PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Chesnut 28R-443**

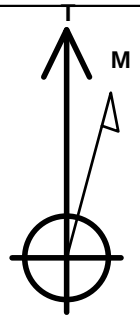
Surface Location: Chesnut 28M-HZ Pad Sec.28-T5N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4620.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1381355.75	3264716.73	40.376330	-104.549840	

RKB - 15' WELL @ 4635.0ft (RKB - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 445'FNL, 1280'FEL, SEC.28	1.0	0.0	0.0	Point
BHL 2134'FNL, 1790'FEL, SEC. 33	6821.0	-6980.2	-484.9	Point



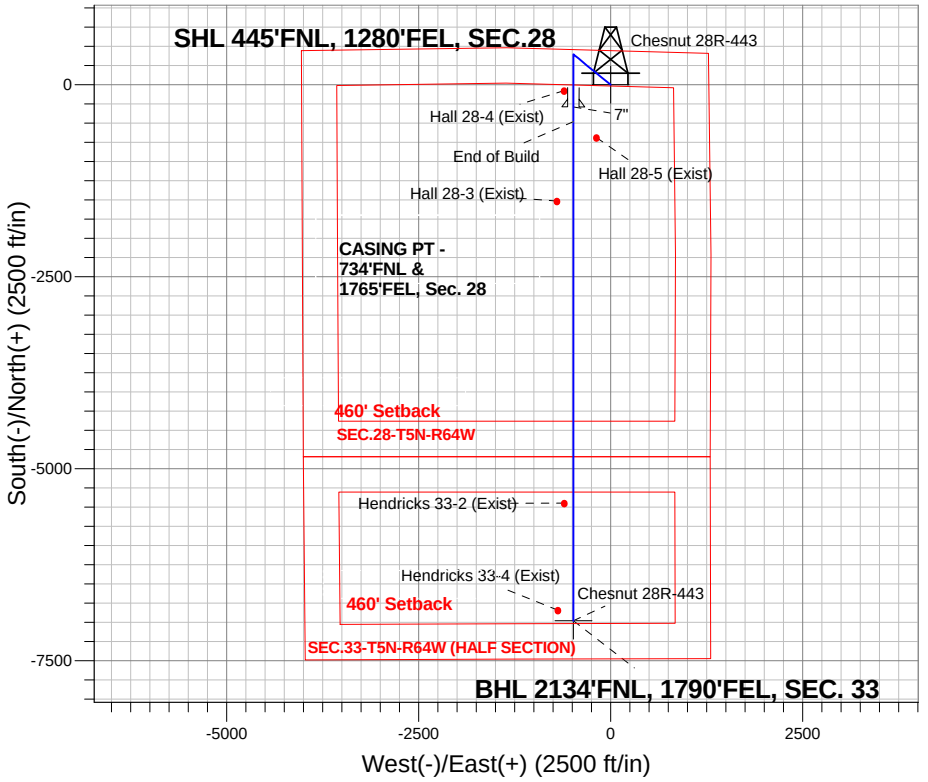
Azimuths to True North
Magnetic North: 8.39°

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

Chesnut 28M-HZ Pad Sec.28-T5N-R64W
Chesnut 28R-443
Plan #2 (4-30-14)
9:48, May 01 2014

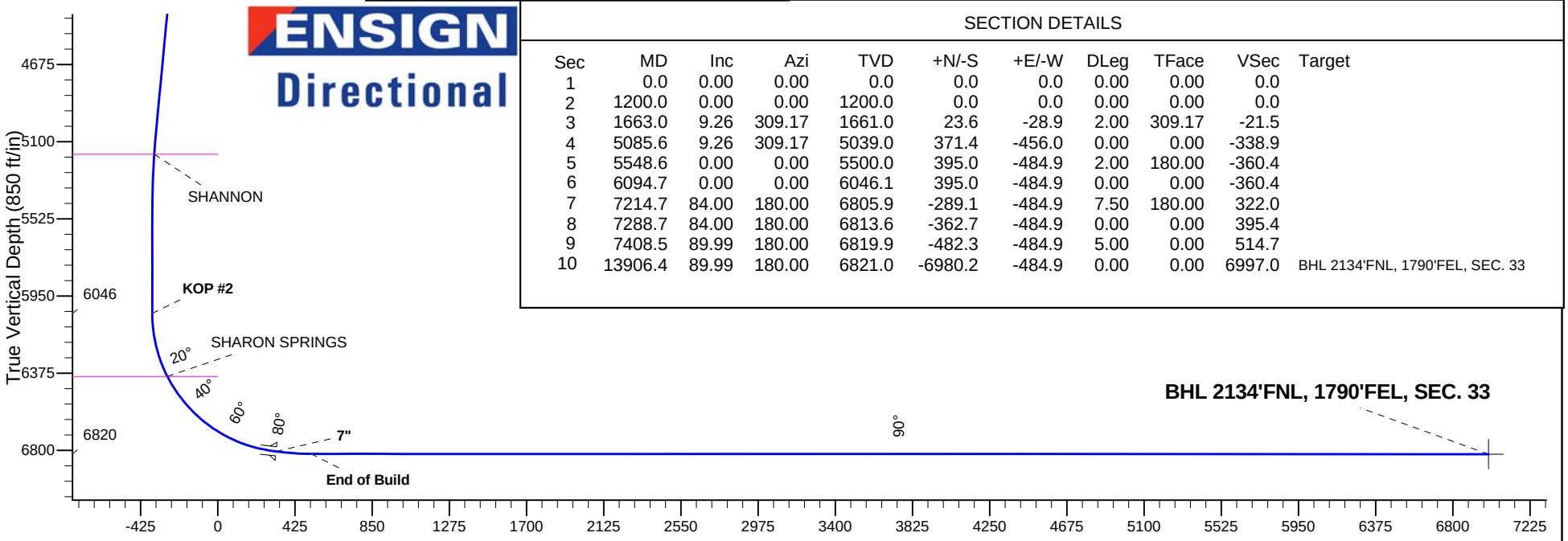
ANNOTATIONS

TVD	MD	Annotation
1200.0	1200.0	KOP #1
6046.1	6094.7	KOP #2
6819.9	7408.5	End of Build



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	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1663.0	9.26	309.17	1661.0	23.6	-28.9	2.00	309.17	-21.5	
4	5085.6	9.26	309.17	5039.0	371.4	-456.0	0.00	0.00	-338.9	
5	5548.6	0.00	0.00	5500.0	395.0	-484.9	2.00	180.00	-360.4	
6	6094.7	0.00	0.00	6046.1	395.0	-484.9	0.00	0.00	-360.4	
7	7214.7	84.00	180.00	6805.9	-289.1	-484.9	7.50	180.00	322.0	
8	7288.7	84.00	180.00	6813.6	-362.7	-484.9	0.00	0.00	395.4	
9	7408.5	89.99	180.00	6819.9	-482.3	-484.9	5.00	0.00	514.7	
10	13906.4	89.99	180.00	6821.0	-6980.2	-484.9	0.00	0.00	6997.0	BHL 2134'FNL, 1790'FEL, SEC. 33



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T5N-R64W
Chesnut 28M-HZ Pad Sec.28-T5N-R64W
Chesnut 28R-443

Wellbore #1

Plan: Plan #2 (4-30-14)

Standard Planning Report

01 May, 2014

PDC ENERGY
Growing E&P Value

Database:	landmark	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-14)		

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-443

Well Position	**+N/-S**	-65.6 ft	**Northing:**	1,381,355.75 ft	**Latitude:**	40.376330
	+E/-W	61.3 ft	**Easting:**	3,264,716.73 ft	**Longitude:**	-104.549840
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 #2 (4-30-14)

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	183.97

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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,663.0	9.26	309.17	1,661.0	23.6	-28.9	2.00	2.00	0.00	309.17	
5,085.6	9.26	309.17	5,039.0	371.4	-456.0	0.00	0.00	0.00	0.00	
5,548.6	0.00	0.00	5,500.0	395.0	-484.9	2.00	-2.00	0.00	180.00	
6,094.7	0.00	0.00	6,046.1	395.0	-484.9	0.00	0.00	0.00	0.00	
7,214.7	84.00	180.00	6,805.9	-289.1	-484.9	7.50	7.50	0.00	180.00	
7,288.7	84.00	180.00	6,813.6	-362.7	-484.9	0.00	0.00	0.00	0.00	
7,408.5	89.99	180.00	6,819.9	-482.3	-484.9	5.00	5.00	0.00	0.00	
13,906.4	89.99	180.00	6,821.0	-6,980.2	-484.9	0.00	0.00	0.00	0.00	BHL 2134'FNL, 179

Database:	landmark	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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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-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-14)		

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 445'FNL, 1280'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
KOP #1									
1,300.0	2.00	309.17	1,300.0	1.1	-1.4	-1.0	2.00	2.00	0.00
1,400.0	4.00	309.17	1,399.8	4.4	-5.4	-4.0	2.00	2.00	0.00
1,500.0	6.00	309.17	1,499.5	9.9	-12.2	-9.0	2.00	2.00	0.00
1,600.0	8.00	309.17	1,598.7	17.6	-21.6	-16.1	2.00	2.00	0.00
1,663.0	9.26	309.17	1,661.0	23.6	-28.9	-21.5	2.00	2.00	0.00
1,700.0	9.26	309.17	1,697.5	27.3	-33.6	-24.9	0.00	0.00	0.00
1,800.0	9.26	309.17	1,796.2	37.5	-46.0	-34.2	0.00	0.00	0.00
1,900.0	9.26	309.17	1,894.9	47.7	-58.5	-43.5	0.00	0.00	0.00
2,000.0	9.26	309.17	1,993.6	57.8	-71.0	-52.8	0.00	0.00	0.00
2,100.0	9.26	309.17	2,092.3	68.0	-83.5	-62.0	0.00	0.00	0.00
2,200.0	9.26	309.17	2,191.0	78.2	-95.9	-71.3	0.00	0.00	0.00
2,300.0	9.26	309.17	2,289.7	88.3	-108.4	-80.6	0.00	0.00	0.00
2,400.0	9.26	309.17	2,388.4	98.5	-120.9	-89.9	0.00	0.00	0.00
2,500.0	9.26	309.17	2,487.1	108.6	-133.4	-99.1	0.00	0.00	0.00
2,600.0	9.26	309.17	2,585.8	118.8	-145.8	-108.4	0.00	0.00	0.00
2,700.0	9.26	309.17	2,684.5	129.0	-158.3	-117.7	0.00	0.00	0.00
2,800.0	9.26	309.17	2,783.2	139.1	-170.8	-127.0	0.00	0.00	0.00
2,900.0	9.26	309.17	2,881.9	149.3	-183.3	-136.2	0.00	0.00	0.00
3,000.0	9.26	309.17	2,980.6	159.5	-195.8	-145.5	0.00	0.00	0.00
3,100.0	9.26	309.17	3,079.3	169.6	-208.2	-154.8	0.00	0.00	0.00
3,200.0	9.26	309.17	3,178.0	179.8	-220.7	-164.1	0.00	0.00	0.00
3,300.0	9.26	309.17	3,276.7	189.9	-233.2	-173.3	0.00	0.00	0.00
3,400.0	9.26	309.17	3,375.4	200.1	-245.7	-182.6	0.00	0.00	0.00
3,500.0	9.26	309.17	3,474.0	210.3	-258.1	-191.9	0.00	0.00	0.00
3,577.0	9.26	309.17	3,550.0	218.1	-267.7	-199.0	0.00	0.00	0.00
PARKMAN									
3,600.0	9.26	309.17	3,572.7	220.4	-270.6	-201.2	0.00	0.00	0.00
3,700.0	9.26	309.17	3,671.4	230.6	-283.1	-210.4	0.00	0.00	0.00
3,800.0	9.26	309.17	3,770.1	240.8	-295.6	-219.7	0.00	0.00	0.00
3,900.0	9.26	309.17	3,868.8	250.9	-308.0	-229.0	0.00	0.00	0.00
4,000.0	9.26	309.17	3,967.5	261.1	-320.5	-238.2	0.00	0.00	0.00
4,100.0	9.26	309.17	4,066.2	271.3	-333.0	-247.5	0.00	0.00	0.00
4,200.0	9.26	309.17	4,164.9	281.4	-345.5	-256.8	0.00	0.00	0.00
4,200.1	9.26	309.17	4,165.0	281.4	-345.5	-256.8	0.00	0.00	0.00
SUSSEX									
4,300.0	9.26	309.17	4,263.6	291.6	-357.9	-266.1	0.00	0.00	0.00
4,400.0	9.26	309.17	4,362.3	301.7	-370.4	-275.3	0.00	0.00	0.00

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Site:	Chesnut 28M-HZ Pad Sec.28-T5N-R64W	**North Reference:**	True
Well:	Chesnut 28R-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-14)		

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	9.26	309.17	4,461.0	311.9	-382.9	-284.6	0.00	0.00	0.00
4,600.0	9.26	309.17	4,559.7	322.1	-395.4	-293.9	0.00	0.00	0.00
4,700.0	9.26	309.17	4,658.4	332.2	-407.8	-303.2	0.00	0.00	0.00
4,800.0	9.26	309.17	4,757.1	342.4	-420.3	-312.4	0.00	0.00	0.00
4,900.0	9.26	309.17	4,855.8	352.6	-432.8	-321.7	0.00	0.00	0.00
5,000.0	9.26	309.17	4,954.5	362.7	-445.3	-331.0	0.00	0.00	0.00
5,085.6	9.26	309.17	5,039.0	371.4	-456.0	-338.9	0.00	0.00	0.00
5,100.0	8.97	309.17	5,053.2	372.9	-457.7	-340.2	2.00	-2.00	0.00
5,200.0	6.97	309.17	5,152.2	381.6	-468.5	-348.2	2.00	-2.00	0.00
5,217.9	6.61	309.17	5,170.0	383.0	-470.1	-349.5	2.00	-2.00	0.00
SHANNON									
5,300.0	4.97	309.17	5,251.7	388.2	-476.5	-354.2	2.00	-2.00	0.00
5,400.0	2.97	309.17	5,351.4	392.6	-481.9	-358.2	2.00	-2.00	0.00
5,500.0	0.97	309.17	5,451.4	394.7	-484.6	-360.2	2.00	-2.00	0.00
5,548.6	0.00	0.00	5,500.0	395.0	-484.9	-360.4	2.00	-2.00	0.00
5,600.0	0.00	0.00	5,551.4	395.0	-484.9	-360.4	0.00	0.00	0.00
5,700.0	0.00	0.00	5,651.4	395.0	-484.9	-360.4	0.00	0.00	0.00
5,800.0	0.00	0.00	5,751.4	395.0	-484.9	-360.4	0.00	0.00	0.00
5,900.0	0.00	0.00	5,851.4	395.0	-484.9	-360.4	0.00	0.00	0.00
6,000.0	0.00	0.00	5,951.4	395.0	-484.9	-360.4	0.00	0.00	0.00
6,094.7	0.00	0.00	6,046.1	395.0	-484.9	-360.4	0.00	0.00	0.00
KOP #2									
6,100.0	0.40	180.00	6,051.4	395.0	-484.9	-360.4	7.47	7.47	0.00
6,200.0	7.90	180.00	6,151.0	387.8	-484.9	-353.2	7.50	7.50	0.00
6,300.0	15.40	180.00	6,248.9	367.6	-484.9	-333.1	7.50	7.50	0.00
6,400.0	22.90	180.00	6,343.3	334.8	-484.9	-300.4	7.50	7.50	0.00
6,454.8	27.01	180.00	6,393.0	311.7	-484.9	-277.3	7.50	7.50	0.00
SHARON SPRINGS									
6,500.0	30.40	180.00	6,432.6	290.0	-484.9	-255.7	7.50	7.50	0.00
6,600.0	37.90	180.00	6,515.3	233.9	-484.9	-199.7	7.50	7.50	0.00
6,700.0	45.40	180.00	6,590.0	167.5	-484.9	-133.5	7.50	7.50	0.00
6,800.0	52.90	180.00	6,655.4	91.9	-484.9	-58.1	7.50	7.50	0.00
6,900.0	60.40	180.00	6,710.3	8.4	-484.9	25.2	7.50	7.50	0.00
7,000.0	67.90	180.00	6,753.9	-81.5	-484.9	114.9	7.50	7.50	0.00
7,100.0	75.40	180.00	6,785.4	-176.3	-484.9	209.5	7.50	7.50	0.00
7,200.0	82.90	180.00	6,804.2	-274.5	-484.9	307.4	7.50	7.50	0.00
7,214.7	84.00	180.00	6,805.9	-289.1	-484.9	322.0	7.50	7.50	0.00
7"									
7,288.7	84.00	180.00	6,813.6	-362.7	-484.9	395.4	0.00	0.00	0.00
7,300.0	84.56	180.00	6,814.7	-373.9	-484.9	406.6	5.00	5.00	0.00
7,400.0	89.56	180.00	6,819.8	-473.7	-484.9	506.2	5.00	5.00	0.00
7,408.5	89.99	180.00	6,819.9	-482.2	-484.9	514.7	5.00	5.00	0.00
End of Build									
7,500.0	89.99	180.00	6,819.9	-573.7	-484.9	606.0	0.00	0.00	0.00
7,600.0	89.99	180.00	6,819.9	-673.7	-484.9	705.7	0.00	0.00	0.00
7,700.0	89.99	180.00	6,819.9	-773.7	-484.9	805.5	0.00	0.00	0.00
7,800.0	89.99	180.00	6,819.9	-873.7	-484.9	905.2	0.00	0.00	0.00
7,900.0	89.99	180.00	6,820.0	-973.7	-484.9	1,005.0	0.00	0.00	0.00
8,000.0	89.99	180.00	6,820.0	-1,073.7	-484.9	1,104.8	0.00	0.00	0.00
8,100.0	89.99	180.00	6,820.0	-1,173.7	-484.9	1,204.5	0.00	0.00	0.00
8,200.0	89.99	180.00	6,820.0	-1,273.7	-484.9	1,304.3	0.00	0.00	0.00
8,300.0	89.99	180.00	6,820.0	-1,373.7	-484.9	1,404.0	0.00	0.00	0.00

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Well:	Chesnut 28R-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,400.0	89.99	180.00	6,820.0	-1,473.7	-484.9	1,503.8	0.00	0.00	0.00
8,500.0	89.99	180.00	6,820.1	-1,573.7	-484.9	1,603.6	0.00	0.00	0.00
8,600.0	89.99	180.00	6,820.1	-1,673.7	-484.9	1,703.3	0.00	0.00	0.00
8,700.0	89.99	180.00	6,820.1	-1,773.7	-484.9	1,803.1	0.00	0.00	0.00
8,800.0	89.99	180.00	6,820.1	-1,873.7	-484.9	1,902.8	0.00	0.00	0.00
8,900.0	89.99	180.00	6,820.1	-1,973.7	-484.9	2,002.6	0.00	0.00	0.00
9,000.0	89.99	180.00	6,820.1	-2,073.7	-484.9	2,102.4	0.00	0.00	0.00
9,100.0	89.99	180.00	6,820.2	-2,173.7	-484.9	2,202.1	0.00	0.00	0.00
9,200.0	89.99	180.00	6,820.2	-2,273.7	-484.9	2,301.9	0.00	0.00	0.00
9,300.0	89.99	180.00	6,820.2	-2,373.7	-484.9	2,401.6	0.00	0.00	0.00
9,400.0	89.99	180.00	6,820.2	-2,473.7	-484.9	2,501.4	0.00	0.00	0.00
9,500.0	89.99	180.00	6,820.2	-2,573.7	-484.9	2,601.2	0.00	0.00	0.00
9,600.0	89.99	180.00	6,820.2	-2,673.7	-484.9	2,700.9	0.00	0.00	0.00
9,700.0	89.99	180.00	6,820.3	-2,773.7	-484.9	2,800.7	0.00	0.00	0.00
9,800.0	89.99	180.00	6,820.3	-2,873.7	-484.9	2,900.4	0.00	0.00	0.00
9,900.0	89.99	180.00	6,820.3	-2,973.7	-484.9	3,000.2	0.00	0.00	0.00
10,000.0	89.99	180.00	6,820.3	-3,073.7	-484.9	3,100.0	0.00	0.00	0.00
10,100.0	89.99	180.00	6,820.3	-3,173.7	-484.9	3,199.7	0.00	0.00	0.00
10,200.0	89.99	180.00	6,820.4	-3,273.7	-484.9	3,299.5	0.00	0.00	0.00
10,300.0	89.99	180.00	6,820.4	-3,373.7	-484.9	3,399.2	0.00	0.00	0.00
10,400.0	89.99	180.00	6,820.4	-3,473.7	-484.9	3,499.0	0.00	0.00	0.00
10,500.0	89.99	180.00	6,820.4	-3,573.7	-484.9	3,598.8	0.00	0.00	0.00
10,600.0	89.99	180.00	6,820.4	-3,673.7	-484.9	3,698.5	0.00	0.00	0.00
10,700.0	89.99	180.00	6,820.4	-3,773.7	-484.9	3,798.3	0.00	0.00	0.00
10,800.0	89.99	180.00	6,820.5	-3,873.7	-484.9	3,898.0	0.00	0.00	0.00
10,900.0	89.99	180.00	6,820.5	-3,973.7	-484.9	3,997.8	0.00	0.00	0.00
11,000.0	89.99	180.00	6,820.5	-4,073.7	-484.9	4,097.6	0.00	0.00	0.00
11,100.0	89.99	180.00	6,820.5	-4,173.7	-484.9	4,197.3	0.00	0.00	0.00
11,200.0	89.99	180.00	6,820.5	-4,273.7	-484.9	4,297.1	0.00	0.00	0.00
11,300.0	89.99	180.00	6,820.5	-4,373.7	-484.9	4,396.8	0.00	0.00	0.00
11,400.0	89.99	180.00	6,820.6	-4,473.7	-484.9	4,496.6	0.00	0.00	0.00
11,500.0	89.99	180.00	6,820.6	-4,573.7	-484.9	4,596.4	0.00	0.00	0.00
11,600.0	89.99	180.00	6,820.6	-4,673.7	-484.9	4,696.1	0.00	0.00	0.00
11,700.0	89.99	180.00	6,820.6	-4,773.7	-484.9	4,795.9	0.00	0.00	0.00
11,800.0	89.99	180.00	6,820.6	-4,873.7	-484.9	4,895.6	0.00	0.00	0.00
11,900.0	89.99	180.00	6,820.6	-4,973.7	-484.9	4,995.4	0.00	0.00	0.00
12,000.0	89.99	180.00	6,820.7	-5,073.7	-484.9	5,095.2	0.00	0.00	0.00
12,100.0	89.99	180.00	6,820.7	-5,173.7	-484.9	5,194.9	0.00	0.00	0.00
12,200.0	89.99	180.00	6,820.7	-5,273.7	-484.9	5,294.7	0.00	0.00	0.00
12,300.0	89.99	180.00	6,820.7	-5,373.7	-484.9	5,394.4	0.00	0.00	0.00
12,400.0	89.99	180.00	6,820.7	-5,473.7	-484.9	5,494.2	0.00	0.00	0.00
12,500.0	89.99	180.00	6,820.8	-5,573.7	-484.9	5,593.9	0.00	0.00	0.00
12,600.0	89.99	180.00	6,820.8	-5,673.7	-484.9	5,693.7	0.00	0.00	0.00
12,700.0	89.99	180.00	6,820.8	-5,773.7	-484.9	5,793.5	0.00	0.00	0.00
12,800.0	89.99	180.00	6,820.8	-5,873.7	-484.9	5,893.2	0.00	0.00	0.00
12,900.0	89.99	180.00	6,820.8	-5,973.7	-484.9	5,993.0	0.00	0.00	0.00
13,000.0	89.99	180.00	6,820.8	-6,073.7	-484.9	6,092.7	0.00	0.00	0.00
13,100.0	89.99	180.00	6,820.9	-6,173.7	-484.9	6,192.5	0.00	0.00	0.00
13,200.0	89.99	180.00	6,820.9	-6,273.7	-484.9	6,292.3	0.00	0.00	0.00
13,300.0	89.99	180.00	6,820.9	-6,373.7	-484.9	6,392.0	0.00	0.00	0.00
13,400.0	89.99	180.00	6,820.9	-6,473.7	-484.9	6,491.8	0.00	0.00	0.00
13,500.0	89.99	180.00	6,820.9	-6,573.7	-484.9	6,591.5	0.00	0.00	0.00
13,600.0	89.99	180.00	6,820.9	-6,673.7	-484.9	6,691.3	0.00	0.00	0.00

Database:	landmark	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-14)		

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)
13,700.0	89.99	180.00	6,821.0	-6,773.7	-484.9	6,791.1	0.00	0.00	0.00
13,800.0	89.99	180.00	6,821.0	-6,873.7	-484.9	6,890.8	0.00	0.00	0.00
13,900.0	89.99	180.00	6,821.0	-6,973.7	-484.9	6,990.6	0.00	0.00	0.00
13,906.4	89.99	180.00	6,821.0	-6,980.2	-484.9	6,997.0	0.00	0.00	0.00
BHL 2134'FNL, 1790'FEL, SEC. 33									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,214.7	6,805.9	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,577.0	3,550.0	PARKMAN			
4,200.1	4,165.0	SUSSEX			
5,217.9	5,170.0	SHANNON			
6,454.8	6,393.0	SHARON SPRINGS			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,200.0	1,200.0	0.0	0.0	KOP #1
6,094.7	6,046.1	395.0	-484.9	KOP #2
7,408.5	6,819.9	-482.2	-484.9	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T5N-R64W
Chesnut 28M-HZ Pad Sec.28-T5N-R64W
Chesnut 28R-443

Wellbore #1
Plan #2 (4-30-14)

Anticollision Report

01 May, 2014

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**Offset TVD Reference:**	Offset Datum

Reference Plan #2 (4-30-14)

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	13,906.4	Plan #2 (4-30-14) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Chesnut 28M-HZ Pad Sec.28-T5N-R64W						
Chesnut 28M-203 - Wellbore #1 - Plan #2 (4-30-14)	200.0	200.0	89.8	89.1	133.116	CC, ES
Chesnut 28M-203 - Wellbore #1 - Plan #2 (4-30-14)	13,906.4	13,859.5	818.3	549.8	3.048	SF
Chesnut 28M-323 - Wellbore #1 - Plan #2 (4-30-14)	1,000.0	1,000.0	31.2	26.9	7.309	CC, ES
Chesnut 28M-323 - Wellbore #1 - Plan #2 (4-30-14)	13,906.4	13,857.9	290.7	36.4	1.143	Level 2, SF
Chesnut 28M-423 - Wellbore #1 - Plan #2 (4-30-14)	400.0	400.0	60.5	58.9	38.440	CC, ES
Chesnut 28M-423 - Wellbore #1 - Plan #2 (4-30-14)	13,906.4	13,962.1	529.5	255.9	1.935	SF
Chesnut 28R-203 - Wellbore #1 - Plan #1 (1-29-14)	1,200.0	1,200.0	32.1	26.9	6.211	CC, ES
Chesnut 28R-203 - Wellbore #1 - Plan #1 (1-29-14)	13,906.4	13,727.9	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	8,441.8	6,810.0	214.5	44.0	1.258	Level 3, CC, ES, SF
Hall 28-4 (Exist) - Wellbore #1 - Wellbore #1	6,994.6	6,736.8	122.5	-27.8	0.815	Level 1, CC, ES, SF
Hall 28-5 (Exist) - Wellbore #1 - Wellbore #1	7,614.8	6,804.9	301.0	143.6	1.912	CC, ES, SF
Hendricks 33-2 (Exist) - Wellbore #1 - Wellbore #1	12,372.7	6,829.7	119.8	-124.0	0.491	Level 1, CC, ES, SF
Hendricks 33-4 (Exist) - Wellbore #1 - Wellbore #1	13,768.0	6,852.0	200.7	-70.2	0.741	Level 1, CC, ES, SF

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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-43.07	65.6	-61.3	89.8				
100.0	100.0	100.0	100.0	0.1	0.1	-43.07	65.6	-61.3	89.8	89.5	0.22	399.349	
200.0	200.0	200.0	200.0	0.3	0.3	-43.07	65.6	-61.3	89.8	89.1	0.67	133.116	CC, ES
300.0	300.0	297.4	297.3	0.6	0.6	-43.62	66.0	-62.9	91.2	90.1	1.11	82.082	
400.0	400.0	394.5	394.4	0.8	0.8	-45.16	67.3	-67.7	95.6	94.0	1.56	61.447	
500.0	500.0	491.2	490.7	1.0	1.0	-47.42	69.4	-75.6	103.0	101.0	2.02	50.921	
600.0	600.0	587.2	586.1	1.2	1.3	-50.07	72.4	-86.5	113.7	111.2	2.52	45.088	
700.0	700.0	682.4	680.1	1.5	1.6	-52.82	76.2	-100.4	127.6	124.5	3.05	41.793	
800.0	800.0	776.5	772.6	1.7	2.0	-55.43	80.7	-117.1	144.8	141.2	3.62	40.005	
900.0	900.0	869.4	863.3	1.9	2.4	-57.80	85.9	-136.4	165.4	161.1	4.22	39.160	
1,000.0	1,000.0	961.9	953.0	2.1	2.8	-59.89	91.9	-158.5	189.1	184.3	4.86	38.928	
1,100.0	1,100.0	1,058.6	1,046.4	2.4	3.3	-61.66	98.4	-182.4	214.1	208.5	5.53	38.686	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,200.0	1,200.0	1,155.2	1,139.8	2.6	3.8	-63.06	104.9	-206.3	239.2	232.9	6.21	38.510	
1,300.0	1,300.0	1,252.3	1,233.6	2.8	4.3	-13.34	111.4	-230.4	262.7	256.9	5.83	45.076	
1,400.0	1,399.8	1,350.0	1,328.1	3.0	4.8	-14.44	117.9	-254.6	283.1	276.8	6.30	44.924	
1,500.0	1,499.5	1,448.3	1,423.1	3.3	5.4	-15.57	124.5	-278.9	300.2	293.5	6.78	44.305	
1,600.0	1,598.7	1,547.1	1,518.6	3.5	5.9	-16.76	131.2	-303.4	314.2	307.0	7.25	43.326	
1,700.0	1,697.5	1,646.2	1,614.4	3.8	6.5	-18.06	137.8	-328.0	325.3	317.5	7.73	42.049	
1,800.0	1,796.2	1,745.4	1,710.2	4.1	7.0	-19.35	144.5	-352.5	335.8	327.6	8.23	40.784	
1,900.0	1,894.9	1,844.6	1,806.1	4.4	7.5	-20.56	151.1	-377.1	346.5	337.8	8.74	39.647	
2,000.0	1,993.6	1,943.7	1,901.9	4.7	8.1	-21.70	157.8	-401.6	357.4	348.1	9.25	38.619	
2,100.0	2,092.3	2,042.9	1,997.8	5.0	8.6	-22.77	164.4	-426.2	368.4	358.6	9.78	37.682	
2,200.0	2,191.0	2,142.1	2,093.6	5.3	9.2	-23.77	171.1	-450.8	379.5	369.2	10.31	36.825	
2,300.0	2,289.7	2,241.2	2,189.4	5.7	9.7	-24.72	177.8	-475.3	390.7	379.9	10.84	36.036	
2,400.0	2,388.4	2,340.4	2,285.3	6.0	10.3	-25.62	184.4	-499.9	402.1	390.7	11.39	35.307	
2,500.0	2,487.1	2,439.5	2,381.1	6.3	10.8	-26.47	191.1	-524.5	413.5	401.5	11.94	34.631	
2,600.0	2,585.8	2,538.7	2,477.0	6.7	11.3	-27.27	197.7	-549.0	425.0	412.5	12.50	34.003	
2,700.0	2,684.5	2,637.9	2,572.8	7.0	11.9	-28.03	204.4	-573.6	436.6	423.5	13.06	33.418	
2,800.0	2,783.2	2,737.0	2,668.7	7.4	12.4	-28.76	211.0	-598.1	448.2	434.6	13.64	32.871	
2,900.0	2,881.9	2,836.2	2,764.5	7.7	13.0	-29.44	217.7	-622.7	460.0	445.7	14.21	32.358	
3,000.0	2,980.6	2,935.4	2,860.3	8.1	13.5	-30.09	224.3	-647.3	471.7	456.9	14.80	31.877	
3,100.0	3,079.3	3,034.5	2,956.2	8.5	14.1	-30.71	231.0	-671.8	483.6	468.2	15.39	31.426	
3,200.0	3,178.0	3,133.7	3,052.0	8.8	14.6	-31.30	237.7	-696.4	495.5	479.5	15.98	31.000	
3,300.0	3,276.7	3,232.9	3,147.9	9.2	15.2	-31.86	244.3	-721.0	507.4	490.8	16.58	30.599	
3,400.0	3,375.4	3,332.0	3,243.7	9.5	15.7	-32.40	251.0	-745.5	519.4	502.2	17.19	30.221	
3,500.0	3,474.0	3,431.2	3,339.6	9.9	16.3	-32.91	257.6	-770.1	531.4	513.6	17.80	29.863	
3,600.0	3,572.7	3,530.4	3,435.4	10.3	16.8	-33.40	264.3	-794.6	543.5	525.1	18.41	29.524	
3,700.0	3,671.4	3,629.5	3,531.2	10.6	17.4	-33.87	270.9	-819.2	555.6	536.6	19.03	29.203	
3,800.0	3,770.1	3,728.7	3,627.1	11.0	17.9	-34.31	277.6	-843.8	567.8	548.1	19.65	28.898	
3,900.0	3,868.8	3,827.8	3,722.9	11.4	18.5	-34.74	284.2	-868.3	579.9	559.7	20.27	28.609	
4,000.0	3,967.5	3,927.0	3,818.8	11.8	19.0	-35.15	290.9	-892.9	592.1	571.2	20.90	28.334	
4,100.0	4,066.2	4,026.2	3,914.6	12.1	19.6	-35.55	297.6	-917.5	604.4	582.9	21.53	28.072	
4,200.0	4,164.9	4,125.3	4,010.5	12.5	20.1	-35.93	304.2	-942.0	616.6	594.5	22.16	27.822	
4,300.0	4,263.6	4,224.5	4,106.3	12.9	20.7	-36.29	310.9	-966.6	628.9	606.1	22.80	27.584	
4,400.0	4,362.3	4,323.7	4,202.1	13.2	21.2	-36.64	317.5	-991.1	641.3	617.8	23.44	27.358	
4,500.0	4,461.0	4,422.8	4,298.0	13.6	21.7	-36.98	324.2	-1,015.7	653.6	629.5	24.08	27.141	
4,600.0	4,559.7	4,522.0	4,393.8	14.0	22.3	-37.30	330.8	-1,040.3	665.9	641.2	24.73	26.933	
4,700.0	4,658.4	4,621.2	4,489.7	14.3	22.8	-37.62	337.5	-1,064.8	678.3	653.0	25.37	26.735	
4,800.0	4,757.1	4,720.3	4,585.5	14.7	23.4	-37.92	344.1	-1,089.4	690.7	664.7	26.02	26.545	
4,900.0	4,855.8	4,819.5	4,681.4	15.1	23.9	-38.21	350.8	-1,114.0	703.1	676.5	26.67	26.363	
5,000.0	4,954.5	4,918.6	4,777.2	15.5	24.5	-38.49	357.5	-1,138.5	715.6	688.3	27.32	26.189	
5,100.0	5,053.2	5,017.8	4,873.0	15.8	25.0	-38.78	364.1	-1,163.1	728.1	700.1	27.97	26.027	
5,200.0	5,152.2	5,118.1	4,970.0	16.1	25.6	-39.12	370.8	-1,187.9	742.2	713.7	28.53	26.014	
5,300.0	5,251.7	5,250.4	5,098.6	16.3	26.1	-39.34	378.9	-1,217.6	756.7	727.7	29.08	26.021	
5,400.0	5,351.4	5,383.8	5,229.7	16.5	26.6	-39.44	385.4	-1,241.7	769.5	740.0	29.53	26.056	
5,500.0	5,451.4	5,518.3	5,362.8	16.7	26.9	-39.42	390.4	-1,260.0	780.4	750.6	29.89	26.108	
5,600.0	5,551.4	5,653.6	5,497.6	16.8	27.2	-90.09	393.7	-1,272.3	789.2	759.0	30.22	26.114	
5,700.0	5,651.4	5,789.9	5,633.6	17.0	27.4	-89.97	395.4	-1,278.5	793.8	763.2	30.60	25.943	
5,800.0	5,751.4	5,907.6	5,751.4	17.1	27.5	-89.96	395.6	-1,279.2	794.3	763.3	30.95	25.664	
5,900.0	5,851.4	6,007.6	5,851.4	17.3	27.6	-89.96	395.6	-1,279.2	794.3	763.0	31.29	25.386	
5,963.6	5,914.9	6,071.2	5,914.9	17.4	27.7	-89.98	395.2	-1,279.2	794.3	762.8	31.50	25.213	
6,000.0	5,951.4	6,107.6	5,951.2	17.5	27.7	-90.12	393.3	-1,279.2	794.3	762.7	31.64	25.103	
6,100.0	6,051.4	6,205.5	6,048.1	17.6	27.7	88.88	379.5	-1,279.2	794.5	762.4	32.09	24.760	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,200.0	6,151.0	6,300.0	6,139.2	17.7	27.7	87.51	354.6	-1,279.2	795.1	762.6	32.47	24.487	
6,300.0	6,248.9	6,393.3	6,225.4	17.7	27.7	86.19	319.1	-1,279.2	796.1	763.4	32.69	24.353	
6,400.0	6,343.3	6,484.2	6,304.8	17.7	27.7	84.94	274.7	-1,279.2	797.5	764.7	32.76	24.342	
6,500.0	6,432.6	6,573.6	6,377.0	17.6	27.6	83.77	222.2	-1,279.2	799.1	766.4	32.72	24.423	
6,600.0	6,515.3	6,661.5	6,441.6	17.5	27.6	82.71	162.6	-1,279.2	800.9	768.3	32.63	24.547	
6,700.0	6,590.0	6,750.0	6,499.3	17.3	27.5	81.76	95.6	-1,279.2	802.7	770.1	32.56	24.650	
6,800.0	6,655.4	6,833.9	6,546.5	17.2	27.5	80.95	26.2	-1,279.2	804.4	771.8	32.63	24.654	
6,900.0	6,710.3	6,918.8	6,586.2	17.1	27.6	80.27	-48.7	-1,279.2	806.0	773.0	32.94	24.470	
7,000.0	6,753.9	7,000.0	6,616.2	17.1	27.6	79.75	-124.1	-1,279.2	807.3	773.7	33.54	24.071	
7,100.0	6,785.4	7,086.8	6,639.2	17.2	27.8	79.35	-207.7	-1,279.2	808.2	773.7	34.57	23.383	
7,200.0	6,804.2	7,170.2	6,652.3	17.7	28.0	79.12	-290.1	-1,279.2	808.8	772.9	35.98	22.482	
7,300.0	6,814.7	7,253.4	6,656.3	18.5	28.2	78.77	-373.1	-1,279.2	809.9	772.3	37.60	21.541	
7,400.0	6,819.8	7,353.2	6,655.8	19.5	28.7	78.33	-472.9	-1,279.2	811.1	771.3	39.79	20.382	
7,500.0	6,819.9	7,453.2	6,655.3	20.7	29.3	78.29	-572.9	-1,279.2	811.2	769.1	42.08	19.279	
7,600.0	6,819.9	7,553.2	6,654.8	21.9	30.0	78.26	-672.9	-1,279.2	811.3	766.7	44.55	18.209	
7,700.0	6,819.9	7,653.2	6,654.3	23.3	30.9	78.22	-772.9	-1,279.2	811.4	764.2	47.20	17.190	
7,800.0	6,819.9	7,753.2	6,653.8	24.7	31.8	78.19	-872.9	-1,279.2	811.5	761.5	49.99	16.231	
7,900.0	6,820.0	7,853.2	6,653.4	26.2	32.9	78.15	-972.9	-1,279.2	811.6	758.7	52.91	15.339	
8,000.0	6,820.0	7,953.2	6,652.9	27.7	34.1	78.12	-1,072.9	-1,279.2	811.7	755.8	55.92	14.514	
8,100.0	6,820.0	8,053.2	6,652.4	29.3	35.4	78.08	-1,172.9	-1,279.2	811.8	752.8	59.03	13.753	
8,200.0	6,820.0	8,153.2	6,651.9	30.9	36.7	78.05	-1,272.9	-1,279.2	811.9	749.7	62.20	13.053	
8,300.0	6,820.0	8,253.2	6,651.4	32.5	38.1	78.01	-1,372.9	-1,279.2	812.0	746.6	65.44	12.408	
8,400.0	6,820.0	8,353.2	6,650.9	34.2	39.5	77.98	-1,472.9	-1,279.2	812.1	743.4	68.73	11.816	
8,500.0	6,820.1	8,453.2	6,650.4	35.9	41.0	77.94	-1,572.9	-1,279.2	812.2	740.1	72.07	11.270	
8,600.0	6,820.1	8,553.2	6,649.9	37.6	42.6	77.91	-1,672.9	-1,279.2	812.3	736.9	75.44	10.767	
8,700.0	6,820.1	8,653.2	6,649.4	39.3	44.1	77.87	-1,772.9	-1,279.2	812.4	733.6	78.85	10.303	
8,800.0	6,820.1	8,753.2	6,649.0	41.1	45.7	77.84	-1,872.9	-1,279.2	812.5	730.2	82.30	9.873	
8,900.0	6,820.1	8,853.2	6,648.5	42.8	47.3	77.81	-1,972.9	-1,279.2	812.6	726.9	85.76	9.475	
9,000.0	6,820.1	8,953.2	6,648.0	44.6	49.0	77.77	-2,072.9	-1,279.2	812.7	723.5	89.25	9.106	
9,100.0	6,820.2	9,053.2	6,647.5	46.4	50.6	77.74	-2,172.9	-1,279.2	812.8	720.1	92.76	8.762	
9,200.0	6,820.2	9,153.2	6,647.0	48.2	52.3	77.70	-2,272.9	-1,279.2	812.9	716.7	96.29	8.442	
9,300.0	6,820.2	9,253.2	6,646.5	50.0	54.0	77.67	-2,372.9	-1,279.2	813.1	713.2	99.84	8.144	
9,400.0	6,820.2	9,353.2	6,646.0	51.8	55.7	77.63	-2,472.9	-1,279.2	813.2	709.8	103.40	7.864	
9,500.0	6,820.2	9,453.2	6,645.5	53.7	57.5	77.60	-2,572.9	-1,279.2	813.3	706.3	106.97	7.603	
9,600.0	6,820.2	9,553.2	6,645.0	55.5	59.2	77.56	-2,672.9	-1,279.2	813.4	702.8	110.55	7.357	
9,700.0	6,820.3	9,653.2	6,644.6	57.3	61.0	77.53	-2,772.9	-1,279.2	813.5	699.3	114.15	7.127	
9,800.0	6,820.3	9,753.2	6,644.1	59.2	62.7	77.49	-2,872.9	-1,279.2	813.6	695.8	117.75	6.910	
9,900.0	6,820.3	9,853.2	6,643.6	61.0	64.5	77.46	-2,972.9	-1,279.2	813.7	692.3	121.36	6.705	
10,000.0	6,820.3	9,953.2	6,643.1	62.8	66.3	77.42	-3,072.9	-1,279.2	813.8	688.8	124.98	6.512	
10,100.0	6,820.3	10,053.2	6,642.6	64.7	68.1	77.39	-3,172.9	-1,279.2	813.9	685.3	128.60	6.329	
10,200.0	6,820.4	10,153.2	6,642.1	66.6	69.9	77.35	-3,272.9	-1,279.2	814.0	681.8	132.24	6.156	
10,300.0	6,820.4	10,253.2	6,641.6	68.4	71.7	77.32	-3,372.9	-1,279.2	814.1	678.3	135.87	5.992	
10,400.0	6,820.4	10,353.2	6,641.1	70.3	73.5	77.28	-3,472.9	-1,279.2	814.3	674.7	139.52	5.836	
10,500.0	6,820.4	10,453.2	6,640.7	72.2	75.3	77.25	-3,572.9	-1,279.2	814.4	671.2	143.16	5.688	
10,600.0	6,820.4	10,553.2	6,640.2	74.0	77.1	77.21	-3,672.9	-1,279.2	814.5	667.7	146.81	5.548	
10,700.0	6,820.4	10,653.1	6,639.7	75.9	78.9	77.18	-3,772.9	-1,279.2	814.6	664.1	150.47	5.414	
10,800.0	6,820.5	10,753.1	6,639.2	77.8	80.8	77.14	-3,872.9	-1,279.2	814.7	660.6	154.13	5.286	
10,900.0	6,820.5	10,853.1	6,638.7	79.6	82.6	77.11	-3,972.9	-1,279.2	814.8	657.0	157.79	5.164	
11,000.0	6,820.5	10,953.1	6,638.2	81.5	84.4	77.07	-4,072.8	-1,279.2	814.9	653.5	161.45	5.047	
11,100.0	6,820.5	11,053.1	6,637.7	83.4	86.3	77.04	-4,172.8	-1,279.2	815.0	649.9	165.12	4.936	
11,200.0	6,820.5	11,153.1	6,637.2	85.3	88.1	77.01	-4,272.8	-1,279.2	815.2	646.4	168.79	4.829	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,300.0	6,820.5	11,253.1	6,636.7	87.2	90.0	76.97	-4,372.8	-1,279.2	815.3	642.8	172.46	4.727	
11,400.0	6,820.6	11,353.1	6,636.3	89.1	91.8	76.94	-4,472.8	-1,279.2	815.4	639.2	176.14	4.629	
11,500.0	6,820.6	11,453.1	6,635.8	90.9	93.7	76.90	-4,572.8	-1,279.2	815.5	635.7	179.81	4.535	
11,600.0	6,820.6	11,553.1	6,635.3	92.8	95.5	76.87	-4,672.8	-1,279.2	815.6	632.1	183.49	4.445	
11,700.0	6,820.6	11,653.1	6,634.8	94.7	97.4	76.83	-4,772.8	-1,279.2	815.7	628.6	187.17	4.358	
11,800.0	6,820.6	11,753.1	6,634.3	96.6	99.2	76.80	-4,872.8	-1,279.2	815.8	625.0	190.85	4.275	
11,900.0	6,820.6	11,853.1	6,633.8	98.5	101.1	76.76	-4,972.8	-1,279.2	816.0	621.4	194.53	4.194	
12,000.0	6,820.7	11,953.1	6,633.3	100.4	103.0	76.73	-5,072.8	-1,279.2	816.1	617.9	198.21	4.117	
12,100.0	6,820.7	12,053.1	6,632.8	102.3	104.8	76.69	-5,172.8	-1,279.2	816.2	614.3	201.90	4.043	
12,200.0	6,820.7	12,153.1	6,632.3	104.2	106.7	76.66	-5,272.8	-1,279.2	816.3	610.7	205.58	3.971	
12,300.0	6,820.7	12,253.1	6,631.9	106.1	108.6	76.62	-5,372.8	-1,279.2	816.4	607.2	209.27	3.901	
12,400.0	6,820.7	12,353.1	6,631.4	108.0	110.5	76.59	-5,472.8	-1,279.2	816.5	603.6	212.95	3.834	
12,500.0	6,820.8	12,453.1	6,630.9	109.9	112.3	76.56	-5,572.8	-1,279.2	816.7	600.0	216.64	3.770	
12,600.0	6,820.8	12,553.1	6,630.4	111.8	114.2	76.52	-5,672.8	-1,279.2	816.8	596.5	220.32	3.707	
12,700.0	6,820.8	12,653.1	6,629.9	113.7	116.1	76.49	-5,772.8	-1,279.2	816.9	592.9	224.01	3.647	
12,800.0	6,820.8	12,753.1	6,629.4	115.6	118.0	76.45	-5,872.8	-1,279.2	817.0	589.3	227.70	3.588	
12,900.0	6,820.8	12,853.1	6,628.9	117.5	119.8	76.42	-5,972.8	-1,279.2	817.1	585.7	231.39	3.531	
13,000.0	6,820.8	12,953.1	6,628.4	119.4	121.7	76.38	-6,072.8	-1,279.2	817.2	582.2	235.07	3.477	
13,100.0	6,820.9	13,053.1	6,627.9	121.3	123.6	76.35	-6,172.8	-1,279.2	817.4	578.6	238.76	3.423	
13,200.0	6,820.9	13,153.1	6,627.5	123.2	125.5	76.31	-6,272.8	-1,279.2	817.5	575.0	242.45	3.372	
13,300.0	6,820.9	13,253.1	6,627.0	125.1	127.4	76.28	-6,372.8	-1,279.2	817.6	571.5	246.14	3.322	
13,400.0	6,820.9	13,353.1	6,626.5	127.0	129.3	76.24	-6,472.8	-1,279.2	817.7	567.9	249.83	3.273	
13,500.0	6,820.9	13,453.1	6,626.0	128.9	131.1	76.21	-6,572.8	-1,279.2	817.8	564.3	253.52	3.226	
13,600.0	6,820.9	13,553.1	6,625.5	130.8	133.0	76.18	-6,672.8	-1,279.2	818.0	560.8	257.20	3.180	
13,700.0	6,821.0	13,653.1	6,625.0	132.7	134.9	76.14	-6,772.8	-1,279.2	818.1	557.2	260.89	3.136	
13,800.0	6,821.0	13,753.1	6,624.5	134.6	136.8	76.11	-6,872.8	-1,279.2	818.2	553.6	264.58	3.092	
13,900.0	6,821.0	13,853.1	6,624.0	136.5	138.7	76.07	-6,972.8	-1,279.2	818.3	550.1	268.27	3.050	
13,906.4	6,821.0	13,859.5	6,624.0	136.6	138.8	76.07	-6,979.2	-1,279.2	818.3	549.8	268.50	3.048	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-45.57	21.9	-22.3	31.2				
100.0	100.0	100.0	100.0	0.1	0.1	-45.57	21.9	-22.3	31.2	31.0	0.22	138.870	
200.0	200.0	200.0	200.0	0.3	0.3	-45.57	21.9	-22.3	31.2	30.5	0.67	46.290	
300.0	300.0	300.0	300.0	0.6	0.6	-45.57	21.9	-22.3	31.2	30.1	1.12	27.774	
400.0	400.0	400.0	400.0	0.8	0.8	-45.57	21.9	-22.3	31.2	29.6	1.57	19.839	
500.0	500.0	500.0	500.0	1.0	1.0	-45.57	21.9	-22.3	31.2	29.2	2.02	15.430	
600.0	600.0	600.0	600.0	1.2	1.2	-45.57	21.9	-22.3	31.2	28.7	2.47	12.625	
700.0	700.0	700.0	700.0	1.5	1.5	-45.57	21.9	-22.3	31.2	28.3	2.92	10.682	
800.0	800.0	800.0	800.0	1.7	1.7	-45.57	21.9	-22.3	31.2	27.8	3.37	9.258	
900.0	900.0	900.0	900.0	1.9	1.9	-45.57	21.9	-22.3	31.2	27.4	3.82	8.169	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-45.57	21.9	-22.3	31.2	26.9	4.27	7.309	CC, ES
1,100.0	1,100.0	1,098.9	1,098.9	2.4	2.4	-46.46	22.6	-23.8	32.9	28.2	4.71	6.976	
1,200.0	1,200.0	1,197.6	1,197.5	2.6	2.6	-48.64	25.0	-28.4	37.9	32.7	5.15	7.351	
1,300.0	1,300.0	1,296.0	1,295.5	2.8	2.8	-0.41	28.8	-35.9	44.5	38.9	5.58	7.978	
1,400.0	1,399.8	1,394.2	1,392.9	3.0	3.0	-3.12	34.2	-46.4	51.1	45.1	6.00	8.519	
1,500.0	1,499.5	1,492.0	1,489.6	3.3	3.3	-5.89	41.1	-59.8	57.8	51.3	6.42	8.992	
1,600.0	1,598.7	1,590.7	1,586.6	3.5	3.6	-8.71	49.4	-76.0	64.1	57.2	6.85	9.361	
1,700.0	1,697.5	1,690.6	1,684.7	3.8	3.9	-11.59	58.0	-92.7	67.8	60.6	7.28	9.314	
1,800.0	1,796.2	1,790.5	1,782.8	4.1	4.3	-14.30	66.6	-109.5	71.1	63.3	7.75	9.174	
1,900.0	1,894.9	1,890.4	1,880.9	4.4	4.6	-16.77	75.2	-126.3	74.5	66.2	8.22	9.055	
2,000.0	1,993.6	1,990.3	1,979.0	4.7	5.0	-19.02	83.8	-143.0	78.0	69.2	8.71	8.951	
2,100.0	2,092.3	2,090.2	2,077.1	5.0	5.4	-21.08	92.4	-159.8	81.6	72.4	9.21	8.858	
2,200.0	2,191.0	2,190.1	2,175.2	5.3	5.8	-22.96	101.0	-176.6	85.3	75.6	9.72	8.772	
2,300.0	2,289.7	2,290.0	2,273.3	5.7	6.2	-24.68	109.6	-193.4	89.1	78.8	10.25	8.693	
2,400.0	2,388.4	2,389.9	2,371.4	6.0	6.6	-26.26	118.2	-210.1	92.9	82.2	10.78	8.619	
2,500.0	2,487.1	2,489.8	2,469.5	6.3	7.0	-27.71	126.8	-226.9	96.9	85.5	11.33	8.549	
2,600.0	2,585.8	2,589.6	2,567.6	6.7	7.4	-29.05	135.4	-243.7	100.9	89.0	11.89	8.482	
2,700.0	2,684.5	2,689.5	2,665.7	7.0	7.8	-30.29	144.0	-260.4	104.9	92.5	12.46	8.419	
2,800.0	2,783.2	2,789.4	2,763.8	7.4	8.2	-31.43	152.6	-277.2	109.0	96.0	13.04	8.358	
2,900.0	2,881.9	2,889.3	2,861.9	7.7	8.6	-32.49	161.2	-294.0	113.1	99.5	13.63	8.301	
3,000.0	2,980.6	2,989.2	2,960.0	8.1	9.0	-33.48	169.8	-310.8	117.3	103.1	14.22	8.246	
3,100.0	3,079.3	3,089.1	3,058.1	8.5	9.4	-34.39	178.4	-327.5	121.5	106.7	14.83	8.193	
3,200.0	3,178.0	3,189.0	3,156.2	8.8	9.8	-35.25	187.0	-344.3	125.7	110.3	15.44	8.143	
3,300.0	3,276.7	3,288.9	3,254.3	9.2	10.2	-36.05	195.6	-361.1	130.0	113.9	16.05	8.095	
3,400.0	3,375.4	3,388.8	3,352.4	9.5	10.6	-36.80	204.2	-377.9	134.2	117.6	16.68	8.050	
3,500.0	3,474.0	3,488.7	3,450.5	9.9	11.1	-37.50	212.8	-394.6	138.5	121.2	17.30	8.007	
3,600.0	3,572.7	3,588.6	3,548.6	10.3	11.5	-38.17	221.4	-411.4	142.8	124.9	17.93	7.965	
3,700.0	3,671.4	3,688.5	3,646.7	10.6	11.9	-38.79	230.0	-428.2	147.2	128.6	18.57	7.926	
3,800.0	3,770.1	3,788.4	3,744.8	11.0	12.3	-39.37	238.6	-444.9	151.5	132.3	19.21	7.888	
3,900.0	3,868.8	3,888.3	3,842.9	11.4	12.7	-39.93	247.2	-461.7	155.9	136.0	19.85	7.853	
4,000.0	3,967.5	3,988.2	3,941.0	11.8	13.1	-40.45	255.8	-478.5	160.3	139.8	20.50	7.818	
4,100.0	4,066.2	4,088.0	4,039.1	12.1	13.6	-40.95	264.4	-495.3	164.7	143.5	21.15	7.786	
4,200.0	4,164.9	4,187.9	4,137.2	12.5	14.0	-41.42	273.0	-512.0	169.1	147.3	21.80	7.755	
4,300.0	4,263.6	4,287.8	4,235.3	12.9	14.4	-41.86	281.6	-528.8	173.5	151.0	22.46	7.725	
4,400.0	4,362.3	4,387.7	4,333.4	13.2	14.8	-42.29	290.2	-545.6	177.9	154.8	23.11	7.697	
4,500.0	4,461.0	4,487.6	4,431.5	13.6	15.2	-42.69	298.8	-562.3	182.3	158.6	23.77	7.670	
4,600.0	4,559.7	4,587.5	4,529.6	14.0	15.7	-43.07	307.4	-579.1	186.8	162.3	24.44	7.644	
4,700.0	4,658.4	4,687.4	4,627.7	14.3	16.1	-43.44	316.0	-595.9	191.2	166.1	25.10	7.619	
4,800.0	4,757.1	4,787.3	4,725.8	14.7	16.5	-43.79	324.6	-612.7	195.7	169.9	25.77	7.595	
4,900.0	4,855.8	4,887.2	4,823.9	15.1	16.9	-44.12	333.2	-629.4	200.1	173.7	26.43	7.572	
5,000.0	4,954.5	4,987.1	4,922.0	15.5	17.3	-44.44	341.8	-646.2	204.6	177.5	27.10	7.550	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,053.2	5,087.0	5,020.1	15.8	17.8	-44.75	350.4	-663.0	209.1	181.4	27.77	7.531	
5,200.0	5,152.2	5,186.8	5,118.1	16.1	18.2	-44.71	359.0	-679.7	215.2	186.9	28.30	7.603	
5,300.0	5,251.7	5,286.4	5,215.9	16.3	18.6	-44.08	367.6	-696.5	223.8	195.1	28.71	7.794	
5,400.0	5,351.4	5,389.8	5,317.5	16.5	19.0	-42.96	376.2	-713.3	234.4	205.4	28.98	8.088	
5,500.0	5,451.4	5,496.8	5,423.4	16.7	19.3	-41.74	383.5	-727.6	244.8	215.7	29.16	8.397	
5,600.0	5,551.4	5,604.4	5,530.3	16.8	19.6	-91.35	389.0	-738.4	254.4	225.1	29.31	8.680	
5,700.0	5,651.4	5,712.8	5,638.3	17.0	19.8	-90.49	392.8	-745.6	261.1	231.5	29.55	8.835	
5,800.0	5,751.4	5,821.6	5,747.0	17.1	19.9	-90.08	394.6	-749.3	264.4	234.5	29.85	8.858	
5,900.0	5,851.4	5,925.9	5,851.4	17.3	20.1	-90.03	394.9	-749.7	264.8	234.6	30.19	8.769	
6,000.0	5,951.4	6,025.9	5,951.4	17.5	20.2	-90.03	394.9	-749.7	264.8	234.2	30.56	8.666	
6,035.4	5,986.8	6,061.3	5,986.8	17.5	20.3	89.95	394.7	-749.7	264.8	234.1	30.68	8.631	
6,100.0	6,051.4	6,125.6	6,050.9	17.6	20.3	89.10	390.8	-749.7	264.8	233.8	31.00	8.541	
6,200.0	6,151.0	6,224.0	6,147.9	17.7	20.3	87.07	374.5	-749.7	265.1	233.7	31.47	8.424	
6,300.0	6,248.9	6,321.3	6,240.9	17.7	20.3	85.10	346.3	-749.7	265.8	234.0	31.74	8.373	
6,400.0	6,343.3	6,417.5	6,328.6	17.7	20.3	83.24	306.9	-749.7	266.7	234.8	31.81	8.383	
6,500.0	6,432.6	6,512.7	6,409.9	17.6	20.2	81.50	257.4	-749.7	267.7	236.0	31.71	8.443	
6,600.0	6,515.3	6,607.1	6,483.8	17.5	20.1	79.92	198.8	-749.7	269.0	237.4	31.51	8.535	
6,700.0	6,590.0	6,700.0	6,548.9	17.3	20.0	78.53	132.6	-749.7	270.2	238.9	31.30	8.632	
6,800.0	6,655.4	6,793.5	6,605.9	17.2	19.9	77.31	58.5	-749.7	271.4	240.2	31.20	8.699	
6,900.0	6,710.3	6,885.9	6,652.8	17.1	19.9	76.31	-21.0	-749.7	272.5	241.2	31.33	8.699	
7,000.0	6,753.9	6,977.8	6,689.7	17.1	19.9	75.52	-105.1	-749.7	273.5	241.7	31.82	8.595	
7,100.0	6,785.4	7,069.4	6,716.1	17.2	20.1	74.96	-192.7	-749.7	274.2	241.5	32.73	8.378	
7,200.0	6,804.2	7,160.8	6,731.9	17.7	20.4	74.63	-282.7	-749.7	274.6	240.5	34.09	8.054	
7,300.0	6,814.7	7,251.7	6,736.7	18.5	20.9	73.67	-373.5	-749.7	276.0	240.3	35.69	7.735	
7,400.0	6,819.8	7,351.6	6,736.2	19.5	21.6	72.47	-473.3	-749.7	277.7	239.9	37.76	7.355	
7,500.0	6,819.9	7,451.6	6,735.7	20.7	22.6	72.36	-573.3	-749.7	277.9	237.9	39.99	6.948	
7,600.0	6,819.9	7,551.6	6,735.1	21.9	23.7	72.25	-673.3	-749.7	278.0	235.6	42.42	6.554	
7,700.0	6,819.9	7,651.5	6,734.6	23.3	24.9	72.14	-773.3	-749.7	278.2	233.2	45.02	6.180	
7,800.0	6,819.9	7,751.5	6,734.0	24.7	26.3	72.03	-873.3	-749.7	278.4	230.6	47.75	5.829	
7,900.0	6,820.0	7,851.5	6,733.5	26.2	27.7	71.92	-973.3	-749.7	278.5	227.9	50.60	5.504	
8,000.0	6,820.0	7,951.5	6,733.0	27.7	29.1	71.81	-1,073.3	-749.7	278.7	225.2	53.55	5.205	
8,100.0	6,820.0	8,051.5	6,732.4	29.3	30.6	71.70	-1,173.3	-749.7	278.9	222.3	56.58	4.929	
8,200.0	6,820.0	8,151.5	6,731.9	30.9	32.2	71.59	-1,273.3	-749.7	279.1	219.4	59.67	4.676	
8,300.0	6,820.0	8,251.5	6,731.3	32.5	33.8	71.48	-1,373.3	-749.7	279.2	216.4	62.83	4.445	
8,400.0	6,820.0	8,351.5	6,730.8	34.2	35.4	71.37	-1,473.3	-749.7	279.4	213.4	66.03	4.232	
8,500.0	6,820.1	8,451.5	6,730.3	35.9	37.1	71.27	-1,573.3	-749.7	279.6	210.3	69.27	4.036	
8,600.0	6,820.1	8,551.5	6,729.7	37.6	38.7	71.16	-1,673.3	-749.7	279.8	207.2	72.54	3.857	
8,700.0	6,820.1	8,651.5	6,729.2	39.3	40.4	71.05	-1,773.2	-749.7	280.0	204.1	75.85	3.691	
8,800.0	6,820.1	8,751.5	6,728.6	41.1	42.2	70.94	-1,873.2	-749.7	280.1	201.0	79.18	3.538	
8,900.0	6,820.1	8,851.5	6,728.1	42.8	43.9	70.83	-1,973.2	-749.7	280.3	197.8	82.53	3.396	
9,000.0	6,820.1	8,951.5	6,727.5	44.6	45.7	70.73	-2,073.2	-749.7	280.5	194.6	85.90	3.265	
9,100.0	6,820.2	9,051.5	6,727.0	46.4	47.4	70.62	-2,173.2	-749.7	280.7	191.4	89.29	3.144	
9,200.0	6,820.2	9,151.5	6,726.5	48.2	49.2	70.51	-2,273.2	-749.7	280.9	188.2	92.69	3.030	
9,300.0	6,820.2	9,251.5	6,725.9	50.0	51.0	70.40	-2,373.2	-749.7	281.1	185.0	96.10	2.925	
9,400.0	6,820.2	9,351.5	6,725.4	51.8	52.8	70.30	-2,473.2	-749.7	281.2	181.7	99.52	2.826	
9,500.0	6,820.2	9,451.5	6,724.8	53.7	54.6	70.19	-2,573.2	-749.7	281.4	178.5	102.95	2.734	
9,600.0	6,820.2	9,551.5	6,724.3	55.5	56.4	70.08	-2,673.2	-749.7	281.6	175.2	106.39	2.647	
9,700.0	6,820.3	9,651.5	6,723.8	57.3	58.2	69.97	-2,773.2	-749.7	281.8	172.0	109.83	2.566	
9,800.0	6,820.3	9,751.5	6,723.2	59.2	60.0	69.87	-2,873.2	-749.7	282.0	168.7	113.28	2.489	
9,900.0	6,820.3	9,851.5	6,722.7	61.0	61.8	69.76	-2,973.2	-749.7	282.2	165.5	116.74	2.417	
10,000.0	6,820.3	9,951.5	6,722.1	62.8	63.7	69.66	-3,073.2	-749.7	282.4	162.2	120.19	2.350	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,820.3	10,051.5	6,721.6	64.7	65.5	69.55	-3,173.2	-749.7	282.6	158.9	123.65	2.285	
10,200.0	6,820.4	10,151.5	6,721.1	66.6	67.4	69.44	-3,273.2	-749.7	282.8	155.7	127.11	2.225	
10,300.0	6,820.4	10,251.5	6,720.5	68.4	69.2	69.34	-3,373.2	-749.7	283.0	152.4	130.58	2.167	
10,400.0	6,820.4	10,351.5	6,720.0	70.3	71.1	69.23	-3,473.2	-749.7	283.2	149.1	134.04	2.113	
10,500.0	6,820.4	10,451.5	6,719.4	72.2	72.9	69.13	-3,573.2	-749.7	283.4	145.9	137.50	2.061	
10,600.0	6,820.4	10,551.5	6,718.9	74.0	74.8	69.02	-3,673.2	-749.7	283.6	142.6	140.97	2.012	
10,700.0	6,820.4	10,651.5	6,718.4	75.9	76.6	68.91	-3,773.2	-749.7	283.8	139.3	144.43	1.965	
10,800.0	6,820.5	10,751.5	6,717.8	77.8	78.5	68.81	-3,873.2	-749.7	284.0	136.1	147.90	1.920	
10,900.0	6,820.5	10,851.5	6,717.3	79.6	80.4	68.70	-3,973.2	-749.7	284.2	132.8	151.36	1.877	
11,000.0	6,820.5	10,951.5	6,716.7	81.5	82.2	68.60	-4,073.2	-749.7	284.4	129.6	154.82	1.837	
11,100.0	6,820.5	11,051.5	6,716.2	83.4	84.1	68.49	-4,173.2	-749.7	284.6	126.3	158.28	1.798	
11,200.0	6,820.5	11,151.5	6,715.6	85.3	86.0	68.39	-4,273.2	-749.7	284.8	123.0	161.74	1.761	
11,300.0	6,820.5	11,251.5	6,715.1	87.2	87.9	68.29	-4,373.2	-749.7	285.0	119.8	165.20	1.725	
11,400.0	6,820.6	11,351.5	6,714.6	89.1	89.7	68.18	-4,473.2	-749.7	285.2	116.5	168.66	1.691	
11,500.0	6,820.6	11,451.5	6,714.0	90.9	91.6	68.08	-4,573.2	-749.7	285.4	113.3	172.11	1.658	
11,600.0	6,820.6	11,551.5	6,713.5	92.8	93.5	67.97	-4,673.2	-749.7	285.6	110.1	175.56	1.627	
11,700.0	6,820.6	11,651.5	6,712.9	94.7	95.4	67.87	-4,773.2	-749.7	285.8	106.8	179.01	1.597	
11,800.0	6,820.6	11,751.5	6,712.4	96.6	97.3	67.77	-4,873.2	-749.7	286.0	103.6	182.46	1.568	
11,900.0	6,820.6	11,851.5	6,711.9	98.5	99.1	67.66	-4,973.2	-749.7	286.2	100.3	185.90	1.540	
12,000.0	6,820.7	11,951.5	6,711.3	100.4	101.0	67.56	-5,073.2	-749.7	286.5	97.1	189.34	1.513	
12,100.0	6,820.7	12,051.5	6,710.8	102.3	102.9	67.46	-5,173.1	-749.7	286.7	93.9	192.78	1.487	Level 3
12,200.0	6,820.7	12,151.5	6,710.2	104.2	104.8	67.35	-5,273.1	-749.7	286.9	90.7	196.21	1.462	Level 3
12,300.0	6,820.7	12,251.5	6,709.7	106.1	106.7	67.25	-5,373.1	-749.7	287.1	87.5	199.64	1.438	Level 3
12,400.0	6,820.7	12,351.5	6,709.2	108.0	108.6	67.15	-5,473.1	-749.7	287.3	84.2	203.07	1.415	Level 3
12,500.0	6,820.8	12,451.5	6,708.6	109.9	110.5	67.04	-5,573.1	-749.7	287.5	81.0	206.50	1.392	Level 3
12,600.0	6,820.8	12,551.5	6,708.1	111.8	112.4	66.94	-5,673.1	-749.7	287.8	77.8	209.92	1.371	Level 3
12,700.0	6,820.8	12,651.5	6,707.5	113.7	114.3	66.84	-5,773.1	-749.7	288.0	74.6	213.33	1.350	Level 3
12,800.0	6,820.8	12,751.5	6,707.0	115.6	116.2	66.74	-5,873.1	-749.7	288.2	71.4	216.75	1.330	Level 3
12,900.0	6,820.8	12,851.5	6,706.4	117.5	118.1	66.64	-5,973.1	-749.7	288.4	68.3	220.16	1.310	Level 3
13,000.0	6,820.8	12,951.5	6,705.9	119.4	120.0	66.53	-6,073.1	-749.7	288.6	65.1	223.56	1.291	Level 3
13,100.0	6,820.9	13,051.5	6,705.4	121.3	121.9	66.43	-6,173.1	-749.7	288.9	61.9	226.97	1.273	Level 3
13,200.0	6,820.9	13,151.5	6,704.8	123.2	123.8	66.33	-6,273.1	-749.7	289.1	58.7	230.36	1.255	Level 3
13,300.0	6,820.9	13,251.5	6,704.3	125.1	125.7	66.23	-6,373.1	-749.7	289.3	55.5	233.76	1.238	Level 2
13,400.0	6,820.9	13,351.5	6,703.7	127.0	127.6	66.13	-6,473.1	-749.7	289.5	52.4	237.15	1.221	Level 2
13,500.0	6,820.9	13,451.5	6,703.2	128.9	129.5	66.03	-6,573.1	-749.7	289.8	49.2	240.53	1.205	Level 2
13,600.0	6,820.9	13,551.5	6,702.7	130.8	131.4	65.93	-6,673.1	-749.7	290.0	46.1	243.92	1.189	Level 2
13,700.0	6,821.0	13,651.5	6,702.1	132.7	133.3	65.83	-6,773.1	-749.7	290.2	42.9	247.29	1.174	Level 2
13,800.0	6,821.0	13,751.5	6,701.6	134.6	135.2	65.73	-6,873.1	-749.7	290.4	39.8	250.67	1.159	Level 2
13,900.0	6,821.0	13,851.5	6,701.0	136.5	137.1	65.62	-6,973.1	-749.7	290.7	36.6	254.04	1.144	Level 2
13,906.4	6,821.0	13,857.9	6,701.0	136.6	137.2	65.62	-6,979.5	-749.7	290.7	36.4	254.25	1.143	Level 2, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-43.71	43.7	-41.8	60.5				
100.0	100.0	100.0	100.0	0.1	0.1	-43.71	43.7	-41.8	60.5	60.3	0.22	269.080	
200.0	200.0	200.0	200.0	0.3	0.3	-43.71	43.7	-41.8	60.5	59.8	0.67	89.693	
300.0	300.0	300.0	300.0	0.6	0.6	-43.71	43.7	-41.8	60.5	59.4	1.12	53.816	
400.0	400.0	400.0	400.0	0.8	0.8	-43.71	43.7	-41.8	60.5	58.9	1.57	38.440	CC, ES
500.0	500.0	498.1	498.1	1.0	1.0	-44.40	44.3	-43.4	62.0	60.0	2.01	30.830	
600.0	600.0	596.0	595.8	1.2	1.2	-46.28	46.0	-48.1	66.7	64.2	2.45	27.189	
700.0	700.0	693.4	692.9	1.5	1.5	-48.87	48.8	-55.9	74.6	71.7	2.91	25.614	
800.0	800.0	790.1	788.9	1.7	1.7	-51.68	52.7	-66.7	85.8	82.4	3.39	25.272	
900.0	900.0	886.0	883.7	1.9	2.0	-54.35	57.7	-80.5	100.4	96.5	3.91	25.693	
1,000.0	1,000.0	980.8	976.8	2.1	2.3	-56.70	63.7	-97.0	118.3	113.8	4.45	26.590	
1,100.0	1,100.0	1,078.0	1,072.0	2.4	2.7	-58.67	70.5	-115.8	138.4	133.4	5.03	27.543	
1,200.0	1,200.0	1,175.9	1,167.7	2.6	3.1	-60.14	77.4	-134.8	158.7	153.1	5.62	28.272	
1,300.0	1,300.0	1,274.0	1,263.7	2.8	3.5	-10.49	84.3	-153.9	177.4	171.8	5.67	31.304	
1,400.0	1,399.8	1,372.8	1,360.3	3.0	4.0	-11.65	91.2	-173.0	192.8	186.7	6.12	31.492	
1,500.0	1,499.5	1,471.9	1,457.4	3.3	4.4	-12.85	98.2	-192.3	204.9	198.4	6.58	31.157	
1,600.0	1,598.7	1,571.4	1,554.7	3.5	4.8	-14.14	105.2	-211.6	213.8	206.7	7.04	30.380	
1,700.0	1,697.5	1,671.1	1,652.2	3.8	5.3	-15.58	112.2	-230.9	219.6	212.1	7.50	29.266	
1,800.0	1,796.2	1,770.8	1,749.8	4.1	5.7	-17.01	119.2	-250.3	224.8	216.8	7.99	28.149	
1,900.0	1,894.9	1,870.5	1,847.4	4.4	6.2	-18.38	126.2	-269.7	230.2	221.8	8.48	27.152	
2,000.0	1,993.6	1,970.2	1,944.9	4.7	6.6	-19.68	133.2	-289.0	235.8	226.8	8.98	26.256	
2,100.0	2,092.3	2,069.9	2,042.5	5.0	7.1	-20.92	140.2	-308.4	241.4	231.9	9.49	25.446	
2,200.0	2,191.0	2,169.6	2,140.0	5.3	7.5	-22.11	147.2	-327.7	247.2	237.2	10.00	24.708	
2,300.0	2,289.7	2,269.3	2,237.6	5.7	8.0	-23.24	154.2	-347.1	253.0	242.5	10.53	24.034	
2,400.0	2,388.4	2,369.0	2,335.2	6.0	8.4	-24.32	161.2	-366.5	259.0	247.9	11.06	23.415	
2,500.0	2,487.1	2,468.7	2,432.7	6.3	8.9	-25.35	168.2	-385.8	265.0	253.4	11.60	22.845	
2,600.0	2,585.8	2,568.4	2,530.3	6.7	9.3	-26.33	175.2	-405.2	271.1	259.0	12.15	22.317	
2,700.0	2,684.5	2,668.1	2,627.8	7.0	9.8	-27.27	182.2	-424.5	277.3	264.6	12.71	21.828	
2,800.0	2,783.2	2,767.9	2,725.4	7.4	10.2	-28.17	189.2	-443.9	283.6	270.3	13.27	21.373	
2,900.0	2,881.9	2,867.6	2,822.9	7.7	10.7	-29.04	196.2	-463.2	289.9	276.1	13.84	20.950	
3,000.0	2,980.6	2,967.3	2,920.5	8.1	11.1	-29.86	203.2	-482.6	296.3	281.9	14.42	20.554	
3,100.0	3,079.3	3,067.0	3,018.1	8.5	11.6	-30.65	210.2	-502.0	302.8	287.8	15.00	20.184	
3,200.0	3,178.0	3,166.7	3,115.6	8.8	12.0	-31.40	217.2	-521.3	309.3	293.7	15.59	19.837	
3,300.0	3,276.7	3,266.4	3,213.2	9.2	12.5	-32.13	224.3	-540.7	315.9	299.7	16.19	19.511	
3,400.0	3,375.4	3,366.1	3,310.7	9.5	12.9	-32.82	231.3	-560.0	322.5	305.7	16.79	19.204	
3,500.0	3,474.0	3,465.8	3,408.3	9.9	13.4	-33.49	238.3	-579.4	329.1	311.7	17.40	18.916	
3,600.0	3,572.7	3,565.5	3,505.8	10.3	13.9	-34.13	245.3	-598.8	335.8	317.8	18.01	18.644	
3,700.0	3,671.4	3,665.2	3,603.4	10.6	14.3	-34.75	252.3	-618.1	342.6	323.9	18.63	18.387	
3,800.0	3,770.1	3,764.9	3,701.0	11.0	14.8	-35.34	259.3	-637.5	349.3	330.1	19.25	18.144	
3,900.0	3,868.8	3,864.6	3,798.5	11.4	15.2	-35.91	266.3	-656.8	356.1	336.3	19.88	17.914	
4,000.0	3,967.5	3,964.3	3,896.1	11.8	15.7	-36.45	273.3	-676.2	363.0	342.5	20.51	17.696	
4,100.0	4,066.2	4,064.0	3,993.6	12.1	16.1	-36.98	280.3	-695.5	369.9	348.7	21.15	17.490	
4,200.0	4,164.9	4,163.7	4,091.2	12.5	16.6	-37.49	287.3	-714.9	376.8	355.0	21.79	17.294	
4,300.0	4,263.6	4,263.4	4,188.8	12.9	17.0	-37.98	294.3	-734.3	383.7	361.3	22.43	17.107	
4,400.0	4,362.3	4,363.2	4,286.3	13.2	17.5	-38.45	301.3	-753.6	390.7	367.6	23.08	16.930	
4,500.0	4,461.0	4,462.9	4,383.9	13.6	18.0	-38.91	308.3	-773.0	397.7	373.9	23.72	16.762	
4,600.0	4,559.7	4,562.6	4,481.4	14.0	18.4	-39.35	315.3	-792.3	404.7	380.3	24.38	16.601	
4,700.0	4,658.4	4,662.3	4,579.0	14.3	18.9	-39.77	322.3	-811.7	411.7	386.7	25.03	16.447	
4,800.0	4,757.1	4,762.0	4,676.5	14.7	19.3	-40.18	329.3	-831.1	418.8	393.1	25.69	16.301	
4,900.0	4,855.8	4,861.7	4,774.1	15.1	19.8	-40.58	336.3	-850.4	425.8	399.5	26.35	16.161	
5,000.0	4,954.5	4,961.4	4,871.7	15.5	20.2	-40.97	343.3	-869.8	432.9	405.9	27.01	16.027	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,053.2	5,061.1	4,969.2	15.8	20.7	-41.35	350.3	-889.1	440.1	412.4	27.67	15.903	
5,200.0	5,152.2	5,160.7	5,066.7	16.1	21.1	-41.63	357.3	-908.5	448.9	420.7	28.23	15.898	
5,300.0	5,251.7	5,260.0	5,163.9	16.3	21.6	-41.66	364.3	-927.7	460.3	431.6	28.72	16.029	
5,400.0	5,351.4	5,359.0	5,260.7	16.5	22.0	-41.44	371.3	-947.0	474.3	445.2	29.12	16.289	
5,500.0	5,451.4	5,466.8	5,366.3	16.7	22.5	-40.97	378.7	-967.3	490.5	461.0	29.44	16.660	
5,600.0	5,551.4	5,584.6	5,482.5	16.8	22.9	-91.11	385.3	-985.7	505.6	475.9	29.71	17.019	
5,700.0	5,651.4	5,703.8	5,600.7	17.0	23.2	-90.51	390.4	-999.7	517.4	487.3	30.02	17.232	
5,800.0	5,751.4	5,824.0	5,720.4	17.1	23.4	-90.13	393.8	-1,009.2	525.2	494.9	30.35	17.303	
5,900.0	5,851.4	5,944.8	5,841.1	17.3	23.6	-89.94	395.5	-1,013.9	529.1	498.4	30.70	17.234	
6,000.0	5,951.4	6,055.0	5,951.4	17.5	23.7	-89.92	395.7	-1,014.5	529.6	498.5	31.06	17.053	
6,100.0	6,051.4	6,155.0	6,051.4	17.6	23.8	90.08	395.7	-1,014.5	529.6	498.2	31.40	16.864	
6,200.0	6,151.0	6,255.1	6,151.1	17.7	23.9	90.08	388.5	-1,014.5	529.6	498.0	31.62	16.751	
6,300.0	6,248.9	6,355.2	6,249.1	17.7	23.9	90.07	368.3	-1,014.5	529.6	497.9	31.66	16.729	
6,400.0	6,343.3	6,455.3	6,343.6	17.7	23.9	90.07	335.4	-1,014.5	529.6	498.0	31.57	16.776	
6,500.0	6,432.6	6,555.4	6,432.9	17.6	23.8	90.07	290.5	-1,014.5	529.6	498.2	31.41	16.862	
6,600.0	6,515.3	6,655.5	6,515.7	17.5	23.8	90.06	234.4	-1,014.5	529.6	498.3	31.25	16.949	
6,700.0	6,590.0	6,755.5	6,590.4	17.3	23.7	90.05	167.9	-1,014.5	529.6	498.4	31.17	16.988	
6,800.0	6,655.4	6,855.6	6,655.7	17.2	23.6	90.05	92.2	-1,014.5	529.6	498.3	31.28	16.930	
6,900.0	6,710.3	6,955.6	6,710.6	17.1	23.6	90.04	8.6	-1,014.5	529.6	497.9	31.65	16.732	
7,000.0	6,753.9	7,055.7	6,754.1	17.1	23.6	90.03	-81.4	-1,014.5	529.6	497.2	32.35	16.369	
7,100.0	6,785.4	7,155.7	6,785.5	17.2	23.8	90.02	-176.3	-1,014.5	529.6	496.2	33.42	15.849	
7,200.0	6,804.2	7,255.7	6,804.3	17.7	24.0	90.01	-274.5	-1,014.5	529.6	494.7	34.84	15.202	
7,300.0	6,814.7	7,355.7	6,814.8	18.5	24.4	90.01	-373.9	-1,014.5	529.6	493.0	36.59	14.472	
7,400.0	6,819.8	7,455.7	6,819.8	19.5	25.0	90.00	-473.7	-1,014.5	529.6	490.9	38.64	13.704	
7,500.0	6,819.9	7,555.7	6,819.9	20.7	25.8	90.00	-573.7	-1,014.5	529.6	488.6	40.94	12.935	
7,600.0	6,819.9	7,655.7	6,819.9	21.9	26.7	90.00	-673.7	-1,014.5	529.6	486.1	43.45	12.188	
7,700.0	6,819.9	7,755.7	6,819.9	23.3	27.7	90.00	-773.7	-1,014.5	529.6	483.4	46.14	11.477	
7,800.0	6,819.9	7,855.7	6,819.9	24.7	28.9	90.00	-873.7	-1,014.5	529.6	480.6	48.99	10.810	
7,900.0	6,820.0	7,955.7	6,820.0	26.2	30.1	90.00	-973.7	-1,014.5	529.6	477.6	51.97	10.191	
8,000.0	6,820.0	8,055.7	6,820.0	27.7	31.5	90.00	-1,073.7	-1,014.5	529.6	474.5	55.05	9.620	
8,100.0	6,820.0	8,155.7	6,820.0	29.3	32.9	90.00	-1,173.7	-1,014.5	529.6	471.4	58.22	9.096	
8,200.0	6,820.0	8,255.7	6,820.0	30.9	34.3	90.00	-1,273.7	-1,014.5	529.6	468.1	61.47	8.615	
8,300.0	6,820.0	8,355.7	6,820.0	32.5	35.8	90.00	-1,373.7	-1,014.5	529.6	464.8	64.79	8.174	
8,400.0	6,820.0	8,455.7	6,820.0	34.2	37.4	90.00	-1,473.7	-1,014.5	529.6	461.4	68.16	7.770	
8,500.0	6,820.1	8,555.7	6,820.1	35.9	39.0	90.00	-1,573.7	-1,014.5	529.6	458.0	71.57	7.399	
8,600.0	6,820.1	8,655.7	6,820.1	37.6	40.6	90.00	-1,673.7	-1,014.5	529.6	454.5	75.03	7.058	
8,700.0	6,820.1	8,755.7	6,820.1	39.3	42.2	90.00	-1,773.7	-1,014.5	529.6	451.0	78.53	6.744	
8,800.0	6,820.1	8,855.7	6,820.1	41.1	43.9	90.00	-1,873.7	-1,014.5	529.6	447.5	82.05	6.454	
8,900.0	6,820.1	8,955.7	6,820.1	42.8	45.5	90.00	-1,973.7	-1,014.5	529.6	444.0	85.60	6.186	
9,000.0	6,820.1	9,055.7	6,820.1	44.6	47.2	90.00	-2,073.7	-1,014.5	529.6	440.4	89.18	5.938	
9,100.0	6,820.2	9,155.7	6,820.2	46.4	49.0	90.00	-2,173.7	-1,014.5	529.6	436.8	92.78	5.708	
9,200.0	6,820.2	9,255.7	6,820.2	48.2	50.7	90.00	-2,273.7	-1,014.5	529.6	433.2	96.39	5.494	
9,300.0	6,820.2	9,355.7	6,820.2	50.0	52.4	90.00	-2,373.7	-1,014.5	529.6	429.5	100.03	5.294	
9,400.0	6,820.2	9,455.7	6,820.2	51.8	54.2	90.00	-2,473.7	-1,014.5	529.6	425.9	103.68	5.108	
9,500.0	6,820.2	9,555.7	6,820.2	53.7	56.0	90.00	-2,573.7	-1,014.5	529.6	422.2	107.34	4.934	
9,600.0	6,820.2	9,655.7	6,820.2	55.5	57.7	90.00	-2,673.7	-1,014.5	529.6	418.5	111.01	4.770	
9,700.0	6,820.3	9,755.7	6,820.3	57.3	59.5	90.00	-2,773.7	-1,014.5	529.6	414.9	114.70	4.617	
9,800.0	6,820.3	9,855.7	6,820.3	59.2	61.3	90.00	-2,873.7	-1,014.5	529.6	411.2	118.39	4.473	
9,900.0	6,820.3	9,955.7	6,820.3	61.0	63.1	90.00	-2,973.7	-1,014.5	529.6	407.5	122.10	4.337	
10,000.0	6,820.3	10,055.7	6,820.3	62.8	64.9	90.00	-3,073.7	-1,014.5	529.6	403.7	125.81	4.209	
10,100.0	6,820.3	10,155.7	6,820.3	64.7	66.8	90.00	-3,173.7	-1,014.5	529.6	400.0	129.53	4.088	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,200.0	6,820.4	10,255.7	6,820.4	66.6	68.6	90.00	-3,273.7	-1,014.5	529.6	396.3	133.26	3.974	
10,300.0	6,820.4	10,355.7	6,820.4	68.4	70.4	90.00	-3,373.7	-1,014.5	529.6	392.6	136.99	3.866	
10,400.0	6,820.4	10,455.7	6,820.4	70.3	72.2	90.00	-3,473.7	-1,014.5	529.6	388.8	140.73	3.763	
10,500.0	6,820.4	10,555.7	6,820.4	72.2	74.1	90.00	-3,573.7	-1,014.5	529.6	385.1	144.47	3.665	
10,600.0	6,820.4	10,655.7	6,820.4	74.0	75.9	90.00	-3,673.7	-1,014.5	529.5	381.3	148.22	3.573	
10,700.0	6,820.4	10,755.7	6,820.4	75.9	77.7	90.00	-3,773.7	-1,014.5	529.5	377.6	151.98	3.484	
10,800.0	6,820.5	10,855.7	6,820.5	77.8	79.6	90.00	-3,873.7	-1,014.5	529.5	373.8	155.73	3.400	
10,900.0	6,820.5	10,955.7	6,820.5	79.6	81.4	90.00	-3,973.7	-1,014.5	529.5	370.0	159.50	3.320	
11,000.0	6,820.5	11,055.7	6,820.5	81.5	83.3	90.00	-4,073.7	-1,014.5	529.5	366.3	163.26	3.244	
11,100.0	6,820.5	11,155.7	6,820.5	83.4	85.2	90.00	-4,173.7	-1,014.5	529.5	362.5	167.03	3.170	
11,200.0	6,820.5	11,255.7	6,820.5	85.3	87.0	90.00	-4,273.7	-1,014.5	529.5	358.7	170.81	3.100	
11,300.0	6,820.5	11,355.7	6,820.5	87.2	88.9	90.00	-4,373.7	-1,014.5	529.5	355.0	174.58	3.033	
11,400.0	6,820.6	11,455.7	6,820.6	89.1	90.7	90.00	-4,473.7	-1,014.5	529.5	351.2	178.36	2.969	
11,500.0	6,820.6	11,555.7	6,820.6	90.9	92.6	90.00	-4,573.7	-1,014.5	529.5	347.4	182.14	2.907	
11,600.0	6,820.6	11,655.7	6,820.6	92.8	94.5	90.00	-4,673.7	-1,014.5	529.5	343.6	185.92	2.848	
11,700.0	6,820.6	11,755.7	6,820.6	94.7	96.3	90.00	-4,773.7	-1,014.5	529.5	339.8	189.71	2.791	
11,800.0	6,820.6	11,855.7	6,820.6	96.6	98.2	90.00	-4,873.7	-1,014.5	529.5	336.0	193.50	2.737	
11,900.0	6,820.6	11,955.7	6,820.6	98.5	100.1	90.00	-4,973.7	-1,014.5	529.5	332.2	197.29	2.684	
12,000.0	6,820.7	12,055.7	6,820.7	100.4	102.0	90.00	-5,073.7	-1,014.5	529.5	328.5	201.08	2.633	
12,100.0	6,820.7	12,155.7	6,820.7	102.3	103.8	90.00	-5,173.7	-1,014.5	529.5	324.7	204.88	2.585	
12,200.0	6,820.7	12,255.7	6,820.7	104.2	105.7	90.00	-5,273.7	-1,014.5	529.5	320.9	208.67	2.538	
12,300.0	6,820.7	12,355.7	6,820.7	106.1	107.6	90.00	-5,373.7	-1,014.5	529.5	317.1	212.47	2.492	
12,400.0	6,820.7	12,455.7	6,820.7	108.0	109.5	90.00	-5,473.7	-1,014.5	529.5	313.3	216.27	2.448	
12,500.0	6,820.8	12,555.7	6,820.8	109.9	111.4	90.00	-5,573.7	-1,014.5	529.5	309.5	220.07	2.406	
12,600.0	6,820.8	12,655.7	6,820.8	111.8	113.3	90.00	-5,673.7	-1,014.5	529.5	305.7	223.87	2.365	
12,700.0	6,820.8	12,755.7	6,820.8	113.7	115.1	90.00	-5,773.7	-1,014.5	529.5	301.9	227.67	2.326	
12,800.0	6,820.8	12,855.7	6,820.8	115.6	117.0	90.00	-5,873.7	-1,014.5	529.5	298.0	231.48	2.288	
12,900.0	6,820.8	12,955.7	6,820.8	117.5	118.9	90.00	-5,973.7	-1,014.5	529.5	294.2	235.28	2.251	
13,000.0	6,820.8	13,055.7	6,820.8	119.4	120.8	90.00	-6,073.7	-1,014.5	529.5	290.4	239.09	2.215	
13,100.0	6,820.9	13,155.7	6,820.9	121.3	122.7	90.00	-6,173.7	-1,014.5	529.5	286.6	242.90	2.180	
13,200.0	6,820.9	13,255.7	6,820.9	123.2	124.6	90.00	-6,273.7	-1,014.5	529.5	282.8	246.71	2.146	
13,300.0	6,820.9	13,355.7	6,820.9	125.1	126.5	90.00	-6,373.7	-1,014.5	529.5	279.0	250.52	2.114	
13,400.0	6,820.9	13,455.7	6,820.9	127.0	128.4	90.00	-6,473.7	-1,014.5	529.5	275.2	254.33	2.082	
13,500.0	6,820.9	13,555.7	6,820.9	128.9	130.3	90.00	-6,573.7	-1,014.5	529.5	271.4	258.14	2.051	
13,600.0	6,820.9	13,655.7	6,820.9	130.8	132.2	90.00	-6,673.7	-1,014.5	529.5	267.6	261.95	2.021	
13,700.0	6,821.0	13,755.7	6,821.0	132.7	134.0	90.00	-6,773.7	-1,014.5	529.5	263.7	265.77	1.992	
13,800.0	6,821.0	13,855.7	6,821.0	134.6	135.9	90.00	-6,873.7	-1,014.5	529.5	259.9	269.58	1.964	
13,900.0	6,821.0	13,955.7	6,821.0	136.5	137.8	90.00	-6,973.7	-1,014.4	529.5	256.1	273.40	1.937	
13,905.1	6,821.0	13,960.9	6,821.0	136.6	137.9	90.00	-6,978.9	-1,014.4	529.5	255.9	273.59	1.935	
13,906.4	6,821.0	13,962.1	6,821.0	136.6	138.0	90.00	-6,980.1	-1,014.4	529.5	255.9	273.64	1.935	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28M-HZ Pad Sec.28-T5N-R64W - Chesnut 28R-203 - Wellbore #1 - Plan #1 (1-29-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	142.60	-25.5	19.5	32.1				
100.0	100.0	100.0	100.0	0.1	0.1	142.60	-25.5	19.5	32.1	31.9	0.22	142.851	
200.0	200.0	200.0	200.0	0.3	0.3	142.60	-25.5	19.5	32.1	31.4	0.67	47.617	
300.0	300.0	300.0	300.0	0.6	0.6	142.60	-25.5	19.5	32.1	31.0	1.12	28.570	
400.0	400.0	400.0	400.0	0.8	0.8	142.60	-25.5	19.5	32.1	30.5	1.57	20.407	
500.0	500.0	500.0	500.0	1.0	1.0	142.60	-25.5	19.5	32.1	30.1	2.02	15.872	
600.0	600.0	600.0	600.0	1.2	1.2	142.60	-25.5	19.5	32.1	29.6	2.47	12.986	
700.0	700.0	700.0	700.0	1.5	1.5	142.60	-25.5	19.5	32.1	29.2	2.92	10.989	
800.0	800.0	800.0	800.0	1.7	1.7	142.60	-25.5	19.5	32.1	28.7	3.37	9.523	
900.0	900.0	900.0	900.0	1.9	1.9	142.60	-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	142.60	-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	142.60	-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	142.60	-25.5	19.5	32.1	26.9	5.17	6.211	CC, ES
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-167.25	-25.5	19.5	33.8	28.2	5.61	6.023	
1,400.0	1,399.8	1,399.8	1,399.8	3.0	3.0	-168.93	-25.5	19.5	38.9	32.9	6.05	6.437	
1,500.0	1,499.5	1,499.5	1,499.5	3.3	3.3	-170.92	-25.5	19.5	47.5	41.0	6.48	7.335	
1,600.0	1,598.7	1,598.7	1,598.7	3.5	3.5	-172.74	-25.5	19.5	59.6	52.7	6.90	8.632	
1,700.0	1,697.5	1,700.0	1,700.0	3.8	3.7	-174.60	-24.0	18.6	73.2	65.9	7.33	9.994	
1,800.0	1,796.2	1,802.0	1,801.9	4.1	3.9	-176.64	-19.3	15.9	84.3	76.5	7.77	10.843	
1,900.0	1,894.9	1,904.7	1,904.1	4.4	4.2	-178.95	-11.5	11.4	92.1	83.8	8.22	11.194	
2,000.0	1,993.6	2,007.5	2,006.1	4.7	4.4	178.31	-0.4	5.1	96.6	87.9	8.68	11.131	
2,100.0	2,092.3	2,107.3	2,104.9	5.0	4.7	175.50	11.7	-1.9	99.9	90.8	9.14	10.931	
2,200.0	2,191.0	2,207.1	2,203.8	5.3	4.9	172.88	23.8	-8.9	103.4	93.8	9.61	10.762	
2,300.0	2,289.7	2,307.0	2,302.6	5.7	5.2	170.44	35.9	-15.9	107.2	97.1	10.09	10.618	
2,400.0	2,388.4	2,406.8	2,401.5	6.0	5.5	168.16	48.0	-22.8	111.1	100.5	10.59	10.492	
2,500.0	2,487.1	2,506.6	2,500.3	6.3	5.8	166.04	60.1	-29.8	115.1	104.1	11.09	10.380	
2,600.0	2,585.8	2,606.4	2,599.2	6.7	6.1	164.07	72.2	-36.8	119.4	107.8	11.61	10.280	
2,700.0	2,684.5	2,706.3	2,698.0	7.0	6.4	162.23	84.3	-43.8	123.7	111.6	12.14	10.189	
2,800.0	2,783.2	2,806.1	2,796.9	7.4	6.7	160.52	96.4	-50.7	128.2	115.5	12.68	10.106	
2,900.0	2,881.9	2,905.9	2,895.7	7.7	7.0	158.93	108.5	-57.7	132.8	119.5	13.24	10.030	
3,000.0	2,980.6	3,005.8	2,994.6	8.1	7.3	157.45	120.6	-64.7	137.4	123.6	13.80	9.959	
3,100.0	3,079.3	3,105.6	3,093.4	8.5	7.6	156.06	132.7	-71.7	142.2	127.8	14.37	9.893	
3,200.0	3,178.0	3,205.4	3,192.3	8.8	7.9	154.76	144.8	-78.6	147.0	132.1	14.95	9.832	
3,300.0	3,276.7	3,305.3	3,291.1	9.2	8.2	153.55	156.9	-85.6	151.9	136.4	15.54	9.775	
3,400.0	3,375.4	3,405.1	3,390.0	9.5	8.5	152.41	169.0	-92.6	156.9	140.7	16.14	9.721	
3,500.0	3,474.0	3,504.9	3,488.8	9.9	8.9	151.34	181.1	-99.6	161.9	145.2	16.74	9.671	
3,600.0	3,572.7	3,604.7	3,587.7	10.3	9.2	150.34	193.2	-106.5	167.0	149.6	17.35	9.624	
3,700.0	3,671.4	3,704.6	3,686.5	10.6	9.5	149.39	205.3	-113.5	172.1	154.1	17.97	9.579	
3,800.0	3,770.1	3,804.4	3,785.3	11.0	9.8	148.50	217.4	-120.5	177.3	158.7	18.59	9.538	
3,900.0	3,868.8	3,904.2	3,884.2	11.4	10.2	147.67	229.5	-127.5	182.5	163.3	19.21	9.498	
4,000.0	3,967.5	4,004.1	3,983.0	11.8	10.5	146.87	241.6	-134.4	187.7	167.9	19.84	9.461	
4,100.0	4,066.2	4,103.9	4,081.9	12.1	10.8	146.13	253.8	-141.4	193.0	172.5	20.48	9.427	
4,200.0	4,164.9	4,203.7	4,180.7	12.5	11.1	145.42	265.9	-148.4	198.3	177.2	21.11	9.394	
4,300.0	4,263.6	4,303.5	4,279.6	12.9	11.5	144.75	278.0	-155.4	203.7	181.9	21.75	9.363	
4,400.0	4,362.3	4,403.4	4,378.4	13.2	11.8	144.11	290.1	-162.3	209.0	186.6	22.40	9.333	
4,500.0	4,461.0	4,503.2	4,477.3	13.6	12.1	143.50	302.2	-169.3	214.4	191.4	23.04	9.306	
4,600.0	4,559.7	4,603.0	4,576.1	14.0	12.5	142.93	314.3	-176.3	219.8	196.2	23.69	9.280	
4,700.0	4,658.4	4,702.9	4,675.0	14.3	12.8	142.38	326.4	-183.3	225.3	200.9	24.34	9.255	
4,800.0	4,757.1	4,802.7	4,773.8	14.7	13.1	141.86	338.5	-190.2	230.7	205.7	24.99	9.231	
4,900.0	4,855.8	4,902.5	4,872.7	15.1	13.5	141.36	350.6	-197.2	236.2	210.6	25.65	9.209	
5,000.0	4,954.5	5,002.4	4,971.5	15.5	13.8	140.89	362.7	-204.2	241.7	215.4	26.31	9.188	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28M-HZ Pad Sec.28-T5N-R64W - Chesnut 28R-203 - Wellbore #1 - Plan #1 (1-29-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,053.2	5,100.0	5,068.3	15.8	14.1	140.62	373.8	-210.6	247.6	220.7	26.91	9.201	
5,200.0	5,152.2	5,194.9	5,162.7	16.1	14.3	140.73	382.0	-215.3	253.4	226.0	27.37	9.259	
5,300.0	5,251.7	5,290.5	5,258.1	16.3	14.5	140.97	387.4	-218.4	258.2	230.4	27.76	9.302	
5,400.0	5,351.4	5,386.0	5,353.6	16.5	14.7	141.34	390.2	-220.0	261.9	233.9	28.07	9.331	
5,500.0	5,451.4	5,483.8	5,451.4	16.7	14.8	141.75	390.5	-220.2	264.4	236.1	28.34	9.331	
5,600.0	5,551.4	5,583.8	5,551.4	16.8	15.0	90.98	390.5	-220.2	264.7	236.1	28.66	9.238	
5,700.0	5,651.4	5,683.8	5,651.4	17.0	15.2	90.98	390.5	-220.2	264.7	235.7	29.03	9.121	
5,800.0	5,751.4	5,783.8	5,751.4	17.1	15.4	90.98	390.5	-220.2	264.7	235.3	29.39	9.006	
5,900.0	5,851.4	5,883.8	5,851.4	17.3	15.5	90.98	390.5	-220.2	264.7	235.0	29.77	8.894	
5,934.3	5,885.7	5,918.1	5,885.7	17.4	15.6	90.98	390.5	-220.2	264.7	234.8	29.89	8.856	
6,000.0	5,951.4	5,983.3	5,950.9	17.5	15.7	91.46	388.2	-220.2	264.8	234.7	30.05	8.811	
6,100.0	6,051.4	6,080.7	6,047.2	17.6	15.7	-85.60	374.6	-220.2	265.5	235.5	29.99	8.854	
6,200.0	6,151.0	6,175.0	6,138.2	17.7	15.7	-81.55	349.9	-220.2	267.7	238.1	29.66	9.027	
6,300.0	6,248.9	6,267.4	6,223.6	17.7	15.6	-77.75	314.9	-220.2	271.1	241.8	29.24	9.272	
6,400.0	6,343.3	6,357.9	6,302.6	17.7	15.5	-74.25	270.9	-220.2	275.3	246.5	28.77	9.569	
6,500.0	6,432.6	6,446.9	6,374.7	17.6	15.4	-71.10	218.9	-220.2	280.1	251.8	28.30	9.897	
6,600.0	6,515.3	6,534.5	6,439.3	17.5	15.3	-68.34	159.8	-220.2	285.2	257.3	27.87	10.232	
6,700.0	6,590.0	6,620.9	6,496.0	17.3	15.2	-65.96	94.7	-220.2	290.2	262.7	27.52	10.545	
6,800.0	6,655.4	6,706.4	6,544.5	17.2	15.1	-63.99	24.3	-220.2	294.8	267.5	27.29	10.802	
6,900.0	6,710.3	6,791.1	6,584.5	17.1	15.1	-62.40	-50.3	-220.2	298.9	271.6	27.27	10.962	
7,000.0	6,753.9	6,875.1	6,615.8	17.1	15.4	-61.20	-128.3	-220.2	302.2	274.7	27.50	10.989	
7,100.0	6,785.4	6,958.8	6,638.3	17.2	15.9	-60.38	-208.8	-220.2	304.5	276.5	28.03	10.866	
7,200.0	6,804.2	7,042.1	6,651.8	17.7	16.5	-59.93	-291.0	-220.2	305.9	277.0	28.90	10.585	
7,300.0	6,814.7	7,125.1	6,656.3	18.5	17.3	-59.21	-373.8	-220.2	308.5	278.4	30.10	10.248	
7,400.0	6,819.8	7,224.2	6,655.8	19.5	18.3	-58.21	-472.9	-220.2	311.4	280.0	31.47	9.896	
7,500.0	6,819.9	7,324.2	6,655.3	20.7	19.5	-58.13	-572.9	-220.2	311.7	278.3	33.43	9.325	
7,600.0	6,819.9	7,424.2	6,654.8	21.9	20.8	-58.05	-672.9	-220.2	312.0	276.4	35.61	8.762	
7,700.0	6,819.9	7,524.2	6,654.3	23.3	22.1	-57.97	-772.9	-220.2	312.2	274.3	37.95	8.228	
7,800.0	6,819.9	7,624.2	6,653.8	24.7	23.6	-57.89	-872.9	-220.2	312.5	272.1	40.43	7.730	
7,900.0	6,820.0	7,724.2	6,653.3	26.2	25.1	-57.81	-972.9	-220.2	312.8	269.8	43.02	7.270	
8,000.0	6,820.0	7,824.2	6,652.9	27.7	26.6	-57.74	-1,072.9	-220.2	313.1	267.4	45.70	6.850	
8,100.0	6,820.0	7,924.2	6,652.4	29.3	28.2	-57.66	-1,172.9	-220.2	313.3	264.9	48.46	6.466	
8,200.0	6,820.0	8,024.2	6,651.9	30.9	29.9	-57.58	-1,272.9	-220.2	313.6	262.3	51.28	6.115	
8,300.0	6,820.0	8,124.2	6,651.4	32.5	31.6	-57.50	-1,372.9	-220.2	313.9	259.7	54.15	5.796	
8,400.0	6,820.0	8,224.2	6,650.9	34.2	33.2	-57.42	-1,472.9	-220.2	314.1	257.1	57.06	5.505	
8,500.0	6,820.1	8,324.2	6,650.4	35.9	35.0	-57.35	-1,572.9	-220.2	314.4	254.4	60.01	5.239	
8,600.0	6,820.1	8,424.2	6,649.9	37.6	36.7	-57.27	-1,672.9	-220.2	314.7	251.7	62.99	4.996	
8,700.0	6,820.1	8,524.2	6,649.4	39.3	38.5	-57.19	-1,772.9	-220.2	315.0	249.0	66.00	4.772	
8,800.0	6,820.1	8,624.2	6,648.9	41.1	40.2	-57.11	-1,872.9	-220.2	315.2	246.2	69.02	4.567	
8,900.0	6,820.1	8,724.2	6,648.5	42.8	42.0	-57.04	-1,972.9	-220.2	315.5	243.4	72.07	4.378	
9,000.0	6,820.1	8,824.2	6,648.0	44.6	43.8	-56.96	-2,072.9	-220.2	315.8	240.7	75.13	4.203	
9,100.0	6,820.2	8,924.2	6,647.5	46.4	45.6	-56.88	-2,172.9	-220.2	316.1	237.9	78.20	4.042	
9,200.0	6,820.2	9,024.2	6,647.0	48.2	47.4	-56.81	-2,272.9	-220.2	316.3	235.1	81.28	3.892	
9,300.0	6,820.2	9,124.2	6,646.5	50.0	49.3	-56.73	-2,372.9	-220.2	316.6	232.2	84.37	3.753	
9,400.0	6,820.2	9,224.2	6,646.0	51.8	51.1	-56.65	-2,472.9	-220.2	316.9	229.4	87.47	3.623	
9,500.0	6,820.2	9,324.2	6,645.5	53.7	52.9	-56.58	-2,572.9	-220.2	317.2	226.6	90.58	3.502	
9,600.0	6,820.2	9,424.2	6,645.0	55.5	54.8	-56.50	-2,672.9	-220.2	317.5	223.8	93.69	3.388	
9,700.0	6,820.3	9,524.2	6,644.5	57.3	56.6	-56.42	-2,772.9	-220.2	317.7	220.9	96.81	3.282	
9,800.0	6,820.3	9,624.2	6,644.1	59.2	58.5	-56.35	-2,872.9	-220.2	318.0	218.1	99.93	3.183	
9,900.0	6,820.3	9,724.2	6,643.6	61.0	60.3	-56.27	-2,972.9	-220.2	318.3	215.3	103.05	3.089	
10,000.0	6,820.3	9,824.2	6,643.1	62.8	62.2	-56.20	-3,072.9	-220.2	318.6	212.4	106.17	3.001	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28M-HZ Pad Sec.28-T5N-R64W - Chesnut 28R-203 - Wellbore #1 - Plan #1 (1-29-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,820.3	9,924.2	6,642.6	64.7	64.0	-56.12	-3,172.9	-220.2	318.9	209.6	109.30	2.917	
10,200.0	6,820.4	10,024.2	6,642.1	66.6	65.9	-56.05	-3,272.9	-220.2	319.2	206.7	112.42	2.839	
10,300.0	6,820.4	10,124.2	6,641.6	68.4	67.8	-55.97	-3,372.9	-220.2	319.4	203.9	115.55	2.764	
10,400.0	6,820.4	10,224.2	6,641.1	70.3	69.7	-55.90	-3,472.9	-220.2	319.7	201.0	118.68	2.694	
10,500.0	6,820.4	10,324.2	6,640.6	72.2	71.5	-55.82	-3,572.9	-220.2	320.0	198.2	121.80	2.627	
10,600.0	6,820.4	10,424.2	6,640.1	74.0	73.4	-55.75	-3,672.9	-220.2	320.3	195.4	124.93	2.564	
10,700.0	6,820.4	10,524.2	6,639.7	75.9	75.3	-55.67	-3,772.9	-220.2	320.6	192.5	128.05	2.503	
10,800.0	6,820.5	10,624.2	6,639.2	77.8	77.2	-55.60	-3,872.9	-220.2	320.9	189.7	131.17	2.446	
10,900.0	6,820.5	10,724.2	6,638.7	79.6	79.1	-55.52	-3,972.9	-220.2	321.1	186.9	134.30	2.391	
11,000.0	6,820.5	10,824.2	6,638.2	81.5	80.9	-55.45	-4,072.9	-220.2	321.4	184.0	137.42	2.339	
11,100.0	6,820.5	10,924.2	6,637.7	83.4	82.8	-55.37	-4,172.8	-220.2	321.7	181.2	140.53	2.289	
11,200.0	6,820.5	11,024.2	6,637.2	85.3	84.7	-55.30	-4,272.8	-220.2	322.0	178.4	143.65	2.242	
11,300.0	6,820.5	11,124.2	6,636.7	87.2	86.6	-55.23	-4,372.8	-220.2	322.3	175.5	146.76	2.196	
11,400.0	6,820.6	11,224.2	6,636.2	89.1	88.5	-55.15	-4,472.8	-220.2	322.6	172.7	149.87	2.152	
11,500.0	6,820.6	11,324.2	6,635.7	90.9	90.4	-55.08	-4,572.8	-220.2	322.9	169.9	152.98	2.111	
11,600.0	6,820.6	11,424.2	6,635.3	92.8	92.3	-55.00	-4,672.8	-220.2	323.2	167.1	156.09	2.070	
11,700.0	6,820.6	11,524.2	6,634.8	94.7	94.2	-54.93	-4,772.8	-220.2	323.5	164.3	159.19	2.032	
11,800.0	6,820.6	11,624.2	6,634.3	96.6	96.1	-54.86	-4,872.8	-220.2	323.8	161.5	162.29	1.995	
11,900.0	6,820.6	11,724.2	6,633.8	98.5	98.0	-54.79	-4,972.8	-220.2	324.0	158.7	165.39	1.959	
12,000.0	6,820.7	11,824.2	6,633.3	100.4	99.9	-54.71	-5,072.8	-220.2	324.3	155.9	168.48	1.925	
12,100.0	6,820.7	11,924.2	6,632.8	102.3	101.8	-54.64	-5,172.8	-220.2	324.6	153.1	171.58	1.892	
12,200.0	6,820.7	12,024.2	6,632.3	104.2	103.7	-54.57	-5,272.8	-220.2	324.9	150.3	174.66	1.860	
12,300.0	6,820.7	12,124.2	6,631.8	106.1	105.6	-54.49	-5,372.8	-220.2	325.2	147.5	177.75	1.830	
12,400.0	6,820.7	12,224.2	6,631.3	108.0	107.5	-54.42	-5,472.8	-220.2	325.5	144.7	180.83	1.800	
12,500.0	6,820.8	12,324.2	6,630.9	109.9	109.4	-54.35	-5,572.8	-220.2	325.8	141.9	183.91	1.772	
12,600.0	6,820.8	12,424.2	6,630.4	111.8	111.3	-54.28	-5,672.8	-220.2	326.1	139.1	186.98	1.744	
12,700.0	6,820.8	12,524.2	6,629.9	113.7	113.2	-54.21	-5,772.8	-220.2	326.4	136.4	190.05	1.717	
12,800.0	6,820.8	12,624.2	6,629.4	115.6	115.1	-54.13	-5,872.8	-220.2	326.7	133.6	193.12	1.692	
12,900.0	6,820.8	12,724.2	6,628.9	117.5	117.0	-54.06	-5,972.8	-220.2	327.0	130.8	196.18	1.667	
13,000.0	6,820.8	12,824.2	6,628.4	119.4	118.9	-53.99	-6,072.8	-220.2	327.3	128.1	199.24	1.643	
13,100.0	6,820.9	12,924.2	6,627.9	121.3	120.8	-53.92	-6,172.8	-220.2	327.6	125.3	202.30	1.619	
13,200.0	6,820.9	13,024.2	6,627.4	123.2	122.7	-53.85	-6,272.8	-220.2	327.9	122.5	205.35	1.597	
13,300.0	6,820.9	13,124.2	6,627.0	125.1	124.6	-53.78	-6,372.8	-220.2	328.2	119.8	208.40	1.575	
13,400.0	6,820.9	13,224.2	6,626.5	127.0	126.5	-53.70	-6,472.8	-220.2	328.5	117.0	211.44	1.554	
13,500.0	6,820.9	13,324.2	6,626.0	128.9	128.4	-53.63	-6,572.8	-220.2	328.8	114.3	214.48	1.533	
13,600.0	6,820.9	13,424.2	6,625.5	130.8	130.3	-53.56	-6,672.8	-220.2	329.1	111.6	217.52	1.513	
13,700.0	6,821.0	13,524.2	6,625.0	132.7	132.2	-53.49	-6,772.8	-220.2	329.4	108.8	220.55	1.493	Level 3
13,800.0	6,821.0	13,624.2	6,624.5	134.6	134.1	-53.42	-6,872.8	-220.2	329.7	106.1	223.58	1.475	Level 3
13,900.0	6,821.0	13,724.2	6,624.0	136.5	136.0	-53.35	-6,972.8	-220.2	330.0	103.5	226.52	1.457	Level 3
13,906.4	6,821.0	13,727.9	6,624.0	136.6	136.0	-53.35	-6,976.5	-220.2	330.0	103.4	226.67	1.456	Level 3, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,500.0	6,819.9	6,809.9	6,809.9	20.7	136.2	89.96	-1,515.5	-699.4	965.9	809.8	156.07	6.189	
7,600.0	6,819.9	6,809.9	6,809.9	21.9	136.2	89.96	-1,515.5	-699.4	868.7	711.3	157.34	5.521	
7,700.0	6,819.9	6,809.9	6,809.9	23.3	136.2	89.97	-1,515.5	-699.4	772.2	613.5	158.69	4.866	
7,800.0	6,819.9	6,809.9	6,809.9	24.7	136.2	89.97	-1,515.5	-699.4	676.7	516.5	160.13	4.226	
7,900.0	6,820.0	6,810.0	6,810.0	26.2	136.2	89.97	-1,515.5	-699.4	582.7	421.1	161.62	3.605	
8,000.0	6,820.0	6,810.0	6,810.0	27.7	136.2	89.98	-1,515.5	-699.4	491.1	327.9	163.17	3.010	
8,100.0	6,820.0	6,810.0	6,810.0	29.3	136.2	89.98	-1,515.5	-699.4	403.5	238.7	164.77	2.449	
8,200.0	6,820.0	6,810.0	6,810.0	30.9	136.2	89.99	-1,515.5	-699.4	323.2	156.8	166.41	1.942	
8,300.0	6,820.0	6,810.0	6,810.0	32.5	136.2	89.99	-1,515.5	-699.4	257.1	89.0	168.07	1.530	
8,400.0	6,820.0	6,810.0	6,810.0	34.2	136.2	90.00	-1,515.5	-699.4	218.5	48.7	169.77	1.287	Level 3
8,441.8	6,820.0	6,810.0	6,810.0	34.9	136.2	90.00	-1,515.5	-699.4	214.5	44.0	170.48	1.258	Level 3, CC, ES, SF
8,500.0	6,820.1	6,810.1	6,810.1	35.9	136.2	90.00	-1,515.5	-699.4	222.2	50.7	171.48	1.296	Level 3
8,600.0	6,820.1	6,810.1	6,810.1	37.6	136.2	90.01	-1,515.5	-699.4	266.5	93.3	173.22	1.539	
8,700.0	6,820.1	6,810.1	6,810.1	39.3	136.2	90.01	-1,515.5	-699.4	335.7	160.7	174.97	1.918	
8,800.0	6,820.1	6,810.1	6,810.1	41.1	136.2	90.02	-1,515.5	-699.4	417.5	240.8	176.74	2.362	
8,900.0	6,820.1	6,810.1	6,810.1	42.8	136.2	90.02	-1,515.5	-699.4	505.9	327.4	178.53	2.834	
9,000.0	6,820.1	6,810.1	6,810.1	44.6	136.2	90.03	-1,515.5	-699.4	598.0	417.7	180.32	3.316	
9,100.0	6,820.2	6,810.2	6,810.2	46.4	136.2	90.03	-1,515.5	-699.4	692.3	510.2	182.12	3.801	
9,200.0	6,820.2	6,810.2	6,810.2	48.2	136.2	90.04	-1,515.5	-699.4	788.0	604.0	183.94	4.284	
9,300.0	6,820.2	6,810.2	6,810.2	50.0	136.2	90.04	-1,515.5	-699.4	884.6	698.9	185.76	4.762	
9,400.0	6,820.2	6,810.2	6,810.2	51.8	136.2	90.04	-1,515.5	-699.4	981.9	794.3	187.59	5.234	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-97.18	-76.5	-607.4	612.4				
100.0	100.0	85.0	85.0	0.1	1.7	-97.18	-76.5	-607.4	612.2	610.4	1.81	337.745	
200.0	200.0	185.0	185.0	0.3	3.7	-97.18	-76.5	-607.4	612.2	608.2	4.04	151.632	
300.0	300.0	285.0	285.0	0.6	5.7	-97.18	-76.5	-607.4	612.2	605.9	6.26	97.761	
400.0	400.0	385.0	385.0	0.8	7.7	-97.18	-76.5	-607.4	612.2	603.7	8.49	72.134	
500.0	500.0	485.0	485.0	1.0	9.7	-97.18	-76.5	-607.4	612.2	601.5	10.71	57.152	
600.0	600.0	585.0	585.0	1.2	11.7	-97.18	-76.5	-607.4	612.2	599.3	12.94	47.323	
700.0	700.0	685.0	685.0	1.5	13.7	-97.18	-76.5	-607.4	612.2	597.0	15.16	40.379	
800.0	800.0	785.0	785.0	1.7	15.7	-97.18	-76.5	-607.4	612.2	594.8	17.39	35.212	
900.0	900.0	885.0	885.0	1.9	17.7	-97.18	-76.5	-607.4	612.2	592.6	19.61	31.217	
1,000.0	1,000.0	985.0	985.0	2.1	19.7	-97.18	-76.5	-607.4	612.2	590.4	21.84	28.037	
1,100.0	1,100.0	1,085.0	1,085.0	2.4	21.7	-97.18	-76.5	-607.4	612.2	588.1	24.06	25.444	
1,200.0	1,200.0	1,185.0	1,185.0	2.6	23.7	-97.18	-76.5	-607.4	612.2	585.9	26.28	23.291	
1,300.0	1,300.0	1,285.0	1,285.0	2.8	25.7	-46.48	-76.5	-607.4	611.0	582.5	28.50	21.441	
1,400.0	1,399.8	1,384.8	1,384.8	3.0	27.7	-46.89	-76.5	-607.4	607.4	576.7	30.68	19.796	
1,500.0	1,499.5	1,484.5	1,484.5	3.3	29.7	-47.58	-76.5	-607.4	601.5	568.6	32.85	18.310	
1,600.0	1,598.7	1,583.7	1,583.7	3.5	31.7	-48.57	-76.5	-607.4	593.3	558.3	35.00	16.952	
1,700.0	1,697.5	1,682.5	1,682.5	3.8	33.7	-49.79	-76.5	-607.4	583.2	546.0	37.17	15.689	
1,800.0	1,796.2	1,781.2	1,781.2	4.1	35.6	-51.01	-76.5	-607.4	572.8	533.4	39.40	14.537	
1,900.0	1,894.9	1,879.9	1,879.9	4.4	37.6	-52.28	-76.5	-607.4	562.7	521.1	41.65	13.510	
2,000.0	1,993.6	1,978.6	1,978.6	4.7	39.6	-53.58	-76.5	-607.4	553.0	509.1	43.92	12.592	
2,100.0	2,092.3	2,077.3	2,077.3	5.0	41.5	-54.94	-76.5	-607.4	543.5	497.3	46.19	11.766	
2,200.0	2,191.0	2,176.0	2,176.0	5.3	43.5	-56.34	-76.5	-607.4	534.3	485.8	48.48	11.023	
2,300.0	2,289.7	2,274.7	2,274.7	5.7	45.5	-57.78	-76.5	-607.4	525.5	474.7	50.77	10.350	
2,400.0	2,388.4	2,373.4	2,373.4	6.0	47.5	-59.28	-76.5	-607.4	517.0	463.9	53.08	9.740	
2,500.0	2,487.1	2,472.1	2,472.1	6.3	49.4	-60.82	-76.5	-607.4	508.9	453.5	55.40	9.186	
2,600.0	2,585.8	2,570.8	2,570.8	6.7	51.4	-62.41	-76.5	-607.4	501.2	443.4	57.72	8.682	
2,700.0	2,684.5	2,669.5	2,669.5	7.0	53.4	-64.05	-76.5	-607.4	493.8	433.8	60.06	8.223	
2,800.0	2,783.2	2,768.2	2,768.2	7.4	55.4	-65.73	-76.5	-607.4	486.9	424.5	62.40	7.803	
2,900.0	2,881.9	2,866.9	2,866.9	7.7	57.3	-67.46	-76.5	-607.4	480.5	415.7	64.75	7.420	
3,000.0	2,980.6	2,965.6	2,965.6	8.1	59.3	-69.24	-76.5	-607.4	474.5	407.4	67.11	7.070	
3,100.0	3,079.3	3,064.3	3,064.3	8.5	61.3	-71.06	-76.5	-607.4	468.9	399.5	69.47	6.750	
3,200.0	3,178.0	3,163.0	3,163.0	8.8	63.3	-72.91	-76.5	-607.4	463.9	392.1	71.84	6.458	
3,300.0	3,276.7	3,261.7	3,261.7	9.2	65.2	-74.81	-76.5	-607.4	459.4	385.2	74.21	6.190	
3,400.0	3,375.4	3,360.4	3,360.4	9.5	67.2	-76.74	-76.5	-607.4	455.4	378.8	76.58	5.946	
3,500.0	3,474.0	3,459.0	3,459.0	9.9	69.2	-78.70	-76.5	-607.4	451.9	373.0	78.96	5.724	
3,600.0	3,572.7	3,557.7	3,557.7	10.3	71.2	-80.69	-76.5	-607.4	449.0	367.7	81.33	5.521	
3,700.0	3,671.4	3,656.4	3,656.4	10.6	73.1	-82.70	-76.5	-607.4	446.6	362.9	83.70	5.336	
3,800.0	3,770.1	3,755.1	3,755.1	11.0	75.1	-84.73	-76.5	-607.4	444.9	358.8	86.07	5.169	
3,900.0	3,868.8	3,853.8	3,853.8	11.4	77.1	-86.77	-76.5	-607.4	443.6	355.2	88.43	5.017	
4,000.0	3,967.5	3,952.5	3,952.5	11.8	79.1	-88.82	-76.5	-607.4	443.0	352.2	90.79	4.880	
4,057.3	4,024.0	4,009.0	4,009.0	12.0	80.2	-90.00	-76.5	-607.4	442.9	350.8	92.14	4.807	
4,100.0	4,066.2	4,051.2	4,051.2	12.1	81.0	-90.88	-76.5	-607.4	443.0	349.8	93.14	4.756	
4,200.0	4,164.9	4,149.9	4,149.9	12.5	83.0	-92.93	-76.5	-607.4	443.5	348.0	95.49	4.645	
4,300.0	4,263.6	4,248.6	4,248.6	12.9	85.0	-94.97	-76.5	-607.4	444.6	346.8	97.82	4.546	
4,400.0	4,362.3	4,347.3	4,347.3	13.2	86.9	-97.01	-76.5	-607.4	446.3	346.2	100.14	4.457	
4,500.0	4,461.0	4,446.0	4,446.0	13.6	88.9	-99.02	-76.5	-607.4	448.6	346.2	102.46	4.379	
4,600.0	4,559.7	4,544.7	4,544.7	14.0	90.9	-101.01	-76.5	-607.4	451.5	346.7	104.76	4.309	
4,700.0	4,658.4	4,643.4	4,643.4	14.3	92.9	-102.98	-76.5	-607.4	454.8	347.8	107.05	4.249	
4,800.0	4,757.1	4,742.1	4,742.1	14.7	94.8	-104.91	-76.5	-607.4	458.8	349.4	109.33	4.196	
4,900.0	4,855.8	4,840.8	4,840.8	15.1	96.8	-106.81	-76.5	-607.4	463.2	351.6	111.60	4.151	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,954.5	4,939.5	4,939.5	15.5	98.8	-108.68	-76.5	-607.4	468.2	354.3	113.86	4.112	
5,100.0	5,053.2	5,038.2	5,038.2	15.8	100.8	-110.51	-76.5	-607.4	473.6	357.5	116.10	4.079	
5,200.0	5,152.2	5,137.2	5,137.2	16.1	102.7	-112.15	-76.5	-607.4	478.7	360.4	118.32	4.046	
5,300.0	5,251.7	5,236.7	5,236.7	16.3	104.7	-113.36	-76.5	-607.4	482.8	362.2	120.52	4.005	
5,400.0	5,351.4	5,336.4	5,336.4	16.5	106.7	-114.16	-76.5	-607.4	485.6	362.8	122.71	3.957	
5,500.0	5,451.4	5,436.4	5,436.4	16.7	108.7	-114.56	-76.5	-607.4	487.0	362.1	124.87	3.900	
5,600.0	5,551.4	5,536.4	5,536.4	16.8	110.7	-165.44	-76.5	-607.4	487.1	360.1	127.01	3.836	
5,700.0	5,651.4	5,636.4	5,636.4	17.0	112.7	-165.44	-76.5	-607.4	487.1	358.0	129.17	3.771	
5,800.0	5,751.4	5,736.4	5,736.4	17.1	114.7	-165.44	-76.5	-607.4	487.1	355.8	131.34	3.709	
5,900.0	5,851.4	5,836.4	5,836.4	17.3	116.7	-165.44	-76.5	-607.4	487.1	353.6	133.51	3.649	
6,000.0	5,951.4	5,936.4	5,936.4	17.5	118.7	-165.44	-76.5	-607.4	487.1	351.5	135.68	3.590	
6,100.0	6,051.4	6,036.4	6,036.4	17.6	120.7	14.56	-76.5	-607.4	487.1	349.3	137.84	3.534	
6,200.0	6,151.0	6,136.0	6,136.0	17.7	122.7	14.92	-76.5	-607.4	480.1	341.4	138.69	3.462	
6,300.0	6,248.9	6,233.9	6,233.9	17.7	124.7	15.97	-76.5	-607.4	460.7	323.3	137.32	3.355	
6,400.0	6,343.3	6,328.3	6,328.3	17.7	126.6	17.91	-76.5	-607.4	429.2	295.3	133.86	3.206	
6,500.0	6,432.6	6,417.6	6,417.6	17.6	128.4	21.18	-76.5	-607.4	386.4	257.6	128.83	3.000	
6,600.0	6,515.3	6,500.3	6,500.3	17.5	130.0	26.57	-76.5	-607.4	333.7	210.1	123.63	2.699	
6,700.0	6,590.0	6,575.0	6,575.0	17.3	131.5	35.56	-76.5	-607.4	273.0	151.3	121.75	2.242	
6,800.0	6,655.4	6,640.4	6,640.4	17.2	132.8	50.33	-76.5	-607.4	208.2	79.3	128.97	1.615	
6,900.0	6,710.3	6,695.3	6,695.3	17.1	133.9	71.09	-76.5	-607.4	149.1	5.3	143.79	1.037	Level 2
6,994.6	6,751.8	6,736.8	6,736.8	17.1	134.7	89.99	-76.5	-607.4	122.5	-27.8	150.33	0.815	Level 1, CC, ES, SF
7,000.0	6,753.9	6,738.9	6,738.9	17.1	134.8	90.88	-76.5	-607.4	122.6	-27.8	150.36	0.815	Level 1
7,100.0	6,785.4	6,770.4	6,770.4	17.2	135.4	101.61	-76.5	-607.4	158.0	9.6	148.44	1.064	Level 2
7,200.0	6,804.2	6,789.2	6,789.2	17.7	135.8	101.30	-76.5	-607.4	232.8	83.3	149.49	1.557	
7,300.0	6,814.7	6,799.7	6,799.7	18.5	136.0	102.95	-76.5	-607.4	321.6	172.0	149.60	2.150	
7,400.0	6,819.8	6,804.8	6,804.8	19.5	136.1	91.41	-76.5	-607.4	415.7	261.0	154.74	2.686	
7,500.0	6,819.9	6,804.9	6,804.9	20.7	136.1	90.04	-76.5	-607.4	512.1	356.1	155.97	3.283	
7,600.0	6,819.9	6,804.9	6,804.9	21.9	136.1	90.05	-76.5	-607.4	609.7	452.4	157.23	3.878	
7,700.0	6,819.9	6,804.9	6,804.9	23.3	136.1	90.06	-76.5	-607.4	707.9	549.3	158.59	4.464	
7,800.0	6,819.9	6,804.9	6,804.9	24.7	136.1	90.07	-76.5	-607.4	806.6	646.6	160.02	5.041	
7,900.0	6,820.0	6,805.0	6,805.0	26.2	136.1	90.07	-76.5	-607.4	905.6	744.0	161.52	5.607	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-165.05	-688.5	-183.9	712.8				
100.0	100.0	85.0	85.0	0.1	1.7	-165.05	-688.5	-183.9	712.7	710.9	1.81	393.185	
200.0	200.0	185.0	185.0	0.3	3.7	-165.05	-688.5	-183.9	712.7	708.6	4.04	176.522	
300.0	300.0	285.0	285.0	0.6	5.7	-165.05	-688.5	-183.9	712.7	706.4	6.26	113.808	
400.0	400.0	385.0	385.0	0.8	7.7	-165.05	-688.5	-183.9	712.7	704.2	8.49	83.974	
500.0	500.0	485.0	485.0	1.0	9.7	-165.05	-688.5	-183.9	712.7	702.0	10.71	66.533	
600.0	600.0	585.0	585.0	1.2	11.7	-165.05	-688.5	-183.9	712.7	699.7	12.94	55.091	
700.0	700.0	685.0	685.0	1.5	13.7	-165.05	-688.5	-183.9	712.7	697.5	15.16	47.007	
800.0	800.0	785.0	785.0	1.7	15.7	-165.05	-688.5	-183.9	712.7	695.3	17.39	40.992	
900.0	900.0	885.0	885.0	1.9	17.7	-165.05	-688.5	-183.9	712.7	693.1	19.61	36.341	
1,000.0	1,000.0	985.0	985.0	2.1	19.7	-165.05	-688.5	-183.9	712.7	690.8	21.84	32.639	
1,100.0	1,100.0	1,085.0	1,085.0	2.4	21.7	-165.05	-688.5	-183.9	712.7	688.6	24.06	29.621	
1,200.0	1,200.0	1,185.0	1,185.0	2.6	23.7	-165.05	-688.5	-183.9	712.7	686.4	26.28	27.114	
1,300.0	1,300.0	1,285.0	1,285.0	2.8	25.7	-114.33	-688.5	-183.9	713.4	684.9	28.50	25.030	
1,400.0	1,399.8	1,384.8	1,384.8	3.0	27.7	-114.67	-688.5	-183.9	715.6	684.9	30.71	23.302	
1,500.0	1,499.5	1,484.5	1,484.5	3.3	29.7	-115.23	-688.5	-183.9	719.3	686.3	32.91	21.855	
1,600.0	1,598.7	1,583.7	1,583.7	3.5	31.7	-116.00	-688.5	-183.9	724.6	689.5	35.11	20.639	
1,700.0	1,697.5	1,682.5	1,682.5	3.8	33.7	-117.00	-688.5	-183.9	731.5	694.2	37.31	19.605	
1,800.0	1,796.2	1,781.2	1,781.2	4.1	35.6	-118.10	-688.5	-183.9	739.0	699.5	39.55	18.686	
1,900.0	1,894.9	1,879.9	1,879.9	4.4	37.6	-119.18	-688.5	-183.9	746.8	705.0	41.80	17.868	
2,000.0	1,993.6	1,978.6	1,978.6	4.7	39.6	-120.24	-688.5	-183.9	754.9	710.8	44.05	17.137	
2,100.0	2,092.3	2,077.3	2,077.3	5.0	41.5	-121.27	-688.5	-183.9	763.2	716.9	46.31	16.481	
2,200.0	2,191.0	2,176.0	2,176.0	5.3	43.5	-122.28	-688.5	-183.9	771.7	723.2	48.57	15.890	
2,300.0	2,289.7	2,274.7	2,274.7	5.7	45.5	-123.27	-688.5	-183.9	780.5	729.7	50.83	15.356	
2,400.0	2,388.4	2,373.4	2,373.4	6.0	47.5	-124.24	-688.5	-183.9	789.5	736.5	53.09	14.872	
2,500.0	2,487.1	2,472.1	2,472.1	6.3	49.4	-125.19	-688.5	-183.9	798.8	743.4	55.35	14.431	
2,600.0	2,585.8	2,570.8	2,570.8	6.7	51.4	-126.11	-688.5	-183.9	808.2	750.6	57.61	14.029	
2,700.0	2,684.5	2,669.5	2,669.5	7.0	53.4	-127.01	-688.5	-183.9	817.9	758.0	59.87	13.661	
2,800.0	2,783.2	2,768.2	2,768.2	7.4	55.4	-127.89	-688.5	-183.9	827.8	765.6	62.13	13.323	
2,900.0	2,881.9	2,866.9	2,866.9	7.7	57.3	-128.76	-688.5	-183.9	837.8	773.5	64.39	13.012	
3,000.0	2,980.6	2,965.6	2,965.6	8.1	59.3	-129.60	-688.5	-183.9	848.1	781.4	66.65	12.725	
3,100.0	3,079.3	3,064.3	3,064.3	8.5	61.3	-130.42	-688.5	-183.9	858.5	789.6	68.90	12.461	
3,200.0	3,178.0	3,163.0	3,163.0	8.8	63.3	-131.22	-688.5	-183.9	869.1	798.0	71.15	12.215	
3,300.0	3,276.7	3,261.7	3,261.7	9.2	65.2	-132.00	-688.5	-183.9	879.9	806.5	73.40	11.988	
3,400.0	3,375.4	3,360.4	3,360.4	9.5	67.2	-132.77	-688.5	-183.9	890.8	815.2	75.65	11.776	
3,500.0	3,474.0	3,459.0	3,459.0	9.9	69.2	-133.51	-688.5	-183.9	901.9	824.0	77.89	11.579	
3,600.0	3,572.7	3,557.7	3,557.7	10.3	71.2	-134.24	-688.5	-183.9	913.1	833.0	80.13	11.395	
3,700.0	3,671.4	3,656.4	3,656.4	10.6	73.1	-134.95	-688.5	-183.9	924.5	842.1	82.37	11.223	
3,800.0	3,770.1	3,755.1	3,755.1	11.0	75.1	-135.64	-688.5	-183.9	936.0	851.4	84.61	11.062	
3,900.0	3,868.8	3,853.8	3,853.8	11.4	77.1	-136.32	-688.5	-183.9	947.6	860.8	86.85	10.912	
4,000.0	3,967.5	3,952.5	3,952.5	11.8	79.1	-136.98	-688.5	-183.9	959.4	870.3	89.08	10.770	
4,100.0	4,066.2	4,051.2	4,051.2	12.1	81.0	-137.62	-688.5	-183.9	971.3	880.0	91.31	10.637	
4,200.0	4,164.9	4,149.9	4,149.9	12.5	83.0	-138.25	-688.5	-183.9	983.3	889.8	93.54	10.512	
4,300.0	4,263.6	4,248.6	4,248.6	12.9	85.0	-138.86	-688.5	-183.9	995.5	899.7	95.77	10.394	
6,600.0	6,515.3	6,500.3	6,500.3	17.5	130.0	-22.47	-688.5	-183.9	970.3	850.6	119.74	8.104	
6,700.0	6,590.0	6,575.0	6,575.0	17.3	131.5	-26.60	-688.5	-183.9	907.4	794.1	113.33	8.007	
6,800.0	6,655.4	6,640.4	6,640.4	17.2	132.8	-32.59	-688.5	-183.9	836.5	726.7	109.81	7.618	
6,900.0	6,710.3	6,695.3	6,695.3	17.1	133.9	-41.16	-688.5	-183.9	759.2	646.3	112.91	6.724	
7,000.0	6,753.9	6,738.9	6,738.9	17.1	134.8	-52.81	-688.5	-183.9	677.6	553.1	124.51	5.442	
7,100.0	6,785.4	6,770.4	6,770.4	17.2	135.4	-66.78	-688.5	-183.9	594.1	454.3	139.85	4.248	
7,200.0	6,804.2	6,789.2	6,789.2	17.7	135.8	-80.34	-688.5	-183.9	511.9	361.6	150.30	3.406	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,300.0	6,814.7	6,799.7	6,799.7	18.5	136.0	-84.34	-688.5	-183.9	435.4	282.6	152.83	2.849	
7,400.0	6,819.8	6,804.8	6,804.8	19.5	136.1	-89.69	-688.5	-183.9	369.8	215.0	154.82	2.389	
7,500.0	6,819.9	6,804.9	6,804.9	20.7	136.1	-90.00	-688.5	-183.9	322.2	166.2	155.97	2.065	
7,600.0	6,819.9	6,804.9	6,804.9	21.9	136.1	-90.00	-688.5	-183.9	301.4	144.1	157.24	1.917	
7,614.8	6,819.9	6,804.9	6,804.9	22.1	136.1	-90.00	-688.5	-183.9	301.0	143.6	157.44	1.912	CC, ES, SF
7,700.0	6,819.9	6,804.9	6,804.9	23.3	136.1	-90.00	-688.5	-183.9	312.8	154.2	158.59	1.973	
7,800.0	6,819.9	6,804.9	6,804.9	24.7	136.1	-90.01	-688.5	-183.9	353.4	193.4	160.02	2.209	
7,900.0	6,820.0	6,805.0	6,805.0	26.2	136.1	-90.01	-688.5	-183.9	414.7	253.1	161.52	2.567	
8,000.0	6,820.0	6,805.0	6,805.0	27.7	136.1	-90.01	-688.5	-183.9	488.9	325.8	163.07	2.998	
8,100.0	6,820.0	6,805.0	6,805.0	29.3	136.1	-90.02	-688.5	-183.9	571.0	406.3	164.67	3.467	
8,200.0	6,820.0	6,805.0	6,805.0	30.9	136.1	-90.02	-688.5	-183.9	658.1	491.8	166.31	3.957	
8,300.0	6,820.0	6,805.0	6,805.0	32.5	136.1	-90.02	-688.5	-183.9	748.4	580.4	167.97	4.455	
8,400.0	6,820.0	6,805.0	6,805.0	34.2	136.1	-90.03	-688.5	-183.9	840.9	671.3	169.67	4.956	
8,500.0	6,820.1	6,805.1	6,805.1	35.9	136.1	-90.03	-688.5	-183.9	935.0	763.6	171.38	5.455	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chesnut Pads - Sec.28-T5N-R64W - Hendricks 33-2 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7600-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,400.0	6,820.6	6,829.6	6,829.6	89.1	136.6	89.92	-5,446.4	-604.7	980.0	754.7	225.38	4.348	
11,500.0	6,820.6	6,829.6	6,829.6	90.9	136.6	89.93	-5,446.4	-604.7	880.9	653.6	227.27	3.876	
11,600.0	6,820.6	6,829.6	6,829.6	92.8	136.6	89.94	-5,446.4	-604.7	781.9	552.8	229.16	3.412	
11,700.0	6,820.6	6,829.6	6,829.6	94.7	136.6	89.94	-5,446.4	-604.7	683.3	452.2	231.06	2.957	
11,800.0	6,820.6	6,829.6	6,829.6	96.6	136.6	89.95	-5,446.4	-604.7	585.1	352.1	232.95	2.512	
11,900.0	6,820.6	6,829.6	6,829.6	98.5	136.6	89.96	-5,446.4	-604.7	487.6	252.8	234.85	2.076	
12,000.0	6,820.7	6,829.7	6,829.7	100.4	136.6	89.97	-5,446.4	-604.7	391.5	154.7	236.75	1.654	
12,100.0	6,820.7	6,829.7	6,829.7	102.3	136.6	89.98	-5,446.4	-604.7	297.8	59.2	238.65	1.248	Level 2
12,200.0	6,820.7	6,829.7	6,829.7	104.2	136.6	89.99	-5,446.4	-604.7	210.2	-30.4	240.55	0.874	Level 1
12,300.0	6,820.7	6,829.7	6,829.7	106.1	136.6	89.99	-5,446.4	-604.7	140.1	-102.3	242.45	0.578	Level 1
12,372.7	6,820.7	6,829.7	6,829.7	107.5	136.6	90.00	-5,446.4	-604.7	119.8	-124.0	243.83	0.491	Level 1, CC, ES, SF
12,400.0	6,820.7	6,829.7	6,829.7	108.0	136.6	90.00	-5,446.4	-604.7	122.9	-121.5	244.35	0.503	Level 1
12,500.0	6,820.8	6,829.8	6,829.8	109.9	136.6	90.01	-5,446.4	-604.7	174.8	-71.4	246.25	0.710	Level 1
12,600.0	6,820.8	6,829.8	6,829.8	111.8	136.6	90.02	-5,446.4	-604.7	257.0	8.8	248.15	1.035	Level 2
12,700.0	6,820.8	6,829.8	6,829.8	113.7	136.6	90.03	-5,446.4	-604.7	348.6	98.5	250.05	1.394	Level 3
12,800.0	6,820.8	6,829.8	6,829.8	115.6	136.6	90.04	-5,446.4	-604.7	443.8	191.8	251.96	1.761	
12,900.0	6,820.8	6,829.8	6,829.8	117.5	136.6	90.04	-5,446.4	-604.7	540.8	286.9	253.86	2.130	
13,000.0	6,820.8	6,829.8	6,829.8	119.4	136.6	90.05	-5,446.4	-604.7	638.7	382.9	255.77	2.497	
13,100.0	6,820.9	6,829.9	6,829.9	121.3	136.6	90.06	-5,446.4	-604.7	737.1	479.4	257.67	2.861	
13,200.0	6,820.9	6,829.9	6,829.9	123.2	136.6	90.07	-5,446.4	-604.7	835.9	576.4	259.58	3.220	
13,300.0	6,820.9	6,829.9	6,829.9	125.1	136.6	90.08	-5,446.4	-604.7	935.0	673.5	261.48	3.576	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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

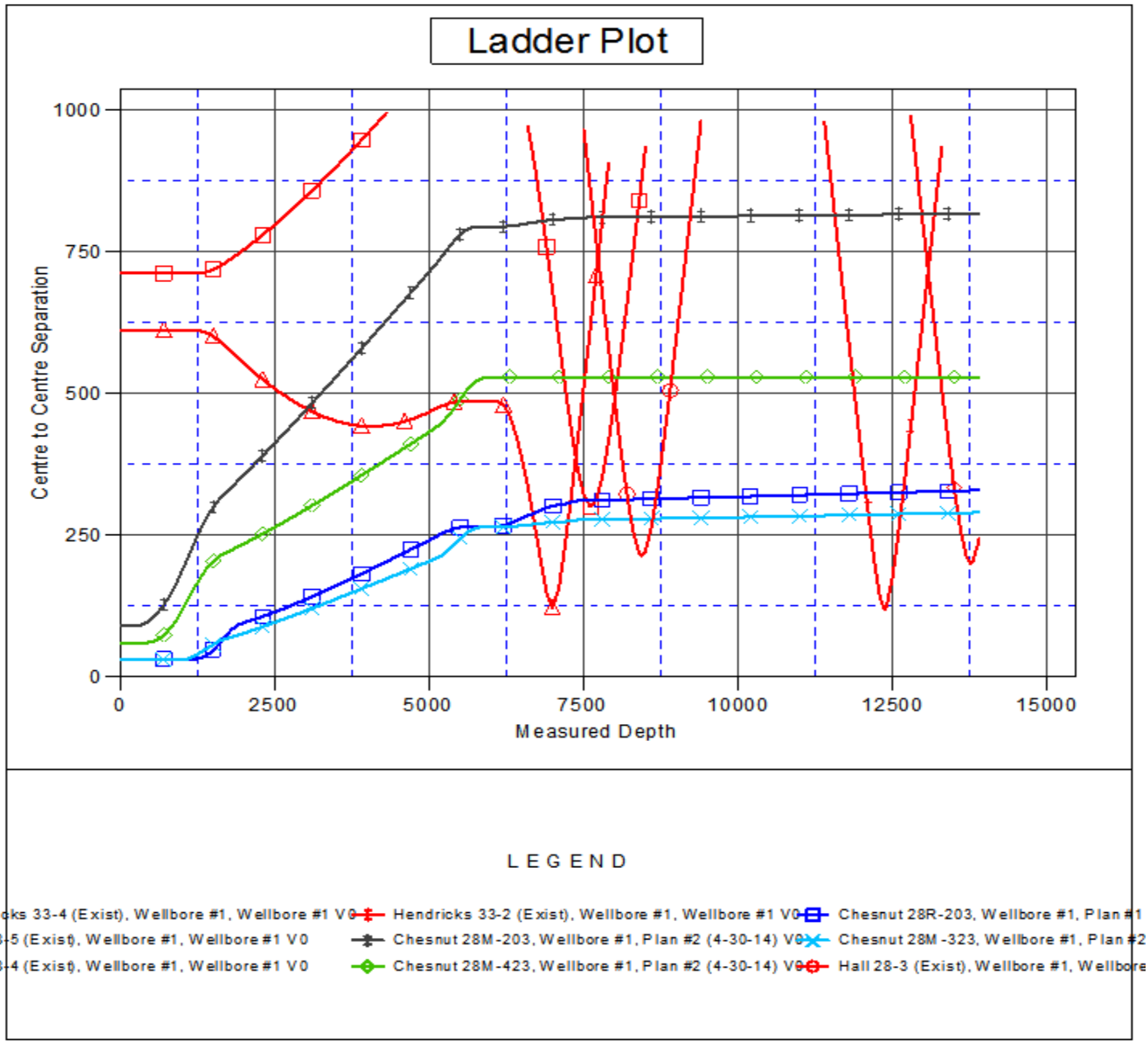
Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
12,800.0	6,820.8	6,851.8	6,851.8	115.6	137.0	89.95	-6,841.7	-685.6	988.6	736.2	252.40	3.917	
12,900.0	6,820.8	6,851.8	6,851.8	117.5	137.0	89.96	-6,841.7	-685.6	890.9	636.6	254.30	3.503	
13,000.0	6,820.8	6,851.8	6,851.8	119.4	137.0	89.96	-6,841.7	-685.6	793.8	537.6	256.21	3.098	
13,100.0	6,820.9	6,851.9	6,851.9	121.3	137.0	89.97	-6,841.7	-685.6	697.5	439.4	258.11	2.702	
13,200.0	6,820.9	6,851.9	6,851.9	123.2	137.0	89.97	-6,841.7	-685.6	602.4	342.4	260.02	2.317	
13,300.0	6,820.9	6,851.9	6,851.9	125.1	137.0	89.98	-6,841.7	-685.6	509.2	247.3	261.92	1.944	
13,400.0	6,820.9	6,851.9	6,851.9	127.0	137.0	89.98	-6,841.7	-685.6	419.1	155.3	263.83	1.589	
13,500.0	6,820.9	6,851.9	6,851.9	128.9	137.0	89.99	-6,841.7	-685.6	334.8	69.0	265.74	1.260	Level 3
13,600.0	6,820.9	6,851.9	6,851.9	130.8	137.0	89.99	-6,841.7	-685.6	261.7	-6.0	267.65	0.978	Level 1
13,700.0	6,821.0	6,852.0	6,852.0	132.7	137.0	90.00	-6,841.7	-685.6	211.9	-57.7	269.55	0.786	Level 1
13,768.0	6,821.0	6,852.0	6,852.0	134.0	137.0	90.00	-6,841.7	-685.6	200.7	-70.2	270.85	0.741	Level 1, CC, ES, SF
13,800.0	6,821.0	6,852.0	6,852.0	134.6	137.0	90.00	-6,841.7	-685.6	203.2	-68.3	271.46	0.749	Level 1
13,900.0	6,821.0	6,852.0	6,852.0	136.5	137.0	90.01	-6,841.7	-685.6	240.2	-33.2	273.37	0.879	Level 1
13,906.4	6,821.0	6,852.0	6,852.0	136.6	137.0	90.01	-6,841.7	-685.6	243.8	-29.7	273.49	0.891	Level 1

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-443
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-443	**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 #2 (4-30-14)	**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-443
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-443
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-443	**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 #2 (4-30-14)	**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-443
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.61°