

PETROLEUM DEVELOPMENT CORP Weld County CO

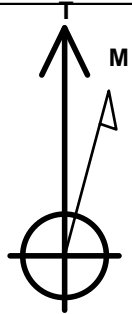
Well Name: **Chesnut 28R-203**

Surface Location: Chesnut 28M-HZ Pad Sec.28-T5N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4620.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1381330.45	3264736.50	40.376260	-104.549770	
RKB - 15' WELL @ 4635.0ft (RKB - 15')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 466'FNL, 1260'FEL, SEC.28	1.0	0.0	0.0	Point
BHL 2133'FNL, 1525'FEL, SEC.33	6624.0	-6951.0	-239.7	Point



Azimuths to True North
Magnetic North: 8.39°

Magnetic Field
Strength: 52866.5srT
Dip Angle: 66.98°
Date: 1/29/2014
Model: IGRF2010

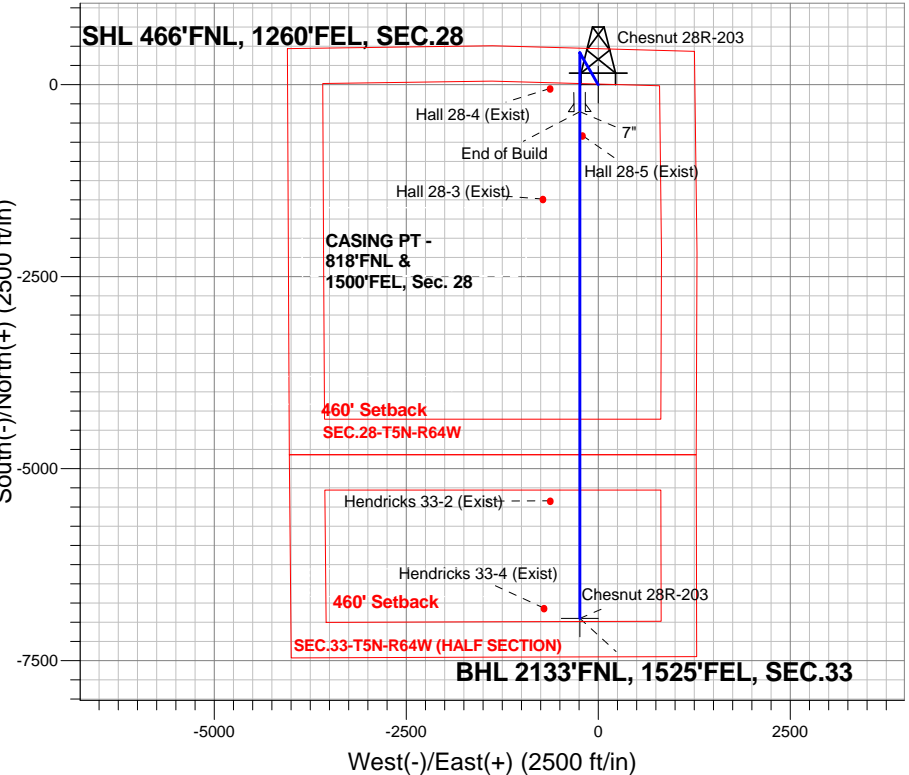
Chesnut 28M-HZ Pad Sec.28-T5N-R64W
Chesnut 28R-203
Plan #1 (1-29-14)
9:33, May 01 2014

ANNOTATIONS

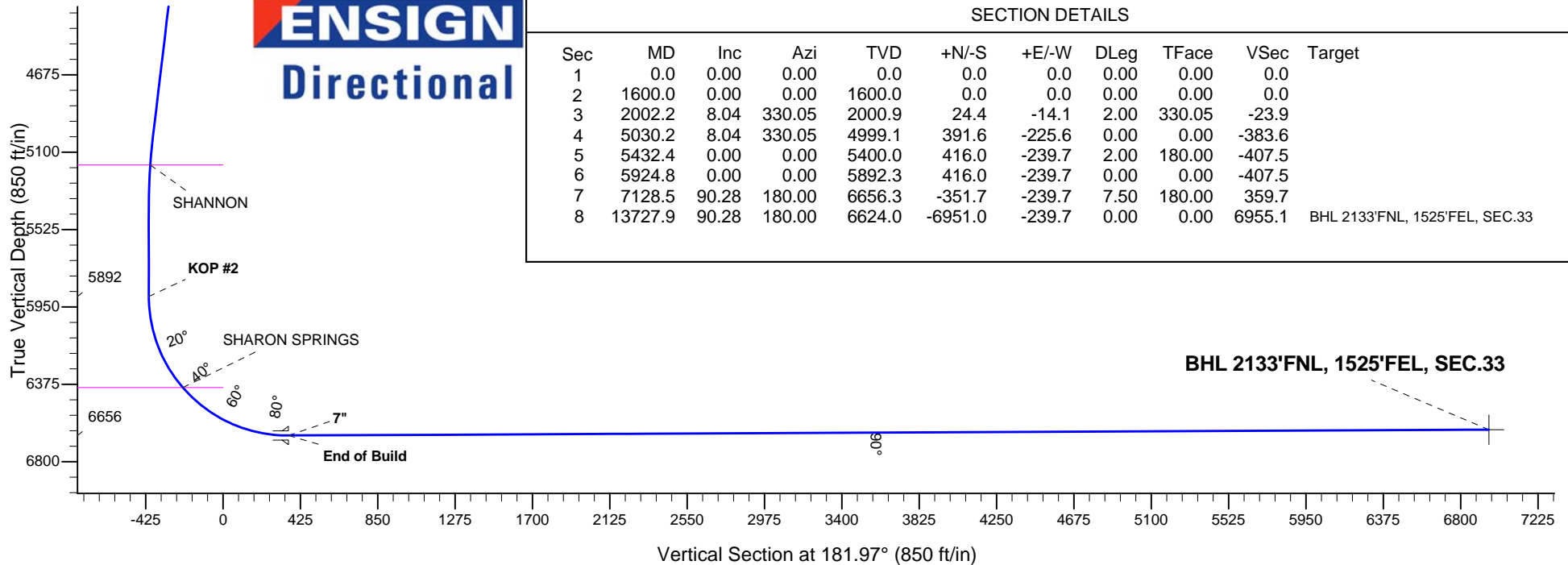
TVD	MD	Annotation
1600.0	1600.0	KOP #1
5892.4	5924.8	KOP #2
6656.3	7128.5	End of Build

SHL 466'FNL, 1260'FEL, SEC.28

South(-)/North(+) (2500 ft/in)



ENSIGN
Directional



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1600.0	0.00	0.00	1600.0	0.0	0.0	0.00	0.00	0.0	
3	2002.2	8.04	330.05	2000.9	24.4	-14.1	2.00	330.05	-23.9	
4	5030.2	8.04	330.05	4999.1	391.6	-225.6	0.00	0.00	-383.6	
5	5432.4	0.00	0.00	5400.0	416.0	-239.7	2.00	180.00	-407.5	
6	5924.8	0.00	0.00	5892.3	416.0	-239.7	0.00	0.00	-407.5	
7	7128.5	90.28	180.00	6656.3	-351.7	-239.7	7.50	180.00	359.7	
8	13727.9	90.28	180.00	6624.0	-6951.0	-239.7	0.00	0.00	6955.1	BHL 2133'FNL, 1525'FEL, SEC.33



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T5N-R64W

Chesnut 28M-HZ Pad Sec.28-T5N-R64W

Chesnut 28R-203

Wellbore #1

Plan: Plan #1 (1-29-14)

Standard Planning Report

01 May, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Chesnut 28R-203
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Project:	SEC.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	North Reference:	True
Well:	Chesnut 28R-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-29-14)		

Project	SEC.28-T5N-R64W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site						Chesnut 28M-HZ Pad Sec.28-T5N-R64W											
Site Position:						Northing:			1,381,420.67 ft			Latitude:			40.376510		
From:			Lat/Long			Easting:			3,264,654.74 ft			Longitude:			-104.550060		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.61 °		

Well	Chesnut 28R-203					
Well Position	+N-S	-91.1 ft	Northing:	1,381,330.45 ft	Latitude:	40.376260
	+E-W	80.8 ft	Easting:	3,264,736.50 ft	Longitude:	-104.549770
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,620.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/29/2014	8.39	66.98	52,866

Design	Plan #1 (1-29-14)			
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	181.97

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	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,002.2	8.04	330.05	2,000.9	24.4	-14.1	2.00	2.00	0.00	330.05	
5,030.2	8.04	330.05	4,999.1	391.6	-225.6	0.00	0.00	0.00	0.00	
5,432.4	0.00	0.00	5,400.0	416.0	-239.7	2.00	-2.00	0.00	180.00	
5,924.8	0.00	0.00	5,892.3	416.0	-239.7	0.00	0.00	0.00	0.00	
7,128.5	90.28	180.00	6,656.3	-351.7	-239.7	7.50	7.50	0.00	180.00	
13,727.9	90.28	180.00	6,624.0	-6,951.0	-239.7	0.00	0.00	0.00	0.00	BHL 2133°FNL, 152

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Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	North Reference:	True
Well:	Chesnut 28R-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-29-14)		

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 466'FNL, 1260'FEL, SEC.28									
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
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
1,700.0	2.00	330.05	1,700.0	1.5	-0.9	-1.5	2.00	2.00	0.00
1,800.0	4.00	330.05	1,799.8	6.0	-3.5	-5.9	2.00	2.00	0.00
1,900.0	6.00	330.05	1,899.5	13.6	-7.8	-13.3	2.00	2.00	0.00
2,000.0	8.00	330.05	1,998.7	24.2	-13.9	-23.7	2.00	2.00	0.00
2,002.2	8.04	330.05	2,000.9	24.4	-14.1	-23.9	2.00	2.00	0.00
2,100.0	8.04	330.05	2,097.7	36.3	-20.9	-35.5	0.00	0.00	0.00
2,200.0	8.04	330.05	2,196.7	48.4	-27.9	-47.4	0.00	0.00	0.00
2,300.0	8.04	330.05	2,295.7	60.5	-34.9	-59.3	0.00	0.00	0.00
2,400.0	8.04	330.05	2,394.8	72.7	-41.9	-71.2	0.00	0.00	0.00
2,500.0	8.04	330.05	2,493.8	84.8	-48.9	-83.0	0.00	0.00	0.00
2,600.0	8.04	330.05	2,592.8	96.9	-55.8	-94.9	0.00	0.00	0.00
2,700.0	8.04	330.05	2,691.8	109.0	-62.8	-106.8	0.00	0.00	0.00
2,800.0	8.04	330.05	2,790.8	121.2	-69.8	-118.7	0.00	0.00	0.00
2,900.0	8.04	330.05	2,889.8	133.3	-76.8	-130.6	0.00	0.00	0.00
3,000.0	8.04	330.05	2,988.9	145.4	-83.8	-142.4	0.00	0.00	0.00
3,100.0	8.04	330.05	3,087.9	157.5	-90.8	-154.3	0.00	0.00	0.00
3,200.0	8.04	330.05	3,186.9	169.7	-97.8	-166.2	0.00	0.00	0.00
3,300.0	8.04	330.05	3,285.9	181.8	-104.7	-178.1	0.00	0.00	0.00
3,400.0	8.04	330.05	3,384.9	193.9	-111.7	-189.9	0.00	0.00	0.00
3,500.0	8.04	330.05	3,483.9	206.0	-118.7	-201.8	0.00	0.00	0.00
3,566.7	8.04	330.05	3,550.0	214.1	-123.4	-209.7	0.00	0.00	0.00
PARKMAN									
3,600.0	8.04	330.05	3,583.0	218.2	-125.7	-213.7	0.00	0.00	0.00
3,700.0	8.04	330.05	3,682.0	230.3	-132.7	-225.6	0.00	0.00	0.00
3,800.0	8.04	330.05	3,781.0	242.4	-139.7	-237.5	0.00	0.00	0.00
3,900.0	8.04	330.05	3,880.0	254.5	-146.7	-249.3	0.00	0.00	0.00
4,000.0	8.04	330.05	3,979.0	266.7	-153.6	-261.2	0.00	0.00	0.00
4,100.0	8.04	330.05	4,078.0	278.8	-160.6	-273.1	0.00	0.00	0.00
4,187.8	8.04	330.05	4,165.0	289.4	-166.8	-283.5	0.00	0.00	0.00
SUSSEX									
4,200.0	8.04	330.05	4,177.1	290.9	-167.6	-285.0	0.00	0.00	0.00
4,300.0	8.04	330.05	4,276.1	303.0	-174.6	-296.8	0.00	0.00	0.00
4,400.0	8.04	330.05	4,375.1	315.2	-181.6	-308.7	0.00	0.00	0.00

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Project:	SEC.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	North Reference:	True
Well:	Chesnut 28R-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-29-14)		

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	8.04	330.05	4,474.1	327.3	-188.6	-320.6	0.00	0.00	0.00
4,600.0	8.04	330.05	4,573.1	339.4	-195.6	-332.5	0.00	0.00	0.00
4,700.0	8.04	330.05	4,672.1	351.5	-202.6	-344.3	0.00	0.00	0.00
4,800.0	8.04	330.05	4,771.1	363.7	-209.5	-356.2	0.00	0.00	0.00
4,900.0	8.04	330.05	4,870.2	375.8	-216.5	-368.1	0.00	0.00	0.00
5,000.0	8.04	330.05	4,969.2	387.9	-223.5	-380.0	0.00	0.00	0.00
5,030.2	8.04	330.05	4,999.1	391.6	-225.6	-383.6	0.00	0.00	0.00
5,100.0	6.65	330.05	5,068.3	399.3	-230.1	-391.1	2.00	-2.00	0.00
5,200.0	4.65	330.05	5,167.8	407.8	-235.0	-399.5	2.00	-2.00	0.00
5,202.2	4.60	330.05	5,170.0	408.0	-235.1	-399.6	2.00	-2.00	0.00
SHANNON									
5,300.0	2.65	330.05	5,267.6	413.3	-238.2	-404.9	2.00	-2.00	0.00
5,400.0	0.65	330.05	5,367.6	415.8	-239.6	-407.3	2.00	-2.00	0.00
5,432.4	0.00	0.00	5,400.0	416.0	-239.7	-407.5	2.00	-2.00	0.00
5,500.0	0.00	0.00	5,467.6	416.0	-239.7	-407.5	0.00	0.00	0.00
5,600.0	0.00	0.00	5,567.6	416.0	-239.7	-407.5	0.00	0.00	0.00
5,700.0	0.00	0.00	5,667.6	416.0	-239.7	-407.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,767.6	416.0	-239.7	-407.5	0.00	0.00	0.00
5,900.0	0.00	0.00	5,867.6	416.0	-239.7	-407.5	0.00	0.00	0.00
5,924.8	0.00	0.00	5,892.4	416.0	-239.7	-407.5	0.00	0.00	0.00
KOP #2									
6,000.0	5.64	180.00	5,967.4	412.3	-239.7	-403.8	7.50	7.50	0.00
6,100.0	13.14	180.00	6,066.0	396.0	-239.7	-387.5	7.50	7.50	0.00
6,200.0	20.64	180.00	6,161.6	366.9	-239.7	-358.5	7.50	7.50	0.00
6,300.0	28.14	180.00	6,252.7	325.7	-239.7	-317.2	7.50	7.50	0.00
6,400.0	35.64	180.00	6,337.5	272.9	-239.7	-264.5	7.50	7.50	0.00
6,470.7	40.95	180.00	6,393.0	229.1	-239.7	-220.7	7.50	7.50	0.00
SHARON SPRINGS									
6,500.0	43.14	180.00	6,414.7	209.5	-239.7	-201.1	7.50	7.50	0.00
6,600.0	50.64	180.00	6,483.0	136.5	-239.7	-128.2	7.50	7.50	0.00
6,700.0	58.14	180.00	6,541.2	55.3	-239.7	-47.0	7.50	7.50	0.00
6,800.0	65.64	180.00	6,588.3	-32.9	-239.7	41.1	7.50	7.50	0.00
6,900.0	73.14	180.00	6,623.4	-126.4	-239.7	134.6	7.50	7.50	0.00
7,000.0	80.64	180.00	6,646.1	-223.7	-239.7	231.9	7.50	7.50	0.00
7,100.0	88.14	180.00	6,655.9	-323.2	-239.7	331.3	7.50	7.50	0.00
7,128.5	90.28	180.00	6,656.3	-351.7	-239.7	359.7	7.50	7.50	0.00
End of Build - 7"									
7,200.0	90.28	180.00	6,655.9	-423.2	-239.7	431.2	0.00	0.00	0.00
7,300.0	90.28	180.00	6,655.4	-523.2	-239.7	531.1	0.00	0.00	0.00
7,400.0	90.28	180.00	6,654.9	-623.2	-239.7	631.1	0.00	0.00	0.00
7,500.0	90.28	180.00	6,654.4	-723.2	-239.7	731.0	0.00	0.00	0.00
7,600.0	90.28	180.00	6,653.9	-823.2	-239.7	831.0	0.00	0.00	0.00
7,700.0	90.28	180.00	6,653.5	-923.2	-239.7	930.9	0.00	0.00	0.00
7,800.0	90.28	180.00	6,653.0	-1,023.2	-239.7	1,030.8	0.00	0.00	0.00
7,900.0	90.28	180.00	6,652.5	-1,123.2	-239.7	1,130.8	0.00	0.00	0.00
8,000.0	90.28	180.00	6,652.0	-1,223.2	-239.7	1,230.7	0.00	0.00	0.00
8,100.0	90.28	180.00	6,651.5	-1,323.2	-239.7	1,330.7	0.00	0.00	0.00
8,200.0	90.28	180.00	6,651.0	-1,423.2	-239.7	1,430.6	0.00	0.00	0.00
8,300.0	90.28	180.00	6,650.5	-1,523.2	-239.7	1,530.5	0.00	0.00	0.00
8,400.0	90.28	180.00	6,650.0	-1,623.2	-239.7	1,630.5	0.00	0.00	0.00
8,500.0	90.28	180.00	6,649.5	-1,723.2	-239.7	1,730.4	0.00	0.00	0.00
8,600.0	90.28	180.00	6,649.1	-1,823.2	-239.7	1,830.4	0.00	0.00	0.00

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Well:	Chesnut 28R-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-29-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,700.0	90.28	180.00	6,648.6	-1,923.2	-239.7	1,930.3	0.00	0.00	0.00
8,800.0	90.28	180.00	6,648.1	-2,023.2	-239.7	2,030.2	0.00	0.00	0.00
8,900.0	90.28	180.00	6,647.6	-2,123.2	-239.7	2,130.2	0.00	0.00	0.00
9,000.0	90.28	180.00	6,647.1	-2,223.2	-239.7	2,230.1	0.00	0.00	0.00
9,100.0	90.28	180.00	6,646.6	-2,323.2	-239.7	2,330.0	0.00	0.00	0.00
9,200.0	90.28	180.00	6,646.1	-2,423.2	-239.7	2,430.0	0.00	0.00	0.00
9,300.0	90.28	180.00	6,645.6	-2,523.2	-239.7	2,529.9	0.00	0.00	0.00
9,400.0	90.28	180.00	6,645.2	-2,623.2	-239.7	2,629.9	0.00	0.00	0.00
9,500.0	90.28	180.00	6,644.7	-2,723.2	-239.7	2,729.8	0.00	0.00	0.00
9,600.0	90.28	180.00	6,644.2	-2,823.2	-239.7	2,829.7	0.00	0.00	0.00
9,700.0	90.28	180.00	6,643.7	-2,923.2	-239.7	2,929.7	0.00	0.00	0.00
9,800.0	90.28	180.00	6,643.2	-3,023.2	-239.7	3,029.6	0.00	0.00	0.00
9,900.0	90.28	180.00	6,642.7	-3,123.2	-239.7	3,129.6	0.00	0.00	0.00
10,000.0	90.28	180.00	6,642.2	-3,223.2	-239.7	3,229.5	0.00	0.00	0.00
10,100.0	90.28	180.00	6,641.7	-3,323.2	-239.7	3,329.4	0.00	0.00	0.00
10,200.0	90.28	180.00	6,641.2	-3,423.2	-239.7	3,429.4	0.00	0.00	0.00
10,300.0	90.28	180.00	6,640.8	-3,523.2	-239.7	3,529.3	0.00	0.00	0.00
10,400.0	90.28	180.00	6,640.3	-3,623.2	-239.7	3,629.3	0.00	0.00	0.00
10,500.0	90.28	180.00	6,639.8	-3,723.2	-239.7	3,729.2	0.00	0.00	0.00
10,600.0	90.28	180.00	6,639.3	-3,823.2	-239.7	3,829.1	0.00	0.00	0.00
10,700.0	90.28	180.00	6,638.8	-3,923.1	-239.7	3,929.1	0.00	0.00	0.00
10,800.0	90.28	180.00	6,638.3	-4,023.1	-239.7	4,029.0	0.00	0.00	0.00
10,900.0	90.28	180.00	6,637.8	-4,123.1	-239.7	4,129.0	0.00	0.00	0.00
11,000.0	90.28	180.00	6,637.3	-4,223.1	-239.7	4,228.9	0.00	0.00	0.00
11,100.0	90.28	180.00	6,636.8	-4,323.1	-239.7	4,328.8	0.00	0.00	0.00
11,200.0	90.28	180.00	6,636.4	-4,423.1	-239.7	4,428.8	0.00	0.00	0.00
11,300.0	90.28	180.00	6,635.9	-4,523.1	-239.7	4,528.7	0.00	0.00	0.00
11,400.0	90.28	180.00	6,635.4	-4,623.1	-239.7	4,628.7	0.00	0.00	0.00
11,500.0	90.28	180.00	6,634.9	-4,723.1	-239.7	4,728.6	0.00	0.00	0.00
11,600.0	90.28	180.00	6,634.4	-4,823.1	-239.7	4,828.5	0.00	0.00	0.00
11,700.0	90.28	180.00	6,633.9	-4,923.1	-239.7	4,928.5	0.00	0.00	0.00
11,800.0	90.28	180.00	6,633.4	-5,023.1	-239.7	5,028.4	0.00	0.00	0.00
11,900.0	90.28	180.00	6,632.9	-5,123.1	-239.7	5,128.4	0.00	0.00	0.00
12,000.0	90.28	180.00	6,632.4	-5,223.1	-239.7	5,228.3	0.00	0.00	0.00
12,100.0	90.28	180.00	6,632.0	-5,323.1	-239.7	5,328.2	0.00	0.00	0.00
12,200.0	90.28	180.00	6,631.5	-5,423.1	-239.7	5,428.2	0.00	0.00	0.00
12,300.0	90.28	180.00	6,631.0	-5,523.1	-239.7	5,528.1	0.00	0.00	0.00
12,400.0	90.28	180.00	6,630.5	-5,623.1	-239.7	5,628.0	0.00	0.00	0.00
12,500.0	90.28	180.00	6,630.0	-5,723.1	-239.7	5,728.0	0.00	0.00	0.00
12,600.0	90.28	180.00	6,629.5	-5,823.1	-239.7	5,827.9	0.00	0.00	0.00
12,700.0	90.28	180.00	6,629.0	-5,923.1	-239.7	5,927.9	0.00	0.00	0.00
12,800.0	90.28	180.00	6,628.5	-6,023.1	-239.7	6,027.8	0.00	0.00	0.00
12,900.0	90.28	180.00	6,628.0	-6,123.1	-239.7	6,127.7	0.00	0.00	0.00
13,000.0	90.28	180.00	6,627.6	-6,223.1	-239.7	6,227.7	0.00	0.00	0.00
13,100.0	90.28	180.00	6,627.1	-6,323.1	-239.7	6,327.6	0.00	0.00	0.00
13,200.0	90.28	180.00	6,626.6	-6,423.1	-239.7	6,427.6	0.00	0.00	0.00
13,300.0	90.28	180.00	6,626.1	-6,523.1	-239.7	6,527.5	0.00	0.00	0.00
13,400.0	90.28	180.00	6,625.6	-6,623.1	-239.7	6,627.4	0.00	0.00	0.00
13,500.0	90.28	180.00	6,625.1	-6,723.1	-239.7	6,727.4	0.00	0.00	0.00
13,600.0	90.28	180.00	6,624.6	-6,823.1	-239.7	6,827.3	0.00	0.00	0.00
13,700.0	90.28	180.00	6,624.1	-6,923.1	-239.7	6,927.3	0.00	0.00	0.00
13,727.9	90.28	180.00	6,624.0	-6,951.0	-239.7	6,955.1	0.00	0.00	0.00
BHL 2133'FNL, 1525'FEL, SEC.33									

Database:	landmark	Local Co-ordinate Reference:	Well Chesnut 28R-203
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Project:	SEC.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	North Reference:	True
Well:	Chesnut 28R-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-29-14)		

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)
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Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,128.5	6,656.3	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,566.7	3,550.0	PARKMAN			
4,187.8	4,165.0	SUSSEX			
5,202.2	5,170.0	SHANNON			
6,470.7	6,393.0	SHARON SPRINGS			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,600.0	1,600.0	0.0	0.0	KOP #1
5,924.8	5,892.4	416.0	-239.7	KOP #2
7,128.5	6,656.3	-351.7	-239.7	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T5N-R64W

Chesnut 28M-HZ Pad Sec.28-T5N-R64W

Chesnut 28R-203

Wellbore #1

Plan #1 (1-29-14)

Anticollision Report

01 May, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (1-29-14)		
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 5/1/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,727.0	Plan #1 (1-29-14) (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						
Chesnut 28M-HZ Pad Sec.28-T5N-R64W						
Chesnut 28M-203 - Wellbore #1 - Plan #2 (4-30-14)	200.0	200.0	121.8	121.1	180.562	CC, ES
Chesnut 28M-203 - Wellbore #1 - Plan #2 (4-30-14)	5,100.0	4,971.3	971.2	943.5	35.072	SF
Chesnut 28M-323 - Wellbore #1 - Plan #2 (4-30-14)	1,000.0	1,000.0	63.2	58.9	14.790	CC, ES
Chesnut 28M-323 - Wellbore #1 - Plan #2 (4-30-14)	13,727.9	13,855.3	535.1	265.2	1.983	SF
Chesnut 28M-423 - Wellbore #1 - Plan #2 (4-30-14)	400.0	400.0	92.5	90.9	58.767	CC, ES
Chesnut 28M-423 - Wellbore #1 - Plan #2 (4-30-14)	13,727.9	13,958.5	818.3	552.9	3.082	SF
Chesnut 28R-443 - Wellbore #1 - Plan #2 (4-30-14)	1,200.0	1,200.0	32.1	26.9	6.211	CC, ES
Chesnut 28R-443 - Wellbore #1 - Plan #2 (4-30-14)	13,727.9	13,902.7	330.0	103.4	1.456	Level 3, SF
Existing Wells - Chesnut Pads - Sec.28-T5N-R64W						
Hall 28-3 (Exist) - Wellbore #1 - Wellbore #1	8,266.8	6,640.7	479.2	312.5	2.875	CC, ES
Hall 28-3 (Exist) - Wellbore #1 - Wellbore #1	8,300.0	6,640.5	480.3	313.1	2.872	SF
Hall 28-4 (Exist) - Wellbore #1 - Wellbore #1	6,819.8	6,581.2	387.2	240.5	2.639	CC, ES, SF
Hall 28-5 (Exist) - Wellbore #1 - Wellbore #1	7,439.9	6,639.7	36.3	-117.3	0.236	Level 1, CC, ES, SF
Hendricks 33-2 (Exist) - Wellbore #1 - Wellbore #1	12,197.8	6,640.5	384.6	144.8	1.604	CC
Hendricks 33-2 (Exist) - Wellbore #1 - Wellbore #1	12,200.0	6,640.5	384.6	144.8	1.604	ES, SF
Hendricks 33-4 (Exist) - Wellbore #1 - Wellbore #1	13,593.1	6,655.7	465.4	198.8	1.746	CC
Hendricks 33-4 (Exist) - Wellbore #1 - Wellbore #1	13,600.0	6,655.6	465.5	198.7	1.745	ES, SF

Offset Design											
Chesnut 28M-HZ Pad Sec.28-T5N-R64W - Chesnut 28M-203 - Wellbore #1 - Plan #2 (4-30-14)											
Survey Program: 0-MWD											
Reference											
Offset											
Semi Major Axis											
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)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)
0.0	0.0	0.0	0.0	0.0	0.0	-41.58	91.1	-80.8	121.8		
100.0	100.0	100.0	100.0	0.1	0.1	-41.58	91.1	-80.8	121.8	121.5	0.22
200.0	200.0	200.0	200.0	0.3	0.3	-41.58	91.1	-80.8	121.8	121.1	0.67
300.0	300.0	296.5	296.5	0.6	0.5	-41.99	91.5	-82.4	123.2	122.1	1.11
400.0	400.0	392.8	392.7	0.8	0.8	-43.18	92.8	-87.1	127.4	125.9	1.55
500.0	500.0	488.7	488.2	1.0	1.0	-44.99	94.9	-94.8	134.7	132.6	2.02
600.0	600.0	584.0	582.8	1.2	1.3	-47.20	97.8	-105.6	144.9	142.4	2.50
700.0	700.0	678.3	676.1	1.5	1.6	-49.60	101.5	-119.3	158.4	155.4	3.01
800.0	800.0	771.7	767.9	1.7	1.9	-52.01	105.9	-135.7	175.1	171.6	3.55
											49.348

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 28M-HZ Pad Sec.28-T5N-R64W - Chesnut 28M-203 - Wellbore #1 - Plan #2 (4-30-14)													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)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
900.0	900.0	863.8	857.9	1.9	2.3	-54.32	111.1	-154.7	195.1	191.0	4.11	47.510		
1,000.0	1,000.0	955.4	946.7	2.1	2.8	-56.44	117.0	-176.3	218.2	213.5	4.68	46.607		
1,100.0	1,100.0	1,052.1	1,040.1	2.4	3.3	-58.35	123.5	-200.3	242.8	237.5	5.29	45.920		
1,200.0	1,200.0	1,148.7	1,133.5	2.6	3.8	-59.91	129.9	-224.2	267.6	261.7	5.89	45.436		
1,300.0	1,300.0	1,245.4	1,226.9	2.8	4.3	-61.20	136.4	-248.2	292.5	286.0	6.49	45.073		
1,400.0	1,400.0	1,342.0	1,320.3	3.0	4.8	-62.29	142.9	-272.1	317.5	310.4	7.09	44.797		
1,500.0	1,500.0	1,438.7	1,413.8	3.3	5.3	-63.22	149.4	-296.0	342.6	335.0	7.69	44.584		
1,600.0	1,600.0	1,535.3	1,507.2	3.5	5.8	-64.03	155.9	-320.0	367.8	359.6	8.28	44.417		
1,700.0	1,700.0	1,632.3	1,600.9	3.7	6.4	-34.65	162.4	-344.0	391.7	383.9	7.81	50.163		
1,800.0	1,799.8	1,729.7	1,695.1	3.9	6.9	-35.44	168.9	-368.1	412.9	404.6	8.30	49.765		
1,900.0	1,899.5	1,827.6	1,789.7	4.2	7.4	-36.43	175.5	-392.4	431.4	422.7	8.78	49.145		
2,000.0	1,998.7	1,925.7	1,884.5	4.4	8.0	-37.62	182.1	-416.7	447.4	438.2	9.26	48.329		
2,100.0	2,097.7	2,024.0	1,979.5	4.6	8.5	-39.05	188.7	-441.0	462.3	452.5	9.75	47.437		
2,200.0	2,196.7	2,122.2	2,074.4	4.9	9.1	-40.39	195.3	-465.4	477.4	467.2	10.24	46.610		
2,300.0	2,295.7	2,220.5	2,169.4	5.2	9.6	-41.65	201.9	-489.7	492.8	482.0	10.75	45.839		
2,400.0	2,394.8	2,318.7	2,264.3	5.5	10.1	-42.83	208.5	-514.0	508.3	497.1	11.27	45.117		
2,500.0	2,493.8	2,416.9	2,359.3	5.8	10.7	-43.94	215.1	-538.4	524.1	512.3	11.79	44.439		
2,600.0	2,592.8	2,515.2	2,454.2	6.0	11.2	-44.99	221.7	-562.7	540.1	527.7	12.33	43.800		
2,700.0	2,691.8	2,613.4	2,549.2	6.3	11.8	-45.98	228.2	-587.0	556.2	543.3	12.88	43.197		
2,800.0	2,790.8	2,711.7	2,644.1	6.6	12.3	-46.92	234.8	-611.4	572.5	559.0	13.43	42.626		
2,900.0	2,889.8	2,809.9	2,739.1	7.0	12.8	-47.80	241.4	-635.7	588.9	574.9	13.99	42.085		
3,000.0	2,988.9	2,908.2	2,834.1	7.3	13.4	-48.63	248.0	-660.0	605.4	590.9	14.56	41.573		
3,100.0	3,087.9	3,006.4	2,929.0	7.6	13.9	-49.42	254.6	-684.4	622.1	607.0	15.14	41.086		
3,200.0	3,186.9	3,104.7	3,024.0	7.9	14.5	-50.17	261.2	-708.7	638.9	623.2	15.73	40.625		
3,300.0	3,285.9	3,202.9	3,118.9	8.2	15.0	-50.88	267.8	-733.0	655.8	639.5	16.32	40.186		
3,400.0	3,384.9	3,301.1	3,213.9	8.5	15.6	-51.56	274.4	-757.4	672.8	655.8	16.92	39.770		
3,500.0	3,483.9	3,399.4	3,308.8	8.8	16.1	-52.20	281.0	-781.7	689.8	672.3	17.52	39.373		
3,600.0	3,583.0	3,497.6	3,403.8	9.2	16.6	-52.81	287.6	-806.0	707.0	688.8	18.13	38.996		
3,700.0	3,682.0	3,595.9	3,498.7	9.5	17.2	-53.39	294.2	-830.4	724.2	705.4	18.74	38.637		
3,800.0	3,781.0	3,694.1	3,593.7	9.8	17.7	-53.95	300.8	-854.7	741.5	722.1	19.36	38.295		
3,900.0	3,880.0	3,792.4	3,688.6	10.1	18.3	-54.48	307.4	-879.0	758.8	738.8	19.98	37.969		
4,000.0	3,979.0	3,890.6	3,783.6	10.5	18.8	-54.99	314.0	-903.4	776.2	755.6	20.61	37.658		
4,100.0	4,078.0	3,988.9	3,878.6	10.8	19.3	-55.47	320.6	-927.7	793.7	772.4	21.24	37.362		
4,200.0	4,177.1	4,087.1	3,973.5	11.1	19.9	-55.93	327.2	-952.0	811.2	789.3	21.88	37.078		
4,300.0	4,276.1	4,185.3	4,068.5	11.5	20.4	-56.38	333.7	-976.4	828.8	806.3	22.52	36.808		
4,400.0	4,375.1	4,283.6	4,163.4	11.8	21.0	-56.80	340.3	-1,000.7	846.4	823.2	23.16	36.549		
4,500.0	4,474.1	4,381.8	4,258.4	12.1	21.5	-57.21	346.9	-1,025.1	864.1	840.3	23.80	36.302		
4,600.0	4,573.1	4,480.1	4,353.3	12.5	22.1	-57.60	353.5	-1,049.4	881.8	857.3	24.45	36.065		
4,700.0	4,672.1	4,578.3	4,448.3	12.8	22.6	-57.98	360.1	-1,073.7	899.5	874.4	25.10	35.838		
4,800.0	4,771.1	4,676.6	4,543.2	13.1	23.1	-58.34	366.7	-1,098.1	917.3	891.5	25.75	35.621		
4,900.0	4,870.2	4,774.8	4,638.2	13.5	23.7	-58.69	373.3	-1,122.4	935.1	908.7	26.41	35.413		
5,000.0	4,969.2	4,873.1	4,733.1	13.8	24.2	-59.03	379.9	-1,146.7	952.9	925.9	27.06	35.213		
5,100.0	5,068.3	4,971.3	4,828.1	14.1	24.8	-59.53	386.5	-1,171.0	971.2	943.5	27.69	35.072 SF		
5,200.0	5,167.8	5,069.2	4,922.7	14.3	25.3	-59.98	393.1	-1,195.3	991.2	963.0	28.24	35.098		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 28M-HZ Pad Sec.28-T5N-R64W - Chesnut 28M-323 - Wellbore #1 - Plan #2 (4-30-14)													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)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-41.43	47.4	-41.8	63.2					
100.0	100.0	100.0	100.0	0.1	0.1	-41.43	47.4	-41.8	63.2	62.9	0.22	281.006		
200.0	200.0	200.0	200.0	0.3	0.3	-41.43	47.4	-41.8	63.2	62.5	0.67	93.669		
300.0	300.0	300.0	300.0	0.6	0.6	-41.43	47.4	-41.8	63.2	62.0	1.12	56.201		
400.0	400.0	400.0	400.0	0.8	0.8	-41.43	47.4	-41.8	63.2	61.6	1.57	40.144		
500.0	500.0	500.0	500.0	1.0	1.0	-41.43	47.4	-41.8	63.2	61.1	2.02	31.223		
600.0	600.0	600.0	600.0	1.2	1.2	-41.43	47.4	-41.8	63.2	60.7	2.47	25.546		
700.0	700.0	700.0	700.0	1.5	1.5	-41.43	47.4	-41.8	63.2	60.2	2.92	21.616		
800.0	800.0	800.0	800.0	1.7	1.7	-41.43	47.4	-41.8	63.2	59.8	3.37	18.734		
900.0	900.0	900.0	900.0	1.9	1.9	-41.43	47.4	-41.8	63.2	59.3	3.82	16.530		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-41.43	47.4	-41.8	63.2	58.9	4.27	14.790 CC, ES		
1,100.0	1,100.0	1,098.0	1,097.9	2.4	2.3	-41.97	48.1	-43.3	64.8	60.0	4.71	13.751		
1,200.0	1,200.0	1,195.7	1,195.5	2.6	2.6	-43.44	50.4	-47.7	69.6	64.4	5.15	13.518		
1,300.0	1,300.0	1,292.9	1,292.4	2.8	2.8	-45.48	54.2	-55.1	77.7	72.1	5.59	13.891		
1,400.0	1,400.0	1,389.5	1,388.3	3.0	3.0	-47.71	59.4	-65.3	89.1	83.0	6.04	14.736		
1,500.0	1,500.0	1,485.2	1,482.9	3.3	3.3	-49.84	66.1	-78.3	103.8	97.3	6.51	15.950		
1,600.0	1,600.0	1,581.4	1,577.5	3.5	3.6	-51.73	74.1	-93.9	121.7	114.7	6.99	17.408		
1,700.0	1,700.0	1,679.8	1,674.1	3.7	3.9	-23.42	82.5	-110.4	138.7	131.3	7.37	18.828		
1,800.0	1,799.8	1,778.7	1,771.3	3.9	4.2	-25.24	91.1	-127.0	152.7	144.9	7.81	19.557		
1,900.0	1,899.5	1,877.9	1,868.7	4.2	4.6	-27.31	99.6	-143.7	163.7	155.5	8.24	19.856		
2,000.0	1,998.7	1,977.3	1,966.3	4.4	5.0	-29.69	108.2	-160.4	171.9	163.2	8.68	19.796		
2,100.0	2,097.7	2,076.8	2,064.0	4.6	5.3	-32.23	116.7	-177.1	178.9	169.7	9.15	19.545		
2,200.0	2,196.7	2,176.3	2,161.6	4.9	5.7	-34.57	125.3	-193.8	186.2	176.5	9.63	19.329		
2,300.0	2,295.7	2,275.7	2,259.3	5.2	6.1	-36.74	133.9	-210.5	193.7	183.6	10.12	19.140		
2,400.0	2,394.8	2,375.2	2,357.0	5.5	6.5	-38.74	142.4	-227.2	201.6	190.9	10.62	18.972		
2,500.0	2,493.8	2,474.6	2,454.6	5.8	6.9	-40.58	151.0	-243.9	209.6	198.5	11.14	18.819		
2,600.0	2,592.8	2,574.1	2,552.3	6.0	7.3	-42.30	159.5	-260.6	217.9	206.2	11.67	18.677		
2,700.0	2,691.8	2,673.5	2,650.0	6.3	7.7	-43.88	168.1	-277.3	226.3	214.1	12.20	18.545		
2,800.0	2,790.8	2,773.0	2,747.6	6.6	8.1	-45.35	176.7	-294.0	234.9	222.2	12.75	18.421		
2,900.0	2,889.8	2,872.4	2,845.3	7.0	8.5	-46.72	185.2	-310.7	243.7	230.4	13.31	18.304		
3,000.0	2,988.9	2,971.9	2,943.0	7.3	8.9	-47.99	193.8	-327.4	252.5	238.7	13.88	18.193		
3,100.0	3,087.9	3,071.3	3,040.6	7.6	9.3	-49.17	202.4	-344.1	261.5	247.1	14.46	18.087		
3,200.0	3,186.9	3,170.8	3,138.3	7.9	9.7	-50.28	210.9	-360.8	270.6	255.6	15.04	17.987		
3,300.0	3,285.9	3,270.3	3,236.0	8.2	10.2	-51.31	219.5	-377.5	279.8	264.2	15.64	17.891		
3,400.0	3,384.9	3,369.7	3,333.6	8.5	10.6	-52.28	228.0	-394.1	289.1	272.8	16.24	17.800		
3,500.0	3,483.9	3,469.2	3,431.3	8.8	11.0	-53.19	236.6	-410.8	298.4	281.6	16.85	17.713		
3,600.0	3,583.0	3,568.6	3,529.0	9.2	11.4	-54.04	245.2	-427.5	307.8	290.4	17.46	17.630		
3,700.0	3,682.0	3,668.1	3,626.7	9.5	11.8	-54.84	253.7	-444.2	317.3	299.2	18.08	17.552		
3,800.0	3,781.0	3,767.5	3,724.3	9.8	12.2	-55.60	262.3	-460.9	326.8	308.1	18.70	17.477		
3,900.0	3,880.0	3,867.0	3,822.0	10.1	12.6	-56.31	270.9	-477.6	336.4	317.1	19.33	17.405		
4,000.0	3,979.0	3,966.4	3,919.7	10.5	13.1	-56.99	279.4	-494.3	346.1	326.1	19.96	17.337		
4,100.0	4,078.0	4,065.9	4,017.3	10.8	13.5	-57.62	288.0	-511.0	355.7	335.1	20.60	17.272		
4,200.0	4,177.1	4,165.3	4,115.0	11.1	13.9	-58.22	296.5	-527.7	365.5	344.2	21.24	17.210		
4,300.0	4,276.1	4,264.8	4,212.7	11.5	14.3	-58.80	305.1	-544.4	375.2	353.3	21.88	17.151		
4,400.0	4,375.1	4,364.3	4,310.3	11.8	14.7	-59.34	313.7	-561.1	385.0	362.5	22.52	17.094		
4,500.0	4,474.1	4,463.7	4,408.0	12.1	15.1	-59.85	322.2	-577.8	394.9	371.7	23.17	17.040		
4,600.0	4,573.1	4,563.2	4,505.7	12.5	15.6	-60.34	330.8	-594.5	404.7	380.9	23.82	16.989		
4,700.0	4,672.1	4,662.6	4,603.3	12.8	16.0	-60.81	339.4	-611.2	414.6	390.1	24.48	16.940		
4,800.0	4,771.1	4,762.1	4,701.0	13.1	16.4	-61.26	347.9	-627.9	424.5	399.4	25.13	16.893		
4,900.0	4,870.2	4,861.5	4,798.7	13.5	16.8	-61.68	356.5	-644.6	434.5	408.7	25.79	16.848		
5,000.0	4,969.2	4,961.0	4,896.3	13.8	17.2	-62.09	365.0	-661.3	444.4	418.0	26.45	16.805		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 28M-HZ Pad Sec.28-T5N-R64W - Chesnut 28M-323 - Wellbore #1 - Plan #2 (4-30-14)													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	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,068.3	5,060.4	4,994.0	14.1	17.7	-62.51		373.6	-678.0	454.8	427.7	27.07	16.799	
5,200.0	5,167.8	5,159.7	5,091.5	14.3	18.1	-62.64		382.1	-694.7	466.7	439.1	27.59	16.913	
5,300.0	5,267.6	5,258.7	5,188.7	14.5	18.5	-62.43		390.7	-711.3	480.2	452.2	28.04	17.124	
5,400.0	5,367.6	5,362.1	5,290.2	14.7	18.9	-61.88		399.5	-728.5	495.3	466.8	28.42	17.428	
5,500.0	5,467.6	5,478.9	5,405.6	14.8	19.3	-90.92		407.9	-744.9	509.1	480.3	28.73	17.719	
5,600.0	5,567.6	5,597.0	5,522.9	15.0	19.5	-90.20		414.2	-757.2	519.5	490.4	29.07	17.871	
5,700.0	5,667.6	5,716.1	5,641.6	15.2	19.8	-89.74		418.4	-765.3	526.2	496.8	29.42	17.889	
5,800.0	5,767.6	5,835.7	5,761.2	15.4	20.0	-89.54		420.2	-769.0	529.3	499.5	29.78	17.775	
5,900.0	5,867.6	5,942.1	5,867.6	15.6	20.1	-89.53		420.4	-769.2	529.5	499.4	30.14	17.567	
5,915.1	5,882.6	5,957.2	5,882.6	15.6	20.1	90.48		420.4	-769.2	529.5	499.3	30.19	17.540	
6,000.0	5,967.4	6,042.0	5,967.4	15.7	20.2	90.87		420.4	-769.2	529.6	499.1	30.40	17.417	
6,100.0	6,066.0	6,143.1	6,068.3	15.7	20.3	91.99		414.4	-769.2	529.8	499.4	30.41	17.425	
6,200.0	6,161.6	6,245.8	6,169.0	15.7	20.3	93.09		394.7	-769.2	530.3	500.0	30.26	17.526	
6,300.0	6,252.7	6,349.9	6,267.5	15.6	20.3	94.14		361.2	-769.2	530.9	500.9	30.01	17.693	
6,400.0	6,337.5	6,455.5	6,361.8	15.4	20.2	95.13		313.9	-769.2	531.6	501.9	29.73	17.885	
6,500.0	6,414.7	6,562.4	6,449.7	15.3	20.1	96.02		253.2	-769.2	532.4	502.9	29.51	18.046	
6,600.0	6,483.0	6,670.6	6,529.2	15.2	20.0	96.81		179.9	-769.2	533.3	503.8	29.44	18.115	
6,700.0	6,541.2	6,779.9	6,598.2	15.1	19.9	97.48		95.2	-769.2	534.0	504.4	29.62	18.030	
6,800.0	6,588.3	6,890.2	6,654.8	15.1	19.9	98.00		0.7	-769.2	534.7	504.6	30.13	17.748	
6,900.0	6,623.4	7,001.2	6,697.5	15.5	19.9	98.38		-101.7	-769.2	535.2	504.2	31.01	17.258	
7,000.0	6,646.1	7,112.8	6,724.9	16.2	20.2	98.60		-209.7	-769.2	535.5	503.2	32.30	16.580	
7,100.0	6,655.9	7,224.6	6,736.4	17.0	20.7	98.65		-320.8	-769.2	535.6	501.6	33.95	15.775	
7,200.0	6,655.9	7,327.4	6,736.3	18.0	21.4	98.64		-423.6	-769.2	535.6	499.7	35.91	14.916	
7,300.0	6,655.4	7,427.4	6,735.8	19.2	22.3	98.63		-523.6	-769.2	535.6	497.4	38.13	14.047	
7,400.0	6,654.9	7,527.4	6,735.3	20.4	23.4	98.63		-623.6	-769.2	535.6	495.0	40.58	13.197	
7,500.0	6,654.4	7,627.4	6,734.7	21.8	24.6	98.62		-723.6	-769.2	535.5	492.3	43.24	12.387	
7,600.0	6,653.9	7,727.4	6,734.2	23.2	25.9	98.62		-823.6	-769.2	535.5	489.5	46.05	11.629	
7,700.0	6,653.5	7,827.4	6,733.6	24.7	27.3	98.61		-923.6	-769.2	535.5	486.5	49.00	10.929	
7,800.0	6,653.0	7,927.4	6,733.1	26.3	28.8	98.60		-1,023.6	-769.2	535.5	483.5	52.06	10.287	
7,900.0	6,652.5	8,027.4	6,732.5	27.8	30.3	98.60		-1,123.6	-769.2	535.5	480.3	55.21	9.699	
8,000.0	6,652.0	8,127.4	6,732.0	29.5	31.8	98.59		-1,223.6	-769.2	535.5	477.1	58.45	9.163	
8,100.0	6,651.5	8,227.4	6,731.5	31.1	33.4	98.59		-1,323.6	-769.2	535.5	473.8	61.74	8.673	
8,200.0	6,651.0	8,327.4	6,730.9	32.8	35.0	98.58		-1,423.6	-769.2	535.5	470.4	65.10	8.226	
8,300.0	6,650.5	8,427.4	6,730.4	34.5	36.7	98.58		-1,523.6	-769.2	535.5	467.0	68.50	7.818	
8,400.0	6,650.0	8,527.4	6,729.8	36.3	38.3	98.57		-1,623.6	-769.2	535.5	463.5	71.94	7.444	
8,500.0	6,649.5	8,627.4	6,729.3	38.0	40.0	98.57		-1,723.6	-769.2	535.5	460.1	75.41	7.101	
8,600.0	6,649.1	8,727.4	6,728.8	39.8	41.8	98.56		-1,823.6	-769.2	535.5	456.5	78.92	6.785	
8,700.0	6,648.6	8,827.4	6,728.2	41.6	43.5	98.55		-1,923.6	-769.2	535.5	453.0	82.45	6.494	
8,800.0	6,648.1	8,927.4	6,727.7	43.4	45.2	98.55		-2,023.6	-769.2	535.4	449.4	86.01	6.225	
8,900.0	6,647.6	9,027.4	6,727.1	45.2	47.0	98.54		-2,123.6	-769.2	535.4	445.9	89.59	5.977	
9,000.0	6,647.1	9,127.4	6,726.6	47.0	48.8	98.54		-2,223.6	-769.2	535.4	442.3	93.18	5.746	
9,100.0	6,646.6	9,227.4	6,726.1	48.8	50.5	98.53		-2,323.6	-769.2	535.4	438.6	96.80	5.532	
9,200.0	6,646.1	9,327.4	6,725.5	50.6	52.3	98.53		-2,423.6	-769.2	535.4	435.0	100.42	5.332	
9,300.0	6,645.6	9,427.4	6,725.0	52.5	54.1	98.52		-2,523.6	-769.2	535.4	431.4	104.06	5.145	
9,400.0	6,645.2	9,527.4	6,724.4	54.3	55.9	98.52		-2,623.6	-769.2	535.4	427.7	107.71	4.971	
9,500.0	6,644.7	9,627.4	6,723.9	56.2	57.8	98.51		-2,723.6	-769.2	535.4	424.0	111.38	4.807	
9,600.0	6,644.2	9,727.4	6,723.4	58.0	59.6	98.50		-2,823.6	-769.2	535.4	420.3	115.05	4.654	
9,700.0	6,643.7	9,827.4	6,722.8	59.9	61.4	98.50		-2,923.6	-769.2	535.4	416.7	118.73	4.509	
9,800.0	6,643.2	9,927.4	6,722.3	61.7	63.2	98.49		-3,023.6	-769.2	535.4	413.0	122.41	4.373	
9,900.0	6,642.7	10,027.4	6,721.7	63.6	65.1	98.49		-3,123.6	-769.2	535.4	409.3	126.11	4.245	
10,000.0	6,642.2	10,127.4	6,721.2	65.5	66.9	98.48		-3,223.6	-769.2	535.4	405.5	129.81	4.124	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 28M-HZ Pad Sec.28-T5N-R64W - Chesnut 28M-323 - Wellbore #1 - Plan #2 (4-30-14)													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	
10,100.0	6,641.7	10,227.4	6,720.6	67.3	68.8	98.48	-3,323.6	-769.2	535.4	401.8	133.52	4.010		
10,200.0	6,641.2	10,327.4	6,720.1	69.2	70.6	98.47	-3,423.6	-769.2	535.3	398.1	137.23	3.901		
10,300.0	6,640.8	10,427.4	6,719.6	71.1	72.5	98.47	-3,523.6	-769.2	535.3	394.4	140.95	3.798		
10,400.0	6,640.3	10,527.4	6,719.0	73.0	74.3	98.46	-3,623.6	-769.2	535.3	390.7	144.67	3.700		
10,500.0	6,639.8	10,627.4	6,718.5	74.8	76.2	98.45	-3,723.6	-769.2	535.3	386.9	148.40	3.607		
10,600.0	6,639.3	10,727.4	6,717.9	76.7	78.1	98.45	-3,823.6	-769.2	535.3	383.2	152.13	3.519		
10,700.0	6,638.8	10,827.4	6,717.4	78.6	79.9	98.44	-3,923.6	-769.2	535.3	379.4	155.87	3.434		
10,800.0	6,638.3	10,927.4	6,716.9	80.5	81.8	98.44	-4,023.6	-769.2	535.3	375.7	159.61	3.354		
10,900.0	6,637.8	11,027.4	6,716.3	82.4	83.7	98.43	-4,123.6	-769.2	535.3	371.9	163.35	3.277		
11,000.0	6,637.3	11,127.4	6,715.8	84.3	85.5	98.43	-4,223.6	-769.2	535.3	368.2	167.10	3.203		
11,100.0	6,636.8	11,227.4	6,715.2	86.1	87.4	98.42	-4,323.6	-769.2	535.3	364.4	170.85	3.133		
11,200.0	6,636.4	11,327.4	6,714.7	88.0	89.3	98.42	-4,423.6	-769.2	535.3	360.7	174.60	3.066		
11,300.0	6,635.9	11,427.4	6,714.2	89.9	91.2	98.41	-4,523.6	-769.2	535.3	356.9	178.35	3.001		
11,400.0	6,635.4	11,527.4	6,713.6	91.8	93.0	98.40	-4,623.6	-769.2	535.3	353.1	182.11	2.939		
11,500.0	6,634.9	11,627.4	6,713.1	93.7	94.9	98.40	-4,723.6	-769.2	535.2	349.4	185.87	2.880		
11,600.0	6,634.4	11,727.4	6,712.5	95.6	96.8	98.39	-4,823.6	-769.2	535.2	345.6	189.63	2.823		
11,700.0	6,633.9	11,827.4	6,712.0	97.5	98.7	98.39	-4,923.6	-769.2	535.2	341.8	193.39	2.768		
11,800.0	6,633.4	11,927.4	6,711.4	99.4	100.6	98.38	-5,023.6	-769.2	535.2	338.1	197.15	2.715		
11,900.0	6,632.9	12,027.4	6,710.9	101.3	102.5	98.38	-5,123.6	-769.2	535.2	334.3	200.92	2.664		
12,000.0	6,632.4	12,127.4	6,710.4	103.2	104.4	98.37	-5,223.6	-769.2	535.2	330.5	204.69	2.615		
12,100.0	6,632.0	12,227.4	6,709.8	105.1	106.2	98.37	-5,323.6	-769.2	535.2	326.7	208.46	2.567		
12,200.0	6,631.5	12,327.4	6,709.3	107.0	108.1	98.36	-5,423.6	-769.2	535.2	323.0	212.23	2.522		
12,300.0	6,631.0	12,427.4	6,708.7	108.9	110.0	98.35	-5,523.6	-769.2	535.2	319.2	216.00	2.478		
12,400.0	6,630.5	12,527.4	6,708.2	110.8	111.9	98.35	-5,623.5	-769.2	535.2	315.4	219.77	2.435		
12,500.0	6,630.0	12,627.4	6,707.7	112.7	113.8	98.34	-5,723.5	-769.2	535.2	311.6	223.55	2.394		
12,600.0	6,629.5	12,727.4	6,707.1	114.6	115.7	98.34	-5,823.5	-769.2	535.2	307.8	227.32	2.354		
12,700.0	6,629.0	12,827.4	6,706.6	116.5	117.6	98.33	-5,923.5	-769.2	535.2	304.1	231.10	2.316		
12,800.0	6,628.5	12,927.4	6,706.0	118.4	119.5	98.33	-6,023.5	-769.2	535.2	300.3	234.88	2.278		
12,900.0	6,628.0	13,027.4	6,705.5	120.3	121.4	98.32	-6,123.5	-769.2	535.1	296.5	238.66	2.242		
13,000.0	6,627.6	13,127.4	6,705.0	122.2	123.3	98.32	-6,223.5	-769.2	535.1	292.7	242.44	2.207		
13,100.0	6,627.1	13,227.4	6,704.4	124.1	125.2	98.31	-6,323.5	-769.2	535.1	288.9	246.22	2.173		
13,200.0	6,626.6	13,327.4	6,703.9	126.0	127.1	98.31	-6,423.5	-769.2	535.1	285.1	250.01	2.140		
13,300.0	6,626.1	13,427.4	6,703.3	128.0	129.0	98.30	-6,523.5	-769.2	535.1	281.3	253.79	2.108		
13,400.0	6,625.6	13,527.4	6,702.8	129.9	130.9	98.29	-6,623.5	-769.2	535.1	277.5	257.58	2.077		
13,500.0	6,625.1	13,627.4	6,702.3	131.8	132.8	98.29	-6,723.5	-769.2	535.1	273.7	261.36	2.047		
13,600.0	6,624.6	13,727.4	6,701.7	133.7	134.7	98.28	-6,823.5	-769.2	535.1	269.9	265.15	2.018		
13,700.0	6,624.1	13,827.4	6,701.2	135.6	136.6	98.28	-6,923.5	-769.2	535.1	266.2	268.93	1.990		
13,727.9	6,624.0	13,855.3	6,701.0	136.0	137.1	98.28	-6,951.4	-769.2	535.1	265.2	269.89	1.983 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 28M-HZ Pad Sec.28-T5N-R64W - Chesnut 28M-423 - Wellbore #1 - Plan #2 (4-30-14)													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)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-41.52	69.2	-61.3	92.5					
100.0	100.0	100.0	100.0	0.1	0.1	-41.52	69.2	-61.3	92.5	92.2	0.22	411.366		
200.0	200.0	200.0	200.0	0.3	0.3	-41.52	69.2	-61.3	92.5	91.8	0.67	137.122		
300.0	300.0	300.0	300.0	0.6	0.6	-41.52	69.2	-61.3	92.5	91.3	1.12	82.273		
400.0	400.0	400.0	400.0	0.8	0.8	-41.52	69.2	-61.3	92.5	90.9	1.57	58.767 CC, ES		
500.0	500.0	497.2	497.2	1.0	1.0	-42.01	69.8	-62.8	94.0	91.9	2.01	46.747		
600.0	600.0	594.2	594.0	1.2	1.2	-43.36	71.5	-67.5	98.5	96.0	2.45	40.206		
700.0	700.0	690.7	690.2	1.5	1.4	-45.35	74.2	-75.2	106.1	103.2	2.90	36.543		
800.0	800.0	786.6	785.4	1.7	1.7	-47.69	78.1	-85.8	116.9	113.5	3.38	34.636		
900.0	900.0	881.6	879.4	1.9	2.0	-50.11	83.0	-99.3	131.0	127.1	3.87	33.872		
1,000.0	1,000.0	975.6	971.7	2.1	2.3	-52.43	88.8	-115.5	148.4	144.0	4.38	33.883		
1,100.0	1,100.0	1,072.4	1,066.5	2.4	2.7	-54.54	95.6	-134.2	168.2	163.3	4.92	34.204		
1,200.0	1,200.0	1,170.3	1,162.2	2.6	3.1	-56.22	102.5	-153.2	188.2	182.7	5.46	34.484		
1,300.0	1,300.0	1,268.1	1,258.0	2.8	3.5	-57.58	109.4	-172.2	208.3	202.3	6.00	34.719		
1,400.0	1,400.0	1,366.0	1,353.7	3.0	3.9	-58.70	116.2	-191.2	228.5	222.0	6.54	34.921		
1,500.0	1,500.0	1,463.8	1,449.4	3.3	4.4	-59.64	123.1	-210.2	248.8	241.7	7.09	35.098		
1,600.0	1,600.0	1,561.7	1,545.2	3.5	4.8	-60.44	130.0	-229.2	269.1	261.5	7.63	35.255		
1,700.0	1,700.0	1,659.8	1,641.2	3.7	5.2	-31.16	136.9	-248.3	288.1	280.5	7.57	38.031		
1,800.0	1,799.8	1,758.3	1,737.6	3.9	5.7	-32.10	143.8	-267.4	304.1	296.1	8.04	37.813		
1,900.0	1,899.5	1,857.1	1,834.3	4.2	6.1	-33.30	150.7	-286.6	317.4	308.9	8.51	37.311		
2,000.0	1,998.7	1,956.2	1,931.2	4.4	6.6	-34.77	157.7	-305.8	328.0	319.0	8.97	36.567		
2,100.0	2,097.7	2,055.3	2,028.2	4.6	7.0	-36.43	164.7	-325.0	337.4	327.9	9.45	35.706		
2,200.0	2,196.7	2,154.4	2,125.1	4.9	7.4	-38.00	171.6	-344.3	347.0	337.1	9.94	34.919		
2,300.0	2,295.7	2,253.4	2,222.1	5.2	7.9	-39.49	178.6	-363.5	356.9	346.5	10.44	34.197		
2,400.0	2,394.8	2,352.5	2,319.0	5.5	8.3	-40.89	185.6	-382.8	367.0	356.1	10.95	33.531		
2,500.0	2,493.8	2,451.6	2,416.0	5.8	8.8	-42.23	192.5	-402.0	377.3	365.9	11.46	32.913		
2,600.0	2,592.8	2,550.7	2,512.9	6.0	9.2	-43.49	199.5	-421.2	387.8	375.8	11.99	32.337		
2,700.0	2,691.8	2,649.8	2,609.9	6.3	9.7	-44.68	206.4	-440.5	398.5	386.0	12.53	31.800		
2,800.0	2,790.8	2,748.9	2,706.8	6.6	10.1	-45.81	213.4	-459.7	409.4	396.3	13.08	31.298		
2,900.0	2,889.8	2,848.0	2,803.8	7.0	10.6	-46.88	220.4	-478.9	420.4	406.7	13.64	30.827		
3,000.0	2,988.9	2,947.1	2,900.8	7.3	11.0	-47.90	227.3	-498.2	431.5	417.3	14.20	30.384		
3,100.0	3,087.9	3,046.2	2,997.7	7.6	11.5	-48.87	234.3	-517.4	442.8	428.0	14.78	29.968		
3,200.0	3,186.9	3,145.3	3,094.7	7.9	11.9	-49.79	241.2	-536.7	454.2	438.8	15.36	29.576		
3,300.0	3,285.9	3,244.4	3,191.6	8.2	12.4	-50.66	248.2	-555.9	465.7	449.7	15.94	29.207		
3,400.0	3,384.9	3,343.4	3,288.6	8.5	12.8	-51.49	255.2	-575.1	477.3	460.7	16.54	28.858		
3,500.0	3,483.9	3,442.5	3,385.5	8.8	13.3	-52.29	262.1	-594.4	489.0	471.8	17.14	28.529		
3,600.0	3,583.0	3,541.6	3,482.5	9.2	13.7	-53.04	269.1	-613.6	500.8	483.0	17.75	28.219		
3,700.0	3,682.0	3,640.7	3,579.4	9.5	14.2	-53.76	276.1	-632.9	512.6	494.3	18.36	27.925		
3,800.0	3,781.0	3,739.8	3,676.4	9.8	14.7	-54.45	283.0	-652.1	524.6	505.6	18.97	27.646		
3,900.0	3,880.0	3,838.9	3,773.4	10.1	15.1	-55.11	290.0	-671.3	536.6	517.0	19.60	27.382		
4,000.0	3,979.0	3,938.0	3,870.3	10.5	15.6	-55.74	296.9	-690.6	548.7	528.4	20.22	27.132		
4,100.0	4,078.0	4,037.1	3,967.3	10.8	16.0	-56.34	303.9	-709.8	560.8	539.9	20.85	26.895		
4,200.0	4,177.1	4,136.2	4,064.2	11.1	16.5	-56.91	310.9	-729.1	573.0	551.5	21.49	26.670		
4,300.0	4,276.1	4,235.3	4,161.2	11.5	16.9	-57.47	317.8	-748.3	585.3	563.1	22.12	26.455		
4,400.0	4,375.1	4,334.4	4,258.1	11.8	17.4	-58.00	324.8	-767.5	597.6	574.8	22.76	26.252		
4,500.0	4,474.1	4,433.4	4,355.1	12.1	17.8	-58.50	331.8	-786.8	609.9	586.5	23.41	26.058		
4,600.0	4,573.1	4,532.5	4,452.0	12.5	18.3	-58.99	338.7	-806.0	622.3	598.3	24.05	25.873		
4,700.0	4,672.1	4,631.6	4,549.0	12.8	18.7	-59.46	345.7	-825.2	634.8	610.1	24.70	25.697		
4,800.0	4,771.1	4,730.7	4,646.0	13.1	19.2	-59.91	352.6	-844.5	647.3	621.9	25.35	25.529		
4,900.0	4,870.2	4,829.8	4,742.9	13.5	19.6	-60.35	359.6	-863.7	659.8	633.8	26.01	25.368		
5,000.0	4,969.2	4,928.9	4,839.9	13.8	20.1	-60.76	366.6	-883.0	672.3	645.7	26.66	25.215		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design		Chesnut 28M-HZ Pad Sec.28-T5N-R64W - Chesnut 28M-423 - Wellbore #1 - Plan #2 (4-30-14)											Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
5,100.0	5,068.3	5,028.0	4,936.8	14.1	20.5	-61.27	373.5	-902.2	685.3	658.1	27.29	25.112		
5,200.0	5,167.8	5,126.9	5,033.6	14.3	21.0	-61.61	380.5	-921.4	699.9	672.1	27.83	25.155		
5,300.0	5,267.6	5,225.5	5,130.1	14.5	21.4	-61.73	387.4	-940.6	716.2	687.9	28.30	25.307		
5,400.0	5,367.6	5,323.8	5,226.2	14.7	21.9	-61.65	394.3	-959.6	734.1	705.4	28.71	25.566		
5,500.0	5,467.6	5,426.2	5,326.4	14.8	22.3	-91.12	401.5	-979.5	753.2	724.2	29.08	25.899		
5,600.0	5,567.6	5,557.2	5,455.4	15.0	22.8	-90.50	409.4	-1,001.4	769.9	740.4	29.49	26.108		
5,700.0	5,667.6	5,690.2	5,587.2	15.2	23.1	-90.04	415.4	-1,017.9	782.3	752.4	29.88	26.179		
5,800.0	5,767.6	5,824.6	5,721.1	15.4	23.4	-89.76	419.3	-1,028.7	790.4	760.1	30.28	26.108		
5,900.0	5,867.6	5,959.7	5,856.1	15.6	23.6	-89.63	421.1	-1,033.7	794.1	763.4	30.67	25.895		
6,000.0	5,967.4	6,071.1	5,967.4	15.7	23.7	90.64	421.2	-1,034.0	794.3	763.4	30.94	25.675		
6,100.0	6,066.0	6,170.3	6,066.7	15.7	23.8	91.76	420.9	-1,034.0	794.7	763.7	30.96	25.669		
6,200.0	6,161.6	6,273.0	6,168.9	15.7	23.9	93.17	411.3	-1,034.0	795.6	764.8	30.81	25.821		
6,300.0	6,252.7	6,378.7	6,271.7	15.6	23.9	94.55	387.2	-1,034.0	796.9	766.3	30.56	26.075		
6,400.0	6,337.5	6,487.5	6,372.9	15.4	23.9	95.86	347.8	-1,034.0	798.6	768.3	30.28	26.377		
6,500.0	6,414.7	6,599.4	6,470.3	15.3	23.8	97.08	292.6	-1,034.0	800.6	770.5	30.03	26.655		
6,600.0	6,483.0	6,714.5	6,560.8	15.2	23.7	98.18	221.8	-1,034.0	802.6	772.7	29.93	26.818		
6,700.0	6,541.2	6,832.5	6,641.5	15.1	23.6	99.14	135.9	-1,034.0	804.7	774.6	30.06	26.771		
6,800.0	6,588.3	6,953.1	6,709.4	15.1	23.6	99.92	36.3	-1,034.0	806.4	775.9	30.51	26.434		
6,900.0	6,623.4	7,075.9	6,761.5	15.5	23.7	100.49	-74.7	-1,034.0	807.9	776.5	31.35	25.770		
7,000.0	6,646.1	7,200.2	6,795.4	16.2	23.9	100.85	-194.1	-1,034.0	808.8	776.1	32.61	24.803		
7,100.0	6,655.9	7,314.1	6,810.5	17.0	24.3	101.05	-306.9	-1,034.0	809.4	775.2	34.16	23.691		
7,200.0	6,655.9	7,425.2	6,819.2	18.0	24.8	101.62	-417.7	-1,034.0	810.9	774.9	36.04	22.503		
7,300.0	6,655.4	7,530.7	6,819.9	19.2	25.6	101.70	-523.2	-1,034.0	811.1	772.9	38.27	21.196		
7,400.0	6,654.9	7,630.7	6,819.9	20.4	26.4	101.73	-623.2	-1,034.0	811.2	770.6	40.68	19.944		
7,500.0	6,654.4	7,730.7	6,819.9	21.8	27.5	101.77	-723.2	-1,034.0	811.3	768.1	43.28	18.747		
7,600.0	6,653.9	7,830.7	6,819.9	23.2	28.6	101.80	-823.2	-1,034.0	811.4	765.4	46.04	17.624		
7,700.0	6,653.5	7,930.7	6,819.9	24.7	29.8	101.84	-923.2	-1,034.0	811.6	762.6	48.94	16.582		
7,800.0	6,653.0	8,030.7	6,820.0	26.3	31.1	101.87	-1,023.2	-1,034.0	811.7	759.7	51.95	15.624		
7,900.0	6,652.5	8,130.7	6,820.0	27.8	32.5	101.91	-1,123.2	-1,034.0	811.8	756.7	55.05	14.746		
8,000.0	6,652.0	8,230.6	6,820.0	29.5	34.0	101.94	-1,223.2	-1,034.0	811.9	753.6	58.23	13.943		
8,100.0	6,651.5	8,330.6	6,820.0	31.1	35.4	101.98	-1,323.2	-1,034.0	812.0	750.5	61.47	13.208		
8,200.0	6,651.0	8,430.6	6,820.0	32.8	37.0	102.01	-1,423.2	-1,034.0	812.1	747.3	64.77	12.537		
8,300.0	6,650.5	8,530.6	6,820.1	34.5	38.6	102.05	-1,523.2	-1,034.0	812.2	744.1	68.12	11.923		
8,400.0	6,650.0	8,630.6	6,820.1	36.3	40.2	102.08	-1,623.2	-1,034.0	812.3	740.8	71.51	11.359		
8,500.0	6,649.5	8,730.6	6,820.1	38.0	41.8	102.12	-1,723.2	-1,034.0	812.4	737.5	74.93	10.842		
8,600.0	6,649.1	8,830.6	6,820.1	39.8	43.4	102.15	-1,823.1	-1,034.0	812.5	734.1	78.38	10.366		
8,700.0	6,648.6	8,930.6	6,820.1	41.6	45.1	102.19	-1,923.1	-1,034.0	812.6	730.7	81.86	9.926		
8,800.0	6,648.1	9,030.6	6,820.1	43.4	46.8	102.22	-2,023.1	-1,034.0	812.7	727.3	85.36	9.520		
8,900.0	6,647.6	9,130.6	6,820.2	45.2	48.5	102.26	-2,123.1	-1,034.0	812.8	723.9	88.89	9.144		
9,000.0	6,647.1	9,230.6	6,820.2	47.0	50.3	102.29	-2,223.1	-1,034.0	812.9	720.5	92.43	8.795		
9,100.0	6,646.6	9,330.6	6,820.2	48.8	52.0	102.33	-2,323.1	-1,034.0	813.0	717.1	95.98	8.471		
9,200.0	6,646.1	9,430.6	6,820.2	50.6	53.8	102.36	-2,423.1	-1,034.0	813.1	713.6	99.55	8.168		
9,300.0	6,645.6	9,530.6	6,820.2	52.5	55.5	102.40	-2,523.1	-1,034.0	813.2	710.1	103.13	7.885		
9,400.0	6,645.2	9,630.6	6,820.2	54.3	57.3	102.43	-2,623.1	-1,034.0	813.4	706.6	106.72	7.621		
9,500.0	6,644.7	9,730.6	6,820.3	56.2	59.1	102.47	-2,723.1	-1,034.0	813.5	703.1	110.33	7.373		
9,600.0	6,644.2	9,830.6	6,820.3	58.0	60.9	102.50	-2,823.1	-1,034.0	813.6	699.6	113.94	7.140		
9,700.0	6,643.7	9,930.6	6,820.3	59.9	62.7	102.54	-2,923.1	-1,034.0	813.7	696.1	117.56	6.922		
9,800.0	6,643.2	10,030.6	6,820.3	61.7	64.5	102.57	-3,023.1	-1,034.0	813.8	692.6	121.18	6.715		
9,900.0	6,642.7	10,130.6	6,820.3	63.6	66.3	102.61	-3,123.1	-1,034.0	813.9	689.1	124.82	6.521		
10,000.0	6,642.2	10,230.6	6,820.3	65.5	68.1	102.64	-3,223.1	-1,034.0	814.0	685.6	128.45	6.337		
10,100.0	6,641.7	10,330.6	6,820.4	67.3	69.9	102.67	-3,323.1	-1,034.0	814.1	682.0	132.10	6.163		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 28M-HZ Pad Sec.28-T5N-R64W - Chesnut 28M-423 - Wellbore #1 - Plan #2 (4-30-14)													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)	Semi Major Axis (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	6,641.2	10,430.6	6,820.4	69.2	71.8	102.71		-3,423.1	-1,034.0	814.2	678.5	135.75	5.998	
10,300.0	6,640.8	10,530.6	6,820.4	71.1	73.6	102.74		-3,523.1	-1,034.0	814.3	674.9	139.40	5.842	
10,400.0	6,640.3	10,630.6	6,820.4	73.0	75.4	102.78		-3,623.1	-1,034.0	814.5	671.4	143.05	5.693	
10,500.0	6,639.8	10,730.6	6,820.4	74.8	77.3	102.81		-3,723.1	-1,034.0	814.6	667.9	146.71	5.552	
10,600.0	6,639.3	10,830.6	6,820.5	76.7	79.1	102.85		-3,823.1	-1,034.0	814.7	664.3	150.38	5.418	
10,700.0	6,638.8	10,930.6	6,820.5	78.6	81.0	102.88		-3,923.1	-1,034.0	814.8	660.8	154.04	5.289	
10,800.0	6,638.3	11,030.6	6,820.5	80.5	82.8	102.92		-4,023.1	-1,034.0	814.9	657.2	157.71	5.167	
10,900.0	6,637.8	11,130.6	6,820.5	82.4	84.7	102.95		-4,123.1	-1,034.0	815.0	653.6	161.38	5.050	
11,000.0	6,637.3	11,230.6	6,820.5	84.3	86.5	102.99		-4,223.1	-1,034.0	815.1	650.1	165.06	4.939	
11,100.0	6,636.8	11,330.6	6,820.5	86.1	88.4	103.02		-4,323.1	-1,034.0	815.2	646.5	168.73	4.832	
11,200.0	6,636.4	11,430.6	6,820.6	88.0	90.3	103.06		-4,423.1	-1,034.0	815.4	643.0	172.41	4.729	
11,300.0	6,635.9	11,530.6	6,820.6	89.9	92.1	103.09		-4,523.1	-1,034.0	815.5	639.4	176.09	4.631	
11,400.0	6,635.4	11,630.6	6,820.6	91.8	94.0	103.13		-4,623.1	-1,034.0	815.6	635.8	179.77	4.537	
11,500.0	6,634.9	11,730.6	6,820.6	93.7	95.9	103.16		-4,723.1	-1,034.0	815.7	632.3	183.45	4.447	
11,600.0	6,634.4	11,830.6	6,820.6	95.6	97.7	103.20		-4,823.1	-1,034.0	815.8	628.7	187.13	4.360	
11,700.0	6,633.9	11,930.6	6,820.6	97.5	99.6	103.23		-4,923.1	-1,034.0	815.9	625.1	190.81	4.276	
11,800.0	6,633.4	12,030.6	6,820.7	99.4	101.5	103.26		-5,023.1	-1,034.0	816.1	621.6	194.50	4.196	
11,900.0	6,632.9	12,130.6	6,820.7	101.3	103.4	103.30		-5,123.1	-1,034.0	816.2	618.0	198.18	4.118	
12,000.0	6,632.4	12,230.6	6,820.7	103.2	105.2	103.33		-5,223.1	-1,034.0	816.3	614.4	201.87	4.044	
12,100.0	6,632.0	12,330.6	6,820.7	105.1	107.1	103.37		-5,323.1	-1,034.0	816.4	610.8	205.55	3.972	
12,200.0	6,631.5	12,430.6	6,820.7	107.0	109.0	103.40		-5,423.1	-1,034.0	816.5	607.3	209.24	3.902	
12,300.0	6,631.0	12,530.6	6,820.8	108.9	110.9	103.44		-5,523.1	-1,034.0	816.6	603.7	212.93	3.835	
12,400.0	6,630.5	12,630.6	6,820.8	110.8	112.8	103.47		-5,623.1	-1,034.0	816.8	600.1	216.62	3.771	
12,500.0	6,630.0	12,730.6	6,820.8	112.7	114.7	103.51		-5,723.1	-1,034.0	816.9	596.6	220.30	3.708	
12,600.0	6,629.5	12,830.6	6,820.8	114.6	116.6	103.54		-5,823.1	-1,034.0	817.0	593.0	223.99	3.647	
12,700.0	6,629.0	12,930.6	6,820.8	116.5	118.4	103.58		-5,923.1	-1,034.0	817.1	589.4	227.68	3.589	
12,800.0	6,628.5	13,030.6	6,820.8	118.4	120.3	103.61		-6,023.1	-1,034.0	817.2	585.9	231.37	3.532	
12,900.0	6,628.0	13,130.6	6,820.9	120.3	122.2	103.64		-6,123.1	-1,034.0	817.3	582.3	235.06	3.477	
13,000.0	6,627.6	13,230.6	6,820.9	122.2	124.1	103.68		-6,223.1	-1,034.0	817.5	578.7	238.75	3.424	
13,100.0	6,627.1	13,330.6	6,820.9	124.1	126.0	103.71		-6,323.1	-1,034.0	817.6	575.1	242.43	3.372	
13,200.0	6,626.6	13,430.6	6,820.9	126.0	127.9	103.75		-6,423.1	-1,034.0	817.7	571.6	246.12	3.322	
13,300.0	6,626.1	13,530.6	6,820.9	128.0	129.8	103.78		-6,523.1	-1,034.0	817.8	568.0	249.81	3.274	
13,400.0	6,625.6	13,630.6	6,820.9	129.9	131.7	103.82		-6,623.1	-1,034.0	817.9	564.4	253.50	3.227	
13,500.0	6,625.1	13,730.6	6,821.0	131.8	133.6	103.85		-6,723.1	-1,034.0	818.1	560.9	257.19	3.181	
13,600.0	6,624.6	13,830.6	6,821.0	133.7	135.5	103.89		-6,823.1	-1,034.0	818.2	557.3	260.87	3.136	
13,700.0	6,624.1	13,930.6	6,821.0	135.6	137.4	103.92		-6,923.1	-1,034.0	818.3	553.7	264.56	3.093	
13,727.9	6,624.0	13,958.5	6,821.0	136.0	137.9	103.93		-6,951.0	-1,034.0	818.3	552.9	265.49	3.082 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 28M-HZ Pad Sec.28-T5N-R64W - Chesnut 28R-443 - Wellbore #1 - Plan #2 (4-30-14)													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	Semi Major Axis 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	-37.40	25.5	-19.5	32.1					
100.0	100.0	100.0	100.0	0.1	0.1	-37.40	25.5	-19.5	32.1	31.9	0.22	142.851		
200.0	200.0	200.0	200.0	0.3	0.3	-37.40	25.5	-19.5	32.1	31.4	0.67	47.617		
300.0	300.0	300.0	300.0	0.6	0.6	-37.40	25.5	-19.5	32.1	31.0	1.12	28.570		
400.0	400.0	400.0	400.0	0.8	0.8	-37.40	25.5	-19.5	32.1	30.5	1.57	20.407		
500.0	500.0	500.0	500.0	1.0	1.0	-37.40	25.5	-19.5	32.1	30.1	2.02	15.872		
600.0	600.0	600.0	600.0	1.2	1.2	-37.40	25.5	-19.5	32.1	29.6	2.47	12.986		
700.0	700.0	700.0	700.0	1.5	1.5	-37.40	25.5	-19.5	32.1	29.2	2.92	10.989		
800.0	800.0	800.0	800.0	1.7	1.7	-37.40	25.5	-19.5	32.1	28.7	3.37	9.523		
900.0	900.0	900.0	900.0	1.9	1.9	-37.40	25.5	-19.5	32.1	28.3	3.82	8.403		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-37.40	25.5	-19.5	32.1	27.8	4.27	7.518		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-37.40	25.5	-19.5	32.1	27.4	4.72	6.802		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-37.40	25.5	-19.5	32.1	26.9	5.17	6.211 CC, ES		
1,300.0	1,300.0	1,298.9	1,298.9	2.8	2.8	-38.08	26.6	-20.8	33.8	28.2	5.61	6.020		
1,400.0	1,400.0	1,397.5	1,397.4	3.0	3.0	-39.74	29.8	-24.8	38.9	32.8	6.05	6.417		
1,500.0	1,500.0	1,495.7	1,495.2	3.3	3.2	-41.72	35.1	-31.3	47.3	40.8	6.50	7.278		
1,600.0	1,600.0	1,593.2	1,592.0	3.5	3.5	-43.53	42.5	-40.4	59.2	52.2	6.95	8.511		
1,700.0	1,700.0	1,690.7	1,688.3	3.7	3.7	-15.34	51.9	-51.9	72.7	65.3	7.38	9.846		
1,800.0	1,799.8	1,790.1	1,786.4	3.9	4.0	-17.28	62.0	-64.3	83.7	75.9	7.81	10.719		
1,900.0	1,899.5	1,889.7	1,884.7	4.2	4.3	-19.48	72.1	-76.7	91.6	83.3	8.24	11.115		
2,000.0	1,998.7	1,989.5	1,983.2	4.4	4.6	-22.08	82.3	-89.2	96.3	87.7	8.67	11.112		
2,100.0	2,097.7	2,089.3	2,081.7	4.6	5.0	-24.91	92.4	-101.6	99.6	90.5	9.13	10.911		
2,200.0	2,196.7	2,189.1	2,180.3	4.9	5.3	-27.54	102.6	-114.1	103.1	93.5	9.60	10.740		
2,300.0	2,295.7	2,289.0	2,278.8	5.2	5.6	-30.00	112.7	-126.5	106.8	96.7	10.08	10.594		
2,400.0	2,394.8	2,388.8	2,377.3	5.5	6.0	-32.29	122.8	-139.0	110.7	100.1	10.58	10.468		
2,500.0	2,493.8	2,488.6	2,475.8	5.8	6.3	-34.43	133.0	-151.5	114.8	103.7	11.08	10.356		
2,600.0	2,592.8	2,588.4	2,574.4	6.0	6.6	-36.41	143.1	-163.9	119.0	107.4	11.60	10.256		
2,700.0	2,691.8	2,688.3	2,672.9	6.3	7.0	-38.26	153.3	-176.4	123.3	111.2	12.13	10.166		
2,800.0	2,790.8	2,788.1	2,771.4	6.6	7.3	-39.98	163.4	-188.8	127.8	115.1	12.67	10.084		
2,900.0	2,889.8	2,887.9	2,870.0	7.0	7.7	-41.58	173.6	-201.3	132.3	119.1	13.22	10.009		
3,000.0	2,988.9	2,987.8	2,968.5	7.3	8.1	-43.08	183.7	-213.7	137.0	123.2	13.78	9.939		
3,100.0	3,087.9	3,087.6	3,067.0	7.6	8.4	-44.47	193.9	-226.2	141.7	127.4	14.36	9.874		
3,200.0	3,186.9	3,187.4	3,165.5	7.9	8.8	-45.78	204.0	-238.6	146.6	131.6	14.94	9.814		
3,300.0	3,285.9	3,287.3	3,264.1	8.2	9.1	-47.00	214.2	-251.1	151.5	135.9	15.52	9.757		
3,400.0	3,384.9	3,387.1	3,362.6	8.5	9.5	-48.14	224.3	-263.5	156.4	140.3	16.12	9.705		
3,500.0	3,483.9	3,486.9	3,461.1	8.8	9.9	-49.22	234.4	-276.0	161.5	144.7	16.72	9.655		
3,600.0	3,583.0	3,586.7	3,559.7	9.2	10.2	-50.23	244.6	-288.5	166.5	149.2	17.33	9.609		
3,700.0	3,682.0	3,686.6	3,658.2	9.5	10.6	-51.18	254.7	-300.9	171.6	153.7	17.94	9.565		
3,800.0	3,781.0	3,786.4	3,756.7	9.8	11.0	-52.07	264.9	-313.4	176.8	158.2	18.56	9.524		
3,900.0	3,880.0	3,886.2	3,855.2	10.1	11.3	-52.91	275.0	-325.8	182.0	162.8	19.19	9.486		
4,000.0	3,979.0	3,986.1	3,953.8	10.5	11.7	-53.71	285.2	-338.3	187.3	167.4	19.82	9.449		
4,100.0	4,078.0	4,085.9	4,052.3	10.8	12.1	-54.46	295.3	-350.7	192.5	172.1	20.45	9.415		
4,200.0	4,177.1	4,185.7	4,150.8	11.1	12.4	-55.17	305.5	-363.2	197.8	176.8	21.09	9.383		
4,300.0	4,276.1	4,285.6	4,249.4	11.5	12.8	-55.85	315.6	-375.6	203.2	181.5	21.73	9.352		
4,400.0	4,375.1	4,385.4	4,347.9	11.8	13.2	-56.49	325.8	-388.1	208.6	186.2	22.37	9.323		
4,500.0	4,474.1	4,485.2	4,446.4	12.1	13.5	-57.09	335.9	-400.5	213.9	190.9	23.01	9.296		
4,600.0	4,573.1	4,585.0	4,544.9	12.5	13.9	-57.67	346.1	-413.0	219.4	195.7	23.66	9.270		
4,700.0	4,672.1	4,684.9	4,643.5	12.8	14.3	-58.22	356.2	-425.5	224.8	200.5	24.31	9.246		
4,800.0	4,771.1	4,784.7	4,742.0	13.1	14.7	-58.75	366.3	-437.9	230.2	205.3	24.96	9.223		
4,900.0	4,870.2	4,884.5	4,840.5	13.5	15.0	-59.25	376.5	-450.4	235.7	210.1	25.62	9.201		
5,000.0	4,969.2	4,984.4	4,939.1	13.8	15.4	-59.72	386.6	-462.8	241.2	214.9	26.28	9.180		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design		Chesnut 28M-HZ Pad Sec.28-T5N-R64W - Chesnut 28R-443 - Wellbore #1 - Plan #2 (4-30-14)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
5,100.0	5,068.3	5,084.2	5,037.6	14.1	15.8	-60.08	396.8	-475.3	247.1	220.2	26.89	9.190			
5,200.0	5,167.8	5,191.1	5,143.4	14.3	16.1	-60.06	406.4	-487.1	253.3	226.0	27.36	9.259			
5,300.0	5,267.6	5,298.4	5,250.1	14.5	16.3	-59.86	413.6	-495.9	258.4	230.6	27.75	9.310			
5,400.0	5,367.6	5,405.9	5,357.4	14.7	16.5	-59.50	418.3	-501.6	262.2	234.2	28.07	9.342			
5,500.0	5,467.6	5,513.7	5,465.0	14.8	16.7	-89.05	420.4	-504.2	264.6	236.2	28.37	9.327			
5,600.0	5,567.6	5,616.2	5,567.6	15.0	16.8	-89.02	420.5	-504.4	264.7	236.0	28.72	9.219			
5,700.0	5,667.6	5,716.2	5,667.6	15.2	17.0	-89.02	420.5	-504.4	264.7	235.7	29.09	9.102			
5,800.0	5,767.6	5,816.2	5,767.6	15.4	17.2	-89.02	420.5	-504.4	264.7	235.3	29.45	8.988			
5,900.0	5,867.6	5,916.2	5,867.6	15.6	17.3	-89.02	420.5	-504.4	264.7	234.9	29.83	8.876			
5,914.4	5,882.0	5,930.6	5,882.0	15.6	17.4	91.00	420.5	-504.4	264.7	234.9	29.87	8.863			
6,000.0	5,967.4	6,016.1	5,967.4	15.7	17.5	91.77	420.5	-504.4	264.8	234.8	30.07	8.809			
6,100.0	6,066.0	6,115.3	6,066.7	15.7	17.6	95.13	420.2	-504.4	265.8	235.9	29.92	8.884			
6,200.0	6,161.6	6,217.9	6,168.7	15.7	17.7	99.30	410.6	-504.4	268.4	238.8	29.53	9.088			
6,300.0	6,252.7	6,323.5	6,271.4	15.6	17.7	103.29	386.5	-504.4	272.3	243.2	29.03	9.379			
6,400.0	6,337.5	6,432.1	6,372.6	15.4	17.7	106.99	347.2	-504.4	277.2	248.7	28.46	9.740			
6,500.0	6,414.7	6,544.0	6,469.9	15.3	17.5	110.33	292.2	-504.4	282.8	254.9	27.88	10.141			
6,600.0	6,483.0	6,658.9	6,560.4	15.2	17.4	113.25	221.5	-504.4	288.6	261.2	27.39	10.535			
6,700.0	6,541.2	6,776.8	6,641.1	15.1	17.2	115.69	135.7	-504.4	294.1	267.1	27.09	10.860			
6,800.0	6,588.3	6,897.3	6,709.0	15.1	17.1	117.62	36.3	-504.4	299.0	272.0	27.07	11.047			
6,900.0	6,623.4	7,020.0	6,761.2	15.5	17.1	119.02	-74.6	-504.4	302.9	275.4	27.45	11.031			
7,000.0	6,646.1	7,144.3	6,795.3	16.2	17.4	119.87	-194.0	-504.4	305.3	277.0	28.33	10.775			
7,100.0	6,655.9	7,258.3	6,810.4	17.0	18.1	120.35	-307.0	-504.4	307.0	277.4	29.57	10.379			
7,200.0	6,655.9	7,369.3	6,819.2	18.0	19.2	121.66	-417.6	-504.4	311.1	280.1	30.97	10.043			
7,300.0	6,655.4	7,474.9	6,819.9	19.2	20.4	121.85	-523.2	-504.4	311.6	278.7	32.91	9.470			
7,400.0	6,654.9	7,574.9	6,819.9	20.4	21.6	121.93	-623.2	-504.4	311.9	276.9	35.04	8.902			
7,500.0	6,654.4	7,674.9	6,819.9	21.8	22.9	122.01	-723.2	-504.4	312.2	274.8	37.34	8.359			
7,600.0	6,653.9	7,774.9	6,819.9	23.2	24.3	122.09	-823.2	-504.4	312.4	272.7	39.79	7.852			
7,700.0	6,653.5	7,874.9	6,819.9	24.7	25.8	122.17	-923.2	-504.4	312.7	270.4	42.36	7.383			
7,800.0	6,653.0	7,974.9	6,820.0	26.3	27.3	122.25	-1,023.2	-504.4	313.0	268.0	45.02	6.953			
7,900.0	6,652.5	8,074.9	6,820.0	27.8	28.9	122.32	-1,123.2	-504.4	313.3	265.5	47.76	6.560			
8,000.0	6,652.0	8,174.9	6,820.0	29.5	30.5	122.40	-1,223.2	-504.4	313.5	263.0	50.56	6.201			
8,100.0	6,651.5	8,274.9	6,820.0	31.1	32.1	122.48	-1,323.2	-504.4	313.8	260.4	53.42	5.874			
8,200.0	6,651.0	8,374.9	6,820.0	32.8	33.8	122.56	-1,423.1	-504.4	314.1	257.8	56.32	5.576			
8,300.0	6,650.5	8,474.9	6,820.1	34.5	35.5	122.64	-1,523.1	-504.4	314.3	255.1	59.26	5.304			
8,400.0	6,650.0	8,574.9	6,820.1	36.3	37.2	122.71	-1,623.1	-504.4	314.6	252.4	62.23	5.055			
8,500.0	6,649.5	8,674.9	6,820.1	38.0	38.9	122.79	-1,723.1	-504.4	314.9	249.7	65.23	4.827			
8,600.0	6,649.1	8,774.9	6,820.1	39.8	40.6	122.87	-1,823.1	-504.4	315.2	246.9	68.25	4.618			
8,700.0	6,648.6	8,874.9	6,820.1	41.6	42.4	122.94	-1,923.1	-504.4	315.4	244.2	71.29	4.425			
8,800.0	6,648.1	8,974.9	6,820.1	43.4	44.2	123.02	-2,023.1	-504.4	315.7	241.4	74.35	4.247			
8,900.0	6,647.6	9,074.9	6,820.2	45.2	46.0	123.10	-2,123.1	-504.4	316.0	238.6	77.42	4.082			
9,000.0	6,647.1	9,174.9	6,820.2	47.0	47.8	123.18	-2,223.1	-504.4	316.3	235.8	80.50	3.929			
9,100.0	6,646.6	9,274.9	6,820.2	48.8	49.6	123.25	-2,323.1	-504.4	316.6	233.0	83.59	3.787			
9,200.0	6,646.1	9,374.9	6,820.2	50.6	51.4	123.33	-2,423.1	-504.4	316.8	230.1	86.69	3.655			
9,300.0	6,645.6	9,474.9	6,820.2	52.5	53.2	123.40	-2,523.1	-504.4	317.1	227.3	89.79	3.532			
9,400.0	6,645.2	9,574.9	6,820.2	54.3	55.0	123.48	-2,623.1	-504.4	317.4	224.5	92.90	3.416			
9,500.0	6,644.7	9,674.9	6,820.3	56.2	56.9	123.56	-2,723.1	-504.4	317.7	221.7	96.01	3.309			
9,600.0	6,644.2	9,774.9	6,820.3	58.0	58.7	123.63	-2,823.1	-504.4	318.0	218.8	99.13	3.207			
9,700.0	6,643.7	9,874.9	6,820.3	59.9	60.5	123.71	-2,923.1	-504.4	318.2	216.0	102.25	3.112			
9,800.0	6,643.2	9,974.9	6,820.3	61.7	62.4	123.78	-3,023.1	-504.4	318.5	213.1	105.38	3.023			
9,900.0	6,642.7	10,074.9	6,820.3	63.6	64.2	123.86	-3,123.1	-504.4	318.8	210.3	108.50	2.938			
10,000.0	6,642.2	10,174.9	6,820.3	65.5	66.1	123.94	-3,223.1	-504.4	319.1	207.5	111.63	2.858			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 28M-HZ Pad Sec.28-T5N-R64W - Chesnut 28R-443 - Wellbore #1 - Plan #2 (4-30-14)													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)			
10,100.0	6,641.7	10,274.9	6,820.4	67.3	68.0	124.01	-3,323.1	-504.4	319.4	204.6	114.75	2.783		
10,200.0	6,641.2	10,374.9	6,820.4	69.2	69.8	124.09	-3,423.1	-504.4	319.6	201.8	117.88	2.712		
10,300.0	6,640.8	10,474.9	6,820.4	71.1	71.7	124.16	-3,523.1	-504.4	319.9	198.9	121.00	2.644		
10,400.0	6,640.3	10,574.9	6,820.4	73.0	73.6	124.24	-3,623.1	-504.4	320.2	196.1	124.13	2.580		
10,500.0	6,639.8	10,674.9	6,820.4	74.8	75.4	124.31	-3,723.1	-504.4	320.5	193.2	127.25	2.519		
10,600.0	6,639.3	10,774.9	6,820.5	76.7	77.3	124.38	-3,823.1	-504.4	320.8	190.4	130.38	2.460		
10,700.0	6,638.8	10,874.9	6,820.5	78.6	79.2	124.46	-3,923.1	-504.4	321.1	187.6	133.50	2.405		
10,800.0	6,638.3	10,974.9	6,820.5	80.5	81.1	124.53	-4,023.1	-504.4	321.4	184.7	136.62	2.352		
10,900.0	6,637.8	11,074.9	6,820.5	82.4	82.9	124.61	-4,123.1	-504.4	321.7	181.9	139.74	2.302		
11,000.0	6,637.3	11,174.9	6,820.5	84.3	84.8	124.68	-4,223.1	-504.4	321.9	179.1	142.86	2.254		
11,100.0	6,636.8	11,274.9	6,820.5	86.1	86.7	124.76	-4,323.1	-504.4	322.2	176.3	145.97	2.208		
11,200.0	6,636.4	11,374.9	6,820.6	88.0	88.6	124.83	-4,423.1	-504.4	322.5	173.4	149.08	2.163		
11,300.0	6,635.9	11,474.9	6,820.6	89.9	90.5	124.90	-4,523.1	-504.4	322.8	170.6	152.19	2.121		
11,400.0	6,635.4	11,574.9	6,820.6	91.8	92.4	124.98	-4,623.1	-504.4	323.1	167.8	155.30	2.081		
11,500.0	6,634.9	11,674.9	6,820.6	93.7	94.2	125.05	-4,723.1	-504.4	323.4	165.0	158.40	2.042		
11,600.0	6,634.4	11,774.9	6,820.6	95.6	96.1	125.12	-4,823.1	-504.4	323.7	162.2	161.50	2.004		
11,700.0	6,633.9	11,874.9	6,820.6	97.5	98.0	125.20	-4,923.1	-504.4	324.0	159.4	164.60	1.968		
11,800.0	6,633.4	11,974.9	6,820.7	99.4	99.9	125.27	-5,023.1	-504.4	324.3	156.6	167.69	1.934		
11,900.0	6,632.9	12,074.9	6,820.7	101.3	101.8	125.34	-5,123.1	-504.4	324.6	153.8	170.79	1.900		
12,000.0	6,632.4	12,174.9	6,820.7	103.2	103.7	125.42	-5,223.1	-504.4	324.9	151.0	173.88	1.868		
12,100.0	6,632.0	12,274.9	6,820.7	105.1	105.6	125.49	-5,323.1	-504.4	325.1	148.2	176.96	1.837		
12,200.0	6,631.5	12,374.9	6,820.7	107.0	107.5	125.56	-5,423.1	-504.4	325.4	145.4	180.04	1.808		
12,300.0	6,631.0	12,474.9	6,820.8	108.9	109.4	125.63	-5,523.1	-504.4	325.7	142.6	183.12	1.779		
12,400.0	6,630.5	12,574.9	6,820.8	110.8	111.3	125.71	-5,623.1	-504.4	326.0	139.8	186.20	1.751		
12,500.0	6,630.0	12,674.9	6,820.8	112.7	113.2	125.78	-5,723.1	-504.4	326.3	137.1	189.27	1.724		
12,600.0	6,629.5	12,774.9	6,820.8	114.6	115.1	125.85	-5,823.1	-504.4	326.6	134.3	192.34	1.698		
12,700.0	6,629.0	12,874.9	6,820.8	116.5	117.0	125.92	-5,923.1	-504.4	326.9	131.5	195.40	1.673		
12,800.0	6,628.5	12,974.9	6,820.8	118.4	118.9	125.99	-6,023.1	-504.4	327.2	128.8	198.46	1.649		
12,900.0	6,628.0	13,074.9	6,820.9	120.3	120.8	126.06	-6,123.1	-504.4	327.5	126.0	201.52	1.625		
13,000.0	6,627.6	13,174.9	6,820.9	122.2	122.7	126.14	-6,223.1	-504.4	327.8	123.2	204.57	1.602		
13,100.0	6,627.1	13,274.9	6,820.9	124.1	124.6	126.21	-6,323.1	-504.4	328.1	120.5	207.62	1.580		
13,200.0	6,626.6	13,374.8	6,820.9	126.0	126.5	126.28	-6,423.1	-504.4	328.4	117.8	210.66	1.559		
13,300.0	6,626.1	13,474.8	6,820.9	128.0	128.4	126.35	-6,523.1	-504.4	328.7	115.0	213.71	1.538		
13,400.0	6,625.6	13,574.8	6,820.9	129.9	130.3	126.42	-6,623.1	-504.4	329.0	112.3	216.74	1.518		
13,500.0	6,625.1	13,674.8	6,821.0	131.8	132.2	126.49	-6,723.1	-504.4	329.3	109.5	219.78	1.498 Level 3		
13,600.0	6,624.6	13,774.8	6,821.0	133.7	134.1	126.56	-6,823.1	-504.4	329.6	106.8	222.81	1.479 Level 3		
13,700.0	6,624.1	13,874.8	6,821.0	135.6	136.0	126.63	-6,923.1	-504.4	329.9	104.1	225.83	1.461 Level 3		
13,727.9	6,624.0	13,902.7	6,821.0	136.0	136.6	126.65	-6,951.0	-504.4	330.0	103.4	226.58	1.456 Level 3, SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Chesnut Pads - Sec.28-T5N-R64W - Hall 28-3 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN												Offset Well Error:	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
7,400.0	6,654.9	6,644.9	6,644.9	20.4	132.9	90.51	-1,490.0	-718.9	990.5	837.3	153.18	6.466	
7,500.0	6,654.4	6,644.4	6,644.4	21.8	132.9	90.45	-1,490.0	-718.9	904.2	749.7	154.52	5.852	
7,600.0	6,653.9	6,643.9	6,643.9	23.2	132.9	90.39	-1,490.0	-718.9	821.1	665.2	155.93	5.266	
7,700.0	6,653.5	6,643.5	6,643.5	24.7	132.9	90.33	-1,490.0	-718.9	742.2	584.8	157.42	4.715	
7,800.0	6,653.0	6,643.0	6,643.0	26.3	132.9	90.27	-1,490.0	-718.9	669.0	510.0	158.96	4.209	
7,900.0	6,652.5	6,642.5	6,642.5	27.8	132.8	90.21	-1,490.0	-718.9	603.5	442.9	160.55	3.759	
8,000.0	6,652.0	6,642.0	6,642.0	29.5	132.8	90.16	-1,490.0	-718.9	548.5	386.3	162.17	3.382	
8,100.0	6,651.5	6,641.5	6,641.5	31.1	132.8	90.10	-1,490.0	-718.9	507.4	343.6	163.83	3.097	
8,200.0	6,651.0	6,641.0	6,641.0	32.8	132.8	90.04	-1,490.0	-718.9	483.8	318.3	165.52	2.923	
8,266.8	6,650.7	6,640.7	6,640.7	34.0	132.8	90.00	-1,490.0	-718.9	479.2	312.5	166.66	2.875 CC, ES	
8,300.0	6,650.5	6,640.5	6,640.5	34.5	132.8	89.98	-1,490.0	-718.9	480.3	313.1	167.23	2.872 SF	
8,400.0	6,650.0	6,640.0	6,640.0	36.3	132.8	89.92	-1,490.0	-718.9	497.3	328.4	168.96	2.944	
8,500.0	6,649.5	6,639.5	6,639.5	38.0	132.8	89.86	-1,490.0	-718.9	532.9	362.2	170.71	3.122	
8,600.0	6,649.1	6,639.1	6,639.1	39.8	132.8	89.81	-1,490.0	-718.9	583.6	411.2	172.47	3.384	
8,700.0	6,648.6	6,638.6	6,638.6	41.6	132.8	89.75	-1,490.0	-718.9	646.0	471.7	174.24	3.707	
8,800.0	6,648.1	6,638.1	6,638.1	43.4	132.8	89.69	-1,490.0	-718.9	716.9	540.8	176.03	4.072	
8,900.0	6,647.6	6,637.6	6,637.6	45.2	132.8	89.63	-1,490.0	-718.9	794.0	616.2	177.83	4.465	
9,000.0	6,647.1	6,637.1	6,637.1	47.0	132.7	89.57	-1,490.0	-718.9	875.9	696.2	179.63	4.876	
9,100.0	6,646.6	6,636.6	6,636.6	48.8	132.7	89.51	-1,490.0	-718.9	961.1	779.7	181.45	5.297	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Chesnut Pads - Sec.28-T5N-R64W - Hall 28-4 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-94.65	-51.0	-626.9	629.1				
100.0	100.0	85.0	85.0	0.1	1.7	-94.65	-51.0	-626.9	629.0	627.2	1.81	347.000	
200.0	200.0	185.0	185.0	0.3	3.7	-94.65	-51.0	-626.9	629.0	624.9	4.04	155.787	
300.0	300.0	285.0	285.0	0.6	5.7	-94.65	-51.0	-626.9	629.0	622.7	6.26	100.440	
400.0	400.0	385.0	385.0	0.8	7.7	-94.65	-51.0	-626.9	629.0	620.5	8.49	74.110	
500.0	500.0	485.0	485.0	1.0	9.7	-94.65	-51.0	-626.9	629.0	618.3	10.71	58.718	
600.0	600.0	585.0	585.0	1.2	11.7	-94.65	-51.0	-626.9	629.0	616.0	12.94	48.620	
700.0	700.0	685.0	685.0	1.5	13.7	-94.65	-51.0	-626.9	629.0	613.8	15.16	41.485	
800.0	800.0	785.0	785.0	1.7	15.7	-94.65	-51.0	-626.9	629.0	611.6	17.39	36.177	
900.0	900.0	885.0	885.0	1.9	17.7	-94.65	-51.0	-626.9	629.0	609.4	19.61	32.073	
1,000.0	1,000.0	985.0	985.0	2.1	19.7	-94.65	-51.0	-626.9	629.0	607.1	21.84	28.805	
1,100.0	1,100.0	1,085.0	1,085.0	2.4	21.7	-94.65	-51.0	-626.9	629.0	604.9	24.06	26.141	
1,200.0	1,200.0	1,185.0	1,185.0	2.6	23.7	-94.65	-51.0	-626.9	629.0	602.7	26.28	23.929	
1,300.0	1,300.0	1,285.0	1,285.0	2.8	25.7	-94.65	-51.0	-626.9	629.0	600.5	28.51	22.061	
1,400.0	1,400.0	1,385.0	1,385.0	3.0	27.7	-94.65	-51.0	-626.9	629.0	598.2	30.73	20.464	
1,500.0	1,500.0	1,485.0	1,485.0	3.3	29.7	-94.65	-51.0	-626.9	629.0	596.0	32.96	19.083	
1,600.0	1,600.0	1,585.0	1,585.0	3.5	31.7	-94.65	-51.0	-626.9	629.0	593.8	35.18	17.876	
1,700.0	1,700.0	1,685.0	1,685.0	3.7	33.7	-94.65	-51.0	-626.9	628.2	590.8	37.40	16.797	
1,800.0	1,799.8	1,784.8	1,784.8	3.9	35.7	-65.33	-51.0	-626.9	626.0	586.4	39.61	15.806	
1,900.0	1,899.5	1,884.5	1,884.5	4.2	37.7	-66.12	-51.0	-626.9	622.4	580.6	41.80	14.889	
2,000.0	1,998.7	1,983.7	1,983.7	4.4	39.7	-67.24	-51.0	-626.9	617.6	573.6	44.00	14.037	
2,100.0	2,097.7	2,082.7	2,082.7	4.6	41.7	-68.44	-51.0	-626.9	612.2	566.0	46.22	13.245	
2,200.0	2,196.7	2,181.7	2,181.7	4.9	43.6	-69.66	-51.0	-626.9	607.2	558.7	48.47	12.528	
2,300.0	2,295.7	2,280.7	2,280.7	5.2	45.6	-70.89	-51.0	-626.9	602.4	551.7	50.72	11.878	
2,400.0	2,394.8	2,379.8	2,379.8	5.5	47.6	-72.15	-51.0	-626.9	598.0	545.0	52.98	11.286	
2,500.0	2,493.8	2,478.8	2,478.8	5.8	49.6	-73.42	-51.0	-626.9	593.8	538.5	55.25	10.747	
2,600.0	2,592.8	2,577.8	2,577.8	6.0	51.6	-74.71	-51.0	-626.9	589.9	532.4	57.53	10.255	
2,700.0	2,691.8	2,676.8	2,676.8	6.3	53.5	-76.02	-51.0	-626.9	586.3	526.5	59.81	9.804	
2,800.0	2,790.8	2,775.8	2,775.8	6.6	55.5	-77.34	-51.0	-626.9	583.1	521.0	62.10	9.390	
2,900.0	2,889.8	2,874.8	2,874.8	7.0	57.5	-78.68	-51.0	-626.9	580.1	515.8	64.39	9.010	
3,000.0	2,988.9	2,973.9	2,973.9	7.3	59.5	-80.03	-51.0	-626.9	577.5	510.8	66.69	8.660	
3,100.0	3,087.9	3,072.9	3,072.9	7.6	61.5	-81.39	-51.0	-626.9	575.2	506.3	68.99	8.338	
3,200.0	3,186.9	3,171.9	3,171.9	7.9	63.4	-82.76	-51.0	-626.9	573.3	502.0	71.29	8.042	
3,300.0	3,285.9	3,270.9	3,270.9	8.2	65.4	-84.13	-51.0	-626.9	571.7	498.1	73.60	7.768	
3,400.0	3,384.9	3,369.9	3,369.9	8.5	67.4	-85.52	-51.0	-626.9	570.4	494.5	75.90	7.515	
3,500.0	3,483.9	3,468.9	3,468.9	8.8	69.4	-86.91	-51.0	-626.9	569.5	491.3	78.21	7.281	
3,600.0	3,583.0	3,568.0	3,568.0	9.2	71.4	-88.30	-51.0	-626.9	568.9	488.4	80.52	7.065	
3,700.0	3,682.0	3,667.0	3,667.0	9.5	73.3	-89.70	-51.0	-626.9	568.6	485.8	82.83	6.865	
3,721.6	3,703.4	3,688.4	3,688.4	9.6	73.8	-90.00	-51.0	-626.9	568.6	485.3	83.33	6.824	
3,800.0	3,781.0	3,766.0	3,766.0	9.8	75.3	-91.09	-51.0	-626.9	568.7	483.6	85.14	6.680	
3,900.0	3,880.0	3,865.0	3,865.0	10.1	77.3	-92.49	-51.0	-626.9	569.2	481.7	87.45	6.509	
4,000.0	3,979.0	3,964.0	3,964.0	10.5	79.3	-93.88	-51.0	-626.9	570.0	480.2	89.75	6.350	
4,100.0	4,078.0	4,063.0	4,063.0	10.8	81.3	-95.27	-51.0	-626.9	571.1	479.0	92.06	6.204	
4,200.0	4,177.1	4,162.1	4,162.1	11.1	83.2	-96.65	-51.0	-626.9	572.6	478.2	94.36	6.068	
4,300.0	4,276.1	4,261.1	4,261.1	11.5	85.2	-98.02	-51.0	-626.9	574.4	477.7	96.66	5.942	
4,400.0	4,375.1	4,360.1	4,360.1	11.8	87.2	-99.39	-51.0	-626.9	576.5	477.6	98.95	5.826	
4,500.0	4,474.1	4,459.1	4,459.1	12.1	89.2	-100.74	-51.0	-626.9	579.0	477.7	101.25	5.719	
4,600.0	4,573.1	4,558.1	4,558.1	12.5	91.2	-102.08	-51.0	-626.9	581.8	478.2	103.54	5.619	
4,700.0	4,672.1	4,657.1	4,657.1	12.8	93.1	-103.41	-51.0	-626.9	584.9	479.1	105.82	5.527	
4,800.0	4,771.1	4,756.1	4,756.1	13.1	95.1	-104.72	-51.0	-626.9	588.3	480.2	108.10	5.442	
4,900.0	4,870.2	4,855.2	4,855.2	13.5	97.1	-106.02	-51.0	-626.9	592.1	481.7	110.38	5.364	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Chesnut Pads - Sec.28-T5N-R64W - Hall 28-4 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,000.0	4,969.2	4,954.2	4,954.2	13.8	99.1	-107.30	-51.0	-626.9	596.1	483.5	112.65	5.292		
5,100.0	5,068.3	5,053.3	5,053.3	14.1	101.1	-108.55	-51.0	-626.9	600.2	485.3	114.93	5.222		
5,200.0	5,167.8	5,152.8	5,152.8	14.3	103.1	-109.49	-51.0	-626.9	603.4	486.3	117.15	5.151		
5,300.0	5,267.6	5,252.6	5,252.6	14.5	105.1	-110.10	-51.0	-626.9	605.6	486.2	119.35	5.074		
5,400.0	5,367.6	5,352.6	5,352.6	14.7	107.1	-110.37	-51.0	-626.9	606.6	485.1	121.51	4.992		
5,500.0	5,467.6	5,452.6	5,452.6	14.8	109.1	-140.34	-51.0	-626.9	606.6	483.0	123.67	4.905		
5,600.0	5,567.6	5,552.6	5,552.6	15.0	111.1	-140.34	-51.0	-626.9	606.6	480.8	125.85	4.820		
5,700.0	5,667.6	5,652.6	5,652.6	15.2	113.1	-140.34	-51.0	-626.9	606.6	478.6	128.04	4.738		
5,800.0	5,767.6	5,752.6	5,752.6	15.4	115.1	-140.34	-51.0	-626.9	606.6	476.4	130.22	4.659		
5,900.0	5,867.6	5,852.6	5,852.6	15.6	117.1	-140.34	-51.0	-626.9	606.6	474.2	132.41	4.582		
6,000.0	5,967.4	5,952.4	5,952.4	15.7	119.0	40.02	-51.0	-626.9	603.8	469.6	134.16	4.501		
6,100.0	6,066.0	6,051.0	6,051.0	15.7	121.0	41.66	-51.0	-626.9	591.4	456.7	134.62	4.393		
6,200.0	6,161.6	6,146.6	6,146.6	15.7	122.9	44.71	-51.0	-626.9	569.7	435.6	134.18	4.246		
6,300.0	6,252.7	6,237.7	6,237.7	15.6	124.8	49.38	-51.0	-626.9	540.2	406.5	133.64	4.042		
6,400.0	6,337.5	6,322.5	6,322.5	15.4	126.4	55.79	-51.0	-626.9	504.8	370.6	134.17	3.762		
6,500.0	6,414.7	6,399.7	6,399.7	15.3	128.0	63.86	-51.0	-626.9	466.6	330.0	136.65	3.415		
6,600.0	6,483.0	6,468.0	6,468.0	15.2	129.4	72.93	-51.0	-626.9	430.2	289.6	140.64	3.059		
6,700.0	6,541.2	6,526.2	6,526.2	15.1	130.5	81.76	-51.0	-626.9	401.5	257.1	144.36	2.781		
6,800.0	6,588.3	6,573.3	6,573.3	15.1	131.5	88.90	-51.0	-626.9	387.6	241.1	146.49	2.646		
6,819.8	6,596.2	6,581.2	6,581.2	15.1	131.6	90.00	-51.0	-626.9	387.2	240.5	146.75	2.639 CC, ES, SF		
6,900.0	6,623.4	6,608.4	6,608.4	15.5	132.2	93.23	-51.0	-626.9	394.5	247.1	147.40	2.676		
7,000.0	6,646.1	6,631.1	6,631.1	16.2	132.6	94.15	-51.0	-626.9	424.0	275.7	148.33	2.858		
7,100.0	6,655.9	6,640.9	6,640.9	17.0	132.8	91.30	-51.0	-626.9	473.3	323.6	149.71	3.161		
7,200.0	6,655.9	6,640.9	6,640.9	18.0	132.8	89.73	-51.0	-626.9	537.1	386.3	150.75	3.563		
7,300.0	6,655.4	6,640.4	6,640.4	19.2	132.8	89.66	-51.0	-626.9	610.7	458.8	151.86	4.021		
7,400.0	6,654.9	6,639.9	6,639.9	20.4	132.8	89.59	-51.0	-626.9	690.9	537.8	153.10	4.513		
7,500.0	6,654.4	6,639.4	6,639.4	21.8	132.8	89.51	-51.0	-626.9	775.7	621.3	154.43	5.023		
7,600.0	6,653.9	6,638.9	6,638.9	23.2	132.8	89.44	-51.0	-626.9	863.8	708.0	155.85	5.543		
7,700.0	6,653.5	6,638.5	6,638.5	24.7	132.8	89.37	-51.0	-626.9	954.3	797.0	157.33	6.066		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design		Existing Wells - Chesnut Pads - Sec.28-T5N-R64W - Hall 28-5 (Exist) - Wellbore #1 - Wellbore #1										Offset Site Error:		0.0 ft
Survey Program: 7600-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	-162.95	-663.0	-203.4	693.7					
100.0	100.0	85.0	85.0	0.1	1.7	-162.95	-663.0	-203.4	693.5	691.7	1.81	382.624		
200.0	200.0	185.0	185.0	0.3	3.7	-162.95	-663.0	-203.4	693.5	689.5	4.04	171.780		
300.0	300.0	285.0	285.0	0.6	5.7	-162.95	-663.0	-203.4	693.5	687.3	6.26	110.751		
400.0	400.0	385.0	385.0	0.8	7.7	-162.95	-663.0	-203.4	693.5	685.0	8.49	81.719		
500.0	500.0	485.0	485.0	1.0	9.7	-162.95	-663.0	-203.4	693.5	682.8	10.71	64.746		
600.0	600.0	585.0	585.0	1.2	11.7	-162.95	-663.0	-203.4	693.5	680.6	12.94	53.611		
700.0	700.0	685.0	685.0	1.5	13.7	-162.95	-663.0	-203.4	693.5	678.4	15.16	45.744		
800.0	800.0	785.0	785.0	1.7	15.7	-162.95	-663.0	-203.4	693.5	676.2	17.39	39.891		
900.0	900.0	885.0	885.0	1.9	17.7	-162.95	-663.0	-203.4	693.5	673.9	19.61	35.365		
1,000.0	1,000.0	985.0	985.0	2.1	19.7	-162.95	-663.0	-203.4	693.5	671.7	21.84	31.762		
1,100.0	1,100.0	1,085.0	1,085.0	2.4	21.7	-162.95	-663.0	-203.4	693.5	669.5	24.06	28.825		
1,200.0	1,200.0	1,185.0	1,185.0	2.6	23.7	-162.95	-663.0	-203.4	693.5	667.3	26.28	26.385		
1,300.0	1,300.0	1,285.0	1,285.0	2.8	25.7	-162.95	-663.0	-203.4	693.5	665.0	28.51	24.326		
1,400.0	1,400.0	1,385.0	1,385.0	3.0	27.7	-162.95	-663.0	-203.4	693.5	662.8	30.73	22.565		
1,500.0	1,500.0	1,485.0	1,485.0	3.3	29.7	-162.95	-663.0	-203.4	693.5	660.6	32.96	21.042		
1,600.0	1,600.0	1,585.0	1,585.0	3.5	31.7	-162.95	-663.0	-203.4	693.5	658.4	35.18	19.712		
1,700.0	1,700.0	1,685.0	1,685.0	3.7	33.7	-133.08	-663.0	-203.4	694.7	657.3	37.40	18.577		
1,800.0	1,799.8	1,784.8	1,784.8	3.9	35.7	-133.34	-663.0	-203.4	698.3	658.7	39.58	17.642		
1,900.0	1,899.5	1,884.5	1,884.5	4.2	37.7	-133.77	-663.0	-203.4	704.3	662.6	41.74	16.874		
2,000.0	1,998.7	1,983.7	1,983.7	4.4	39.7	-134.35	-663.0	-203.4	712.8	669.0	43.86	16.252		
2,100.0	2,097.7	2,082.7	2,082.7	4.6	41.7	-135.14	-663.0	-203.4	722.7	676.7	46.07	15.689		
2,200.0	2,196.7	2,181.7	2,181.7	4.9	43.6	-135.91	-663.0	-203.4	732.8	684.5	48.28	15.178		
2,300.0	2,295.7	2,280.7	2,280.7	5.2	45.6	-136.66	-663.0	-203.4	742.9	692.4	50.50	14.713		
2,400.0	2,394.8	2,379.8	2,379.8	5.5	47.6	-137.38	-663.0	-203.4	753.2	700.5	52.72	14.288		
2,500.0	2,493.8	2,478.8	2,478.8	5.8	49.6	-138.09	-663.0	-203.4	763.6	708.7	54.94	13.900		
2,600.0	2,592.8	2,577.8	2,577.8	6.0	51.6	-138.78	-663.0	-203.4	774.1	717.0	57.16	13.543		
2,700.0	2,691.8	2,676.8	2,676.8	6.3	53.5	-139.45	-663.0	-203.4	784.8	725.4	59.39	13.214		
2,800.0	2,790.8	2,775.8	2,775.8	6.6	55.5	-140.10	-663.0	-203.4	795.5	733.9	61.61	12.911		
2,900.0	2,889.8	2,874.8	2,874.8	7.0	57.5	-140.74	-663.0	-203.4	806.3	742.5	63.84	12.631		
3,000.0	2,988.9	2,973.9	2,973.9	7.3	59.5	-141.36	-663.0	-203.4	817.2	751.2	66.07	12.370		
3,100.0	3,087.9	3,072.9	3,072.9	7.6	61.5	-141.96	-663.0	-203.4	828.3	760.0	68.29	12.128		
3,200.0	3,186.9	3,171.9	3,171.9	7.9	63.4	-142.55	-663.0	-203.4	839.4	768.9	70.52	11.903		
3,300.0	3,285.9	3,270.9	3,270.9	8.2	65.4	-143.12	-663.0	-203.4	850.6	777.8	72.74	11.693		
3,400.0	3,384.9	3,369.9	3,369.9	8.5	67.4	-143.67	-663.0	-203.4	861.8	786.9	74.97	11.496		
3,500.0	3,483.9	3,468.9	3,468.9	8.8	69.4	-144.22	-663.0	-203.4	873.2	796.0	77.19	11.312		
3,600.0	3,583.0	3,568.0	3,568.0	9.2	71.4	-144.74	-663.0	-203.4	884.6	805.2	79.42	11.139		
3,700.0	3,682.0	3,667.0	3,667.0	9.5	73.3	-145.26	-663.0	-203.4	896.1	814.5	81.64	10.976		
3,800.0	3,781.0	3,766.0	3,766.0	9.8	75.3	-145.76	-663.0	-203.4	907.7	823.8	83.87	10.823		
3,900.0	3,880.0	3,865.0	3,865.0	10.1	77.3	-146.25	-663.0	-203.4	919.3	833.2	86.09	10.679		
4,000.0	3,979.0	3,964.0	3,964.0	10.5	79.3	-146.73	-663.0	-203.4	931.0	842.7	88.31	10.543		
4,100.0	4,078.0	4,063.0	4,063.0	10.8	81.3	-147.19	-663.0	-203.4	942.8	852.3	90.53	10.414		
4,200.0	4,177.1	4,162.1	4,162.1	11.1	83.2	-147.65	-663.0	-203.4	954.6	861.9	92.75	10.292		
4,300.0	4,276.1	4,261.1	4,261.1	11.5	85.2	-148.09	-663.0	-203.4	966.5	871.5	94.97	10.177		
4,400.0	4,375.1	4,360.1	4,360.1	11.8	87.2	-148.52	-663.0	-203.4	978.4	881.3	97.19	10.067		
4,500.0	4,474.1	4,459.1	4,459.1	12.1	89.2	-148.94	-663.0	-203.4	990.4	891.0	99.41	9.963		
6,300.0	6,252.7	6,237.7	6,237.7	15.6	124.8	-2.38	-663.0	-203.4	989.4	866.7	122.67	8.066		
6,400.0	6,337.5	6,322.5	6,322.5	15.4	126.4	-2.73	-663.0	-203.4	936.6	821.9	114.69	8.167		
6,500.0	6,414.7	6,399.7	6,399.7	15.3	128.0	-3.26	-663.0	-203.4	873.3	768.7	104.51	8.356		
6,600.0	6,483.0	6,468.0	6,468.0	15.2	129.4	-4.09	-663.0	-203.4	800.4	708.0	92.41	8.661		
6,700.0	6,541.2	6,526.2	6,526.2	15.1	130.5	-5.47	-663.0	-203.4	719.2	640.3	78.88	9.118		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Chesnut Pads - Sec.28-T5N-R64W - Hall 28-5 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN												Offset Well Error:	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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,800.0	6,588.3	6,573.3	6,573.3	15.1	131.5	-7.95	-663.0	-203.4	631.2	566.0	65.18	9.683	
6,900.0	6,623.4	6,608.4	6,608.4	15.5	132.2	-13.13	-663.0	-203.4	537.8	481.7	56.18	9.574	
7,000.0	6,646.1	6,631.1	6,631.1	16.2	132.6	-26.94	-663.0	-203.4	440.8	368.0	72.77	6.057	
7,100.0	6,655.9	6,640.9	6,640.9	17.0	132.8	-73.13	-663.0	-203.4	341.8	198.5	143.27	2.386	
7,200.0	6,655.9	6,640.9	6,640.9	18.0	132.8	-91.85	-663.0	-203.4	242.6	91.9	150.70	1.610	
7,300.0	6,655.4	6,640.4	6,640.4	19.2	132.8	-91.08	-663.0	-203.4	144.5	-7.4	151.85	0.951	Level 1
7,400.0	6,654.9	6,639.9	6,639.9	20.4	132.8	-90.31	-663.0	-203.4	53.9	-99.2	153.10	0.352	Level 1
7,439.9	6,654.7	6,639.7	6,639.7	21.0	132.8	-90.00	-663.0	-203.4	36.3	-117.3	153.63	0.236	Level 1, CC, ES, SF
7,500.0	6,654.4	6,639.4	6,639.4	21.8	132.8	-89.54	-663.0	-203.4	70.3	-84.2	154.42	0.455	Level 1
7,600.0	6,653.9	6,638.9	6,638.9	23.2	132.8	-88.76	-663.0	-203.4	164.2	8.4	155.79	1.054	Level 2
7,700.0	6,653.5	6,638.5	6,638.5	24.7	132.8	-87.99	-663.0	-203.4	262.7	105.5	157.20	1.671	
7,800.0	6,653.0	6,638.0	6,638.0	26.3	132.8	-87.22	-663.0	-203.4	362.0	203.3	158.64	2.282	
7,900.0	6,652.5	6,637.5	6,637.5	27.8	132.7	-86.46	-663.0	-203.4	461.6	301.5	160.10	2.883	
8,000.0	6,652.0	6,637.0	6,637.0	29.5	132.7	-85.69	-663.0	-203.4	561.3	399.7	161.57	3.474	
8,100.0	6,651.5	6,636.5	6,636.5	31.1	132.7	-84.92	-663.0	-203.4	661.1	498.1	163.04	4.055	
8,200.0	6,651.0	6,636.0	6,636.0	32.8	132.7	-84.16	-663.0	-203.4	761.0	596.5	164.51	4.626	
8,300.0	6,650.5	6,635.5	6,635.5	34.5	132.7	-83.39	-663.0	-203.4	860.9	694.9	165.97	5.187	
8,400.0	6,650.0	6,635.0	6,635.0	36.3	132.7	-82.63	-663.0	-203.4	960.8	793.4	167.41	5.739	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN												Offset Well Error:	0.0 ft
Existing Wells - Chesnut Pads - Sec.28-T5N-R64W - Hendricks 33-2 (Exist) - Wellbore #1 - Wellbore #1													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,300.0	6,635.9	6,644.9	6,644.9	89.9	132.9	90.65	-5,420.9	-624.2	976.7	753.9	222.75	4.385	
11,400.0	6,635.4	6,644.4	6,644.4	91.8	132.9	90.58	-5,420.9	-624.2	885.6	661.0	224.64	3.943	
11,500.0	6,634.9	6,643.9	6,643.9	93.7	132.9	90.51	-5,420.9	-624.2	796.7	570.2	226.52	3.517	
11,600.0	6,634.4	6,643.4	6,643.4	95.6	132.9	90.44	-5,420.9	-624.2	710.8	482.4	228.41	3.112	
11,700.0	6,633.9	6,642.9	6,642.9	97.5	132.9	90.36	-5,420.9	-624.2	629.0	398.7	230.31	2.731	
11,800.0	6,633.4	6,642.4	6,642.4	99.4	132.8	90.29	-5,420.9	-624.2	553.3	321.1	232.20	2.383	
11,900.0	6,632.9	6,641.9	6,641.9	101.3	132.8	90.22	-5,420.9	-624.2	486.4	252.3	234.09	2.078	
12,000.0	6,632.4	6,641.4	6,641.4	103.2	132.8	90.14	-5,420.9	-624.2	432.4	196.5	235.98	1.833	
12,100.0	6,632.0	6,641.0	6,641.0	105.1	132.8	90.07	-5,420.9	-624.2	396.8	158.9	237.87	1.668	
12,197.8	6,631.5	6,640.5	6,640.5	107.0	132.8	90.00	-5,420.9	-624.2	384.6	144.8	239.72	1.604 CC	
12,200.0	6,631.5	6,640.5	6,640.5	107.0	132.8	90.00	-5,420.9	-624.2	384.6	144.8	239.77	1.604 ES, SF	
12,300.0	6,631.0	6,640.0	6,640.0	108.9	132.8	89.93	-5,420.9	-624.2	397.9	156.3	241.66	1.647	
12,400.0	6,630.5	6,639.5	6,639.5	110.8	132.8	89.85	-5,420.9	-624.2	434.5	190.9	243.55	1.784	
12,500.0	6,630.0	6,639.0	6,639.0	112.7	132.8	89.78	-5,420.9	-624.2	489.1	243.7	245.45	1.993	
12,600.0	6,629.5	6,638.5	6,638.5	114.6	132.8	89.71	-5,420.9	-624.2	556.5	309.1	247.34	2.250	
12,700.0	6,629.0	6,638.0	6,638.0	116.5	132.8	89.63	-5,420.9	-624.2	632.5	383.3	249.23	2.538	
12,800.0	6,628.5	6,637.5	6,637.5	118.4	132.8	89.56	-5,420.9	-624.2	714.5	463.4	251.13	2.845	
12,900.0	6,628.0	6,637.0	6,637.0	120.3	132.7	89.49	-5,420.9	-624.2	800.6	547.6	253.02	3.164	
13,000.0	6,627.6	6,636.6	6,636.6	122.2	132.7	89.42	-5,420.9	-624.2	889.6	634.7	254.92	3.490	
13,100.0	6,627.1	6,636.1	6,636.1	124.1	132.7	89.34	-5,420.9	-624.2	980.7	723.9	256.81	3.819	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Chesnut Pads - Sec.28-T5N-R64W - Hendricks 33-4 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
12,800.0	6,628.5	6,659.5	6,659.5	118.4	133.2	90.48	-6,816.2	-705.1	919.6	668.0	251.56	3.656		
12,900.0	6,628.0	6,659.0	6,659.0	120.3	133.2	90.42	-6,816.2	-705.1	834.9	581.4	253.45	3.294		
13,000.0	6,627.6	6,658.6	6,658.6	122.2	133.2	90.36	-6,816.2	-705.1	753.9	498.6	255.35	2.952		
13,100.0	6,627.1	6,658.1	6,658.1	124.1	133.2	90.30	-6,816.2	-705.1	678.1	420.8	257.25	2.636		
13,200.0	6,626.6	6,657.6	6,657.6	126.0	133.2	90.24	-6,816.2	-705.1	609.2	350.1	259.15	2.351		
13,300.0	6,626.1	6,657.1	6,657.1	128.0	133.1	90.18	-6,816.2	-705.1	550.0	289.0	261.05	2.107		
13,400.0	6,625.6	6,656.6	6,656.6	129.9	133.1	90.12	-6,816.2	-705.1	503.9	240.9	262.95	1.916		
13,500.0	6,625.1	6,656.1	6,656.1	131.8	133.1	90.06	-6,816.2	-705.1	474.6	209.8	264.85	1.792		
13,593.1	6,624.7	6,655.7	6,655.7	133.5	133.1	90.00	-6,816.2	-705.1	465.4	198.8	266.62	1.746 CC		
13,600.0	6,624.6	6,655.6	6,655.6	133.7	133.1	90.00	-6,816.2	-705.1	465.5	198.7	266.75	1.745 ES, SF		
13,700.0	6,624.1	6,655.1	6,655.1	135.6	133.1	89.94	-6,816.2	-705.1	477.5	208.9	268.65	1.778		
13,727.9	6,624.0	6,655.0	6,655.0	136.0	133.1	89.92	-6,816.2	-705.1	484.5	215.5	269.08	1.801		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4635.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Chesnut 28R-203

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.61°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 28R-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 28R-203	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 (1-29-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4635.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Chesnut 28R-203

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.61°

