0.0	0.0	0.0	-158.21	-557.4	-222.8	600.6						
100.0	100.0	82.0	82.0	0.1	1.6	-158.21	-557.4	-222.8	600.3	598.5	1.75	342.519			
200.0	200.0	182.0	182.0	0.3	3.6	-158.21	-557.4	-222.8	600.3	596.3	3.98	150.928			
300.0	300.0	282.0	282.0	0.6	5.6	-158.21	-557.4	-222.8	600.3	594.1	6.20	96.788			
400.0	400.0	382.0	382.0	0.8	7.6	-158.21	-557.4	-222.8	600.3	591.9	8.43	71.236			
500.0	500.0	482.0	482.0	1.0	9.6	-158.21	-557.4	-222.8	600.3	589.6	10.65	56.357			
600.0	600.0	582.0	582.0	1.2	11.6	-158.21	-557.4	-222.8	600.3	587.4	12.88	46.620			
700.0	700.0	682.0	682.0	1.5	13.6	-158.21	-557.4	-222.8	600.3	585.2	15.10	39.751			
800.0	800.0	782.0	782.0	1.7	15.6	-158.21	-557.4	-222.8	600.3	583.0	17.33	34.647			
900.0	900.0	882.0	882.0	1.9	17.6	37.73	-557.4	-222.8	598.9	579.4	19.52	30.688			
1,000.0	999.8	981.8	981.8	2.1	19.6	38.09	-557.4	-222.8	594.8	573.1	21.67	27.449			
1,100.0	1,099.5	1,081.5	1,081.5	2.3	21.6	38.70	-557.4	-222.8	587.9	564.1	23.81	24.694			
1,200.0	1,198.7	1,180.7	1,180.7	2.5	23.6	39.57	-557.4	-222.8	578.5	552.5	25.94	22.303			
1,300.0	1,297.5	1,279.5	1,279.5	2.8	25.6	40.73	-557.4	-222.8	566.4	538.4	28.05	20.191			
1,400.0	1,395.6	1,377.6	1,377.6	3.1	27.6	42.21	-557.4	-222.8	552.0	521.9	30.17	18.297			
1,500.0	1,493.3	1,475.3	1,475.3	3.4	29.5	43.74	-557.4	-222.8	536.3	503.9	32.40	16.554			
1,600.0	1,591.1	1,573.1	1,573.1	3.8	31.5	45.34	-557.4	-222.8	521.0	486.3	34.67	15.026			
1,700.0	1,688.8	1,670.8	1,670.8	4.2	33.4	47.03	-557.4	-222.8	506.1	469.1	36.97	13.689			
1,800.0	1,786.5	1,768.5	1,768.5	4.6	35.4	48.82	-557.4	-222.8	491.7	452.4	39.30	12.512			
1,900.0	1,884.2	1,866.2	1,866.2	5.0	37.3	50.72	-557.4	-222.8	477.8	436.1	41.65	11.472			
2,000.0	1,981.9	1,963.9	1,963.9	5.5	39.3	52.72	-557.4	-222.8	464.4	420.4	44.02	10.551			
2,100.0	2,079.6	2,061.6	2,061.6	5.9	41.2	54.83	-557.4	-222.8	451.6	405.2	46.41	9.732			
2,200.0	2,177.3	2,159.3	2,159.3	6.4	43.2	57.06	-557.4	-222.8	439.6	390.7	48.82	9.003			
2,300.0	2,275.1	2,257.1	2,257.1	6.8	45.1	59.41	-557.4	-222.8	428.2	376.9	51.26	8.353			
2,400.0	2,372.8	2,354.8	2,354.8	7.2	47.1	61.88	-557.4	-222.8	417.6	363.8	53.71	7.774			
2,500.0	2,470.5	2,452.5	2,452.5	7.7	49.0	64.46	-557.4	-222.8	407.8	351.6	56.18	7.258			
2,600.0	2,568.2	2,550.2	2,550.2	8.2	51.0	67.17	-557.4	-222.8	398.9	340.2	58.67	6.800			
2,700.0	2,665.9	2,647.9	2,647.9	8.6	53.0	69.98	-557.4	-222.8	391.0	329.8	61.16	6.393			
2,800.0	2,763.6	2,745.6	2,745.6	9.1	54.9	72.90	-557.4	-222.8	384.1	320.4	63.66	6.033			
2,900.0	2,861.3	2,843.3	2,843.3	9.5	56.9	75.91	-557.4	-222.8	378.2	312.1	66.16	5.717			
3,000.0	2,959.1	2,941.1	2,941.1	10.0	58.8	79.01	-557.4	-222.8	373.5	304.9	68.65	5.441			
3,100.0	3,056.8	3,038.8	3,038.8	10.4	60.8	82.17	-557.4	-222.8	369.9	298.8	71.13	5.201			
3,200.0	3,154.5	3,136.5	3,136.5	10.9	62.7	85.38	-557.4	-222.8	367.6	294.0	73.60	4.995			
3,300.0	3,252.2	3,234.2	3,234.2	11.4	64.7	88.62	-557.4	-222.8	366.5	290.4	76.04	4.819			
3,342.5	3,293.7	3,275.7	3,275.7	11.6	65.5	90.00	-557.4	-222.8	366.3	289.3	77.07	4.753			
3,400.0	3,349.9	3,331.9	3,331.9	11.8	66.6	91.87	-557.4	-222.8	366.5	288.1	78.46	4.672			
3,500.0	3,447.6	3,429.6	3,429.6	12.3	68.6	95.10	-557.4	-222.8	367.9	287.0	80.84	4.551			
3,600.0	3,545.3	3,527.3	3,527.3	12.7	70.5	98.31	-557.4	-222.8	370.4	287.2	83.19	4.452			
3,700.0	3,643.1	3,625.1	3,625.1	13.2	72.5	101.46	-557.4	-222.8	374.1	288.6	85.51	4.375			
3,800.0	3,740.8	3,722.8	3,722.8	13.7	74.5	104.54	-557.4	-222.8	379.0	291.2	87.79	4.318			
3,900.0	3,838.5	3,820.5	3,820.5	14.1	76.4	107.54	-557.4	-222.8	385.0	295.0	90.03	4.277			
4,000.0	3,936.2	3,918.2	3,918.2	14.6	78.4	110.45	-557.4	-222.8	392.1	299.9	92.25	4.251			
4,100.0	4,033.9	4,015.9	4,015.9	15.1	80.3	113.25	-557.4	-222.8	400.2	305.7	94.43	4.238			
4,200.0	4,131.6	4,113.6	4,113.6	15.5	82.3	115.93	-557.4	-222.8	409.2	312.6	96.59	4.237			
4,300.0	4,229.3	4,211.3	4,211.3	16.0	84.2	118.50	-557.4	-222.8	419.1	320.4	98.72	4.245			
4,400.0	4,327.0	4,309.0	4,309.0	16.5	86.2	120.95	-557.4	-222.8	429.8	329.0	100.83	4.263			
4,500.0	4,424.8	4,406.8	4,406.8	16.9	88.1	123.28	-557.4	-222.8	441.3	338.4	102.92	4.288			
4,600.0	4,522.5	4,504.5	4,504.5	17.4	90.1	125.49	-557.4	-222.8	453.5	348.5	105.01	4.319			
4,700.0	4,620.2	4,602.2	4,602.2	17.9	92.0	127.59	-557.4	-222.8	466.4	359.3	107.08	4.355			
4,800.0	4,717.9	4,699.9	4,699.9	18.3	94.0	129.57	-557.4	-222.8	479.8	370.7	109.14	4.396			
4,900.0	4,815.6	4,797.6	4,797.6	18.8	96.0	131.45	-557.4	-222.8	493.8	382.6	111.19	4.441			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Peterson 14WX-HZ Pad (Exist) Sec.14-T5N-R64W - Peterson 14-1 (Exist.) - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 6900-UNKNOWN												<b>Offset Well Error:</b>	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,913.3	4,895.3	4,895.3	19.3	97.9	133.23	-557.4	-222.8	508.3	395.1	113.24	4.489	
5,100.0	5,011.0	4,993.0	4,993.0	19.7	99.9	134.90	-557.4	-222.8	523.3	408.0	115.29	4.539	
5,200.0	5,108.8	5,090.8	5,090.8	20.2	101.8	136.49	-557.4	-222.8	538.7	421.3	117.34	4.590	
5,300.0	5,206.5	5,188.5	5,188.5	20.6	103.8	138.02	-557.4	-222.8	554.4	435.0	119.45	4.641	
5,400.0	5,304.7	5,286.7	5,286.7	21.0	105.7	139.48	-557.4	-222.8	568.8	447.0	121.80	4.670	
5,500.0	5,403.4	5,385.4	5,385.4	21.2	107.7	140.62	-557.4	-222.8	580.8	456.7	124.15	4.678	
5,600.0	5,502.7	5,484.7	5,484.7	21.5	109.7	141.48	-557.4	-222.8	590.2	463.8	126.47	4.667	
5,700.0	5,602.3	5,584.3	5,584.3	21.7	111.7	142.08	-557.4	-222.8	597.0	468.3	128.74	4.637	
5,800.0	5,702.2	5,684.2	5,684.2	21.8	113.7	142.44	-557.4	-222.8	601.1	470.2	130.95	4.590	
5,900.0	5,802.2	5,784.2	5,784.2	22.0	115.7	-53.27	-557.4	-222.8	602.5	467.4	135.03	4.461	
6,000.0	5,902.2	5,884.2	5,884.2	22.1	117.7	36.76	-557.4	-222.8	602.2	467.0	135.16	4.456	
6,100.0	6,001.6	5,983.6	5,983.6	22.1	119.7	37.64	-557.4	-222.8	594.7	458.8	135.98	4.374	
6,200.0	6,099.1	6,081.1	6,081.1	22.2	121.6	39.82	-557.4	-222.8	577.2	441.9	135.33	4.265	
6,300.0	6,192.7	6,174.7	6,174.7	22.2	123.5	43.49	-557.4	-222.8	550.5	416.7	133.81	4.114	
6,400.0	6,281.1	6,263.1	6,263.1	22.2	125.3	48.87	-557.4	-222.8	516.1	383.5	132.58	3.892	
6,500.0	6,362.6	6,344.6	6,344.6	22.2	126.9	56.14	-557.4	-222.8	476.4	343.2	133.20	3.576	
6,600.0	6,435.8	6,417.8	6,417.8	22.2	128.4	65.09	-557.4	-222.8	434.9	298.3	136.66	3.183	
6,700.0	6,499.6	6,481.6	6,481.6	22.2	129.6	74.83	-557.4	-222.8	397.0	255.0	141.97	2.796	
6,800.0	6,552.7	6,534.7	6,534.7	22.3	130.7	83.82	-557.4	-222.8	369.5	222.9	146.65	2.520	
6,890.6	6,591.0	6,573.0	6,573.0	22.4	131.5	90.00	-557.4	-222.8	360.3	211.0	149.29	2.413 CC	
6,900.0	6,594.4	6,576.4	6,576.4	22.4	131.5	90.50	-557.4	-222.8	360.4	210.9	149.48	2.411 ES, SF	
7,000.0	6,623.8	6,605.8	6,605.8	22.8	132.1	93.83	-557.4	-222.8	375.1	223.7	151.34	2.478	
7,100.0	6,640.5	6,622.5	6,622.5	23.5	132.5	93.37	-557.4	-222.8	413.4	260.0	153.48	2.694	
7,200.0	6,650.7	6,632.7	6,632.7	24.9	132.7	93.87	-557.4	-222.8	470.3	314.7	155.57	3.023	
7,300.0	6,654.5	6,636.5	6,636.5	26.7	132.7	90.55	-557.4	-222.8	540.0	382.0	157.96	3.418	
7,400.0	6,655.3	6,637.3	6,637.3	28.7	132.7	90.68	-557.4	-222.8	618.0	457.8	160.21	3.858	
7,500.0	6,656.2	6,638.2	6,638.2	30.9	132.8	90.82	-557.4	-222.8	701.7	539.2	162.55	4.317	
7,600.0	6,657.1	6,639.1	6,639.1	33.2	132.8	90.95	-557.4	-222.8	789.2	624.2	164.96	4.784	
7,700.0	6,657.9	6,639.9	6,639.9	35.6	132.8	91.09	-557.4	-222.8	879.4	711.9	167.44	5.252	
7,800.0	6,658.8	6,640.8	6,640.8	38.0	132.8	91.23	-557.4	-222.8	971.4	801.5	169.97	5.715	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	0.00	29.1	0.0	29.1					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	29.1	0.0	29.1	28.9	0.22	129.668		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	29.1	0.0	29.1	28.5	0.67	43.223		
300.0	300.0	300.0	300.0	0.6	0.6	0.00	29.1	0.0	29.1	28.0	1.12	25.934		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	29.1	0.0	29.1	27.6	1.57	18.524		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	29.1	0.0	29.1	27.1	2.02	14.408		
600.0	600.0	600.0	600.0	1.2	1.2	0.00	29.1	0.0	29.1	26.7	2.47	11.788		
700.0	700.0	700.0	700.0	1.5	1.5	0.00	29.1	0.0	29.1	26.2	2.92	9.974		
800.0	800.0	800.0	800.0	1.7	1.7	0.00	29.1	0.0	29.1	25.8	3.37	8.645 CC, ES		
900.0	900.0	900.0	900.0	1.9	1.9	-165.06	29.1	0.0	30.8	27.0	3.79	8.126		
1,000.0	999.8	999.8	999.8	2.1	2.1	-167.19	29.1	0.0	35.9	31.7	4.20	8.559		
1,100.0	1,099.5	1,100.9	1,100.9	2.3	2.3	-169.06	27.5	0.6	42.8	38.2	4.58	9.346		
1,200.0	1,198.7	1,202.3	1,202.1	2.5	2.5	-170.06	22.5	2.5	49.7	44.7	4.94	10.060		
1,300.0	1,297.5	1,303.8	1,303.3	2.8	2.7	-170.49	14.1	5.7	56.6	51.3	5.31	10.653		
1,400.0	1,395.6	1,405.7	1,404.3	3.1	2.9	-170.55	2.3	10.2	63.5	57.8	5.70	11.140		
1,500.0	1,493.3	1,507.8	1,505.1	3.4	3.2	-170.17	-12.8	15.9	69.2	63.1	6.14	11.274		
1,600.0	1,591.1	1,607.7	1,603.5	3.8	3.5	-169.50	-29.3	22.2	73.1	66.5	6.59	11.092		
1,700.0	1,688.8	1,707.7	1,701.9	4.2	3.8	-168.90	-45.9	28.4	77.1	70.0	7.06	10.909		
1,800.0	1,786.5	1,807.6	1,800.2	4.6	4.1	-168.35	-62.4	34.7	81.0	73.5	7.55	10.730		
1,900.0	1,884.2	1,907.5	1,898.6	5.0	4.5	-167.86	-78.9	40.9	85.0	76.9	8.05	10.562		
2,000.0	1,981.9	2,007.4	1,996.9	5.5	4.8	-167.41	-95.4	47.2	89.0	80.4	8.55	10.400		
2,100.0	2,079.6	2,107.3	2,095.3	5.9	5.2	-167.00	-111.9	53.4	92.9	83.9	9.07	10.247		
2,200.0	2,177.3	2,207.3	2,193.6	6.4	5.6	-166.62	-128.4	59.7	96.9	87.3	9.59	10.103		
2,300.0	2,275.1	2,307.2	2,291.9	6.8	5.9	-166.27	-144.9	65.9	100.9	90.8	10.12	9.968		
2,400.0	2,372.8	2,407.1	2,390.3	7.2	6.3	-165.95	-161.4	72.2	104.9	94.2	10.65	9.842		
2,500.0	2,470.5	2,507.0	2,488.6	7.7	6.7	-165.65	-177.9	78.4	108.8	97.6	11.19	9.723		
2,600.0	2,568.2	2,606.9	2,587.0	8.2	7.1	-165.37	-194.4	84.7	112.8	101.1	11.74	9.612		
2,700.0	2,665.9	2,706.9	2,685.3	8.6	7.5	-165.12	-210.9	90.9	116.8	104.5	12.29	9.508		
2,800.0	2,763.6	2,806.8	2,783.7	9.1	7.9	-164.87	-227.4	97.2	120.8	108.0	12.84	9.411		
2,900.0	2,861.3	2,906.7	2,882.0	9.5	8.3	-164.65	-243.9	103.4	124.8	111.4	13.39	9.319		
3,000.0	2,959.1	3,006.6	2,980.4	10.0	8.6	-164.44	-260.5	109.7	128.8	114.9	13.95	9.233		
3,100.0	3,056.8	3,106.5	3,078.7	10.4	9.0	-164.24	-277.0	115.9	132.8	118.3	14.51	9.152		
3,200.0	3,154.5	3,206.4	3,177.1	10.9	9.4	-164.05	-293.5	122.2	136.8	121.7	15.07	9.076		
3,300.0	3,252.2	3,306.4	3,275.4	11.4	9.8	-163.87	-310.0	128.4	140.8	125.2	15.64	9.003		
3,400.0	3,349.9	3,406.3	3,373.8	11.8	10.2	-163.71	-326.5	134.7	144.8	128.6	16.21	8.935		
3,500.0	3,447.6	3,506.2	3,472.1	12.3	10.6	-163.55	-343.0	140.9	148.8	132.0	16.77	8.871		
3,600.0	3,545.3	3,606.1	3,570.5	12.7	11.0	-163.40	-359.5	147.2	152.8	135.5	17.34	8.810		
3,700.0	3,643.1	3,706.0	3,668.8	13.2	11.4	-163.26	-376.0	153.4	156.8	138.9	17.92	8.753		
3,800.0	3,740.8	3,806.0	3,767.2	13.7	11.8	-163.12	-392.5	159.7	160.8	142.3	18.49	8.698		
3,900.0	3,838.5	3,905.9	3,865.5	14.1	12.2	-162.99	-409.0	166.0	164.8	145.8	19.06	8.646		
4,000.0	3,936.2	4,005.8	3,963.9	14.6	12.6	-162.87	-425.5	172.2	168.8	149.2	19.64	8.597		
4,100.0	4,033.9	4,105.7	4,062.2	15.1	13.0	-162.75	-442.0	178.5	172.8	152.6	20.22	8.550		
4,200.0	4,131.6	4,205.6	4,160.5	15.5	13.5	-162.64	-458.6	184.7	176.9	156.1	20.79	8.505		
4,300.0	4,229.3	4,305.6	4,258.9	16.0	13.9	-162.54	-475.1	191.0	180.9	159.5	21.37	8.462		
4,400.0	4,327.0	4,405.5	4,357.2	16.5	14.3	-162.43	-491.6	197.2	184.9	162.9	21.95	8.421		
4,500.0	4,424.8	4,505.4	4,455.6	16.9	14.7	-162.34	-508.1	203.5	188.9	166.3	22.53	8.382		
4,600.0	4,522.5	4,605.3	4,553.9	17.4	15.1	-162.24	-524.6	209.7	192.9	169.8	23.12	8.345		
4,700.0	4,620.2	4,705.2	4,652.3	17.9	15.5	-162.15	-541.1	216.0	196.9	173.2	23.70	8.309		
4,800.0	4,717.9	4,805.2	4,750.6	18.3	15.9	-162.07	-557.6	222.2	200.9	176.6	24.28	8.275		
4,900.0	4,815.6	4,905.1	4,849.0	18.8	16.3	-161.99	-574.1	228.5	204.9	180.1	24.86	8.242		
5,000.0	4,913.3	5,005.0	4,947.3	19.3	16.7	-161.91	-590.6	234.7	208.9	183.5	25.45	8.211		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	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			Distance								
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,100.0	5,011.0	5,104.9	5,045.7	19.7	17.1	-161.83	-607.1	241.0	213.0	186.9	26.03	8.180			
5,200.0	5,108.8	5,200.0	5,139.3	20.2	17.5	-161.80	-622.5	246.8	217.4	190.8	26.58	8.176			
5,300.0	5,206.5	5,294.6	5,233.0	20.6	17.7	-162.04	-635.3	251.6	224.4	197.3	27.05	8.295			
5,400.0	5,304.7	5,387.5	5,325.2	21.0	17.9	-162.44	-645.0	255.3	232.2	204.8	27.43	8.465			
5,500.0	5,403.4	5,480.1	5,417.6	21.2	18.1	-162.86	-651.9	257.9	239.7	212.0	27.77	8.634			
5,600.0	5,502.7	5,572.6	5,509.9	21.5	18.3	-163.28	-656.0	259.5	246.9	218.9	28.05	8.804			
5,700.0	5,602.3	5,665.0	5,602.3	21.7	18.4	-163.72	-657.4	260.0	253.8	225.5	28.28	8.973			
5,800.0	5,702.2	5,764.8	5,702.2	21.8	18.5	-164.07	-657.4	260.0	258.7	230.2	28.50	9.078			
5,900.0	5,802.2	5,864.7	5,802.0	22.0	18.6	-0.45	-657.4	257.9	260.4	220.7	39.61	6.573			
6,000.0	5,902.2	5,962.8	5,899.0	22.1	18.7	86.65	-657.4	244.5	260.8	232.3	28.50	9.153			
6,100.0	6,001.6	6,058.3	5,991.2	22.1	18.7	82.99	-657.4	219.6	262.4	234.1	28.25	9.289			
6,200.0	6,099.1	6,152.0	6,077.9	22.2	18.8	79.52	-657.4	184.2	264.9	236.8	28.08	9.433			
6,300.0	6,192.7	6,244.0	6,158.1	22.2	18.8	76.31	-657.4	139.3	268.1	240.1	28.04	9.563			
6,400.0	6,281.1	6,334.5	6,231.3	22.2	18.7	73.39	-657.4	86.1	271.9	243.7	28.14	9.662			
6,500.0	6,362.6	6,423.8	6,296.8	22.2	18.7	70.81	-657.4	25.5	275.9	247.5	28.40	9.714			
6,600.0	6,435.8	6,511.9	6,354.1	22.2	18.7	68.58	-657.4	-41.4	279.9	251.0	28.86	9.698			
6,700.0	6,499.6	6,600.0	6,403.2	22.2	18.8	66.69	-657.4	-114.4	283.6	254.1	29.58	9.588			
6,800.0	6,552.7	6,685.6	6,442.7	22.3	18.9	65.19	-657.4	-190.3	287.0	256.3	30.65	9.362			
6,900.0	6,594.4	6,771.4	6,473.4	22.4	19.2	64.03	-657.4	-270.4	289.7	257.5	32.13	9.014			
7,000.0	6,623.8	6,856.9	6,495.0	22.8	20.1	63.23	-657.4	-353.1	291.6	257.6	34.06	8.564			
7,100.0	6,640.5	6,942.0	6,507.1	23.5	21.5	62.78	-657.4	-437.3	292.8	256.4	36.43	8.037			
7,200.0	6,650.7	7,030.9	6,510.2	24.9	23.2	61.71	-657.4	-526.1	295.8	256.5	39.35	7.517			
7,300.0	6,654.5	7,130.8	6,510.9	26.7	25.3	61.11	-657.4	-626.0	297.3	254.7	42.59	6.981			
7,400.0	6,655.3	7,230.8	6,511.5	28.7	27.6	61.08	-657.4	-726.0	297.4	250.9	46.57	6.386			
7,500.0	6,656.2	7,330.8	6,512.2	30.9	29.9	61.05	-657.4	-826.0	297.5	246.8	50.72	5.865			
7,600.0	6,657.1	7,430.8	6,512.9	33.2	32.3	61.02	-657.4	-926.0	297.6	242.6	55.01	5.410			
7,700.0	6,657.9	7,530.8	6,513.6	35.6	34.8	60.99	-657.4	-1,026.0	297.7	238.3	59.40	5.012			
7,800.0	6,658.8	7,630.8	6,514.3	38.0	37.3	60.97	-657.4	-1,126.0	297.8	233.9	63.86	4.662			
7,900.0	6,659.6	7,730.8	6,514.9	40.5	39.8	60.94	-657.4	-1,226.0	297.8	229.4	68.40	4.355			
8,000.0	6,660.5	7,830.8	6,515.6	43.1	42.4	60.91	-657.4	-1,326.0	297.9	224.9	72.98	4.082			
8,100.0	6,661.3	7,930.8	6,516.3	45.6	45.0	60.88	-657.4	-1,426.0	298.0	220.4	77.61	3.840			
8,200.0	6,662.2	8,030.8	6,517.0	48.2	47.7	60.85	-657.4	-1,526.0	298.1	215.8	82.27	3.623			
8,300.0	6,663.0	8,130.8	6,517.7	50.9	50.3	60.82	-657.4	-1,626.0	298.2	211.2	86.96	3.429			
8,400.0	6,663.9	8,230.8	6,518.3	53.5	53.0	60.79	-657.4	-1,726.0	298.3	206.6	91.68	3.254			
8,500.0	6,664.8	8,330.8	6,519.0	56.1	55.7	60.76	-657.4	-1,826.0	298.4	201.9	96.41	3.095			
8,600.0	6,665.6	8,430.8	6,519.7	58.8	58.4	60.73	-657.4	-1,926.0	298.4	197.3	101.16	2.950			
8,700.0	6,666.5	8,530.8	6,520.4	61.5	61.1	60.70	-657.4	-2,025.9	298.5	192.6	105.93	2.818			
8,800.0	6,667.3	8,630.8	6,521.1	64.2	63.8	60.67	-657.4	-2,125.9	298.6	187.9	110.70	2.697			
8,900.0	6,668.2	8,730.8	6,521.7	66.9	66.5	60.64	-657.4	-2,225.9	298.7	183.2	115.49	2.586			
9,000.0	6,669.0	8,830.8	6,522.4	69.6	69.2	60.61	-657.4	-2,325.9	298.8	178.5	120.29	2.484			
9,100.0	6,669.9	8,930.8	6,523.1	72.3	72.0	60.58	-657.4	-2,425.9	298.9	173.8	125.09	2.389			
9,200.0	6,670.7	9,030.8	6,523.8	75.0	74.7	60.56	-657.4	-2,525.9	298.9	169.0	129.90	2.301			
9,300.0	6,671.6	9,130.8	6,524.5	77.8	77.4	60.53	-657.4	-2,625.9	299.0	164.3	134.72	2.220			
9,400.0	6,672.5	9,230.8	6,525.1	80.5	80.2	60.50	-657.4	-2,725.9	299.1	159.6	139.54	2.144			
9,500.0	6,673.3	9,330.8	6,525.8	83.3	82.9	60.47	-657.4	-2,825.9	299.2	154.8	144.36	2.073			
9,600.0	6,674.2	9,430.8	6,526.5	86.0	85.7	60.44	-657.4	-2,925.9	299.3	150.1	149.18	2.006			
9,700.0	6,675.0	9,530.8	6,527.2	88.7	88.5	60.41	-657.4	-3,025.9	299.4	145.4	154.01	1.944			
9,800.0	6,675.9	9,630.8	6,527.9	91.5	91.2	60.38	-657.4	-3,125.9	299.5	140.6	158.84	1.885			
9,900.0	6,676.7	9,730.8	6,528.6	94.3	94.0	60.35	-657.4	-3,225.9	299.5	135.9	163.68	1.830			
10,000.0	6,677.6	9,830.8	6,529.2	97.0	96.8	60.32	-657.4	-3,325.9	299.6	131.1	168.51	1.778			
10,100.0	6,678.4	9,930.8	6,529.9	99.8	99.5	60.29	-657.4	-3,425.9	299.7	126.4	173.35	1.729			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Peterson 14WX-HZ Pad Sec.14-T5N-R64W - Peterson 14X-234 - Wellbore #1 - Plan #1 (3-07-14)													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,200.0	6,679.3	10,030.8	6,530.6	102.5	102.3	60.26	-657.4	-3,525.9	299.8	121.6	178.18	1.683		
10,300.0	6,680.1	10,130.8	6,531.3	105.3	105.1	60.24	-657.4	-3,625.9	299.9	116.9	183.02	1.639		
10,400.0	6,681.0	10,230.8	6,532.0	108.1	107.8	60.21	-657.4	-3,725.9	300.0	112.1	187.85	1.597		
10,500.0	6,681.9	10,330.8	6,532.6	110.8	110.6	60.18	-657.4	-3,825.9	300.1	107.4	192.69	1.557		
10,600.0	6,682.7	10,430.8	6,533.3	113.6	113.4	60.15	-657.4	-3,925.9	300.2	102.6	197.52	1.520		
10,700.0	6,683.6	10,530.8	6,534.0	116.4	116.2	60.12	-657.4	-4,025.9	300.2	97.9	202.36	1.484	Level 3	
10,800.0	6,684.4	10,630.8	6,534.7	119.2	119.0	60.09	-657.4	-4,125.9	300.3	93.1	207.19	1.449	Level 3	
10,900.0	6,685.3	10,730.8	6,535.4	121.9	121.7	60.06	-657.4	-4,225.9	300.4	88.4	212.03	1.417	Level 3	
10,984.3	6,686.0	10,815.1	6,535.9	124.3	124.1	60.04	-657.4	-4,310.2	300.5	84.4	216.10	1.390	Level 3, SF	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Peterson 14WX-HZ Pad Sec.14-T5N-R64W - Peterson 14X-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	-2.74	58.3	-2.8	58.4				
100.0	100.0	100.0	100.0	0.1	0.1	-2.74	58.3	-2.8	58.4	58.1	0.22	259.632	
200.0	200.0	200.0	200.0	0.3	0.3	-2.74	58.3	-2.8	58.4	57.7	0.67	86.544	
300.0	300.0	300.0	300.0	0.6	0.6	-2.74	58.3	-2.8	58.4	57.2	1.12	51.926	
400.0	400.0	400.0	400.0	0.8	0.8	-2.74	58.3	-2.8	58.4	56.8	1.57	37.090	
500.0	500.0	500.0	500.0	1.0	1.0	-2.74	58.3	-2.8	58.4	56.3	2.02	28.848	
600.0	600.0	600.0	600.0	1.2	1.2	-2.74	58.3	-2.8	58.4	55.9	2.47	23.603	
700.0	700.0	700.0	700.0	1.5	1.5	-2.74	58.3	-2.8	58.4	55.4	2.92	19.972	
800.0	800.0	800.0	800.0	1.7	1.7	-2.74	58.3	-2.8	58.4	55.0	3.37	17.309 CC, ES	
900.0	900.0	900.0	900.0	1.9	1.9	-167.29	58.3	-2.8	60.1	56.3	3.79	15.830	
1,000.0	999.8	999.8	999.8	2.1	2.1	-168.28	58.3	-2.8	65.2	61.0	4.20	15.534	
1,100.0	1,099.5	1,099.5	1,099.5	2.3	2.4	-169.62	58.3	-2.8	73.7	69.1	4.60	16.019	
1,200.0	1,198.7	1,198.7	1,198.7	2.5	2.6	-171.05	58.3	-2.8	85.7	80.7	5.01	17.105	
1,300.0	1,297.5	1,297.5	1,297.5	2.8	2.8	-172.39	58.3	-2.8	101.2	95.8	5.42	18.661	
1,400.0	1,395.6	1,395.6	1,395.6	3.1	3.0	-173.55	58.3	-2.8	120.2	114.3	5.84	20.587	
1,500.0	1,493.3	1,493.3	1,493.3	3.4	3.2	-174.51	58.3	-2.8	141.3	135.0	6.27	22.526	
1,600.0	1,591.1	1,596.1	1,596.1	3.8	3.5	-175.05	56.9	-1.9	161.0	154.3	6.70	24.035	
1,700.0	1,688.8	1,700.5	1,700.3	4.2	3.6	-175.02	52.4	1.0	177.5	170.4	7.11	24.952	
1,800.0	1,786.5	1,805.9	1,805.3	4.6	3.8	-174.57	44.5	6.0	190.6	183.1	7.55	25.261	
1,900.0	1,884.2	1,910.0	1,908.6	5.0	4.1	-173.78	33.7	12.9	200.5	192.5	7.99	25.088	
2,000.0	1,981.9	2,009.5	2,007.3	5.5	4.3	-173.01	22.7	20.0	209.6	201.1	8.45	24.812	
2,100.0	2,079.6	2,109.1	2,106.0	5.9	4.5	-172.29	11.6	27.1	218.7	209.8	8.91	24.539	
2,200.0	2,177.3	2,208.6	2,204.6	6.4	4.8	-171.63	0.5	34.2	227.9	218.5	9.39	24.269	
2,300.0	2,275.1	2,308.2	2,303.3	6.8	5.0	-171.03	-10.6	41.3	237.1	227.2	9.87	24.010	
2,400.0	2,372.8	2,407.7	2,402.0	7.2	5.3	-170.47	-21.7	48.3	246.3	235.9	10.37	23.757	
2,500.0	2,470.5	2,507.3	2,500.7	7.7	5.6	-169.95	-32.8	55.4	255.5	244.6	10.87	23.514	
2,600.0	2,568.2	2,606.8	2,599.3	8.2	5.9	-169.46	-43.8	62.5	264.8	253.4	11.37	23.280	
2,700.0	2,665.9	2,706.4	2,698.0	8.6	6.2	-169.01	-54.9	69.6	274.0	262.1	11.89	23.057	
2,800.0	2,763.6	2,805.9	2,796.7	9.1	6.5	-168.59	-66.0	76.7	283.3	270.9	12.40	22.843	
2,900.0	2,861.3	2,905.5	2,895.4	9.5	6.8	-168.20	-77.1	83.8	292.6	279.7	12.93	22.639	
3,000.0	2,959.1	3,005.0	2,994.0	10.0	7.1	-167.83	-88.2	90.9	301.9	288.5	13.45	22.444	
3,100.0	3,056.8	3,104.6	3,092.7	10.4	7.4	-167.48	-99.3	98.0	311.3	297.3	13.98	22.259	
3,200.0	3,154.5	3,204.1	3,191.4	10.9	7.7	-167.15	-110.3	105.0	320.6	306.1	14.52	22.082	
3,300.0	3,252.2	3,303.7	3,290.1	11.4	8.0	-166.84	-121.4	112.1	329.9	314.9	15.06	21.913	
3,400.0	3,349.9	3,403.2	3,388.7	11.8	8.3	-166.55	-132.5	119.2	339.3	323.7	15.60	21.752	
3,500.0	3,447.6	3,502.7	3,487.4	12.3	8.6	-166.27	-143.6	126.3	348.7	332.5	16.14	21.599	
3,600.0	3,545.3	3,602.3	3,586.1	12.7	9.0	-166.01	-154.7	133.4	358.0	341.3	16.69	21.453	
3,700.0	3,643.1	3,701.8	3,684.7	13.2	9.3	-165.76	-165.8	140.5	367.4	350.2	17.24	21.313	
3,800.0	3,740.8	3,801.4	3,783.4	13.7	9.6	-165.52	-176.8	147.6	376.8	359.0	17.79	21.179	
3,900.0	3,838.5	3,900.9	3,882.1	14.1	9.9	-165.30	-187.9	154.7	386.2	367.8	18.34	21.052	
4,000.0	3,936.2	4,000.5	3,980.8	14.6	10.2	-165.08	-199.0	161.7	395.6	376.7	18.90	20.930	
4,100.0	4,033.9	4,100.0	4,079.4	15.1	10.6	-164.88	-210.1	168.8	405.0	385.5	19.46	20.813	
4,200.0	4,131.6	4,199.6	4,178.1	15.5	10.9	-164.68	-221.2	175.9	414.4	394.4	20.02	20.701	
4,300.0	4,229.3	4,299.1	4,276.8	16.0	11.2	-164.50	-232.3	183.0	423.8	403.2	20.58	20.594	
4,400.0	4,327.0	4,398.7	4,375.5	16.5	11.6	-164.32	-243.4	190.1	433.2	412.1	21.14	20.492	
4,500.0	4,424.8	4,498.2	4,474.1	16.9	11.9	-164.15	-254.4	197.2	442.6	420.9	21.70	20.393	
4,600.0	4,522.5	4,597.8	4,572.8	17.4	12.2	-163.99	-265.5	204.3	452.1	429.8	22.27	20.299	
4,700.0	4,620.2	4,697.3	4,671.5	17.9	12.5	-163.83	-276.6	211.4	461.5	438.6	22.84	20.208	
4,800.0	4,717.9	4,796.9	4,770.2	18.3	12.9	-163.68	-287.7	218.4	470.9	447.5	23.40	20.121	
4,900.0	4,815.6	4,896.4	4,868.8	18.8	13.2	-163.53	-298.8	225.5	480.3	456.4	23.97	20.037	
5,000.0	4,913.3	4,996.0	4,967.5	19.3	13.5	-163.39	-309.9	232.6	489.8	465.2	24.54	19.957	

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Peterson 14WX-HZ Pad Sec.14-T5N-R64W - Peterson 14X-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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,011.0	5,095.5	5,066.2	19.7	13.9	-163.26	-320.9	239.7	499.2	474.1	25.11	19.879	
5,200.0	5,108.8	5,189.4	5,159.3	20.2	14.2	-163.15	-331.2	246.3	508.9	483.2	25.66	19.835	
5,300.0	5,206.5	5,275.7	5,245.2	20.6	14.4	-163.21	-338.7	251.1	520.7	494.5	26.13	19.924	
5,400.0	5,304.7	5,361.8	5,331.0	21.0	14.5	-163.41	-344.1	254.5	532.8	506.2	26.56	20.062	
5,500.0	5,403.4	5,447.6	5,416.7	21.2	14.7	-163.66	-347.3	256.6	544.1	517.1	26.93	20.205	
5,600.0	5,502.7	5,533.6	5,502.7	21.5	14.9	-163.95	-348.3	257.2	554.5	527.3	27.25	20.350	
5,700.0	5,602.3	5,633.2	5,602.3	21.7	15.0	-164.24	-348.3	257.2	562.8	535.3	27.56	20.425	
5,800.0	5,702.2	5,733.1	5,702.2	21.8	15.2	-164.41	-348.3	257.2	567.8	539.9	27.84	20.396	
5,900.0	5,802.2	5,833.1	5,802.2	22.0	15.3	-0.28	-348.3	257.2	569.4	533.3	36.12	15.765	
6,000.0	5,902.2	5,933.0	5,902.1	22.1	15.5	89.72	-348.3	256.9	569.4	540.9	28.45	20.013	
6,100.0	6,001.6	6,032.6	6,001.2	22.1	15.6	89.72	-348.3	247.6	569.4	540.7	28.69	19.844	
6,200.0	6,099.1	6,132.3	6,098.3	22.2	15.7	89.73	-348.3	225.5	569.4	540.6	28.82	19.754	
6,300.0	6,192.7	6,231.9	6,191.7	22.2	15.7	89.74	-348.3	190.9	569.4	540.5	28.90	19.704	
6,400.0	6,281.1	6,331.6	6,279.8	22.2	15.7	89.75	-348.3	144.5	569.4	540.4	29.00	19.633	
6,500.0	6,362.6	6,431.3	6,361.1	22.2	15.7	89.77	-348.3	87.0	569.4	540.1	29.27	19.454	
6,600.0	6,435.8	6,531.0	6,434.3	22.2	15.7	89.79	-348.3	19.4	569.4	539.5	29.86	19.070	
6,700.0	6,499.6	6,630.8	6,498.1	22.2	15.7	89.82	-348.3	-57.2	569.4	538.5	30.94	18.404	
6,800.0	6,552.7	6,730.5	6,551.4	22.3	15.9	89.85	-348.3	-141.5	569.4	536.8	32.64	17.446	
6,900.0	6,594.4	6,830.4	6,593.3	22.4	17.1	89.88	-348.3	-232.0	569.4	534.4	35.01	16.263	
7,000.0	6,623.8	6,930.2	6,623.0	22.8	18.7	89.92	-348.3	-327.3	569.4	531.4	38.03	14.971	
7,100.0	6,640.5	7,030.2	6,640.1	23.5	20.5	89.95	-348.3	-425.7	569.4	527.8	41.58	13.692	
7,200.0	6,650.7	7,130.1	6,650.3	24.9	22.6	89.96	-348.3	-525.1	569.4	523.8	45.56	12.497	
7,300.0	6,654.5	7,230.1	6,654.3	26.7	24.7	89.98	-348.3	-625.0	569.4	519.6	49.82	11.429	
7,400.0	6,655.3	7,330.1	6,655.2	28.7	27.0	89.98	-348.3	-725.0	569.4	515.1	54.32	10.482	
7,500.0	6,656.2	7,430.1	6,656.0	30.9	29.4	89.98	-348.3	-825.0	569.4	510.4	59.01	9.649	
7,600.0	6,657.1	7,530.1	6,656.9	33.2	31.8	89.98	-348.3	-925.0	569.4	505.5	63.85	8.918	
7,700.0	6,657.9	7,630.1	6,657.7	35.6	34.3	89.98	-348.3	-1,025.0	569.4	500.6	68.80	8.275	
7,800.0	6,658.8	7,730.1	6,658.6	38.0	36.9	89.98	-348.3	-1,125.0	569.4	495.5	73.86	7.709	
7,900.0	6,659.6	7,830.1	6,659.4	40.5	39.4	89.98	-348.3	-1,225.0	569.4	490.4	78.98	7.209	
8,000.0	6,660.5	7,930.1	6,660.3	43.1	42.0	89.98	-348.3	-1,325.0	569.4	485.2	84.18	6.764	
8,100.0	6,661.3	8,030.1	6,661.1	45.6	44.7	89.98	-348.3	-1,425.0	569.4	480.0	89.42	6.368	
8,200.0	6,662.2	8,130.1	6,662.0	48.2	47.3	89.98	-348.3	-1,525.0	569.4	474.7	94.70	6.012	
8,300.0	6,663.0	8,230.1	6,662.9	50.9	50.0	89.98	-348.3	-1,625.0	569.4	469.4	100.03	5.692	
8,400.0	6,663.9	8,330.1	6,663.7	53.5	52.6	89.98	-348.3	-1,725.0	569.4	464.0	105.38	5.403	
8,500.0	6,664.8	8,430.1	6,664.6	56.1	55.3	89.98	-348.3	-1,825.0	569.4	458.6	110.76	5.141	
8,600.0	6,665.6	8,530.1	6,665.4	58.8	58.0	89.98	-348.3	-1,925.0	569.4	453.2	116.16	4.902	
8,700.0	6,666.5	8,630.1	6,666.3	61.5	60.8	89.98	-348.3	-2,025.0	569.4	447.8	121.58	4.683	
8,800.0	6,667.3	8,730.1	6,667.1	64.2	63.5	89.98	-348.3	-2,125.0	569.4	442.4	127.02	4.483	
8,900.0	6,668.2	8,830.1	6,668.0	66.9	66.2	89.98	-348.3	-2,224.9	569.4	436.9	132.47	4.298	
9,000.0	6,669.0	8,930.1	6,668.8	69.6	68.9	89.98	-348.3	-2,324.9	569.4	431.4	137.94	4.128	
9,100.0	6,669.9	9,030.1	6,669.7	72.3	71.7	89.98	-348.3	-2,424.9	569.4	426.0	143.42	3.970	
9,200.0	6,670.7	9,130.1	6,670.6	75.0	74.4	89.98	-348.3	-2,524.9	569.4	420.5	148.91	3.824	
9,300.0	6,671.6	9,230.1	6,671.4	77.8	77.2	89.98	-348.3	-2,624.9	569.4	415.0	154.40	3.688	
9,400.0	6,672.5	9,330.1	6,672.3	80.5	79.9	89.98	-348.3	-2,724.9	569.4	409.5	159.91	3.561	
9,500.0	6,673.3	9,430.1	6,673.1	83.3	82.7	89.98	-348.3	-2,824.9	569.4	404.0	165.42	3.442	
9,600.0	6,674.2	9,530.1	6,674.0	86.0	85.4	89.98	-348.3	-2,924.9	569.4	398.4	170.95	3.331	
9,700.0	6,675.0	9,630.1	6,674.8	88.7	88.2	89.98	-348.3	-3,024.9	569.4	392.9	176.47	3.226	
9,800.0	6,675.9	9,730.1	6,675.7	91.5	91.0	89.98	-348.3	-3,124.9	569.4	387.4	182.00	3.128	
9,900.0	6,676.7	9,830.1	6,676.5	94.3	93.7	89.98	-348.3	-3,224.9	569.4	381.8	187.54	3.036	
10,000.0	6,677.6	9,930.1	6,677.4	97.0	96.5	89.98	-348.3	-3,324.9	569.4	376.3	193.08	2.949	
10,100.0	6,678.4	10,030.1	6,678.2	99.8	99.3	89.98	-348.3	-3,424.9	569.4	370.7	198.63	2.866	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Peterson 14WX-HZ Pad Sec.14-T5N-R64W - Peterson 14X-434 - Wellbore #1 - Plan #1 (3-07-14)												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,200.0	6,679.3	10,130.1	6,679.1	102.5	102.1	89.98	-348.3	-3,524.9	569.4	365.2	204.18	2.789	
10,300.0	6,680.1	10,230.1	6,680.0	105.3	104.8	89.98	-348.3	-3,624.9	569.4	359.6	209.74	2.715	
10,400.0	6,681.0	10,330.1	6,680.8	108.1	107.6	89.98	-348.3	-3,724.9	569.4	354.1	215.29	2.645	
10,500.0	6,681.9	10,430.1	6,681.7	110.8	110.4	89.98	-348.3	-3,824.9	569.4	348.5	220.85	2.578	
10,600.0	6,682.7	10,530.1	6,682.5	113.6	113.2	89.98	-348.3	-3,924.9	569.4	343.0	226.42	2.515	
10,700.0	6,683.6	10,630.1	6,683.4	116.4	116.0	89.98	-348.3	-4,024.9	569.4	337.4	231.98	2.454	
10,800.0	6,684.4	10,730.1	6,684.2	119.2	118.8	89.98	-348.3	-4,124.9	569.4	331.8	237.55	2.397	
10,900.0	6,685.3	10,830.1	6,685.1	121.9	121.5	89.98	-348.3	-4,224.9	569.4	326.3	243.12	2.342	
10,984.3	6,686.0	10,914.4	6,685.8	124.3	123.9	89.98	-348.3	-4,309.2	569.4	321.6	247.82	2.298 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Peterson 14WX-HZ Pad Sec.14-T5N-R64W - Peterson 14Y-304 - 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	180.00	-32.8	0.0	32.8					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-32.8	0.0	32.8	32.6	0.22	145.876		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-32.8	0.0	32.8	32.1	0.67	48.625 CC, ES		
300.0	300.0	298.9	298.8	0.6	0.5	179.41	-34.5	0.4	34.5	33.4	1.10	31.337		
400.0	400.0	397.5	397.3	0.8	0.7	177.94	-39.4	1.4	39.6	38.0	1.53	25.826		
500.0	500.0	495.6	495.1	1.0	1.0	176.18	-47.7	3.2	48.0	46.1	1.98	24.254		
600.0	600.0	593.1	591.9	1.2	1.3	174.56	-59.1	5.6	59.9	57.5	2.44	24.544		
700.0	700.0	689.6	687.3	1.5	1.6	173.24	-73.6	8.7	75.2	72.3	2.91	25.819		
800.0	800.0	785.1	781.0	1.7	1.9	172.21	-91.0	12.4	93.8	90.4	3.39	27.649		
900.0	900.0	879.6	873.2	1.9	2.4	7.30	-111.2	16.8	114.0	110.2	3.79	30.056		
1,000.0	999.8	975.5	966.1	2.1	2.8	6.89	-134.5	21.7	133.6	129.4	4.22	31.701		
1,100.0	1,099.5	1,074.1	1,061.5	2.3	3.3	6.71	-158.8	26.9	150.4	145.7	4.65	32.343		
1,200.0	1,198.7	1,173.2	1,157.4	2.5	3.8	6.72	-183.3	32.2	163.7	158.6	5.10	32.096		
1,300.0	1,297.5	1,272.7	1,253.7	2.8	4.4	6.86	-207.9	37.4	173.6	168.0	5.56	31.196		
1,400.0	1,395.6	1,372.5	1,350.2	3.1	4.9	7.13	-232.5	42.7	180.0	174.0	6.04	29.797		
1,500.0	1,493.3	1,472.4	1,446.9	3.4	5.4	7.48	-257.2	48.0	184.3	177.8	6.55	28.136		
1,600.0	1,591.1	1,572.3	1,543.6	3.8	5.9	7.81	-281.9	53.2	188.5	181.5	7.07	26.666		
1,700.0	1,688.8	1,672.2	1,640.2	4.2	6.5	8.14	-306.6	58.5	192.8	185.2	7.60	25.374		
1,800.0	1,786.5	1,772.1	1,736.9	4.6	7.0	8.45	-331.3	63.8	197.1	188.9	8.13	24.230		
1,900.0	1,884.2	1,872.0	1,833.5	5.0	7.5	8.74	-355.9	69.1	201.3	192.6	8.67	23.213		
2,000.0	1,981.9	1,971.9	1,930.2	5.5	8.1	9.03	-380.6	74.3	205.6	196.4	9.22	22.303		
2,100.0	2,079.6	2,071.8	2,026.9	5.9	8.6	9.30	-405.3	79.6	209.9	200.1	9.77	21.487		
2,200.0	2,177.3	2,171.7	2,123.5	6.4	9.1	9.56	-430.0	84.9	214.1	203.8	10.32	20.750		
2,300.0	2,275.1	2,271.6	2,220.2	6.8	9.7	9.81	-454.7	90.2	218.4	207.5	10.88	20.082		
2,400.0	2,372.8	2,371.5	2,316.9	7.2	10.2	10.05	-479.3	95.4	222.7	211.3	11.44	19.474		
2,500.0	2,470.5	2,471.4	2,413.5	7.7	10.7	10.28	-504.0	100.7	227.0	215.0	12.00	18.919		
2,600.0	2,568.2	2,571.3	2,510.2	8.2	11.3	10.51	-528.7	106.0	231.3	218.7	12.56	18.410		
2,700.0	2,665.9	2,671.2	2,606.9	8.6	11.8	10.72	-553.4	111.3	235.6	222.4	13.13	17.942		
2,800.0	2,763.6	2,771.1	2,703.5	9.1	12.3	10.93	-578.1	116.5	239.9	226.2	13.70	17.509		
2,900.0	2,861.3	2,871.0	2,800.2	9.5	12.9	11.13	-602.7	121.8	244.2	229.9	14.27	17.110		
3,000.0	2,959.1	2,970.9	2,896.8	10.0	13.4	11.32	-627.4	127.1	248.5	233.6	14.84	16.739		
3,100.0	3,056.8	3,070.8	2,993.5	10.4	13.9	11.51	-652.1	132.4	252.8	237.4	15.42	16.394		
3,200.0	3,154.5	3,170.7	3,090.2	10.9	14.5	11.69	-676.8	137.6	257.1	241.1	16.00	16.072		
3,300.0	3,252.2	3,270.6	3,186.8	11.4	15.0	11.86	-701.5	142.9	261.4	244.8	16.57	15.771		
3,400.0	3,349.9	3,370.5	3,283.5	11.8	15.5	12.03	-726.1	148.2	265.7	248.6	17.15	15.489		
3,500.0	3,447.6	3,470.4	3,380.2	12.3	16.1	12.20	-750.8	153.5	270.0	252.3	17.74	15.225		
3,600.0	3,545.3	3,570.3	3,476.8	12.7	16.6	12.36	-775.5	158.7	274.4	256.0	18.32	14.977		
3,700.0	3,643.1	3,670.2	3,573.5	13.2	17.1	12.51	-800.2	164.0	278.7	259.8	18.90	14.743		
3,800.0	3,740.8	3,770.1	3,670.2	13.7	17.7	12.66	-824.9	169.3	283.0	263.5	19.49	14.522		
3,900.0	3,838.5	3,870.0	3,766.8	14.1	18.2	12.80	-849.5	174.6	287.3	267.3	20.07	14.313		
4,000.0	3,936.2	3,970.0	3,863.5	14.6	18.8	12.94	-874.2	179.9	291.7	271.0	20.66	14.115		
4,100.0	4,033.9	4,069.9	3,960.2	15.1	19.3	13.08	-898.9	185.1	296.0	274.7	21.25	13.928		
4,200.0	4,131.6	4,169.8	4,056.8	15.5	19.8	13.21	-923.6	190.4	300.3	278.5	21.84	13.750		
4,300.0	4,229.3	4,269.7	4,153.5	16.0	20.4	13.34	-948.2	195.7	304.6	282.2	22.43	13.582		
4,400.0	4,327.0	4,369.6	4,250.1	16.5	20.9	13.46	-972.9	201.0	309.0	286.0	23.02	13.421		
4,500.0	4,424.8	4,469.5	4,346.8	16.9	21.4	13.58	-997.6	206.2	313.3	289.7	23.61	13.268		
4,600.0	4,522.5	4,569.4	4,443.5	17.4	22.0	13.70	-1,022.3	211.5	317.6	293.4	24.21	13.122		
4,700.0	4,620.2	4,669.3	4,540.1	17.9	22.5	13.82	-1,047.0	216.8	322.0	297.2	24.80	12.982		
4,800.0	4,717.9	4,769.2	4,636.8	18.3	23.0	13.93	-1,071.6	222.1	326.3	300.9	25.40	12.849		
4,900.0	4,815.6	4,869.1	4,733.5	18.8	23.6	14.04	-1,096.3	227.3	330.7	304.7	25.99	12.722		
5,000.0	4,913.3	4,969.0	4,830.1	19.3	24.1	14.14	-1,121.0	232.6	335.0	308.4	26.59	12.600		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Peterson 14WX-HZ Pad Sec.14-T5N-R64W - Peterson 14Y-304 - 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	
5,100.0	5,011.0	5,068.9	4,926.8	19.7	24.7	14.25	-1,145.7	237.9	339.3	312.2	27.18	12.483		
5,200.0	5,108.8	5,175.3	5,029.9	20.2	25.2	14.37	-1,171.5	243.4	343.2	315.4	27.79	12.351		
5,300.0	5,206.5	5,288.6	5,140.6	20.6	25.6	14.62	-1,195.3	248.5	343.8	315.4	28.38	12.112		
5,400.0	5,304.7	5,402.0	5,252.1	21.0	25.9	14.89	-1,214.7	252.6	342.6	313.7	28.90	11.857		
5,500.0	5,403.4	5,515.2	5,364.3	21.2	26.2	15.14	-1,229.9	255.9	341.0	311.6	29.34	11.621		
5,600.0	5,502.7	5,628.3	5,476.8	21.5	26.4	15.37	-1,240.7	258.2	338.9	309.1	29.73	11.398		
5,700.0	5,602.3	5,741.3	5,589.6	21.7	26.5	15.57	-1,247.1	259.6	336.2	306.2	30.05	11.189		
5,800.0	5,702.2	5,853.9	5,702.2	21.8	26.7	15.75	-1,249.2	260.0	333.1	302.8	30.31	10.989		
5,900.0	5,802.2	5,953.8	5,802.2	22.0	26.8	180.00	-1,249.2	260.0	331.5	283.6	47.86	6.927		
5,935.5	5,837.7	5,989.4	5,837.7	22.0	26.8	-90.00	-1,249.2	259.8	331.5	300.9	30.61	10.830		
6,000.0	5,902.2	6,053.6	5,901.7	22.1	26.8	-89.32	-1,249.2	255.8	331.5	300.6	30.92	10.722		
6,100.0	6,001.6	6,152.3	5,998.9	22.1	26.9	-88.00	-1,249.2	239.1	331.7	300.3	31.38	10.572		
6,200.0	6,099.1	6,250.0	6,092.3	22.2	26.9	-86.73	-1,249.2	210.4	332.0	300.3	31.71	10.472		
6,300.0	6,192.7	6,346.9	6,180.5	22.2	26.9	-85.52	-1,249.2	170.3	332.5	300.6	31.93	10.414		
6,400.0	6,281.1	6,443.0	6,262.2	22.2	26.9	-84.39	-1,249.2	120.0	333.1	301.0	32.11	10.373		
6,500.0	6,362.6	6,538.4	6,336.5	22.2	26.9	-83.36	-1,249.2	60.2	333.7	301.4	32.36	10.312		
6,600.0	6,435.8	6,633.1	6,402.3	22.2	26.9	-82.44	-1,249.2	-7.8	334.4	301.6	32.84	10.182		
6,700.0	6,499.6	6,727.3	6,458.9	22.2	26.9	-81.65	-1,249.2	-83.0	335.1	301.3	33.73	9.932		
6,800.0	6,552.7	6,821.0	6,505.6	22.3	27.0	-80.99	-1,249.2	-164.2	335.6	300.5	35.18	9.539		
6,900.0	6,594.4	6,914.3	6,541.9	22.4	27.1	-80.48	-1,249.2	-250.1	336.1	298.8	37.29	9.013		
7,000.0	6,623.8	7,007.4	6,567.4	22.8	27.3	-80.12	-1,249.2	-339.5	336.5	296.4	40.07	8.397		
7,100.0	6,640.5	7,100.0	6,581.8	23.5	27.7	-79.92	-1,249.2	-431.0	336.7	293.3	43.44	7.751		
7,200.0	6,650.7	7,194.3	6,585.3	24.9	28.4	-78.89	-1,249.2	-525.1	337.9	290.8	47.09	7.176		
7,300.0	6,654.5	7,294.2	6,585.4	26.7	29.5	-78.22	-1,249.2	-625.0	338.6	287.4	51.25	6.607		
7,400.0	6,655.3	7,394.2	6,585.4	28.7	31.0	-78.08	-1,249.2	-725.0	338.8	283.3	55.54	6.100		
7,500.0	6,656.2	7,494.2	6,585.4	30.9	32.8	-77.94	-1,249.2	-825.0	339.0	279.0	60.02	5.648		
7,600.0	6,657.1	7,594.1	6,585.4	33.2	34.8	-77.80	-1,249.2	-925.0	339.2	274.5	64.65	5.246		
7,700.0	6,657.9	7,694.1	6,585.4	35.6	37.0	-77.67	-1,249.2	-1,025.0	339.3	269.9	69.40	4.890		
7,800.0	6,658.8	7,794.1	6,585.4	38.0	39.3	-77.53	-1,249.2	-1,125.0	339.5	265.3	74.24	4.573		
7,900.0	6,659.6	7,894.1	6,585.5	40.5	41.7	-77.39	-1,249.2	-1,225.0	339.7	260.5	79.16	4.291		
8,000.0	6,660.5	7,994.1	6,585.5	43.1	44.1	-77.25	-1,249.2	-1,325.0	339.9	255.7	84.15	4.039		
8,100.0	6,661.3	8,094.1	6,585.5	45.6	46.6	-77.12	-1,249.2	-1,425.0	340.1	250.9	89.18	3.813		
8,200.0	6,662.2	8,194.1	6,585.5	48.2	49.2	-76.98	-1,249.2	-1,525.0	340.3	246.0	94.25	3.610		
8,300.0	6,663.0	8,294.1	6,585.5	50.9	51.7	-76.84	-1,249.2	-1,625.0	340.4	241.1	99.36	3.426		
8,400.0	6,663.9	8,394.1	6,585.6	53.5	54.3	-76.70	-1,249.2	-1,725.0	340.6	236.1	104.50	3.260		
8,500.0	6,664.8	8,494.1	6,585.6	56.1	56.9	-76.57	-1,249.2	-1,825.0	340.8	231.2	109.66	3.108		
8,600.0	6,665.6	8,594.1	6,585.6	58.8	59.5	-76.43	-1,249.2	-1,925.0	341.0	226.2	114.84	2.970		
8,700.0	6,666.5	8,694.1	6,585.6	61.5	62.2	-76.29	-1,249.2	-2,025.0	341.2	221.2	120.03	2.843		
8,800.0	6,667.3	8,794.1	6,585.6	64.2	64.8	-76.16	-1,249.2	-2,125.0	341.4	216.2	125.24	2.726		
8,900.0	6,668.2	8,894.1	6,585.6	66.9	67.5	-76.02	-1,249.2	-2,225.0	341.6	211.2	130.45	2.619		
9,000.0	6,669.0	8,994.1	6,585.7	69.6	70.2	-75.88	-1,249.2	-2,325.0	341.8	206.2	135.68	2.519		
9,100.0	6,669.9	9,094.1	6,585.7	72.3	72.9	-75.75	-1,249.2	-2,425.0	342.0	201.1	140.91	2.427		
9,200.0	6,670.7	9,194.1	6,585.7	75.0	75.6	-75.61	-1,249.2	-2,524.9	342.2	196.1	146.15	2.342		
9,300.0	6,671.6	9,294.1	6,585.7	77.8	78.3	-75.48	-1,249.2	-2,624.9	342.5	191.1	151.39	2.262		
9,400.0	6,672.5	9,394.1	6,585.7	80.5	81.0	-75.34	-1,249.2	-2,724.9	342.7	186.0	156.63	2.188		
9,500.0	6,673.3	9,494.1	6,585.7	83.3	83.7	-75.20	-1,249.2	-2,824.9	342.9	181.0	161.87	2.118		
9,600.0	6,674.2	9,594.1	6,585.8	86.0	86.5	-75.07	-1,249.2	-2,924.9	343.1	176.0	167.12	2.053		
9,700.0	6,675.0	9,694.1	6,585.8	88.7	89.2	-74.93	-1,249.2	-3,024.9	343.3	171.0	172.36	1.992		
9,800.0	6,675.9	9,794.1	6,585.8	91.5	91.9	-74.80	-1,249.2	-3,124.9	343.5	165.9	177.61	1.934		
9,900.0	6,676.7	9,894.1	6,585.8	94.3	94.7	-74.66	-1,249.2	-3,224.9	343.8	160.9	182.85	1.880		
10,000.0	6,677.6	9,994.1	6,585.8	97.0	97.4	-74.53	-1,249.2	-3,324.9	344.0	155.9	188.09	1.829		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Peterson 14WX-HZ Pad Sec.14-T5N-R64W - Peterson 14Y-304 - Wellbore #1 - Plan #1 (3-07-14)												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	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	6,678.4	10,094.1	6,585.8	99.8	100.2	-74.40	-1,249.2	-3,424.9	344.2	150.9	193.33	1.780	
10,200.0	6,679.3	10,194.1	6,585.9	102.5	102.9	-74.26	-1,249.2	-3,524.9	344.4	145.9	198.56	1.735	
10,300.0	6,680.1	10,294.1	6,585.9	105.3	105.7	-74.13	-1,249.2	-3,624.9	344.7	140.9	203.79	1.691	
10,400.0	6,681.0	10,394.0	6,585.9	108.1	108.5	-73.99	-1,249.2	-3,724.9	344.9	135.9	209.02	1.650	
10,500.0	6,681.9	10,494.0	6,585.9	110.8	111.2	-73.86	-1,249.2	-3,824.9	345.1	130.9	214.24	1.611	
10,600.0	6,682.7	10,594.0	6,585.9	113.6	114.0	-73.73	-1,249.2	-3,924.9	345.4	125.9	219.46	1.574	
10,700.0	6,683.6	10,694.0	6,586.0	116.4	116.7	-73.59	-1,249.2	-4,024.9	345.6	120.9	224.68	1.538	
10,800.0	6,684.4	10,794.0	6,586.0	119.2	119.5	-73.46	-1,249.2	-4,124.9	345.8	115.9	229.89	1.504	
10,900.0	6,685.3	10,894.0	6,586.0	121.9	122.3	-73.33	-1,249.2	-4,224.9	346.1	111.0	235.09	1.472 Level 3	
10,942.1	6,685.6	10,936.1	6,586.0	123.1	123.4	-73.27	-1,249.2	-4,266.9	346.2	108.9	237.28	1.459 Level 3	
10,984.3	6,686.0	10,967.2	6,586.0	124.3	124.3	-73.23	-1,249.2	-4,298.1	346.5	107.3	239.19	1.448 Level 3, SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	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-414

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.64°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Peterson 14Y-414
<b>Project:</b>	SEC.14-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Reference Site:</b>	Peterson 14WX-HZ Pad Sec.14-T5N-R64W	<b>MD Reference:</b>	WELL @ 4586.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Peterson 14Y-414	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-14)	<b>Offset TVD Reference:</b>	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-414  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.64°

