PETROLEUM DEVELOPMENT CORP Weld County CO

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

Surface Location: Chestnut 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	Latittude	Longitude	Slot
0.0	0.0	1381420.32	3264624.09	40.376510	-104.550170	

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

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 380'FNL, 1370'FEL, SEC.28	1.0	0.0	0.0	Point
BHL 2134'FNL, 1790'FEL, SEC. 33	6821.0	-7045.7	-393.0	Point

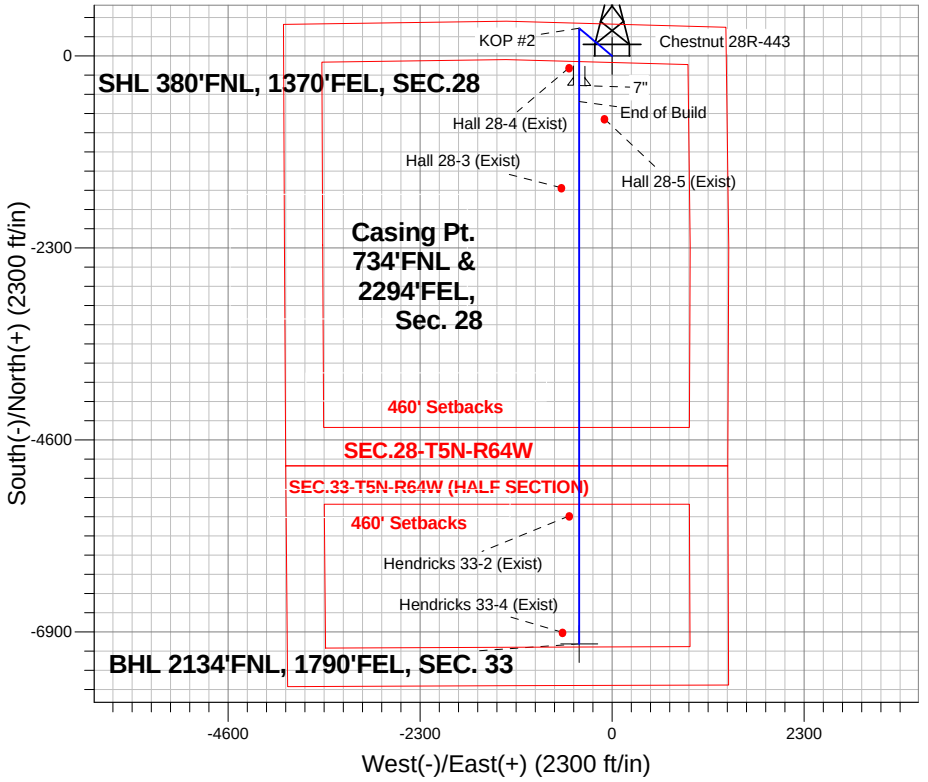
Azimuths to True North
Magnetic North: 8.41°

Magnetic Field
Strength: 52879.0snT
Dip Angle: 66.98°
Date: 12/17/2013
Model: IGRF2010

ANNOTATIONS

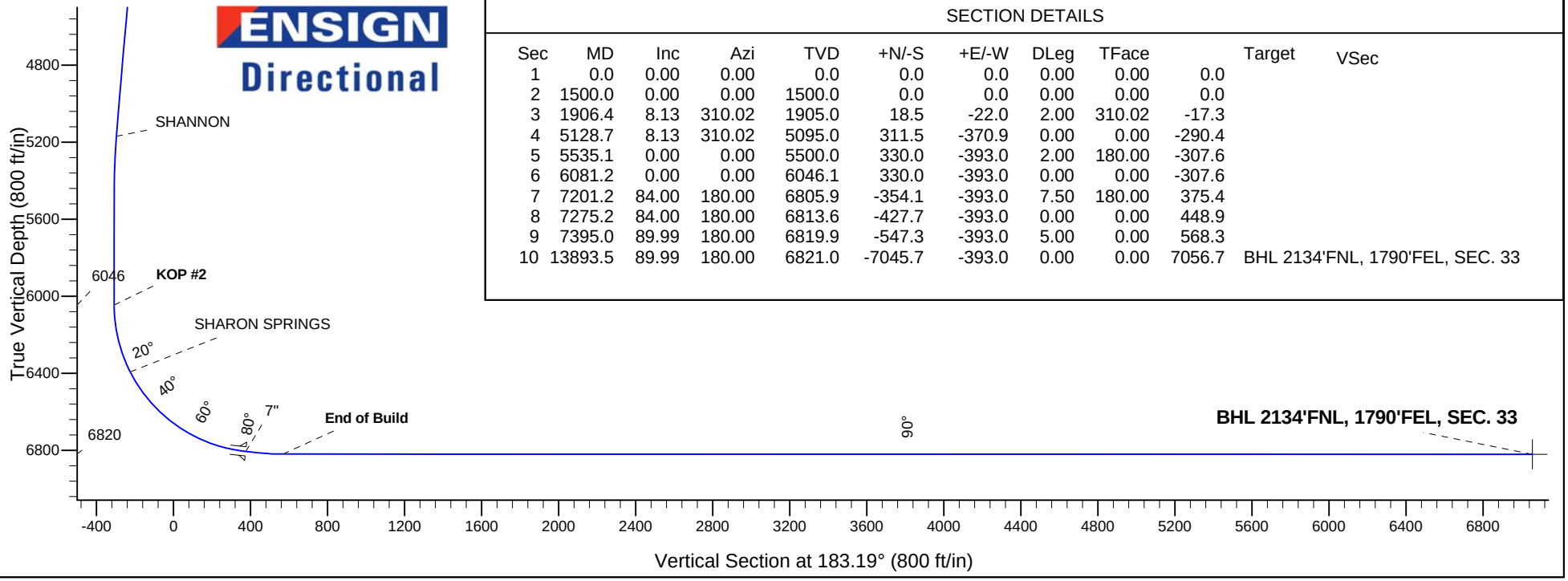
TVD	MD	Annotation
1500.0	1500.0	KOP #1
6046.1	6081.2	KOP #2
6819.9	7395.0	End of Build

Chestnut 28M-HZ Pad Sec.28-T5N-R64W
Chestnut 28R-443
Plan #1 (12-17-13)
10:20, December 19 2013



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace		Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0		
3	1906.4	8.13	310.02	1905.0	18.5	-22.0	2.00	310.02	-17.3		
4	5128.7	8.13	310.02	5095.0	311.5	-370.9	0.00	0.00	-290.4		
5	5535.1	0.00	0.00	5500.0	330.0	-393.0	2.00	180.00	-307.6		
6	6081.2	0.00	0.00	6046.1	330.0	-393.0	0.00	0.00	-307.6		
7	7201.2	84.00	180.00	6805.9	-354.1	-393.0	7.50	180.00	375.4		
8	7275.2	84.00	180.00	6813.6	-427.7	-393.0	0.00	0.00	448.9		
9	7395.0	89.99	180.00	6819.9	-547.3	-393.0	5.00	0.00	568.3		
10	13893.5	89.99	180.00	6821.0	-7045.7	-393.0	0.00	0.00	7056.7	BHL 2134'FNL, 1790'FEL, SEC. 33	



PETROLEUM DEVELOPMENT CORP Weld County CO

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

Wellbore #1

Plan: Plan #1 (12-17-13)

Standard Planning Report

19 December, 2013

Database:	Landmark	**Local Co-ordinate Reference:**	Well Chestnut 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:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**North Reference:**	True
Well:	Chestnut 28R-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (12-17-13)		

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

Site Position:		**Northing:**	1,381,423.03 ft	**Latitude:**	40.376520
From:	Lat/Long	**Easting:**	3,264,534.90 ft	**Longitude:**	-104.550490
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.61 °

Well Chestnut 28R-443

Well Position	**+N/-S**	-3.7 ft	**Northing:**	1,381,420.32 ft	**Latitude:**	40.376510
	+E/-W	89.2 ft	**Easting:**	3,264,624.09 ft	**Longitude:**	-104.550170
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	12/17/2013	8.41	66.98	52,879

Design Plan #1 (12-17-13)

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	183.19

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,906.4	8.13	310.02	1,905.0	18.5	-22.0	2.00	2.00	0.00	310.02	
5,128.7	8.13	310.02	5,095.0	311.5	-370.9	0.00	0.00	0.00	0.00	
5,535.1	0.00	0.00	5,500.0	330.0	-393.0	2.00	-2.00	0.00	180.00	
6,081.2	0.00	0.00	6,046.1	330.0	-393.0	0.00	0.00	0.00	0.00	
7,201.2	84.00	180.00	6,805.9	-354.1	-393.0	7.50	7.50	0.00	180.00	
7,275.2	84.00	180.00	6,813.6	-427.7	-393.0	0.00	0.00	0.00	0.00	
7,395.0	89.99	180.00	6,819.9	-547.3	-393.0	5.00	5.00	0.00	0.00	
13,893.5	89.99	180.00	6,821.0	-7,045.7	-393.0	0.00	0.00	0.00	0.00	BHL 2134'FNL, 179

Database:	Landmark	**Local Co-ordinate Reference:**	Well Chestnut 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:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**North Reference:**	True
Well:	Chestnut 28R-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (12-17-13)		

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 380'FNL, 1370'FEL, SEC.28									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
1,600.0	2.00	310.02	1,600.0	1.1	-1.3	-1.0	2.00	2.00	0.00
1,700.0	4.00	310.02	1,699.8	4.5	-5.3	-4.2	2.00	2.00	0.00
1,800.0	6.00	310.02	1,799.5	10.1	-12.0	-9.4	2.00	2.00	0.00
1,900.0	8.00	310.02	1,898.7	17.9	-21.4	-16.7	2.00	2.00	0.00
1,906.4	8.13	310.02	1,905.0	18.5	-22.0	-17.3	2.00	2.00	0.00
2,000.0	8.13	310.02	1,997.7	27.0	-32.2	-25.2	0.00	0.00	0.00
2,100.0	8.13	310.02	2,096.7	36.1	-43.0	-33.7	0.00	0.00	0.00
2,200.0	8.13	310.02	2,195.7	45.2	-53.8	-42.1	0.00	0.00	0.00
2,300.0	8.13	310.02	2,294.7	54.3	-64.7	-50.6	0.00	0.00	0.00
2,400.0	8.13	310.02	2,393.7	63.4	-75.5	-59.1	0.00	0.00	0.00
2,500.0	8.13	310.02	2,492.7	72.5	-86.3	-67.6	0.00	0.00	0.00
2,600.0	8.13	310.02	2,591.7	81.6	-97.1	-76.0	0.00	0.00	0.00
2,700.0	8.13	310.02	2,690.7	90.7	-108.0	-84.5	0.00	0.00	0.00
2,800.0	8.13	310.02	2,789.7	99.8	-118.8	-93.0	0.00	0.00	0.00
2,900.0	8.13	310.02	2,888.7	108.8	-129.6	-101.5	0.00	0.00	0.00
3,000.0	8.13	310.02	2,987.7	117.9	-140.4	-109.9	0.00	0.00	0.00
3,100.0	8.13	310.02	3,086.6	127.0	-151.3	-118.4	0.00	0.00	0.00
3,200.0	8.13	310.02	3,185.6	136.1	-162.1	-126.9	0.00	0.00	0.00
3,300.0	8.13	310.02	3,284.6	145.2	-172.9	-135.4	0.00	0.00	0.00
3,400.0	8.13	310.02	3,383.6	154.3	-183.8	-143.8	0.00	0.00	0.00
3,500.0	8.13	310.02	3,482.6	163.4	-194.6	-152.3	0.00	0.00	0.00
3,568.1	8.13	310.02	3,550.0	169.6	-202.0	-158.1	0.00	0.00	0.00
PARKMAN									
3,600.0	8.13	310.02	3,581.6	172.5	-205.4	-160.8	0.00	0.00	0.00
3,700.0	8.13	310.02	3,680.6	181.6	-216.2	-169.3	0.00	0.00	0.00
3,800.0	8.13	310.02	3,779.6	190.7	-227.1	-177.7	0.00	0.00	0.00
3,900.0	8.13	310.02	3,878.6	199.8	-237.9	-186.2	0.00	0.00	0.00
4,000.0	8.13	310.02	3,977.6	208.9	-248.7	-194.7	0.00	0.00	0.00
4,100.0	8.13	310.02	4,076.6	218.0	-259.5	-203.2	0.00	0.00	0.00
4,189.3	8.13	310.02	4,165.0	226.1	-269.2	-210.7	0.00	0.00	0.00
SUSSEX									
4,200.0	8.13	310.02	4,175.6	227.1	-270.4	-211.6	0.00	0.00	0.00
4,300.0	8.13	310.02	4,274.6	236.1	-281.2	-220.1	0.00	0.00	0.00
4,400.0	8.13	310.02	4,373.6	245.2	-292.0	-228.6	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Chestnut 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:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**North Reference:**	True
Well:	Chestnut 28R-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (12-17-13)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	8.13	310.02	4,472.6	254.3	-302.9	-237.1	0.00	0.00	0.00
4,600.0	8.13	310.02	4,571.6	263.4	-313.7	-245.5	0.00	0.00	0.00
4,700.0	8.13	310.02	4,670.6	272.5	-324.5	-254.0	0.00	0.00	0.00
4,800.0	8.13	310.02	4,769.6	281.6	-335.3	-262.5	0.00	0.00	0.00
4,900.0	8.13	310.02	4,868.6	290.7	-346.2	-271.0	0.00	0.00	0.00
5,000.0	8.13	310.02	4,967.6	299.8	-357.0	-279.4	0.00	0.00	0.00
5,100.0	8.13	310.02	5,066.6	308.9	-367.8	-287.9	0.00	0.00	0.00
5,128.7	8.13	310.02	5,095.0	311.5	-370.9	-290.4	0.00	0.00	0.00
5,200.0	6.70	310.02	5,165.7	317.4	-378.0	-295.9	2.00	-2.00	0.00
5,204.4	6.61	310.02	5,170.0	317.7	-378.4	-296.2	2.00	-2.00	0.00
SHANNON									
5,300.0	4.70	310.02	5,265.2	323.8	-385.6	-301.8	2.00	-2.00	0.00
5,400.0	2.70	310.02	5,365.0	328.0	-390.5	-305.7	2.00	-2.00	0.00
5,500.0	0.70	310.02	5,464.9	329.9	-392.8	-307.5	2.00	-2.00	0.00
5,535.1	0.00	0.00	5,500.0	330.0	-393.0	-307.6	2.00	-2.00	0.00
5,600.0	0.00	0.00	5,564.9	330.0	-393.0	-307.6	0.00	0.00	0.00
5,700.0	0.00	0.00	5,664.9	330.0	-393.0	-307.6	0.00	0.00	0.00
5,800.0	0.00	0.00	5,764.9	330.0	-393.0	-307.6	0.00	0.00	0.00
5,900.0	0.00	0.00	5,864.9	330.0	-393.0	-307.6	0.00	0.00	0.00
6,000.0	0.00	0.00	5,964.9	330.0	-393.0	-307.6	0.00	0.00	0.00
6,081.2	0.00	0.00	6,046.1	330.0	-393.0	-307.6	0.00	0.00	0.00
KOP #2									
6,100.0	1.41	180.00	6,064.9	329.8	-393.0	-307.4	7.51	7.51	0.00
6,200.0	8.91	180.00	6,164.4	320.8	-393.0	-298.4	7.50	7.50	0.00
6,300.0	16.41	180.00	6,261.9	298.9	-393.0	-276.5	7.50	7.50	0.00
6,400.0	23.91	180.00	6,355.7	264.4	-393.0	-242.1	7.50	7.50	0.00
6,441.3	27.01	180.00	6,393.0	246.7	-393.0	-224.4	7.50	7.50	0.00
SHARON SPRINGS									
6,500.0	31.41	180.00	6,444.2	218.0	-393.0	-195.8	7.50	7.50	0.00
6,600.0	38.91	180.00	6,525.9	160.5	-393.0	-138.4	7.50	7.50	0.00
6,700.0	46.41	180.00	6,599.4	92.8	-393.0	-70.8	7.50	7.50	0.00
6,800.0	53.91	180.00	6,663.4	16.1	-393.0	5.9	7.50	7.50	0.00
6,900.0	61.41	180.00	6,716.9	-68.4	-393.0	90.2	7.50	7.50	0.00
7,000.0	68.91	180.00	6,758.9	-159.1	-393.0	180.7	7.50	7.50	0.00
7,100.0	76.41	180.00	6,788.7	-254.5	-393.0	275.9	7.50	7.50	0.00
7,200.0	83.91	180.00	6,805.7	-352.9	-393.0	374.2	7.50	7.50	0.00
7,201.2	84.00	180.00	6,805.9	-354.1	-393.0	375.4	7.43	7.43	0.00
7"									
7,275.2	84.00	180.00	6,813.6	-427.7	-393.0	448.9	0.00	0.00	0.00
7,300.0	85.24	180.00	6,815.9	-452.4	-393.0	473.6	5.00	5.00	0.00
7,395.0	89.99	180.00	6,819.9	-547.3	-393.0	568.3	5.00	5.00	0.00
End of Build									
7,400.0	89.99	180.00	6,819.9	-552.3	-393.0	573.3	0.00	0.00	0.00
7,500.0	89.99	180.00	6,819.9	-652.3	-393.0	673.1	0.00	0.00	0.00
7,600.0	89.99	180.00	6,819.9	-752.3	-393.0	773.0	0.00	0.00	0.00
7,700.0	89.99	180.00	6,819.9	-852.3	-393.0	872.8	0.00	0.00	0.00
7,800.0	89.99	180.00	6,819.9	-952.3	-393.0	972.7	0.00	0.00	0.00
7,900.0	89.99	180.00	6,820.0	-1,052.3	-393.0	1,072.5	0.00	0.00	0.00
8,000.0	89.99	180.00	6,820.0	-1,152.3	-393.0	1,172.4	0.00	0.00	0.00
8,100.0	89.99	180.00	6,820.0	-1,252.3	-393.0	1,272.2	0.00	0.00	0.00
8,200.0	89.99	180.00	6,820.0	-1,352.3	-393.0	1,372.1	0.00	0.00	0.00
8,300.0	89.99	180.00	6,820.0	-1,452.3	-393.0	1,471.9	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Chestnut 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:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**North Reference:**	True
Well:	Chestnut 28R-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (12-17-13)		

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	-1,552.3	-393.0	1,571.8	0.00	0.00	0.00
8,500.0	89.99	180.00	6,820.1	-1,652.3	-393.0	1,671.6	0.00	0.00	0.00
8,600.0	89.99	180.00	6,820.1	-1,752.3	-393.0	1,771.4	0.00	0.00	0.00
8,700.0	89.99	180.00	6,820.1	-1,852.3	-393.0	1,871.3	0.00	0.00	0.00
8,800.0	89.99	180.00	6,820.1	-1,952.3	-393.0	1,971.1	0.00	0.00	0.00
8,900.0	89.99	180.00	6,820.1	-2,052.3	-393.0	2,071.0	0.00	0.00	0.00
9,000.0	89.99	180.00	6,820.1	-2,152.3	-393.0	2,170.8	0.00	0.00	0.00
9,100.0	89.99	180.00	6,820.2	-2,252.3	-393.0	2,270.7	0.00	0.00	0.00
9,200.0	89.99	180.00	6,820.2	-2,352.3	-393.0	2,370.5	0.00	0.00	0.00
9,300.0	89.99	180.00	6,820.2	-2,452.3	-393.0	2,470.4	0.00	0.00	0.00
9,400.0	89.99	180.00	6,820.2	-2,552.3	-393.0	2,570.2	0.00	0.00	0.00
9,500.0	89.99	180.00	6,820.2	-2,652.3	-393.0	2,670.0	0.00	0.00	0.00
9,600.0	89.99	180.00	6,820.3	-2,752.3	-393.0	2,769.9	0.00	0.00	0.00
9,700.0	89.99	180.00	6,820.3	-2,852.3	-393.0	2,869.7	0.00	0.00	0.00
9,800.0	89.99	180.00	6,820.3	-2,952.3	-393.0	2,969.6	0.00	0.00	0.00
9,900.0	89.99	180.00	6,820.3	-3,052.3	-393.0	3,069.4	0.00	0.00	0.00
10,000.0	89.99	180.00	6,820.3	-3,152.3	-393.0	3,169.3	0.00	0.00	0.00
10,100.0	89.99	180.00	6,820.3	-3,252.3	-393.0	3,269.1	0.00	0.00	0.00
10,200.0	89.99	180.00	6,820.4	-3,352.3	-393.0	3,369.0	0.00	0.00	0.00
10,300.0	89.99	180.00	6,820.4	-3,452.3	-393.0	3,468.8	0.00	0.00	0.00
10,400.0	89.99	180.00	6,820.4	-3,552.3	-393.0	3,568.6	0.00	0.00	0.00
10,500.0	89.99	180.00	6,820.4	-3,652.3	-393.0	3,668.5	0.00	0.00	0.00
10,600.0	89.99	180.00	6,820.4	-3,752.3	-393.0	3,768.3	0.00	0.00	0.00
10,700.0	89.99	180.00	6,820.4	-3,852.3	-393.0	3,868.2	0.00	0.00	0.00
10,800.0	89.99	180.00	6,820.5	-3,952.3	-393.0	3,968.0	0.00	0.00	0.00
10,900.0	89.99	180.00	6,820.5	-4,052.3	-393.0	4,067.9	0.00	0.00	0.00
11,000.0	89.99	180.00	6,820.5	-4,152.3	-393.0	4,167.7	0.00	0.00	0.00
11,100.0	89.99	180.00	6,820.5	-4,252.3	-393.0	4,267.6	0.00	0.00	0.00
11,200.0	89.99	180.00	6,820.5	-4,352.3	-393.0	4,367.4	0.00	0.00	0.00
11,300.0	89.99	180.00	6,820.5	-4,452.3	-393.0	4,467.3	0.00	0.00	0.00
11,400.0	89.99	180.00	6,820.6	-4,552.3	-393.0	4,567.1	0.00	0.00	0.00
11,500.0	89.99	180.00	6,820.6	-4,652.3	-393.0	4,666.9	0.00	0.00	0.00
11,600.0	89.99	180.00	6,820.6	-4,752.3	-393.0	4,766.8	0.00	0.00	0.00
11,700.0	89.99	180.00	6,820.6	-4,852.3	-393.0	4,866.6	0.00	0.00	0.00
11,800.0	89.99	180.00	6,820.6	-4,952.3	-393.0	4,966.5	0.00	0.00	0.00
11,900.0	89.99	180.00	6,820.7	-5,052.3	-393.0	5,066.3	0.00	0.00	0.00
12,000.0	89.99	180.00	6,820.7	-5,152.3	-393.0	5,166.2	0.00	0.00	0.00
12,100.0	89.99	180.00	6,820.7	-5,252.3	-393.0	5,266.0	0.00	0.00	0.00
12,200.0	89.99	180.00	6,820.7	-5,352.3	-393.0	5,365.9	0.00	0.00	0.00
12,300.0	89.99	180.00	6,820.7	-5,452.3	-393.0	5,465.7	0.00	0.00	0.00
12,400.0	89.99	180.00	6,820.7	-5,552.3	-393.0	5,565.5	0.00	0.00	0.00
12,500.0	89.99	180.00	6,820.8	-5,652.3	-393.0	5,665.4	0.00	0.00	0.00
12,600.0	89.99	180.00	6,820.8	-5,752.3	-393.0	5,765.2	0.00	0.00	0.00
12,700.0	89.99	180.00	6,820.8	-5,852.3	-393.0	5,865.1	0.00	0.00	0.00
12,800.0	89.99	180.00	6,820.8	-5,952.3	-393.0	5,964.9	0.00	0.00	0.00
12,900.0	89.99	180.00	6,820.8	-6,052.3	-393.0	6,064.8	0.00	0.00	0.00
13,000.0	89.99	180.00	6,820.8	-6,152.3	-393.0	6,164.6	0.00	0.00	0.00
13,100.0	89.99	180.00	6,820.9	-6,252.3	-393.0	6,264.5	0.00	0.00	0.00
13,200.0	89.99	180.00	6,820.9	-6,352.3	-393.0	6,364.3	0.00	0.00	0.00
13,300.0	89.99	180.00	6,820.9	-6,452.3	-393.0	6,464.1	0.00	0.00	0.00
13,400.0	89.99	180.00	6,820.9	-6,552.3	-393.0	6,564.0	0.00	0.00	0.00
13,500.0	89.99	180.00	6,820.9	-6,652.3	-393.0	6,663.8	0.00	0.00	0.00
13,600.0	89.99	180.00	6,820.9	-6,752.3	-393.0	6,763.7	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Chestnut 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:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**North Reference:**	True
Well:	Chestnut 28R-443	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (12-17-13)		

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	-6,852.3	-393.0	6,863.5	0.00	0.00	0.00
13,800.0	89.99	180.00	6,821.0	-6,952.3	-393.0	6,963.4	0.00	0.00	0.00
13,893.5	89.99	180.00	6,821.0	-7,045.7	-393.0	7,056.7	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 (")
7,201.2	6,805.9	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,568.1	3,550.0	PARKMAN			
4,189.3	4,165.0	SUSSEX			
5,204.4	5,170.0	SHANNON			
6,441.3	6,393.0	SHARON SPRINGS			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,500.0	1,500.0	0.0	0.0	KOP #1
6,081.2	6,046.1	330.0	-393.0	KOP #2
7,395.0	6,819.9	-547.3	-393.0	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

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

Wellbore #1
Plan #1 (12-17-13)

Anticollision Report

19 December, 2013

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Reference Plan #1 (12-17-13)

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 10,000.0ft	**Error Surface:**	Elliptical Conic

Warning Levels Evaluated at: 2.00 **Sigma**

Survey Tool Program **Date** 12/18/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,893.5	Plan #1 (12-17-13) (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
Chestnut 28M-HZ Pad Sec.28-T5N-R64W						
Chestnut 28M-203 - Wellbore #1 - Plan #1 (12-17-13)	200.0	199.0	89.2	88.6	132.777	CC, ES
Chestnut 28M-203 - Wellbore #1 - Plan #1 (12-17-13)	13,893.5	13,835.1	818.1	548.8	3.039	SF
Chestnut 28M-323 - Wellbore #1 - Plan #1 (12-17-13)	1,000.0	999.0	30.6	26.4	7.180	CC, ES
Chestnut 28M-323 - Wellbore #1 - Plan #1 (12-17-13)	13,893.5	13,843.8	290.3	34.7	1.136	Level 2, SF
Chestnut 28M-423 - Wellbore #1 - Plan #1 (12-17-13)	400.0	399.0	58.6	57.1	37.313	CC, ES
Chestnut 28M-423 - Wellbore #1 - Plan #1 (12-17-13)	13,893.5	13,944.3	529.5	254.6	1.926	SF
Chestnut 28R-203 - Wellbore #1 - Plan #1 (12-17-13)	1,500.0	1,500.0	30.6	24.1	4.702	CC, ES
Chestnut 28R-203 - Wellbore #1 - Plan #1 (12-17-13)	13,893.5	13,720.9	330.0	101.4	1.443	Level 3, SF
Existing Wells - Chestnut 28M-HZ - Sec.28-T5N-R64W						
Hall 28-3 (Exist) - Wellbore #1 - Wellbore #1	8,428.8	6,810.0	214.5	43.3	1.253	Level 3, CC, ES, SF
Hall 28-4 (Exist) - Wellbore #1 - Wellbore #1	6,981.7	6,737.1	122.5	-27.8	0.815	Level 1, CC, ES, SF
Hall 28-5 (Exist) - Wellbore #1 - Wellbore #1	7,601.8	6,804.9	301.0	143.1	1.907	CC, ES, SF
Hendricks 33-2 (Exist) - Wellbore #1 - Wellbore #1	12,359.7	6,829.7	119.8	-124.9	0.490	Level 1, CC, ES, SF
Hendricks 33-4 (Exist) - Wellbore #1 - Wellbore #1	13,755.0	6,852.0	200.7	-71.1	0.738	Level 1, CC, ES, SF

Offset Design Chestnut 28M-HZ Pad Sec.28-T5N-R64W - Chestnut 28M-203 - Wellbore #1 - Plan #1 (12-17-13)

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	-87.65	3.7	-89.2	89.2				
100.0	100.0	99.0	99.0	0.1	0.1	-87.65	3.7	-89.2	89.2	89.0	0.22	398.995	
200.0	200.0	199.0	199.0	0.3	0.3	-87.65	3.7	-89.2	89.2	88.6	0.67	132.777	CC, ES
300.0	300.0	296.1	296.0	0.6	0.5	-87.40	4.1	-90.7	90.8	89.7	1.11	81.874	
400.0	400.0	392.9	392.7	0.8	0.8	-86.69	5.5	-95.4	95.7	94.2	1.55	61.569	
500.0	500.0	489.3	488.8	1.0	1.0	-85.64	7.9	-103.1	103.9	101.9	2.01	51.609	
600.0	600.0	585.0	583.8	1.2	1.3	-84.44	11.1	-113.9	115.4	112.9	2.49	46.365	
700.0	700.0	679.8	677.6	1.5	1.6	-83.21	15.2	-127.6	130.2	127.2	2.99	43.611	
800.0	800.0	773.7	769.8	1.7	1.9	-82.04	20.1	-144.0	148.3	144.8	3.51	42.265	
900.0	900.0	867.8	861.8	1.9	2.3	-80.97	26.0	-163.4	169.5	165.5	4.06	41.734	
1,000.0	1,000.0	963.5	954.8	2.1	2.8	-80.07	32.3	-184.5	192.5	187.8	4.65	41.427	
1,100.0	1,100.0	1,060.7	1,049.5	2.4	3.2	-79.34	38.8	-206.0	215.4	210.2	5.24	41.086	

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 Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Chestnut 28M-HZ Pad Sec.28-T5N-R64W - Chestnut 28M-203 - Wellbore #1 - Plan #1 (12-17-13)

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	1,158.0	1,144.2	2.6	3.7	-78.75	45.3	-227.6	238.4	232.6	5.85	40.750	
1,300.0	1,300.0	1,255.3	1,238.8	2.8	4.2	-78.27	51.7	-249.1	261.4	255.0	6.47	40.438	
1,400.0	1,400.0	1,352.6	1,333.5	3.0	4.7	-77.86	58.2	-270.6	284.5	277.4	7.08	40.153	
1,500.0	1,500.0	1,449.9	1,428.2	3.3	5.1	-77.52	64.7	-292.1	307.5	299.8	7.71	39.897	
1,600.0	1,600.0	1,547.6	1,523.2	3.5	5.6	-27.19	71.2	-313.8	329.0	321.8	7.18	45.833	
1,700.0	1,699.8	1,645.8	1,618.8	3.7	6.1	-27.15	77.7	-335.5	347.5	339.9	7.66	45.376	
1,800.0	1,799.5	1,744.6	1,714.9	3.9	6.6	-27.38	84.3	-357.3	363.0	354.8	8.14	44.579	
1,900.0	1,898.7	1,843.8	1,811.3	4.2	7.1	-27.86	90.8	-379.3	375.4	366.7	8.63	43.495	
2,000.0	1,997.7	1,943.1	1,908.0	4.4	7.6	-28.54	97.4	-401.3	386.1	376.9	9.13	42.273	
2,100.0	2,096.7	2,042.4	2,004.6	4.7	8.1	-29.20	104.1	-423.2	396.8	387.2	9.64	41.148	
2,200.0	2,195.7	2,141.7	2,101.2	5.0	8.6	-29.83	110.7	-445.2	407.7	397.5	10.16	40.114	
2,300.0	2,294.7	2,241.0	2,197.9	5.3	9.1	-30.42	117.3	-467.2	418.5	407.8	10.69	39.160	
2,400.0	2,393.7	2,340.3	2,294.5	5.5	9.6	-30.98	123.9	-489.1	429.4	418.2	11.22	38.279	
2,500.0	2,492.7	2,439.7	2,391.1	5.8	10.1	-31.51	130.5	-511.1	440.4	428.6	11.76	37.463	
2,600.0	2,591.7	2,539.0	2,487.8	6.1	10.6	-32.02	137.1	-533.1	451.4	439.1	12.30	36.705	
2,700.0	2,690.7	2,638.3	2,584.4	6.5	11.1	-32.50	143.7	-555.1	462.4	449.5	12.84	36.000	
2,800.0	2,789.7	2,737.6	2,681.0	6.8	11.6	-32.96	150.3	-577.0	473.4	460.0	13.40	35.343	
2,900.0	2,888.7	2,836.9	2,777.6	7.1	12.1	-33.40	156.9	-599.0	484.5	470.5	13.95	34.729	
3,000.0	2,987.7	2,936.3	2,874.3	7.4	12.6	-33.82	163.5	-621.0	495.6	481.1	14.51	34.154	
3,100.0	3,086.6	3,035.6	2,970.9	7.7	13.1	-34.22	170.1	-642.9	506.7	491.6	15.07	33.615	
3,200.0	3,185.6	3,134.9	3,067.5	8.1	13.6	-34.61	176.7	-664.9	517.9	502.2	15.64	33.109	
3,300.0	3,284.6	3,234.2	3,164.2	8.4	14.1	-34.98	183.3	-686.9	529.0	512.8	16.21	32.633	
3,400.0	3,383.6	3,333.5	3,260.8	8.7	14.6	-35.33	189.9	-708.9	540.2	523.4	16.79	32.185	
3,500.0	3,482.6	3,432.8	3,357.4	9.0	15.1	-35.67	196.5	-730.8	551.4	534.1	17.36	31.762	
3,600.0	3,581.6	3,532.2	3,454.1	9.4	15.6	-35.99	203.1	-752.8	562.7	544.7	17.94	31.362	
3,700.0	3,680.6	3,631.5	3,550.7	9.7	16.1	-36.31	209.7	-774.8	573.9	555.4	18.52	30.984	
3,800.0	3,779.6	3,730.8	3,647.3	10.0	16.6	-36.61	216.3	-796.8	585.2	566.1	19.11	30.626	
3,900.0	3,878.6	3,830.1	3,744.0	10.4	17.1	-36.90	222.9	-818.7	596.5	576.8	19.69	30.286	
4,000.0	3,977.6	3,929.4	3,840.6	10.7	17.6	-37.17	229.5	-840.7	607.8	587.5	20.28	29.963	
4,100.0	4,076.6	4,028.7	3,937.2	11.0	18.1	-37.44	236.1	-862.7	619.1	598.2	20.87	29.656	
4,200.0	4,175.6	4,128.1	4,033.9	11.4	18.6	-37.70	242.7	-884.6	630.4	608.9	21.47	29.364	
4,300.0	4,274.6	4,227.4	4,130.5	11.7	19.1	-37.95	249.3	-906.6	641.7	619.7	22.06	29.086	
4,400.0	4,373.6	4,326.7	4,227.1	12.0	19.6	-38.19	255.9	-928.6	653.1	630.4	22.66	28.820	
4,500.0	4,472.6	4,426.0	4,323.7	12.4	20.1	-38.42	262.5	-950.6	664.4	641.2	23.26	28.567	
4,600.0	4,571.6	4,525.3	4,420.4	12.7	20.6	-38.65	269.1	-972.5	675.8	651.9	23.86	28.325	
4,700.0	4,670.6	4,624.7	4,517.0	13.1	21.1	-38.87	275.7	-994.5	687.2	662.7	24.46	28.093	
4,800.0	4,769.6	4,724.0	4,613.6	13.4	21.6	-39.08	282.3	-1,016.5	698.5	673.5	25.06	27.871	
4,900.0	4,868.6	4,823.3	4,710.3	13.7	22.1	-39.28	288.9	-1,038.5	709.9	684.3	25.67	27.659	
5,000.0	4,967.6	4,922.6	4,806.9	14.1	22.6	-39.48	295.5	-1,060.4	721.3	695.1	26.27	27.455	
5,100.0	5,066.6	5,021.9	4,903.5	14.4	23.1	-39.67	302.2	-1,082.4	732.7	705.9	26.88	27.260	
5,200.0	5,165.7	5,121.2	5,000.1	14.7	23.6	-39.92	308.7	-1,104.4	744.8	717.4	27.45	27.132	
5,300.0	5,265.2	5,240.4	5,116.3	14.9	24.1	-40.09	316.4	-1,129.7	758.7	730.7	27.97	27.129	
5,400.0	5,365.0	5,373.6	5,247.4	15.1	24.5	-40.14	323.3	-1,152.8	771.1	742.7	28.41	27.140	
5,500.0	5,464.9	5,507.9	5,380.4	15.3	24.8	-40.08	328.5	-1,170.1	781.8	753.0	28.78	27.162	
5,600.0	5,564.9	5,643.0	5,515.0	15.5	25.1	-89.86	331.9	-1,181.5	790.1	760.9	29.14	27.116	
5,700.0	5,664.9	5,779.0	5,650.8	15.6	25.3	-89.74	333.5	-1,186.8	794.0	764.5	29.53	26.891	
5,800.0	5,764.9	5,892.1	5,763.9	15.8	25.4	-89.74	333.7	-1,187.2	794.3	764.4	29.89	26.574	
5,900.0	5,864.9	5,992.1	5,863.9	16.0	25.5	-89.74	333.7	-1,187.2	794.3	764.0	30.24	26.262	
6,000.0	5,964.9	6,092.2	5,963.9	16.2	25.6	-89.98	330.3	-1,187.2	794.3	763.7	30.61	25.945	
6,003.1	5,968.0	6,095.3	5,967.0	16.2	25.6	90.00	330.0	-1,187.2	794.3	763.6	30.63	25.934	
6,100.0	6,064.9	6,190.1	6,060.6	16.3	25.6	88.92	314.9	-1,187.2	794.4	763.4	31.04	25.592	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Chestnut 28M-HZ Pad Sec.28-T5N-R64W - Chestnut 28M-203 - Wellbore #1 - Plan #1 (12-17-13)

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	6,164.4	6,285.1	6,151.7	16.4	25.6	87.56	288.3	-1,187.2	795.0	763.6	31.37	25.344	
6,300.0	6,261.9	6,378.1	6,237.0	16.5	25.6	86.24	251.5	-1,187.2	796.0	764.5	31.55	25.231	
6,400.0	6,355.7	6,469.1	6,315.6	16.4	25.6	85.00	205.7	-1,187.2	797.4	765.8	31.61	25.228	
6,500.0	6,444.2	6,558.6	6,387.0	16.4	25.5	83.84	151.9	-1,187.2	799.0	767.4	31.59	25.296	
6,600.0	6,525.9	6,646.6	6,450.7	16.3	25.5	82.78	91.2	-1,187.2	800.7	769.2	31.55	25.380	
6,700.0	6,599.4	6,733.4	6,506.2	16.2	25.4	81.84	24.5	-1,187.2	802.5	770.9	31.59	25.405	
6,800.0	6,663.4	6,819.2	6,553.3	16.2	25.4	81.03	-47.2	-1,187.2	804.2	772.4	31.78	25.307	
6,900.0	6,716.9	6,904.2	6,591.8	16.2	25.5	80.35	-122.9	-1,187.2	805.8	773.5	32.27	24.973	
7,000.0	6,758.9	6,988.5	6,621.4	16.3	25.6	79.81	-201.8	-1,187.2	807.0	774.0	33.08	24.398	
7,100.0	6,788.7	7,072.4	6,642.0	16.8	25.7	79.42	-283.1	-1,187.2	808.0	773.7	34.27	23.575	
7,200.0	6,805.7	7,155.9	6,653.6	17.6	26.0	79.19	-365.7	-1,187.2	808.6	772.8	35.85	22.555	
7,300.0	6,815.9	7,241.9	6,656.2	18.6	26.3	78.74	-451.6	-1,187.2	810.0	772.3	37.64	21.519	
7,400.0	6,819.9	7,341.7	6,655.7	19.7	26.9	78.39	-551.5	-1,187.2	810.8	770.9	39.94	20.302	
7,500.0	6,819.9	7,441.7	6,655.2	21.0	27.6	78.36	-651.5	-1,187.2	810.9	768.6	42.32	19.161	
7,600.0	6,819.9	7,541.7	6,654.8	22.3	28.5	78.32	-751.5	-1,187.2	811.0	766.1	44.90	18.064	
7,700.0	6,819.9	7,641.7	6,654.3	23.7	29.4	78.29	-851.5	-1,187.2	811.2	763.5	47.63	17.029	
7,800.0	6,819.9	7,741.7	6,653.8	25.2	30.5	78.25	-951.5	-1,187.2	811.3	760.8	50.50	16.064	
7,900.0	6,820.0	7,841.7	6,653.3	26.7	31.7	78.22	-1,051.5	-1,187.2	811.4	757.9	53.48	15.170	
8,000.0	6,820.0	7,941.7	6,652.8	28.3	33.0	78.18	-1,151.5	-1,187.2	811.5	754.9	56.56	14.348	
8,100.0	6,820.0	8,041.7	6,652.3	29.9	34.4	78.15	-1,251.5	-1,187.2	811.6	751.9	59.71	13.592	
8,200.0	6,820.0	8,141.7	6,651.8	31.5	35.8	78.11	-1,351.5	-1,187.2	811.7	748.7	62.93	12.898	
8,300.0	6,820.0	8,241.7	6,651.3	33.2	37.2	78.08	-1,451.5	-1,187.2	811.8	745.6	66.21	12.261	
8,400.0	6,820.0	8,341.7	6,650.9	34.9	38.7	78.04	-1,551.5	-1,187.2	811.9	742.3	69.53	11.676	
8,500.0	6,820.1	8,441.7	6,650.4	36.6	40.3	78.01	-1,651.5	-1,187.2	812.0	739.1	72.90	11.138	
8,600.0	6,820.1	8,541.7	6,649.9	38.4	41.9	77.97	-1,751.5	-1,187.2	812.1	735.8	76.31	10.643	
8,700.0	6,820.1	8,641.7	6,649.4	40.1	43.5	77.94	-1,851.4	-1,187.2	812.2	732.5	79.74	10.185	
8,800.0	6,820.1	8,741.7	6,648.9	41.9	45.1	77.90	-1,951.4	-1,187.2	812.3	729.1	83.21	9.763	
8,900.0	6,820.1	8,841.7	6,648.4	43.7	46.8	77.87	-2,051.4	-1,187.2	812.4	725.7	86.69	9.371	
9,000.0	6,820.1	8,941.7	6,647.9	45.5	48.5	77.83	-2,151.4	-1,187.2	812.5	722.3	90.20	9.008	
9,100.0	6,820.2	9,041.7	6,647.4	47.3	50.2	77.80	-2,251.4	-1,187.2	812.6	718.9	93.73	8.670	
9,200.0	6,820.2	9,141.7	6,646.9	49.1	51.9	77.76	-2,351.4	-1,187.2	812.7	715.5	97.28	8.355	
9,300.0	6,820.2	9,241.7	6,646.5	50.9	53.6	77.73	-2,451.4	-1,187.2	812.8	712.0	100.83	8.061	
9,400.0	6,820.2	9,341.7	6,646.0	52.7	55.3	77.69	-2,551.4	-1,187.2	812.9	708.5	104.41	7.786	
9,500.0	6,820.2	9,441.7	6,645.5	54.6	57.1	77.66	-2,651.4	-1,187.2	813.0	705.1	107.99	7.529	
9,600.0	6,820.3	9,541.7	6,645.0	56.4	58.9	77.63	-2,751.4	-1,187.2	813.2	701.6	111.59	7.287	
9,700.0	6,820.3	9,641.7	6,644.5	58.2	60.6	77.59	-2,851.4	-1,187.2	813.3	698.1	115.19	7.060	
9,800.0	6,820.3	9,741.7	6,644.0	60.1	62.4	77.56	-2,951.4	-1,187.2	813.4	694.6	118.80	6.846	
9,900.0	6,820.3	9,841.7	6,643.5	61.9	64.2	77.52	-3,051.4	-1,187.2	813.5	691.1	122.42	6.645	
10,000.0	6,820.3	9,941.7	6,643.0	63.8	66.0	77.49	-3,151.4	-1,187.2	813.6	687.5	126.05	6.454	
10,100.0	6,820.3	10,041.7	6,642.5	65.7	67.8	77.45	-3,251.4	-1,187.2	813.7	684.0	129.69	6.274	
10,200.0	6,820.4	10,141.7	6,642.1	67.5	69.6	77.42	-3,351.4	-1,187.2	813.8	680.5	133.32	6.104	
10,300.0	6,820.4	10,241.7	6,641.6	69.4	71.4	77.38	-3,451.4	-1,187.2	813.9	677.0	136.97	5.942	
10,400.0	6,820.4	10,341.7	6,641.1	71.3	73.3	77.35	-3,551.4	-1,187.2	814.0	673.4	140.62	5.789	
10,500.0	6,820.4	10,441.7	6,640.6	73.1	75.1	77.31	-3,651.4	-1,187.2	814.1	669.9	144.27	5.643	
10,600.0	6,820.4	10,541.7	6,640.1	75.0	76.9	77.28	-3,751.4	-1,187.2	814.3	666.3	147.93	5.504	
10,700.0	6,820.4	10,641.7	6,639.6	76.9	78.8	77.24	-3,851.4	-1,187.2	814.4	662.8	151.59	5.372	
10,800.0	6,820.5	10,741.7	6,639.1	78.8	80.6	77.21	-3,951.4	-1,187.2	814.5	659.2	155.25	5.246	
10,900.0	6,820.5	10,841.7	6,638.6	80.7	82.4	77.17	-4,051.4	-1,187.2	814.6	655.7	158.92	5.126	
11,000.0	6,820.5	10,941.7	6,638.1	82.5	84.3	77.14	-4,151.4	-1,187.2	814.7	652.1	162.59	5.011	
11,100.0	6,820.5	11,041.7	6,637.7	84.4	86.1	77.10	-4,251.4	-1,187.2	814.8	648.6	166.26	4.901	
11,200.0	6,820.5	11,141.7	6,637.2	86.3	88.0	77.07	-4,351.4	-1,187.2	814.9	645.0	169.94	4.796	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Chestnut 28M-HZ Pad Sec.28-T5N-R64W - Chestnut 28M-203 - Wellbore #1 - Plan #1 (12-17-13)

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	11,241.7	6,636.7	88.2	89.8	77.03	-4,451.4	-1,187.2	815.0	641.4	173.61	4.695	
11,400.0	6,820.6	11,341.7	6,636.2	90.1	91.7	77.00	-4,551.4	-1,187.2	815.2	637.9	177.29	4.598	
11,500.0	6,820.6	11,441.7	6,635.7	92.0	93.6	76.97	-4,651.4	-1,187.2	815.3	634.3	180.97	4.505	
11,600.0	6,820.6	11,541.7	6,635.2	93.9	95.4	76.93	-4,751.4	-1,187.2	815.4	630.7	184.65	4.416	
11,700.0	6,820.6	11,641.7	6,634.7	95.8	97.3	76.90	-4,851.4	-1,187.2	815.5	627.2	188.33	4.330	
11,800.0	6,820.6	11,741.7	6,634.2	97.7	99.2	76.86	-4,951.4	-1,187.2	815.6	623.6	192.02	4.248	
11,900.0	6,820.7	11,841.7	6,633.7	99.5	101.0	76.83	-5,051.4	-1,187.2	815.7	620.0	195.70	4.168	
12,000.0	6,820.7	11,941.7	6,633.3	101.4	102.9	76.79	-5,151.4	-1,187.2	815.8	616.5	199.39	4.092	
12,100.0	6,820.7	12,041.7	6,632.8	103.3	104.8	76.76	-5,251.4	-1,187.2	816.0	612.9	203.07	4.018	
12,200.0	6,820.7	12,141.7	6,632.3	105.2	106.6	76.72	-5,351.4	-1,187.2	816.1	609.3	206.76	3.947	
12,300.0	6,820.7	12,241.7	6,631.8	107.1	108.5	76.69	-5,451.4	-1,187.2	816.2	605.7	210.45	3.878	
12,400.0	6,820.7	12,341.7	6,631.3	109.0	110.4	76.65	-5,551.4	-1,187.2	816.3	602.2	214.14	3.812	
12,500.0	6,820.8	12,441.7	6,630.8	110.9	112.3	76.62	-5,651.4	-1,187.2	816.4	598.6	217.82	3.748	
12,600.0	6,820.8	12,541.7	6,630.3	112.8	114.2	76.58	-5,751.4	-1,187.2	816.5	595.0	221.51	3.686	
12,700.0	6,820.8	12,641.7	6,629.8	114.7	116.0	76.55	-5,851.3	-1,187.2	816.7	591.5	225.20	3.626	
12,800.0	6,820.8	12,741.7	6,629.3	116.6	117.9	76.52	-5,951.3	-1,187.2	816.8	587.9	228.89	3.568	
12,900.0	6,820.8	12,841.7	6,628.9	118.5	119.8	76.48	-6,051.3	-1,187.2	816.9	584.3	232.58	3.512	
13,000.0	6,820.8	12,941.7	6,628.4	120.4	121.7	76.45	-6,151.3	-1,187.2	817.0	580.7	236.27	3.458	
13,100.0	6,820.9	13,041.7	6,627.9	122.4	123.6	76.41	-6,251.3	-1,187.2	817.1	577.2	239.96	3.405	
13,200.0	6,820.9	13,141.7	6,627.4	124.3	125.5	76.38	-6,351.3	-1,187.2	817.3	573.6	243.65	3.354	
13,300.0	6,820.9	13,241.7	6,626.9	126.2	127.4	76.34	-6,451.3	-1,187.2	817.4	570.0	247.34	3.305	
13,400.0	6,820.9	13,341.7	6,626.4	128.1	129.2	76.31	-6,551.3	-1,187.2	817.5	566.5	251.03	3.257	
13,500.0	6,820.9	13,441.7	6,625.9	130.0	131.1	76.27	-6,651.3	-1,187.2	817.6	562.9	254.72	3.210	
13,600.0	6,820.9	13,541.7	6,625.4	131.9	133.0	76.24	-6,751.3	-1,187.2	817.7	559.3	258.41	3.164	
13,700.0	6,821.0	13,641.7	6,624.9	133.8	134.9	76.21	-6,851.3	-1,187.2	817.9	555.8	262.10	3.120	
13,800.0	6,821.0	13,741.7	6,624.5	135.7	136.8	76.17	-6,951.3	-1,187.2	818.0	552.2	265.79	3.078	
13,893.5	6,821.0	13,835.1	6,624.0	137.5	138.6	76.14	-7,044.8	-1,187.2	818.1	548.8	269.24	3.039 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Chestnut 28M-HZ Pad Sec.28-T5N-R64W - Chestnut 28M-323 - Wellbore #1 - Plan #1 (12-17-13)

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	-89.98	0.0	-30.6	30.7				
100.0	100.0	99.0	99.0	0.1	0.1	-89.98	0.0	-30.6	30.6	30.4	0.22	137.039	
200.0	200.0	199.0	199.0	0.3	0.3	-89.98	0.0	-30.6	30.6	30.0	0.67	45.604	
300.0	300.0	299.0	299.0	0.6	0.6	-89.98	0.0	-30.6	30.6	29.5	1.12	27.326	
400.0	400.0	399.0	399.0	0.8	0.8	-89.98	0.0	-30.6	30.6	29.1	1.57	19.507	
500.0	500.0	499.0	499.0	1.0	1.0	-89.98	0.0	-30.6	30.6	28.6	2.02	15.167	
600.0	600.0	599.0	599.0	1.2	1.2	-89.98	0.0	-30.6	30.6	28.2	2.47	12.407	
700.0	700.0	699.0	699.0	1.5	1.5	-89.98	0.0	-30.6	30.6	27.7	2.92	10.497	
800.0	800.0	799.0	799.0	1.7	1.7	-89.98	0.0	-30.6	30.6	27.3	3.37	9.096	
900.0	900.0	899.0	899.0	1.9	1.9	-89.98	0.0	-30.6	30.6	26.8	3.82	8.026	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	-89.98	0.0	-30.6	30.6	26.4	4.27	7.180	CC, ES
1,100.0	1,100.0	1,098.0	1,098.0	2.4	2.3	-88.59	0.8	-32.1	32.2	27.4	4.71	6.829	
1,200.0	1,200.0	1,196.8	1,196.7	2.6	2.6	-85.08	3.2	-36.6	36.8	31.7	5.15	7.156	
1,300.0	1,300.0	1,295.1	1,294.6	2.8	2.8	-80.87	7.1	-44.1	44.9	39.3	5.59	8.023	
1,400.0	1,400.0	1,392.8	1,391.5	3.0	3.0	-77.04	12.5	-54.4	56.4	50.3	6.05	9.320	
1,500.0	1,500.0	1,489.5	1,487.1	3.3	3.3	-73.95	19.4	-67.6	71.3	64.8	6.52	10.943	
1,600.0	1,600.0	1,587.9	1,584.0	3.5	3.6	-22.00	27.4	-82.7	86.8	79.9	6.91	12.568	
1,700.0	1,699.8	1,687.1	1,681.7	3.7	3.9	-21.33	35.5	-98.1	99.3	91.9	7.34	13.521	
1,800.0	1,799.5	1,786.7	1,779.8	3.9	4.2	-21.47	43.6	-113.5	108.5	100.7	7.77	13.949	
1,900.0	1,898.7	1,886.5	1,878.0	4.2	4.6	-22.25	51.7	-128.9	114.4	106.2	8.21	13.933	
2,000.0	1,997.7	1,986.4	1,976.4	4.4	4.9	-23.37	59.8	-144.3	118.6	109.9	8.68	13.666	
2,100.0	2,096.7	2,086.3	2,074.7	4.7	5.3	-24.40	68.0	-159.8	122.8	113.7	9.16	13.414	
2,200.0	2,195.7	2,186.2	2,173.1	5.0	5.7	-25.37	76.1	-175.2	127.1	117.4	9.64	13.180	
2,300.0	2,294.7	2,286.1	2,271.4	5.3	6.0	-26.28	84.2	-190.6	131.4	121.2	10.13	12.962	
2,400.0	2,393.7	2,385.9	2,369.8	5.5	6.4	-27.13	92.3	-206.1	135.7	125.0	10.64	12.758	
2,500.0	2,492.7	2,485.8	2,468.2	5.8	6.8	-27.93	100.4	-221.5	140.0	128.9	11.14	12.567	
2,600.0	2,591.7	2,585.7	2,566.5	6.1	7.2	-28.68	108.6	-236.9	144.4	132.7	11.66	12.387	
2,700.0	2,690.7	2,685.6	2,664.9	6.5	7.5	-29.38	116.7	-252.4	148.8	136.6	12.18	12.219	
2,800.0	2,789.7	2,785.5	2,763.2	6.8	7.9	-30.04	124.8	-267.8	153.2	140.5	12.70	12.061	
2,900.0	2,888.7	2,885.4	2,861.6	7.1	8.3	-30.67	132.9	-283.2	157.7	144.4	13.24	11.912	
3,000.0	2,987.7	2,985.3	2,959.9	7.4	8.7	-31.26	141.1	-298.7	162.1	148.3	13.77	11.771	
3,100.0	3,086.6	3,085.2	3,058.3	7.7	9.1	-31.82	149.2	-314.1	166.6	152.3	14.31	11.639	
3,200.0	3,185.6	3,185.0	3,156.6	8.1	9.5	-32.36	157.3	-329.5	171.1	156.2	14.86	11.513	
3,300.0	3,284.6	3,284.9	3,255.0	8.4	9.9	-32.86	165.4	-345.0	175.6	160.2	15.41	11.394	
3,400.0	3,383.6	3,384.8	3,353.3	8.7	10.3	-33.34	173.5	-360.4	180.1	164.1	15.96	11.282	
3,500.0	3,482.6	3,484.7	3,451.7	9.0	10.7	-33.79	181.7	-375.8	184.6	168.1	16.52	11.175	
3,600.0	3,581.6	3,584.6	3,550.0	9.4	11.0	-34.23	189.8	-391.3	189.2	172.1	17.08	11.074	
3,700.0	3,680.6	3,684.5	3,648.4	9.7	11.4	-34.64	197.9	-406.7	193.7	176.1	17.64	10.978	
3,800.0	3,779.6	3,784.4	3,746.7	10.0	11.8	-35.03	206.0	-422.1	198.3	180.0	18.21	10.887	
3,900.0	3,878.6	3,884.2	3,845.1	10.4	12.2	-35.41	214.2	-437.6	202.8	184.0	18.78	10.800	
4,000.0	3,977.6	3,984.1	3,943.4	10.7	12.6	-35.77	222.3	-453.0	207.4	188.0	19.35	10.717	
4,100.0	4,076.6	4,084.0	4,041.8	11.0	13.0	-36.12	230.4	-468.4	212.0	192.0	19.93	10.638	
4,200.0	4,175.6	4,183.9	4,140.1	11.4	13.4	-36.45	238.5	-483.9	216.6	196.1	20.50	10.562	
4,300.0	4,274.6	4,283.8	4,238.5	11.7	13.8	-36.76	246.6	-499.3	221.2	200.1	21.08	10.490	
4,400.0	4,373.6	4,383.7	4,336.9	12.0	14.2	-37.06	254.8	-514.7	225.8	204.1	21.66	10.421	
4,500.0	4,472.6	4,483.6	4,435.2	12.4	14.6	-37.36	262.9	-530.2	230.4	208.1	22.25	10.355	
4,600.0	4,571.6	4,583.5	4,533.6	12.7	15.0	-37.64	271.0	-545.6	235.0	212.2	22.83	10.292	
4,700.0	4,670.6	4,683.3	4,631.9	13.1	15.4	-37.90	279.1	-561.0	239.6	216.2	23.42	10.232	
4,800.0	4,769.6	4,783.2	4,730.3	13.4	15.8	-38.16	287.3	-576.5	244.2	220.2	24.01	10.174	
4,900.0	4,868.6	4,883.1	4,828.6	13.7	16.2	-38.41	295.4	-591.9	248.9	224.3	24.60	10.118	
5,000.0	4,967.6	4,983.0	4,927.0	14.1	16.6	-38.65	303.5	-607.3	253.5	228.3	25.19	10.065	

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 Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Chestnut 28M-HZ Pad Sec.28-T5N-R64W - Chestnut 28M-323 - Wellbore #1 - Plan #1 (12-17-13)

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	5,066.6	5,085.2	5,027.6	14.4	17.0	-38.90	311.7	-623.0	258.0	232.2	25.78	10.008	
5,200.0	5,165.7	5,193.9	5,135.1	14.7	17.3	-39.35	319.1	-637.1	260.8	234.4	26.34	9.901	
5,300.0	5,265.2	5,302.7	5,243.3	14.9	17.5	-39.69	324.6	-647.5	262.8	236.0	26.80	9.804	
5,400.0	5,365.0	5,411.5	5,351.9	15.1	17.7	-39.92	328.2	-654.3	264.1	236.9	27.20	9.709	
5,500.0	5,464.9	5,520.4	5,460.7	15.3	17.9	-40.01	329.9	-657.5	264.7	237.2	27.53	9.614	
5,600.0	5,564.9	5,623.7	5,563.9	15.5	18.0	-90.00	330.0	-657.7	264.8	236.9	27.86	9.503	
5,700.0	5,664.9	5,723.7	5,663.9	15.6	18.2	-90.00	330.0	-657.7	264.8	236.5	28.23	9.377	
5,800.0	5,764.9	5,823.7	5,763.9	15.8	18.3	-90.00	330.0	-657.7	264.8	236.1	28.61	9.254	
5,900.0	5,864.9	5,923.7	5,863.9	16.0	18.5	-90.00	330.0	-657.7	264.8	235.8	28.99	9.134	
6,000.0	5,964.9	6,023.7	5,963.9	16.2	18.6	-90.00	330.0	-657.7	264.8	235.4	29.37	9.016	
6,020.3	5,985.2	6,043.9	5,984.2	16.2	18.7	89.99	329.9	-657.7	264.8	235.3	29.44	8.993	
6,100.0	6,064.9	6,123.3	6,063.3	16.3	18.7	88.89	324.6	-657.7	264.8	235.0	29.82	8.881	
6,200.0	6,164.4	6,221.6	6,159.9	16.4	18.8	86.88	306.8	-657.7	265.1	234.9	30.20	8.779	
6,300.0	6,261.9	6,318.7	6,252.3	16.5	18.8	84.95	277.0	-657.7	265.8	235.4	30.41	8.739	
6,400.0	6,355.7	6,414.9	6,339.4	16.4	18.7	83.12	236.3	-657.7	266.7	236.2	30.47	8.753	
6,500.0	6,444.2	6,510.1	6,419.8	16.4	18.7	81.43	185.6	-657.7	267.8	237.4	30.40	8.808	
6,600.0	6,525.9	6,604.4	6,492.7	16.3	18.6	79.89	125.8	-657.7	269.0	238.7	30.29	8.880	
6,700.0	6,599.4	6,698.0	6,557.2	16.2	18.6	78.52	58.1	-657.7	270.2	240.0	30.22	8.940	
6,800.0	6,663.4	6,790.9	6,612.6	16.2	18.5	77.35	-16.5	-657.7	271.4	241.0	30.32	8.950	
6,900.0	6,716.9	6,883.3	6,658.3	16.2	18.6	76.38	-96.7	-657.7	272.4	241.7	30.71	8.872	
7,000.0	6,758.9	6,975.3	6,693.8	16.3	18.7	75.63	-181.5	-657.7	273.3	241.9	31.44	8.693	
7,100.0	6,788.7	7,066.9	6,718.9	16.8	19.0	75.11	-269.6	-657.7	274.0	241.3	32.61	8.400	
7,200.0	6,805.7	7,158.4	6,733.2	17.6	19.5	74.81	-359.9	-657.7	274.3	240.1	34.22	8.017	
7,300.0	6,815.9	7,250.6	6,736.7	18.6	20.2	73.60	-452.0	-657.7	276.1	240.1	35.98	7.674	
7,400.0	6,819.9	7,350.5	6,736.1	19.7	21.1	72.65	-551.8	-657.7	277.4	239.2	38.20	7.261	
7,500.0	6,819.9	7,450.5	6,735.6	21.0	22.2	72.54	-651.8	-657.7	277.5	237.0	40.57	6.841	
7,600.0	6,819.9	7,550.5	6,735.1	22.3	23.5	72.43	-751.8	-657.7	277.7	234.6	43.12	6.441	
7,700.0	6,819.9	7,650.5	6,734.5	23.7	24.8	72.32	-851.8	-657.7	277.9	232.1	45.82	6.065	
7,800.0	6,819.9	7,750.5	6,734.0	25.2	26.2	72.21	-951.8	-657.7	278.1	229.4	48.65	5.716	
7,900.0	6,820.0	7,850.5	6,733.4	26.7	27.7	72.10	-1,051.8	-657.7	278.2	226.6	51.58	5.394	
8,000.0	6,820.0	7,950.5	6,732.9	28.3	29.2	71.99	-1,151.8	-657.7	278.4	223.8	54.59	5.099	
8,100.0	6,820.0	8,050.5	6,732.3	29.9	30.8	71.88	-1,251.8	-657.7	278.6	220.9	57.68	4.829	
8,200.0	6,820.0	8,150.5	6,731.8	31.5	32.4	71.77	-1,351.8	-657.7	278.7	217.9	60.83	4.582	
8,300.0	6,820.0	8,250.5	6,731.3	33.2	34.0	71.66	-1,451.8	-657.7	278.9	214.9	64.03	4.356	
8,400.0	6,820.0	8,350.5	6,730.7	34.9	35.7	71.55	-1,551.8	-657.7	279.1	211.8	67.27	4.149	
8,500.0	6,820.1	8,450.5	6,730.2	36.6	37.3	71.44	-1,651.8	-657.7	279.3	208.7	70.55	3.958	
8,600.0	6,820.1	8,550.4	6,729.6	38.4	39.1	71.34	-1,751.8	-657.7	279.5	205.6	73.86	3.784	
8,700.0	6,820.1	8,650.4	6,729.1	40.1	40.8	71.23	-1,851.8	-657.7	279.6	202.4	77.20	3.622	
8,800.0	6,820.1	8,750.4	6,728.6	41.9	42.5	71.12	-1,951.8	-657.7	279.8	199.3	80.55	3.474	
8,900.0	6,820.1	8,850.4	6,728.0	43.7	44.3	71.01	-2,051.8	-657.7	280.0	196.1	83.93	3.336	
9,000.0	6,820.1	8,950.4	6,727.5	45.5	46.1	70.90	-2,151.8	-657.7	280.2	192.9	87.32	3.209	
9,100.0	6,820.2	9,050.4	6,726.9	47.3	47.8	70.79	-2,251.8	-657.7	280.4	189.6	90.73	3.090	
9,200.0	6,820.2	9,150.4	6,726.4	49.1	49.6	70.69	-2,351.8	-657.7	280.5	186.4	94.15	2.980	
9,300.0	6,820.2	9,250.4	6,725.9	50.9	51.4	70.58	-2,451.8	-657.7	280.7	183.2	97.58	2.877	
9,400.0	6,820.2	9,350.4	6,725.3	52.7	53.2	70.47	-2,551.8	-657.7	280.9	179.9	101.01	2.781	
9,500.0	6,820.2	9,450.4	6,724.8	54.6	55.1	70.36	-2,651.8	-657.7	281.1	176.6	104.46	2.691	
9,600.0	6,820.3	9,550.4	6,724.2	56.4	56.9	70.26	-2,751.8	-657.7	281.3	173.4	107.91	2.607	
9,700.0	6,820.3	9,650.4	6,723.7	58.2	58.7	70.15	-2,851.8	-657.7	281.5	170.1	111.37	2.527	
9,800.0	6,820.3	9,750.4	6,723.2	60.1	60.5	70.04	-2,951.8	-657.7	281.7	166.8	114.83	2.453	
9,900.0	6,820.3	9,850.4	6,722.6	61.9	62.4	69.94	-3,051.8	-657.7	281.9	163.6	118.29	2.383	
10,000.0	6,820.3	9,950.4	6,722.1	63.8	64.2	69.83	-3,151.8	-657.7	282.1	160.3	121.76	2.316	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Chestnut 28M-HZ Pad Sec.28-T5N-R64W - Chestnut 28M-323 - Wellbore #1 - Plan #1 (12-17-13)

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	10,050.4	6,721.5	65.7	66.1	69.72	-3,251.7	-657.7	282.2	157.0	125.23	2.254	
10,200.0	6,820.4	10,150.4	6,721.0	67.5	67.9	69.62	-3,351.7	-657.7	282.4	153.7	128.70	2.195	
10,300.0	6,820.4	10,250.4	6,720.4	69.4	69.8	69.51	-3,451.7	-657.7	282.6	150.5	132.17	2.138	
10,400.0	6,820.4	10,350.4	6,719.9	71.3	71.6	69.41	-3,551.7	-657.7	282.8	147.2	135.65	2.085	
10,500.0	6,820.4	10,450.4	6,719.4	73.1	73.5	69.30	-3,651.7	-657.7	283.0	143.9	139.12	2.034	
10,600.0	6,820.4	10,550.4	6,718.8	75.0	75.4	69.19	-3,751.7	-657.7	283.2	140.6	142.59	1.986	
10,700.0	6,820.4	10,650.4	6,718.3	76.9	77.2	69.09	-3,851.7	-657.7	283.4	137.4	146.06	1.940	
10,800.0	6,820.5	10,750.4	6,717.7	78.8	79.1	68.98	-3,951.7	-657.7	283.6	134.1	149.54	1.897	
10,900.0	6,820.5	10,850.4	6,717.2	80.7	81.0	68.88	-4,051.7	-657.7	283.8	130.8	153.01	1.855	
11,000.0	6,820.5	10,950.4	6,716.7	82.5	82.9	68.77	-4,151.7	-657.7	284.0	127.6	156.47	1.815	
11,100.0	6,820.5	11,050.4	6,716.1	84.4	84.7	68.67	-4,251.7	-657.7	284.2	124.3	159.94	1.777	
11,200.0	6,820.5	11,150.4	6,715.6	86.3	86.6	68.56	-4,351.7	-657.7	284.4	121.0	163.41	1.741	
11,300.0	6,820.5	11,250.4	6,715.0	88.2	88.5	68.46	-4,451.7	-657.7	284.6	117.8	166.87	1.706	
11,400.0	6,820.6	11,350.4	6,714.5	90.1	90.4	68.35	-4,551.7	-657.7	284.8	114.5	170.33	1.672	
11,500.0	6,820.6	11,450.4	6,714.0	92.0	92.3	68.25	-4,651.7	-657.7	285.0	111.3	173.79	1.640	
11,600.0	6,820.6	11,550.4	6,713.4	93.9	94.2	68.15	-4,751.7	-657.7	285.3	108.0	177.25	1.609	
11,700.0	6,820.6	11,650.4	6,712.9	95.8	96.0	68.04	-4,851.7	-657.7	285.5	104.8	180.70	1.580	
11,800.0	6,820.6	11,750.4	6,712.3	97.7	97.9	67.94	-4,951.7	-657.7	285.7	101.5	184.16	1.551	
11,900.0	6,820.7	11,850.4	6,711.8	99.5	99.8	67.83	-5,051.7	-657.7	285.9	98.3	187.60	1.524	
12,000.0	6,820.7	11,950.4	6,711.2	101.4	101.7	67.73	-5,151.7	-657.7	286.1	95.0	191.05	1.497	Level 3
12,100.0	6,820.7	12,050.4	6,710.7	103.3	103.6	67.63	-5,251.7	-657.7	286.3	91.8	194.49	1.472	Level 3
12,200.0	6,820.7	12,150.4	6,710.2	105.2	105.5	67.52	-5,351.7	-657.7	286.5	88.6	197.93	1.448	Level 3
12,300.0	6,820.7	12,250.4	6,709.6	107.1	107.4	67.42	-5,451.7	-657.7	286.7	85.4	201.37	1.424	Level 3
12,400.0	6,820.7	12,350.4	6,709.1	109.0	109.3	67.32	-5,551.7	-657.7	286.9	82.2	204.80	1.401	Level 3
12,500.0	6,820.8	12,450.4	6,708.5	110.9	111.2	67.21	-5,651.7	-657.7	287.2	78.9	208.23	1.379	Level 3
12,600.0	6,820.8	12,550.4	6,708.0	112.8	113.1	67.11	-5,751.7	-657.7	287.4	75.7	211.65	1.358	Level 3
12,700.0	6,820.8	12,650.4	6,707.5	114.7	115.0	67.01	-5,851.7	-657.7	287.6	72.5	215.07	1.337	Level 3
12,800.0	6,820.8	12,750.4	6,706.9	116.6	116.9	66.91	-5,951.7	-657.7	287.8	69.3	218.49	1.317	Level 3
12,900.0	6,820.8	12,850.4	6,706.4	118.5	118.8	66.80	-6,051.7	-657.7	288.0	66.1	221.91	1.298	Level 3
13,000.0	6,820.8	12,950.4	6,705.8	120.4	120.7	66.70	-6,151.7	-657.7	288.3	62.9	225.32	1.279	Level 3
13,100.0	6,820.9	13,050.4	6,705.3	122.4	122.6	66.60	-6,251.7	-657.7	288.5	59.8	228.72	1.261	Level 3
13,200.0	6,820.9	13,150.4	6,704.8	124.3	124.5	66.50	-6,351.7	-657.7	288.7	56.6	232.12	1.244	Level 2
13,300.0	6,820.9	13,250.4	6,704.2	126.2	126.4	66.40	-6,451.7	-657.7	288.9	53.4	235.52	1.227	Level 2
13,400.0	6,820.9	13,350.4	6,703.7	128.1	128.3	66.30	-6,551.6	-657.7	289.1	50.2	238.92	1.210	Level 2
13,500.0	6,820.9	13,450.4	6,703.1	130.0	130.2	66.19	-6,651.6	-657.7	289.4	47.1	242.31	1.194	Level 2
13,600.0	6,820.9	13,550.4	6,702.6	131.9	132.1	66.09	-6,751.6	-657.7	289.6	43.9	245.69	1.179	Level 2
13,700.0	6,821.0	13,650.4	6,702.1	133.8	134.0	65.99	-6,851.6	-657.7	289.8	40.8	249.07	1.164	Level 2
13,800.0	6,821.0	13,750.4	6,701.5	135.7	135.9	65.89	-6,951.6	-657.7	290.1	37.6	252.45	1.149	Level 2
13,893.5	6,821.0	13,843.8	6,701.0	137.5	137.7	65.80	-7,045.1	-657.7	290.3	34.7	255.60	1.136	Level 2, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Chestnut 28M-HZ Pad Sec.28-T5N-R64W - Chestnut 28M-423 - Wellbore #1 - Plan #1 (12-17-13)

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	-86.43	3.7	-58.5	58.6				
100.0	100.0	99.0	99.0	0.1	0.1	-86.43	3.7	-58.5	58.6	58.4	0.22	262.130	
200.0	200.0	199.0	199.0	0.3	0.3	-86.43	3.7	-58.5	58.6	58.0	0.67	87.231	
300.0	300.0	299.0	299.0	0.6	0.6	-86.43	3.7	-58.5	58.6	57.5	1.12	52.269	
400.0	400.0	399.0	399.0	0.8	0.8	-86.43	3.7	-58.5	58.6	57.1	1.57	37.313	CC, ES
500.0	500.0	497.1	497.0	1.0	1.0	-85.96	4.2	-60.0	60.2	58.2	2.01	29.966	
600.0	600.0	594.9	594.7	1.2	1.2	-84.69	6.0	-64.7	65.1	62.7	2.45	26.566	
700.0	700.0	692.3	691.7	1.5	1.4	-82.94	9.0	-72.4	73.3	70.4	2.90	25.255	
800.0	800.0	788.9	787.8	1.7	1.7	-81.07	13.1	-83.1	84.9	81.5	3.37	25.186	
900.0	900.0	884.8	882.4	1.9	2.0	-79.32	18.3	-96.7	99.8	96.0	3.86	25.872	
1,000.0	1,000.0	981.6	977.7	2.1	2.3	-77.78	24.5	-113.0	117.6	113.2	4.37	26.889	
1,100.0	1,100.0	1,079.9	1,074.4	2.4	2.7	-76.62	30.9	-129.8	135.7	130.8	4.90	27.687	
1,200.0	1,200.0	1,178.3	1,171.0	2.6	3.1	-75.73	37.3	-146.6	153.8	148.4	5.44	28.279	
1,300.0	1,300.0	1,276.6	1,267.7	2.8	3.5	-75.02	43.7	-163.4	172.0	166.0	5.99	28.728	
1,400.0	1,400.0	1,374.9	1,364.4	3.0	3.8	-74.45	50.1	-180.2	190.2	183.7	6.54	29.077	
1,500.0	1,500.0	1,473.2	1,461.0	3.3	4.2	-73.98	56.5	-197.0	208.4	201.3	7.10	29.354	
1,600.0	1,600.0	1,571.8	1,557.9	3.5	4.6	-23.66	63.0	-213.8	225.1	218.0	7.03	32.008	
1,700.0	1,699.8	1,670.9	1,655.4	3.7	5.0	-23.70	69.4	-230.8	238.6	231.1	7.49	31.842	
1,800.0	1,799.5	1,770.3	1,753.1	3.9	5.4	-24.08	75.9	-247.7	248.9	241.0	7.95	31.292	
1,900.0	1,898.7	1,870.0	1,851.1	4.2	5.8	-24.77	82.4	-264.8	256.1	247.7	8.42	30.420	
2,000.0	1,997.7	1,969.8	1,949.2	4.4	6.3	-25.67	88.9	-281.8	261.6	252.7	8.90	29.380	
2,100.0	2,096.7	2,069.5	2,047.3	4.7	6.7	-26.53	95.5	-298.9	267.1	257.7	9.39	28.428	
2,200.0	2,195.7	2,169.3	2,145.4	5.0	7.1	-27.35	102.0	-315.9	272.7	262.8	9.89	27.556	
2,300.0	2,294.7	2,269.1	2,243.5	5.3	7.5	-28.14	108.5	-333.0	278.3	267.9	10.40	26.757	
2,400.0	2,393.7	2,368.8	2,341.5	5.5	7.9	-28.90	115.0	-350.0	284.0	273.1	10.91	26.021	
2,500.0	2,492.7	2,468.6	2,439.6	5.8	8.3	-29.63	121.5	-367.0	289.7	278.3	11.43	25.341	
2,600.0	2,591.7	2,568.4	2,537.7	6.1	8.7	-30.33	128.0	-384.1	295.5	283.5	11.96	24.712	
2,700.0	2,690.7	2,668.1	2,635.8	6.5	9.1	-31.01	134.5	-401.1	301.3	288.8	12.49	24.129	
2,800.0	2,789.7	2,767.9	2,733.9	6.8	9.5	-31.66	141.0	-418.2	307.1	294.1	13.02	23.586	
2,900.0	2,888.7	2,867.7	2,832.0	7.1	10.0	-32.28	147.5	-435.2	313.0	299.5	13.56	23.080	
3,000.0	2,987.7	2,967.4	2,930.1	7.4	10.4	-32.88	154.1	-452.3	319.0	304.9	14.11	22.608	
3,100.0	3,086.6	3,067.2	3,028.2	7.7	10.8	-33.46	160.6	-469.3	324.9	310.3	14.66	22.166	
3,200.0	3,185.6	3,167.0	3,126.2	8.1	11.2	-34.02	167.1	-486.4	330.9	315.7	15.21	21.752	
3,300.0	3,284.6	3,266.8	3,224.3	8.4	11.6	-34.56	173.6	-503.4	337.0	321.2	15.77	21.363	
3,400.0	3,383.6	3,366.5	3,322.4	8.7	12.0	-35.08	180.1	-520.5	343.0	326.7	16.34	20.997	
3,500.0	3,482.6	3,466.3	3,420.5	9.0	12.4	-35.58	186.6	-537.5	349.1	332.2	16.90	20.653	
3,600.0	3,581.6	3,566.1	3,518.6	9.4	12.8	-36.07	193.1	-554.5	355.2	337.7	17.47	20.328	
3,700.0	3,680.6	3,665.8	3,616.7	9.7	13.3	-36.54	199.6	-571.6	361.3	343.3	18.05	20.021	
3,800.0	3,779.6	3,765.6	3,714.8	10.0	13.7	-36.99	206.1	-588.6	367.5	348.9	18.63	19.731	
3,900.0	3,878.6	3,865.4	3,812.8	10.4	14.1	-37.43	212.6	-605.7	373.7	354.5	19.21	19.456	
4,000.0	3,977.6	3,965.1	3,910.9	10.7	14.5	-37.85	219.2	-622.7	379.9	360.1	19.79	19.195	
4,100.0	4,076.6	4,064.9	4,009.0	11.0	14.9	-38.26	225.7	-639.8	386.1	365.7	20.38	18.948	
4,200.0	4,175.6	4,164.7	4,107.1	11.4	15.3	-38.66	232.2	-656.8	392.3	371.4	20.97	18.713	
4,300.0	4,274.6	4,264.4	4,205.2	11.7	15.7	-39.04	238.7	-673.9	398.6	377.0	21.56	18.489	
4,400.0	4,373.6	4,364.2	4,303.3	12.0	16.2	-39.41	245.2	-690.9	404.9	382.7	22.15	18.276	
4,500.0	4,472.6	4,464.0	4,401.4	12.4	16.6	-39.77	251.7	-708.0	411.1	388.4	22.75	18.073	
4,600.0	4,571.6	4,563.8	4,499.4	12.7	17.0	-40.12	258.2	-725.0	417.5	394.1	23.35	17.880	
4,700.0	4,670.6	4,663.5	4,597.5	13.1	17.4	-40.46	264.7	-742.0	423.8	399.8	23.95	17.695	
4,800.0	4,769.6	4,763.3	4,695.6	13.4	17.8	-40.79	271.2	-759.1	430.1	405.6	24.55	17.518	
4,900.0	4,868.6	4,863.1	4,793.7	13.7	18.2	-41.11	277.8	-776.1	436.5	411.3	25.16	17.349	
5,000.0	4,967.6	4,962.8	4,891.8	14.1	18.6	-41.43	284.3	-793.2	442.8	417.1	25.77	17.187	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Chestnut 28M-HZ Pad Sec.28-T5N-R64W - Chestnut 28M-423 - Wellbore #1 - Plan #1 (12-17-13)

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	5,066.6	5,062.6	4,989.9	14.4	19.1	-41.73	290.8	-810.2	449.2	422.8	26.37	17.032	
5,200.0	5,165.7	5,162.3	5,087.9	14.7	19.5	-42.02	297.3	-827.3	456.2	429.3	26.95	16.929	
5,300.0	5,265.2	5,261.9	5,185.8	14.9	19.9	-42.08	303.8	-844.3	465.8	438.3	27.43	16.980	
5,400.0	5,365.0	5,361.1	5,283.3	15.1	20.3	-41.90	310.3	-861.2	477.9	450.0	27.84	17.165	
5,500.0	5,464.9	5,460.7	5,381.3	15.3	20.7	-41.49	316.8	-878.2	492.6	464.4	28.19	17.477	
5,600.0	5,564.9	5,578.5	5,497.6	15.5	21.1	-90.74	323.5	-895.9	507.4	478.9	28.50	17.804	
5,700.0	5,664.9	5,697.7	5,615.9	15.6	21.4	-90.15	328.6	-909.3	518.5	489.7	28.85	17.977	
5,800.0	5,764.9	5,817.9	5,735.7	15.8	21.6	-89.79	332.0	-918.1	525.9	496.7	29.20	18.006	
5,900.0	5,864.9	5,938.7	5,856.4	16.0	21.8	-89.62	333.5	-922.2	529.3	499.7	29.57	17.896	
6,000.0	5,964.9	6,046.2	5,963.9	16.2	21.9	-89.60	333.7	-922.5	529.5	499.6	29.95	17.683	
6,046.0	6,010.9	6,092.2	6,009.9	16.2	22.0	90.42	333.7	-922.5	529.5	499.4	30.11	17.587	
6,100.0	6,064.9	6,146.3	6,064.0	16.3	22.0	90.40	333.4	-922.5	529.5	499.2	30.31	17.472	
6,200.0	6,164.4	6,246.8	6,164.0	16.4	22.1	90.41	324.5	-922.5	529.5	499.0	30.51	17.355	
6,300.0	6,261.9	6,347.3	6,262.0	16.5	22.1	90.41	302.5	-922.5	529.5	499.0	30.57	17.322	
6,400.0	6,355.7	6,447.8	6,356.3	16.4	22.1	90.40	267.9	-922.5	529.5	499.0	30.52	17.349	
6,500.0	6,444.2	6,548.3	6,445.1	16.4	22.1	90.39	221.1	-922.5	529.5	499.1	30.43	17.403	
6,600.0	6,525.9	6,648.7	6,527.1	16.3	22.0	90.38	163.2	-922.5	529.5	499.2	30.36	17.439	
6,700.0	6,599.4	6,749.2	6,600.8	16.2	21.9	90.35	95.0	-922.5	529.5	499.1	30.42	17.405	
6,800.0	6,663.4	6,849.6	6,664.8	16.2	21.9	90.32	17.8	-922.5	529.5	498.8	30.69	17.253	
6,900.0	6,716.9	6,950.0	6,718.2	16.2	21.9	90.28	-67.1	-922.5	529.5	498.3	31.25	16.946	
7,000.0	6,758.9	7,050.3	6,760.0	16.3	22.0	90.24	-158.3	-922.5	529.5	497.4	32.15	16.470	
7,100.0	6,788.7	7,150.5	6,789.4	16.8	22.2	90.20	-254.0	-922.5	529.5	496.1	33.42	15.846	
7,200.0	6,805.7	7,250.7	6,806.1	17.6	22.6	90.15	-352.8	-922.5	529.5	494.5	35.03	15.114	
7,300.0	6,815.9	7,350.8	6,816.2	18.6	23.2	90.14	-452.3	-922.5	529.5	492.5	36.98	14.321	
7,400.0	6,820.1	7,450.9	6,819.9	19.7	23.9	90.09	-552.3	-922.5	529.5	490.3	39.17	13.518	
7,400.0	6,819.9	7,450.9	6,819.9	19.7	23.9	90.11	-552.3	-922.5	529.5	490.3	39.17	13.518	
7,500.0	6,819.9	7,550.9	6,819.9	21.0	24.8	90.11	-652.3	-922.5	529.5	487.9	41.61	12.726	
7,600.0	6,819.9	7,650.9	6,819.9	22.3	25.9	90.11	-752.3	-922.5	529.5	485.3	44.24	11.970	
7,700.0	6,819.9	7,750.9	6,819.9	23.7	27.0	90.11	-852.3	-922.5	529.5	482.5	47.03	11.258	
7,800.0	6,819.9	7,850.9	6,819.9	25.2	28.3	90.11	-952.3	-922.5	529.5	479.5	49.97	10.597	
7,900.0	6,820.0	7,950.9	6,820.0	26.7	29.6	90.11	-1,052.3	-922.5	529.5	476.5	53.02	9.987	
8,000.0	6,820.0	8,050.9	6,820.0	28.3	31.0	90.11	-1,152.3	-922.5	529.5	473.3	56.17	9.427	
8,100.0	6,820.0	8,150.9	6,820.0	29.9	32.5	90.11	-1,252.3	-922.5	529.5	470.1	59.40	8.915	
8,200.0	6,820.0	8,250.9	6,820.0	31.5	34.0	90.11	-1,352.3	-922.5	529.5	466.8	62.70	8.446	
8,300.0	6,820.0	8,350.9	6,820.0	33.2	35.6	90.11	-1,452.3	-922.5	529.5	463.5	66.06	8.016	
8,400.0	6,820.0	8,450.9	6,820.0	34.9	37.2	90.11	-1,552.3	-922.5	529.5	460.0	69.46	7.623	
8,500.0	6,820.1	8,550.9	6,820.1	36.6	38.8	90.11	-1,652.3	-922.5	529.5	456.6	72.91	7.262	
8,600.0	6,820.1	8,650.9	6,820.1	38.4	40.5	90.11	-1,752.3	-922.5	529.5	453.1	76.40	6.931	
8,700.0	6,820.1	8,750.9	6,820.1	40.1	42.1	90.11	-1,852.3	-922.5	529.5	449.6	79.92	6.625	
8,800.0	6,820.1	8,850.9	6,820.1	41.9	43.8	90.11	-1,952.3	-922.5	529.5	446.0	83.47	6.343	
8,900.0	6,820.1	8,950.9	6,820.1	43.7	45.5	90.11	-2,052.3	-922.5	529.5	442.5	87.05	6.083	
9,000.0	6,820.1	9,050.9	6,820.1	45.5	47.3	90.11	-2,152.3	-922.5	529.5	438.9	90.64	5.842	
9,100.0	6,820.2	9,150.9	6,820.2	47.3	49.0	90.11	-2,252.3	-922.5	529.5	435.3	94.26	5.618	
9,200.0	6,820.2	9,250.9	6,820.2	49.1	50.8	90.11	-2,352.3	-922.5	529.5	431.6	97.89	5.409	
9,300.0	6,820.2	9,350.9	6,820.2	50.9	52.5	90.11	-2,452.3	-922.5	529.5	428.0	101.54	5.215	
9,400.0	6,820.2	9,450.9	6,820.2	52.7	54.3	90.11	-2,552.3	-922.5	529.5	424.3	105.20	5.033	
9,500.0	6,820.2	9,550.9	6,820.2	54.6	56.1	90.11	-2,652.3	-922.5	529.5	420.6	108.88	4.863	
9,600.0	6,820.3	9,650.9	6,820.3	56.4	57.9	90.11	-2,752.3	-922.5	529.5	416.9	112.56	4.704	
9,700.0	6,820.3	9,750.9	6,820.3	58.2	59.7	90.11	-2,852.3	-922.5	529.5	413.3	116.26	4.555	
9,800.0	6,820.3	9,850.9	6,820.3	60.1	61.5	90.11	-2,952.3	-922.5	529.5	409.5	119.96	4.414	
9,900.0	6,820.3	9,950.9	6,820.3	61.9	63.3	90.11	-3,052.3	-922.5	529.5	405.8	123.68	4.281	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Chestnut 28M-HZ Pad Sec.28-T5N-R64W - Chestnut 28M-423 - Wellbore #1 - Plan #1 (12-17-13)

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
10,000.0	6,820.3	10,050.9	6,820.3	63.8	65.1	90.11	-3,152.3	-922.5	529.5	402.1	127.40	4.156	
10,100.0	6,820.3	10,150.9	6,820.3	65.7	67.0	90.11	-3,252.3	-922.5	529.5	398.4	131.12	4.038	
10,200.0	6,820.4	10,250.9	6,820.4	67.5	68.8	90.11	-3,352.3	-922.5	529.5	394.7	134.86	3.926	
10,300.0	6,820.4	10,350.9	6,820.4	69.4	70.6	90.11	-3,452.3	-922.5	529.5	390.9	138.60	3.820	
10,400.0	6,820.4	10,450.9	6,820.4	71.3	72.5	90.11	-3,552.3	-922.5	529.5	387.2	142.34	3.720	
10,500.0	6,820.4	10,550.9	6,820.4	73.1	74.3	90.11	-3,652.3	-922.5	529.5	383.4	146.10	3.624	
10,600.0	6,820.4	10,650.9	6,820.4	75.0	76.2	90.11	-3,752.3	-922.5	529.5	379.7	149.85	3.534	
10,700.0	6,820.4	10,750.9	6,820.4	76.9	78.0	90.11	-3,852.3	-922.5	529.5	375.9	153.61	3.447	
10,800.0	6,820.5	10,850.9	6,820.5	78.8	79.9	90.11	-3,952.3	-922.5	529.5	372.1	157.37	3.365	
10,900.0	6,820.5	10,950.9	6,820.5	80.7	81.7	90.11	-4,052.3	-922.5	529.5	368.4	161.14	3.286	
11,000.0	6,820.5	11,050.9	6,820.5	82.5	83.6	90.11	-4,152.3	-922.5	529.5	364.6	164.91	3.211	
11,100.0	6,820.5	11,150.9	6,820.5	84.4	85.4	90.11	-4,252.3	-922.5	529.5	360.8	168.69	3.139	
11,200.0	6,820.5	11,250.9	6,820.5	86.3	87.3	90.11	-4,352.3	-922.5	529.5	357.0	172.46	3.070	
11,300.0	6,820.5	11,350.9	6,820.5	88.2	89.2	90.11	-4,452.3	-922.5	529.5	353.3	176.24	3.004	
11,400.0	6,820.6	11,450.9	6,820.6	90.1	91.1	90.11	-4,552.3	-922.5	529.5	349.5	180.02	2.941	
11,500.0	6,820.6	11,550.9	6,820.6	92.0	92.9	90.11	-4,652.3	-922.5	529.5	345.7	183.81	2.881	
11,600.0	6,820.6	11,650.9	6,820.6	93.9	94.8	90.11	-4,752.3	-922.5	529.5	341.9	187.60	2.823	
11,700.0	6,820.6	11,750.9	6,820.6	95.8	96.7	90.11	-4,852.3	-922.5	529.5	338.1	191.39	2.767	
11,800.0	6,820.6	11,850.9	6,820.6	97.7	98.6	90.11	-4,952.3	-922.5	529.5	334.3	195.18	2.713	
11,900.0	6,820.7	11,950.9	6,820.7	99.5	100.4	90.11	-5,052.3	-922.5	529.5	330.5	198.97	2.661	
12,000.0	6,820.7	12,050.9	6,820.7	101.4	102.3	90.11	-5,152.3	-922.5	529.5	326.7	202.77	2.611	
12,100.0	6,820.7	12,150.9	6,820.7	103.3	104.2	90.11	-5,252.3	-922.5	529.5	322.9	206.56	2.563	
12,200.0	6,820.7	12,250.9	6,820.7	105.2	106.1	90.11	-5,352.3	-922.5	529.5	319.1	210.36	2.517	
12,300.0	6,820.7	12,350.9	6,820.7	107.1	108.0	90.11	-5,452.3	-922.5	529.5	315.3	214.16	2.472	
12,400.0	6,820.7	12,450.9	6,820.7	109.0	109.9	90.11	-5,552.3	-922.5	529.5	311.5	217.96	2.429	
12,500.0	6,820.8	12,550.9	6,820.8	110.9	111.7	90.11	-5,652.3	-922.5	529.5	307.7	221.77	2.388	
12,600.0	6,820.8	12,650.9	6,820.8	112.8	113.6	90.11	-5,752.3	-922.5	529.5	303.9	225.57	2.347	
12,700.0	6,820.8	12,750.9	6,820.8	114.7	115.5	90.11	-5,852.3	-922.5	529.5	300.1	229.38	2.308	
12,800.0	6,820.8	12,850.9	6,820.8	116.6	117.4	90.11	-5,952.3	-922.5	529.5	296.3	233.18	2.271	
12,900.0	6,820.8	12,950.9	6,820.8	118.5	119.3	90.11	-6,052.3	-922.5	529.5	292.5	236.99	2.234	
13,000.0	6,820.8	13,050.9	6,820.8	120.4	121.2	90.11	-6,152.3	-922.5	529.5	288.7	240.80	2.199	
13,100.0	6,820.9	13,150.9	6,820.9	122.4	123.1	90.11	-6,252.3	-922.5	529.5	284.9	244.61	2.165	
13,200.0	6,820.9	13,250.9	6,820.9	124.3	125.0	90.11	-6,352.3	-922.5	529.5	281.1	248.42	2.132	
13,300.0	6,820.9	13,350.9	6,820.9	126.2	126.9	90.11	-6,452.3	-922.5	529.5	277.3	252.23	2.099	
13,400.0	6,820.9	13,450.9	6,820.9	128.1	128.8	90.11	-6,552.3	-922.5	529.5	273.5	256.04	2.068	
13,500.0	6,820.9	13,550.9	6,820.9	130.0	130.7	90.11	-6,652.3	-922.5	529.5	269.7	259.86	2.038	
13,600.0	6,820.9	13,650.9	6,820.9	131.9	132.6	90.11	-6,752.3	-922.5	529.5	265.8	263.67	2.008	
13,700.0	6,821.0	13,750.9	6,821.0	133.8	134.5	90.11	-6,852.3	-922.5	529.5	262.0	267.49	1.980	
13,800.0	6,821.0	13,850.9	6,821.0	135.7	136.4	90.11	-6,952.3	-922.5	529.5	258.2	271.30	1.952	
13,856.7	6,821.0	13,907.6	6,821.0	136.8	137.4	90.11	-7,009.0	-922.5	529.5	256.0	273.47	1.936	
13,893.5	6,821.0	13,944.3	6,821.0	137.5	138.1	90.11	-7,045.7	-922.5	529.5	254.6	274.87	1.926	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Chestnut 28M-HZ Pad Sec.28-T5N-R64W - Chestnut 28R-203 - Wellbore #1 - Plan #1 (12-17-13)

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	89.98	0.0	30.6	30.6				
100.0	100.0	100.0	100.0	0.1	0.1	89.98	0.0	30.6	30.6	30.4	0.22	136.355	
200.0	200.0	200.0	200.0	0.3	0.3	89.98	0.0	30.6	30.6	30.0	0.67	45.452	
300.0	300.0	300.0	300.0	0.6	0.6	89.98	0.0	30.6	30.6	29.5	1.12	27.271	
400.0	400.0	400.0	400.0	0.8	0.8	89.98	0.0	30.6	30.6	29.1	1.57	19.479	
500.0	500.0	500.0	500.0	1.0	1.0	89.98	0.0	30.6	30.6	28.6	2.02	15.151	
600.0	600.0	600.0	600.0	1.2	1.2	89.98	0.0	30.6	30.6	28.2	2.47	12.396	
700.0	700.0	700.0	700.0	1.5	1.5	89.98	0.0	30.6	30.6	27.7	2.92	10.489	
800.0	800.0	800.0	800.0	1.7	1.7	89.98	0.0	30.6	30.6	27.3	3.37	9.090	
900.0	900.0	900.0	900.0	1.9	1.9	89.98	0.0	30.6	30.6	26.8	3.82	8.021	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.98	0.0	30.6	30.6	26.4	4.27	7.177	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	89.98	0.0	30.6	30.6	25.9	4.72	6.493	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	89.98	0.0	30.6	30.6	25.5	5.17	5.928	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	89.98	0.0	30.6	30.6	25.0	5.62	5.454	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	89.98	0.0	30.6	30.6	24.6	6.07	5.050	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	89.98	0.0	30.6	30.6	24.1	6.52	4.702	CC, ES
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	141.96	0.0	30.6	32.0	25.0	6.96	4.598	
1,700.0	1,699.8	1,699.8	1,699.8	3.7	3.7	147.01	0.0	30.6	36.3	28.9	7.39	4.906	
1,800.0	1,799.5	1,799.5	1,799.5	3.9	3.9	153.15	0.0	30.6	43.8	36.0	7.82	5.607	
1,900.0	1,898.7	1,898.7	1,898.7	4.2	4.2	158.81	0.0	30.6	55.0	46.8	8.24	6.678	
2,000.0	1,997.7	1,997.7	1,997.7	4.4	4.4	163.08	0.0	30.6	68.4	59.7	8.67	7.884	
2,100.0	2,096.7	2,098.9	2,098.9	4.7	4.6	165.26	1.5	29.9	80.7	71.6	9.12	8.853	
2,200.0	2,195.7	2,200.8	2,200.6	5.0	4.8	165.46	6.3	27.6	90.4	80.8	9.57	9.446	
2,300.0	2,294.7	2,303.1	2,302.6	5.3	5.1	164.28	14.4	23.7	97.2	87.2	10.02	9.704	
2,400.0	2,393.7	2,403.6	2,402.4	5.5	5.3	162.33	24.7	18.7	102.2	91.7	10.48	9.752	
2,500.0	2,492.7	2,503.5	2,501.6	5.8	5.5	160.52	35.1	13.8	107.2	96.3	10.95	9.789	
2,600.0	2,591.7	2,603.3	2,600.7	6.1	5.8	158.88	45.4	8.8	112.3	100.9	11.43	9.825	
2,700.0	2,690.7	2,703.1	2,699.9	6.5	6.0	157.39	55.7	3.8	117.5	105.6	11.92	9.857	
2,800.0	2,789.7	2,802.9	2,799.1	6.8	6.3	156.02	66.0	-1.1	122.8	110.3	12.42	9.886	
2,900.0	2,888.7	2,902.7	2,898.2	7.1	6.6	154.76	76.3	-6.1	128.1	115.2	12.92	9.912	
3,000.0	2,987.7	3,002.6	2,997.4	7.4	6.8	153.60	86.7	-11.1	133.5	120.0	13.43	9.935	
3,100.0	3,086.6	3,102.4	3,096.6	7.7	7.1	152.54	97.0	-16.0	138.9	124.9	13.95	9.955	
3,200.0	3,185.6	3,202.2	3,195.7	8.1	7.4	151.55	107.3	-21.0	144.4	129.9	14.48	9.972	
3,300.0	3,284.6	3,302.0	3,294.9	8.4	7.6	150.64	117.6	-26.0	149.9	134.9	15.01	9.986	
3,400.0	3,383.6	3,401.8	3,394.0	8.7	7.9	149.79	128.0	-30.9	155.4	139.9	15.54	9.999	
3,500.0	3,482.6	3,501.7	3,493.2	9.0	8.2	149.00	138.3	-35.9	161.0	144.9	16.08	10.009	
3,600.0	3,581.6	3,601.5	3,592.4	9.4	8.5	148.26	148.6	-40.9	166.6	150.0	16.63	10.018	
3,700.0	3,680.6	3,701.3	3,691.5	9.7	8.8	147.57	158.9	-45.9	172.2	155.1	17.18	10.026	
3,800.0	3,779.6	3,801.1	3,790.7	10.0	9.0	146.93	169.2	-50.8	177.9	160.2	17.73	10.031	
3,900.0	3,878.6	3,900.9	3,889.8	10.4	9.3	146.32	179.6	-55.8	183.6	165.3	18.29	10.036	
4,000.0	3,977.6	4,000.8	3,989.0	10.7	9.6	145.75	189.9	-60.8	189.3	170.4	18.85	10.040	
4,100.0	4,076.6	4,100.6	4,088.2	11.0	9.9	145.21	200.2	-65.7	195.0	175.6	19.41	10.043	
4,200.0	4,175.6	4,200.4	4,187.3	11.4	10.2	144.71	210.5	-70.7	200.7	180.7	19.98	10.045	
4,300.0	4,274.6	4,300.2	4,286.5	11.7	10.5	144.23	220.9	-75.7	206.4	185.9	20.55	10.046	
4,400.0	4,373.6	4,400.1	4,385.6	12.0	10.8	143.78	231.2	-80.6	212.2	191.1	21.12	10.047	
4,500.0	4,472.6	4,499.9	4,484.8	12.4	11.1	143.35	241.5	-85.6	218.0	196.3	21.69	10.048	
4,600.0	4,571.6	4,599.7	4,584.0	12.7	11.4	142.95	251.8	-90.6	223.8	201.5	22.27	10.048	
4,700.0	4,670.6	4,699.5	4,683.1	13.1	11.7	142.56	262.1	-95.5	229.5	206.7	22.85	10.047	
4,800.0	4,769.6	4,799.3	4,782.3	13.4	11.9	142.20	272.5	-100.5	235.3	211.9	23.43	10.046	
4,900.0	4,868.6	4,899.2	4,881.4	13.7	12.2	141.85	282.8	-105.5	241.2	217.2	24.01	10.045	
5,000.0	4,967.6	4,999.0	4,980.6	14.1	12.5	141.52	293.1	-110.4	247.0	222.4	24.59	10.044	

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 Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Chestnut 28M-HZ Pad Sec.28-T5N-R64W - Chestnut 28R-203 - Wellbore #1 - Plan #1 (12-17-13)

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	5,066.6	5,098.8	5,079.8	14.4	12.8	141.20	303.4	-115.4	252.8	227.6	25.17	10.042	
5,200.0	5,165.7	5,198.3	5,178.7	14.7	13.1	140.82	313.7	-120.4	258.0	232.2	25.76	10.015	
5,300.0	5,265.2	5,294.4	5,274.3	14.9	13.3	140.39	322.0	-124.3	261.4	235.2	26.22	9.969	
5,400.0	5,365.0	5,390.5	5,370.2	15.1	13.5	140.11	327.4	-126.9	263.6	237.0	26.62	9.903	
5,500.0	5,464.9	5,486.6	5,466.3	15.3	13.7	139.98	329.8	-128.1	264.7	237.7	26.96	9.817	
5,600.0	5,564.9	5,585.3	5,564.9	15.5	13.9	90.00	330.0	-128.2	264.8	237.5	27.30	9.700	
5,700.0	5,664.9	5,685.3	5,664.9	15.6	14.1	90.00	330.0	-128.2	264.8	237.1	27.68	9.564	
5,800.0	5,764.9	5,785.3	5,764.9	15.8	14.3	90.00	330.0	-128.2	264.8	236.7	28.07	9.431	
5,900.0	5,864.9	5,885.3	5,864.9	16.0	14.5	90.00	330.0	-128.2	264.8	236.3	28.47	9.301	
5,942.1	5,907.0	5,927.4	5,907.0	16.1	14.5	90.03	329.9	-128.2	264.8	236.1	28.62	9.249	
6,000.0	5,964.9	5,985.0	5,964.6	16.2	14.6	90.74	326.6	-128.2	264.8	236.0	28.76	9.205	
6,100.0	6,064.9	6,082.5	6,060.7	16.3	14.7	-85.97	311.2	-128.2	265.4	236.6	28.80	9.217	
6,200.0	6,164.4	6,177.0	6,151.4	16.4	14.7	-81.91	284.7	-128.2	267.5	238.9	28.64	9.341	
6,300.0	6,261.9	6,269.5	6,236.4	16.5	14.6	-78.08	248.2	-128.2	270.8	242.4	28.39	9.536	
6,400.0	6,355.7	6,360.2	6,314.7	16.4	14.6	-74.56	202.6	-128.2	275.0	246.8	28.11	9.781	
6,500.0	6,444.2	6,450.0	6,386.4	16.4	14.5	-71.36	148.7	-128.2	279.7	251.9	27.82	10.053	
6,600.0	6,525.9	6,537.1	6,449.5	16.3	14.5	-68.58	88.8	-128.2	284.8	257.2	27.57	10.327	
6,700.0	6,599.4	6,623.6	6,505.0	16.2	14.5	-66.18	22.4	-128.2	289.8	262.4	27.40	10.573	
6,800.0	6,663.4	6,709.1	6,552.2	16.2	14.6	-64.17	-48.9	-128.2	294.4	267.1	27.37	10.758	
6,900.0	6,716.9	6,793.9	6,590.7	16.2	15.0	-62.55	-124.3	-128.2	298.6	271.0	27.53	10.847	
7,000.0	6,758.9	6,878.0	6,620.5	16.3	15.5	-61.31	-202.9	-128.2	301.9	274.0	27.95	10.801	
7,100.0	6,788.7	6,961.7	6,641.4	16.8	16.1	-60.46	-283.9	-128.2	304.4	275.7	28.68	10.613	
7,200.0	6,805.7	7,045.1	6,653.3	17.6	16.9	-59.98	-366.4	-128.2	305.8	276.1	29.73	10.285	
7,300.0	6,815.9	7,130.4	6,656.2	18.6	17.8	-59.00	-451.6	-128.2	309.2	278.1	31.09	9.944	
7,400.0	6,819.9	7,230.2	6,655.7	19.7	18.9	-58.20	-551.5	-128.2	311.5	278.8	32.70	9.526	
7,500.0	6,819.9	7,330.2	6,655.2	21.0	20.2	-58.12	-651.5	-128.2	311.8	276.9	34.85	8.947	
7,600.0	6,819.9	7,430.2	6,654.7	22.3	21.6	-58.04	-751.5	-128.2	312.0	274.9	37.16	8.397	
7,700.0	6,819.9	7,530.2	6,654.3	23.7	23.0	-57.96	-851.5	-128.2	312.3	272.7	39.62	7.882	
7,800.0	6,819.9	7,630.2	6,653.8	25.2	24.5	-57.89	-951.5	-128.2	312.6	270.4	42.20	7.407	
7,900.0	6,820.0	7,730.2	6,653.3	26.7	26.1	-57.81	-1,051.5	-128.2	312.9	268.0	44.87	6.972	
8,000.0	6,820.0	7,830.2	6,652.8	28.3	27.7	-57.73	-1,151.5	-128.2	313.1	265.5	47.62	6.575	
8,100.0	6,820.0	7,930.2	6,652.3	29.9	29.3	-57.65	-1,251.5	-128.2	313.4	263.0	50.43	6.214	
8,200.0	6,820.0	8,030.2	6,651.8	31.5	31.0	-57.57	-1,351.5	-128.2	313.7	260.4	53.30	5.885	
8,300.0	6,820.0	8,130.2	6,651.3	33.2	32.7	-57.49	-1,451.5	-128.2	313.9	257.7	56.21	5.585	
8,400.0	6,820.0	8,230.2	6,650.8	34.9	34.4	-57.42	-1,551.5	-128.2	314.2	255.0	59.16	5.311	
8,500.0	6,820.1	8,330.2	6,650.3	36.6	36.2	-57.34	-1,651.4	-128.2	314.5	252.3	62.14	5.061	
8,600.0	6,820.1	8,430.2	6,649.9	38.4	37.9	-57.26	-1,751.4	-128.2	314.8	249.6	65.14	4.832	
8,700.0	6,820.1	8,530.2	6,649.4	40.1	39.7	-57.18	-1,851.4	-128.2	315.0	246.9	68.17	4.621	
8,800.0	6,820.1	8,630.2	6,648.9	41.9	41.5	-57.11	-1,951.4	-128.2	315.3	244.1	71.22	4.427	
8,900.0	6,820.1	8,730.2	6,648.4	43.7	43.3	-57.03	-2,051.4	-128.2	315.6	241.3	74.28	4.249	
9,000.0	6,820.1	8,830.2	6,647.9	45.5	45.1	-56.95	-2,151.4	-128.2	315.9	238.5	77.35	4.083	
9,100.0	6,820.2	8,930.2	6,647.4	47.3	46.9	-56.88	-2,251.4	-128.2	316.1	235.7	80.44	3.930	
9,200.0	6,820.2	9,030.2	6,646.9	49.1	48.8	-56.80	-2,351.4	-128.2	316.4	232.9	83.53	3.788	
9,300.0	6,820.2	9,130.2	6,646.4	50.9	50.6	-56.72	-2,451.4	-128.2	316.7	230.1	86.63	3.655	
9,400.0	6,820.2	9,230.2	6,645.9	52.7	52.4	-56.65	-2,551.4	-128.2	317.0	227.2	89.74	3.532	
9,500.0	6,820.2	9,330.2	6,645.5	54.6	54.3	-56.57	-2,651.4	-128.2	317.2	224.4	92.86	3.416	
9,600.0	6,820.3	9,430.2	6,645.0	56.4	56.1	-56.49	-2,751.4	-128.2	317.5	221.5	95.97	3.308	
9,700.0	6,820.3	9,530.2	6,644.5	58.2	58.0	-56.42	-2,851.4	-128.2	317.8	218.7	99.10	3.207	
9,800.0	6,820.3	9,630.2	6,644.0	60.1	59.8	-56.34	-2,951.4	-128.2	318.1	215.9	102.22	3.112	
9,900.0	6,820.3	9,730.2	6,643.5	61.9	61.7	-56.27	-3,051.4	-128.2	318.4	213.0	105.35	3.022	
10,000.0	6,820.3	9,830.2	6,643.0	63.8	63.6	-56.19	-3,151.4	-128.2	318.6	210.2	108.47	2.937	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Chestnut 28M-HZ Pad Sec.28-T5N-R64W - Chestnut 28R-203 - Wellbore #1 - Plan #1 (12-17-13)

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	9,930.2	6,642.5	65.7	65.4	-56.11	-3,251.4	-128.2	318.9	207.3	111.60	2.858	
10,200.0	6,820.4	10,030.2	6,642.0	67.5	67.3	-56.04	-3,351.4	-128.2	319.2	204.5	114.73	2.782	
10,300.0	6,820.4	10,130.2	6,641.5	69.4	69.2	-55.96	-3,451.4	-128.2	319.5	201.6	117.86	2.711	
10,400.0	6,820.4	10,230.2	6,641.1	71.3	71.1	-55.89	-3,551.4	-128.2	319.8	198.8	120.99	2.643	
10,500.0	6,820.4	10,330.2	6,640.6	73.1	72.9	-55.81	-3,651.4	-128.2	320.1	195.9	124.12	2.579	
10,600.0	6,820.4	10,430.2	6,640.1	75.0	74.8	-55.74	-3,751.4	-128.2	320.3	193.1	127.25	2.517	
10,700.0	6,820.4	10,530.2	6,639.6	76.9	76.7	-55.66	-3,851.4	-128.2	320.6	190.3	130.37	2.459	
10,800.0	6,820.5	10,630.2	6,639.1	78.8	78.6	-55.59	-3,951.4	-128.2	320.9	187.4	133.50	2.404	
10,900.0	6,820.5	10,730.2	6,638.6	80.7	80.5	-55.51	-4,051.4	-128.2	321.2	184.6	136.62	2.351	
11,000.0	6,820.5	10,830.2	6,638.1	82.5	82.4	-55.44	-4,151.4	-128.2	321.5	181.7	139.74	2.301	
11,100.0	6,820.5	10,930.2	6,637.6	84.4	84.3	-55.37	-4,251.4	-128.2	321.8	178.9	142.86	2.252	
11,200.0	6,820.5	11,030.2	6,637.1	86.3	86.2	-55.29	-4,351.4	-128.2	322.1	176.1	145.98	2.206	
11,300.0	6,820.5	11,130.2	6,636.7	88.2	88.0	-55.22	-4,451.4	-128.2	322.4	173.3	149.09	2.162	
11,400.0	6,820.6	11,230.2	6,636.2	90.1	89.9	-55.14	-4,551.4	-128.2	322.6	170.4	152.20	2.120	
11,500.0	6,820.6	11,330.2	6,635.7	92.0	91.8	-55.07	-4,651.4	-128.2	322.9	167.6	155.31	2.079	
11,600.0	6,820.6	11,430.2	6,635.2	93.9	93.7	-55.00	-4,751.4	-128.2	323.2	164.8	158.42	2.040	
11,700.0	6,820.6	11,530.2	6,634.7	95.8	95.6	-54.92	-4,851.4	-128.2	323.5	162.0	161.52	2.003	
11,800.0	6,820.6	11,630.2	6,634.2	97.7	97.5	-54.85	-4,951.4	-128.2	323.8	159.2	164.62	1.967	
11,900.0	6,820.7	11,730.2	6,633.7	99.5	99.4	-54.78	-5,051.4	-128.2	324.1	156.4	167.72	1.932	
12,000.0	6,820.7	11,830.2	6,633.2	101.4	101.3	-54.70	-5,151.4	-128.2	324.4	153.6	170.81	1.899	
12,100.0	6,820.7	11,930.2	6,632.8	103.3	103.2	-54.63	-5,251.4	-128.2	324.7	150.8	173.90	1.867	
12,200.0	6,820.7	12,030.2	6,632.3	105.2	105.1	-54.56	-5,351.4	-128.2	325.0	148.0	176.99	1.836	
12,300.0	6,820.7	12,130.2	6,631.8	107.1	107.0	-54.49	-5,451.4	-128.2	325.3	145.2	180.07	1.806	
12,400.0	6,820.7	12,230.2	6,631.3	109.0	108.9	-54.41	-5,551.4	-128.2	325.6	142.4	183.15	1.778	
12,500.0	6,820.8	12,330.2	6,630.8	110.9	110.8	-54.34	-5,651.3	-128.2	325.9	139.6	186.23	1.750	
12,600.0	6,820.8	12,430.2	6,630.3	112.8	112.7	-54.27	-5,751.3	-128.2	326.1	136.8	189.30	1.723	
12,700.0	6,820.8	12,530.2	6,629.8	114.7	114.6	-54.20	-5,851.3	-128.2	326.4	134.1	192.37	1.697	
12,800.0	6,820.8	12,630.2	6,629.3	116.6	116.5	-54.12	-5,951.3	-128.2	326.7	131.3	195.44	1.672	
12,900.0	6,820.8	12,730.2	6,628.8	118.5	118.5	-54.05	-6,051.3	-128.2	327.0	128.5	198.50	1.648	
13,000.0	6,820.8	12,830.2	6,628.4	120.4	120.4	-53.98	-6,151.3	-128.2	327.3	125.8	201.56	1.624	
13,100.0	6,820.9	12,930.2	6,627.9	122.4	122.3	-53.91	-6,251.3	-128.2	327.6	123.0	204.61	1.601	
13,200.0	6,820.9	13,030.2	6,627.4	124.3	124.2	-53.84	-6,351.3	-128.2	327.9	120.3	207.66	1.579	
13,300.0	6,820.9	13,130.2	6,626.9	126.2	126.1	-53.77	-6,451.3	-128.2	328.2	117.5	210.71	1.558	
13,400.0	6,820.9	13,230.2	6,626.4	128.1	128.0	-53.70	-6,551.3	-128.2	328.5	114.8	213.75	1.537	
13,500.0	6,820.9	13,330.2	6,625.9	130.0	129.9	-53.62	-6,651.3	-128.2	328.8	112.0	216.79	1.517	
13,600.0	6,820.9	13,430.2	6,625.4	131.9	131.8	-53.55	-6,751.3	-128.2	329.1	109.3	219.83	1.497	Level 3
13,700.0	6,821.0	13,530.2	6,624.9	133.8	133.7	-53.48	-6,851.3	-128.2	329.4	106.6	222.86	1.478	Level 3
13,800.0	6,821.0	13,630.2	6,624.4	135.7	135.6	-53.41	-6,951.3	-128.2	329.7	103.8	225.89	1.460	Level 3
13,893.5	6,821.0	13,720.9	6,624.0	137.5	137.4	-53.35	-7,042.1	-128.2	330.0	101.4	228.67	1.443	Level 3, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - 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
0.0	0.0	0.0	0.0	0.0	0.0	-158.98	-1,581.1	-607.4	1,693.8				
100.0	100.0	90.0	90.0	0.1	1.8	-158.98	-1,581.1	-607.4	1,693.8	1,691.8	1.91	885.586	
200.0	200.0	190.0	190.0	0.3	3.8	-158.98	-1,581.1	-607.4	1,693.8	1,689.6	4.14	409.382	
300.0	300.0	290.0	290.0	0.6	5.8	-158.98	-1,581.1	-607.4	1,693.8	1,687.4	6.36	266.225	
400.0	400.0	390.0	390.0	0.8	7.8	-158.98	-1,581.1	-607.4	1,693.8	1,685.2	8.59	197.249	
500.0	500.0	490.0	490.0	1.0	9.8	-158.98	-1,581.1	-607.4	1,693.8	1,682.9	10.81	156.660	
600.0	600.0	590.0	590.0	1.2	11.8	-158.98	-1,581.1	-607.4	1,693.8	1,680.7	13.04	129.925	
700.0	700.0	690.0	690.0	1.5	13.8	-158.98	-1,581.1	-607.4	1,693.8	1,678.5	15.26	110.985	
800.0	800.0	790.0	790.0	1.7	15.8	-158.98	-1,581.1	-607.4	1,693.8	1,676.3	17.49	96.864	
900.0	900.0	890.0	890.0	1.9	17.8	-158.98	-1,581.1	-607.4	1,693.8	1,674.0	19.71	85.931	
1,000.0	1,000.0	990.0	990.0	2.1	19.8	-158.98	-1,581.1	-607.4	1,693.8	1,671.8	21.94	77.215	
1,100.0	1,100.0	1,090.0	1,090.0	2.4	21.8	-158.98	-1,581.1	-607.4	1,693.8	1,669.6	24.16	70.105	
1,200.0	1,200.0	1,190.0	1,190.0	2.6	23.8	-158.98	-1,581.1	-607.4	1,693.8	1,667.4	26.38	64.194	
1,300.0	1,300.0	1,290.0	1,290.0	2.8	25.8	-158.98	-1,581.1	-607.4	1,693.8	1,665.1	28.61	59.202	
1,400.0	1,400.0	1,390.0	1,390.0	3.0	27.8	-158.98	-1,581.1	-607.4	1,693.8	1,662.9	30.83	54.931	
1,500.0	1,500.0	1,490.0	1,490.0	3.3	29.8	-158.98	-1,581.1	-607.4	1,693.8	1,660.7	33.06	51.234	
1,600.0	1,600.0	1,590.0	1,590.0	3.5	31.8	-109.05	-1,581.1	-607.4	1,694.3	1,659.0	35.28	48.029	
1,700.0	1,699.8	1,689.8	1,689.8	3.7	33.8	-109.19	-1,581.1	-607.4	1,696.0	1,658.6	37.49	45.245	
1,800.0	1,799.5	1,789.5	1,789.5	3.9	35.8	-109.41	-1,581.1	-607.4	1,698.9	1,659.2	39.69	42.804	
1,900.0	1,898.7	1,888.7	1,888.7	4.2	37.8	-109.71	-1,581.1	-607.4	1,703.0	1,661.1	41.89	40.651	
2,000.0	1,997.7	1,987.7	1,987.7	4.4	39.8	-110.15	-1,581.1	-607.4	1,707.9	1,663.8	44.12	38.708	
2,100.0	2,096.7	2,086.7	2,086.7	4.7	41.7	-110.59	-1,581.1	-607.4	1,712.9	1,666.5	46.36	36.944	
2,200.0	2,195.7	2,185.7	2,185.7	5.0	43.7	-111.03	-1,581.1	-607.4	1,717.9	1,669.3	48.61	35.340	
2,300.0	2,294.7	2,284.7	2,284.7	5.3	45.7	-111.46	-1,581.1	-607.4	1,723.1	1,672.2	50.87	33.874	
2,400.0	2,393.7	2,383.7	2,383.7	5.5	47.7	-111.90	-1,581.1	-607.4	1,728.4	1,675.2	53.13	32.531	
2,500.0	2,492.7	2,482.7	2,482.7	5.8	49.7	-112.33	-1,581.1	-607.4	1,733.7	1,678.3	55.40	31.298	
2,600.0	2,591.7	2,581.7	2,581.7	6.1	51.6	-112.75	-1,581.1	-607.4	1,739.2	1,681.5	57.66	30.161	
2,700.0	2,690.7	2,680.7	2,680.7	6.5	53.6	-113.18	-1,581.1	-607.4	1,744.8	1,684.8	59.94	29.110	
2,800.0	2,789.7	2,779.7	2,779.7	6.8	55.6	-113.60	-1,581.1	-607.4	1,750.4	1,688.2	62.21	28.136	
2,900.0	2,888.7	2,878.7	2,878.7	7.1	57.6	-114.02	-1,581.1	-607.4	1,756.2	1,691.7	64.49	27.232	
3,000.0	2,987.7	2,977.7	2,977.7	7.4	59.6	-114.44	-1,581.1	-607.4	1,762.0	1,695.3	66.77	26.390	
3,100.0	3,086.6	3,076.6	3,076.6	7.7	61.5	-114.85	-1,581.1	-607.4	1,768.0	1,698.9	69.05	25.605	
3,200.0	3,185.6	3,175.6	3,175.6	8.1	63.5	-115.26	-1,581.1	-607.4	1,774.0	1,702.7	71.33	24.871	
3,300.0	3,284.6	3,274.6	3,274.6	8.4	65.5	-115.67	-1,581.1	-607.4	1,780.1	1,706.5	73.61	24.184	
3,400.0	3,383.6	3,373.6	3,373.6	8.7	67.5	-116.07	-1,581.1	-607.4	1,786.4	1,710.5	75.89	23.538	
3,500.0	3,482.6	3,472.6	3,472.6	9.0	69.5	-116.48	-1,581.1	-607.4	1,792.7	1,714.5	78.17	22.932	
3,600.0	3,581.6	3,571.6	3,571.6	9.4	71.4	-116.88	-1,581.1	-607.4	1,799.1	1,718.6	80.46	22.361	
3,700.0	3,680.6	3,670.6	3,670.6	9.7	73.4	-117.27	-1,581.1	-607.4	1,805.6	1,722.8	82.74	21.823	
3,800.0	3,779.6	3,769.6	3,769.6	10.0	75.4	-117.67	-1,581.1	-607.4	1,812.1	1,727.1	85.02	21.314	
3,900.0	3,878.6	3,868.6	3,868.6	10.4	77.4	-118.06	-1,581.1	-607.4	1,818.8	1,731.5	87.30	20.834	
4,000.0	3,977.6	3,967.6	3,967.6	10.7	79.4	-118.45	-1,581.1	-607.4	1,825.5	1,736.0	89.58	20.378	
4,100.0	4,076.6	4,066.6	4,066.6	11.0	81.3	-118.83	-1,581.1	-607.4	1,832.4	1,740.5	91.86	19.947	
4,200.0	4,175.6	4,165.6	4,165.6	11.4	83.3	-119.22	-1,581.1	-607.4	1,839.3	1,745.1	94.14	19.537	
4,300.0	4,274.6	4,264.6	4,264.6	11.7	85.3	-119.60	-1,581.1	-607.4	1,846.3	1,749.9	96.42	19.148	
4,400.0	4,373.6	4,363.6	4,363.6	12.0	87.3	-119.97	-1,581.1	-607.4	1,853.4	1,754.7	98.70	18.777	
4,500.0	4,472.6	4,462.6	4,462.6	12.4	89.3	-120.35	-1,581.1	-607.4	1,860.5	1,759.5	100.98	18.425	
4,600.0	4,571.6	4,561.6	4,561.6	12.7	91.2	-120.72	-1,581.1	-607.4	1,867.8	1,764.5	103.26	18.088	
4,700.0	4,670.6	4,660.6	4,660.6	13.1	93.2	-121.09	-1,581.1	-607.4	1,875.1	1,769.5	105.53	17.768	
4,800.0	4,769.6	4,759.6	4,759.6	13.4	95.2	-121.45	-1,581.1	-607.4	1,882.5	1,774.7	107.81	17.461	
4,900.0	4,868.6	4,858.6	4,858.6	13.7	97.2	-121.82	-1,581.1	-607.4	1,889.9	1,779.8	110.08	17.168	
5,000.0	4,967.6	4,957.6	4,957.6	14.1	99.2	-122.18	-1,581.1	-607.4	1,897.5	1,785.1	112.36	16.888	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - 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
5,100.0	5,066.6	5,056.6	5,056.6	14.4	101.1	-122.53	-1,581.1	-607.4	1,905.1	1,790.5	114.63	16.619	
5,200.0	5,165.7	5,155.7	5,155.7	14.7	103.1	-122.95	-1,581.1	-607.4	1,912.3	1,795.3	116.97	16.349	
5,300.0	5,265.2	5,255.2	5,255.2	14.9	105.1	-123.29	-1,581.1	-607.4	1,917.8	1,798.5	119.25	16.081	
5,400.0	5,365.0	5,355.0	5,355.0	15.1	107.1	-123.51	-1,581.1	-607.4	1,921.3	1,799.8	121.49	15.814	
5,500.0	5,464.9	5,454.9	5,454.9	15.3	109.1	-123.61	-1,581.1	-607.4	1,923.0	1,799.3	123.68	15.548	
5,600.0	5,564.9	5,554.9	5,554.9	15.5	111.1	-173.60	-1,581.1	-607.4	1,923.1	1,797.2	125.84	15.283	
5,700.0	5,664.9	5,654.9	5,654.9	15.6	113.1	-173.60	-1,581.1	-607.4	1,923.1	1,795.1	128.02	15.022	
5,800.0	5,764.9	5,754.9	5,754.9	15.8	115.1	-173.60	-1,581.1	-607.4	1,923.1	1,792.9	130.20	14.770	
5,900.0	5,864.9	5,854.9	5,854.9	16.0	117.1	-173.60	-1,581.1	-607.4	1,923.1	1,790.7	132.39	14.526	
6,000.0	5,964.9	5,954.9	5,954.9	16.2	119.1	-173.60	-1,581.1	-607.4	1,923.1	1,788.5	134.58	14.290	
6,100.0	6,064.9	6,054.9	6,054.9	16.3	121.1	6.41	-1,581.1	-607.4	1,922.9	1,786.1	136.71	14.065	
6,200.0	6,164.4	6,154.4	6,154.4	16.4	123.1	6.51	-1,581.1	-607.4	1,913.9	1,776.7	137.18	13.952	
6,300.0	6,261.9	6,251.9	6,251.9	16.5	125.0	6.78	-1,581.1	-607.4	1,892.2	1,756.9	135.26	13.989	
6,400.0	6,355.7	6,345.7	6,345.7	16.4	126.9	7.24	-1,581.1	-607.4	1,857.9	1,727.0	130.92	14.191	
6,500.0	6,444.2	6,434.2	6,434.2	16.4	128.7	7.95	-1,581.1	-607.4	1,811.9	1,687.7	124.22	14.586	
6,600.0	6,525.9	6,515.9	6,515.9	16.3	130.3	8.99	-1,581.1	-607.4	1,754.7	1,639.4	115.35	15.212	
6,700.0	6,599.4	6,589.4	6,589.4	16.2	131.8	10.53	-1,581.1	-607.4	1,687.6	1,582.8	104.73	16.113	
6,800.0	6,663.4	6,653.4	6,653.4	16.2	133.1	12.84	-1,581.1	-607.4	1,611.5	1,518.2	93.26	17.279	
6,900.0	6,716.9	6,706.9	6,706.9	16.2	134.1	16.50	-1,581.1	-607.4	1,527.8	1,444.8	83.06	18.395	
7,000.0	6,758.9	6,748.9	6,748.9	16.3	135.0	22.74	-1,581.1	-607.4	1,438.1	1,358.7	79.44	18.102	
7,100.0	6,788.7	6,778.7	6,778.7	16.8	135.6	34.53	-1,581.1	-607.4	1,343.9	1,250.5	93.33	14.400	
7,200.0	6,805.7	6,795.7	6,795.7	17.6	135.9	58.72	-1,581.1	-607.4	1,246.8	1,114.6	132.16	9.434	
7,300.0	6,815.9	6,805.9	6,805.9	18.6	136.1	66.41	-1,581.1	-607.4	1,148.9	1,006.7	142.18	8.081	
7,400.0	6,819.9	6,809.9	6,809.9	19.7	136.2	89.95	-1,581.1	-607.4	1,050.9	895.5	155.38	6.763	
7,500.0	6,819.9	6,809.9	6,809.9	21.0	136.2	89.96	-1,581.1	-607.4	953.2	796.6	156.62	6.086	
7,600.0	6,819.9	6,809.9	6,809.9	22.3	136.2	89.96	-1,581.1	-607.4	856.1	698.2	157.95	5.420	
7,700.0	6,819.9	6,809.9	6,809.9	23.7	136.2	89.97	-1,581.1	-607.4	759.7	600.3	159.37	4.767	
7,800.0	6,819.9	6,809.9	6,809.9	25.2	136.2	89.97	-1,581.1	-607.4	664.4	503.5	160.86	4.130	
7,900.0	6,820.0	6,810.0	6,810.0	26.7	136.2	89.98	-1,581.1	-607.4	570.6	408.2	162.40	3.514	
8,000.0	6,820.0	6,810.0	6,810.0	28.3	136.2	89.98	-1,581.1	-607.4	479.5	315.5	163.99	2.924	
8,100.0	6,820.0	6,810.0	6,810.0	29.9	136.2	89.98	-1,581.1	-607.4	392.6	226.9	165.62	2.370	
8,200.0	6,820.0	6,810.0	6,810.0	31.5	136.2	89.99	-1,581.1	-607.4	313.6	146.3	167.28	1.875	
8,300.0	6,820.0	6,810.0	6,810.0	33.2	136.2	89.99	-1,581.1	-607.4	250.2	81.2	168.98	1.481	Level 3
8,400.0	6,820.0	6,810.0	6,810.0	34.9	136.2	90.00	-1,581.1	-607.4	216.4	45.7	170.69	1.268	Level 3
8,428.8	6,820.0	6,810.0	6,810.0	35.4	136.2	90.00	-1,581.1	-607.4	214.5	43.3	171.19	1.253	Level 3, CC, ES, SF
8,500.0	6,820.1	6,810.1	6,810.1	36.6	136.2	90.00	-1,581.1	-607.4	226.0	53.5	172.43	1.311	Level 3
8,600.0	6,820.1	6,810.1	6,810.1	38.4	136.2	90.01	-1,581.1	-607.4	274.4	100.2	174.18	1.575	
8,700.0	6,820.1	6,810.1	6,810.1	40.1	136.2	90.01	-1,581.1	-607.4	345.7	169.8	175.95	1.965	
8,800.0	6,820.1	6,810.1	6,810.1	41.9	136.2	90.02	-1,581.1	-607.4	428.7	251.0	177.73	2.412	
8,900.0	6,820.1	6,810.1	6,810.1	43.7	136.2	90.02	-1,581.1	-607.4	517.7	338.2	179.53	2.884	
9,000.0	6,820.1	6,810.1	6,810.1	45.5	136.2	90.03	-1,581.1	-607.4	610.1	428.8	181.33	3.365	
9,100.0	6,820.2	6,810.2	6,810.2	47.3	136.2	90.03	-1,581.1	-607.4	704.6	521.5	183.15	3.847	
9,200.0	6,820.2	6,810.2	6,810.2	49.1	136.2	90.04	-1,581.1	-607.4	800.5	615.5	184.97	4.327	
9,300.0	6,820.2	6,810.2	6,810.2	50.9	136.2	90.04	-1,581.1	-607.4	897.2	710.4	186.80	4.803	
9,400.0	6,820.2	6,810.2	6,810.2	52.7	136.2	90.05	-1,581.1	-607.4	994.6	806.0	188.64	5.273	
9,500.0	6,820.2	6,810.2	6,810.2	54.6	136.2	90.05	-1,581.1	-607.4	1,092.4	902.0	190.48	5.735	
9,600.0	6,820.3	6,810.3	6,810.3	56.4	136.2	90.05	-1,581.1	-607.4	1,190.7	998.3	192.33	6.191	
9,700.0	6,820.3	6,810.3	6,810.3	58.2	136.2	90.06	-1,581.1	-607.4	1,289.2	1,095.0	194.18	6.639	
9,800.0	6,820.3	6,810.3	6,810.3	60.1	136.2	90.06	-1,581.1	-607.4	1,387.9	1,191.8	196.03	7.080	
9,900.0	6,820.3	6,810.3	6,810.3	61.9	136.2	90.07	-1,581.1	-607.4	1,486.7	1,288.8	197.90	7.513	
10,000.0	6,820.3	6,810.3	6,810.3	63.8	136.2	90.07	-1,581.1	-607.4	1,585.8	1,386.0	199.76	7.938	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - 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
10,100.0	6,820.3	6,810.3	6,810.3	65.7	136.2	90.08	-1,581.1	-607.4	1,684.9	1,483.3	201.63	8.356	
10,200.0	6,820.4	6,810.4	6,810.4	67.5	136.2	90.08	-1,581.1	-607.4	1,784.1	1,580.6	203.50	8.767	
10,300.0	6,820.4	6,810.4	6,810.4	69.4	136.2	90.09	-1,581.1	-607.4	1,883.4	1,678.1	205.37	9.171	
10,400.0	6,820.4	6,810.4	6,810.4	71.3	136.2	90.09	-1,581.1	-607.4	1,982.8	1,775.6	207.25	9.567	
10,500.0	6,820.4	6,810.4	6,810.4	73.1	136.2	90.10	-1,581.1	-607.4	2,082.3	1,873.1	209.13	9.957	
10,600.0	6,820.4	6,810.4	6,810.4	75.0	136.2	90.10	-1,581.1	-607.4	2,181.8	1,970.8	211.01	10.340	
10,700.0	6,820.4	6,810.4	6,810.4	76.9	136.2	90.11	-1,581.1	-607.4	2,281.3	2,068.4	212.89	10.716	
10,800.0	6,820.5	6,810.5	6,810.5	78.8	136.2	90.11	-1,581.1	-607.4	2,380.9	2,166.1	214.77	11.086	
10,900.0	6,820.5	6,810.5	6,810.5	80.7	136.2	90.12	-1,581.1	-607.4	2,480.5	2,263.8	216.66	11.449	
11,000.0	6,820.5	6,810.5	6,810.5	82.5	136.2	90.12	-1,581.1	-607.4	2,580.1	2,361.6	218.55	11.806	
11,100.0	6,820.5	6,810.5	6,810.5	84.4	136.2	90.12	-1,581.1	-607.4	2,679.8	2,459.4	220.44	12.157	
11,200.0	6,820.5	6,810.5	6,810.5	86.3	136.2	90.13	-1,581.1	-607.4	2,779.5	2,557.2	222.33	12.502	
11,300.0	6,820.5	6,810.5	6,810.5	88.2	136.2	90.13	-1,581.1	-607.4	2,879.2	2,655.0	224.22	12.841	
11,400.0	6,820.6	6,810.6	6,810.6	90.1	136.2	90.14	-1,581.1	-607.4	2,978.9	2,752.8	226.11	13.175	
11,500.0	6,820.6	6,810.6	6,810.6	92.0	136.2	90.14	-1,581.1	-607.4	3,078.7	2,850.7	228.01	13.503	
11,600.0	6,820.6	6,810.6	6,810.6	93.9	136.2	90.15	-1,581.1	-607.4	3,178.4	2,948.5	229.90	13.825	
11,700.0	6,820.6	6,810.6	6,810.6	95.8	136.2	90.15	-1,581.1	-607.4	3,278.2	3,046.4	231.80	14.143	
11,800.0	6,820.6	6,810.6	6,810.6	97.7	136.2	90.16	-1,581.1	-607.4	3,378.0	3,144.3	233.69	14.455	
11,900.0	6,820.7	6,810.7	6,810.7	99.5	136.2	90.16	-1,581.1	-607.4	3,477.8	3,242.2	235.59	14.762	
12,000.0	6,820.7	6,810.7	6,810.7	101.4	136.2	90.17	-1,581.1	-607.4	3,577.6	3,340.1	237.49	15.064	
12,100.0	6,820.7	6,810.7	6,810.7	103.3	136.2	90.17	-1,581.1	-607.4	3,677.4	3,438.1	239.39	15.362	
12,200.0	6,820.7	6,810.7	6,810.7	105.2	136.2	90.18	-1,581.1	-607.4	3,777.3	3,536.0	241.29	15.654	
12,300.0	6,820.7	6,810.7	6,810.7	107.1	136.2	90.18	-1,581.1	-607.4	3,877.1	3,633.9	243.19	15.942	
12,400.0	6,820.7	6,810.7	6,810.7	109.0	136.2	90.19	-1,581.1	-607.4	3,977.0	3,731.9	245.10	16.226	
12,500.0	6,820.8	6,810.8	6,810.8	110.9	136.2	90.19	-1,581.1	-607.4	4,076.8	3,829.8	247.00	16.505	
12,600.0	6,820.8	6,810.8	6,810.8	112.8	136.2	90.19	-1,581.1	-607.4	4,176.7	3,927.8	248.90	16.780	
12,700.0	6,820.8	6,810.8	6,810.8	114.7	136.2	90.20	-1,581.1	-607.4	4,276.6	4,025.8	250.81	17.051	
12,800.0	6,820.8	6,810.8	6,810.8	116.6	136.2	90.20	-1,581.1	-607.4	4,376.4	4,123.7	252.71	17.318	
12,900.0	6,820.8	6,810.8	6,810.8	118.5	136.2	90.21	-1,581.1	-607.4	4,476.3	4,221.7	254.62	17.581	
13,000.0	6,820.8	6,810.8	6,810.8	120.4	136.2	90.21	-1,581.1	-607.4	4,576.2	4,319.7	256.52	17.839	
13,100.0	6,820.9	6,810.9	6,810.9	122.4	136.2	90.22	-1,581.1	-607.4	4,676.1	4,417.7	258.43	18.094	
13,200.0	6,820.9	6,810.9	6,810.9	124.3	136.2	90.22	-1,581.1	-607.4	4,776.0	4,515.7	260.34	18.346	
13,300.0	6,820.9	6,810.9	6,810.9	126.2	136.2	90.23	-1,581.1	-607.4	4,875.9	4,613.7	262.24	18.593	
13,400.0	6,820.9	6,810.9	6,810.9	128.1	136.2	90.23	-1,581.1	-607.4	4,975.8	4,711.7	264.15	18.837	
13,500.0	6,820.9	6,810.9	6,810.9	130.0	136.2	90.24	-1,581.1	-607.4	5,075.7	4,809.7	266.06	19.078	
13,600.0	6,820.9	6,810.9	6,810.9	131.9	136.2	90.24	-1,581.1	-607.4	5,175.6	4,907.7	267.97	19.315	
13,700.0	6,821.0	6,811.0	6,811.0	133.8	136.2	90.25	-1,581.1	-607.4	5,275.6	5,005.7	269.87	19.548	
13,800.0	6,821.0	6,811.0	6,811.0	135.7	136.2	90.25	-1,581.1	-607.4	5,375.5	5,103.7	271.78	19.779	
13,893.5	6,821.0	6,811.0	6,811.0	137.5	136.2	90.25	-1,581.1	-607.4	5,468.9	5,195.3	273.57	19.991	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - 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	-105.41	-142.1	-515.4	534.9				
100.0	100.0	85.0	85.0	0.1	1.7	-105.41	-142.1	-515.4	534.7	532.9	1.81	294.976	
200.0	200.0	185.0	185.0	0.3	3.7	-105.41	-142.1	-515.4	534.7	530.6	4.04	132.431	
300.0	300.0	285.0	285.0	0.6	5.7	-105.41	-142.1	-515.4	534.7	528.4	6.26	85.381	
400.0	400.0	385.0	385.0	0.8	7.7	-105.41	-142.1	-515.4	534.7	526.2	8.49	62.999	
500.0	500.0	485.0	485.0	1.0	9.7	-105.41	-142.1	-515.4	534.7	524.0	10.71	49.915	
600.0	600.0	585.0	585.0	1.2	11.7	-105.41	-142.1	-515.4	534.7	521.7	12.94	41.330	
700.0	700.0	685.0	685.0	1.5	13.7	-105.41	-142.1	-515.4	534.7	519.5	15.16	35.266	
800.0	800.0	785.0	785.0	1.7	15.7	-105.41	-142.1	-515.4	534.7	517.3	17.39	30.753	
900.0	900.0	885.0	885.0	1.9	17.7	-105.41	-142.1	-515.4	534.7	515.1	19.61	27.264	
1,000.0	1,000.0	985.0	985.0	2.1	19.7	-105.41	-142.1	-515.4	534.7	512.8	21.84	24.486	
1,100.0	1,100.0	1,085.0	1,085.0	2.4	21.7	-105.41	-142.1	-515.4	534.7	510.6	24.06	22.222	
1,200.0	1,200.0	1,185.0	1,185.0	2.6	23.7	-105.41	-142.1	-515.4	534.7	508.4	26.28	20.341	
1,300.0	1,300.0	1,285.0	1,285.0	2.8	25.7	-105.41	-142.1	-515.4	534.7	506.2	28.51	18.754	
1,400.0	1,400.0	1,385.0	1,385.0	3.0	27.7	-105.41	-142.1	-515.4	534.7	503.9	30.73	17.396	
1,500.0	1,500.0	1,485.0	1,485.0	3.3	29.7	-105.41	-142.1	-515.4	534.7	501.7	32.96	16.222	
1,600.0	1,600.0	1,585.0	1,585.0	3.5	31.7	-55.60	-142.1	-515.4	533.7	498.5	35.17	15.174	
1,700.0	1,699.8	1,684.8	1,684.8	3.7	33.7	-56.12	-142.1	-515.4	530.7	493.4	37.36	14.205	
1,800.0	1,799.5	1,784.5	1,784.5	3.9	35.7	-56.98	-142.1	-515.4	525.9	486.4	39.54	13.301	
1,900.0	1,898.7	1,883.7	1,883.7	4.2	37.7	-58.22	-142.1	-515.4	519.4	477.6	41.71	12.452	
2,000.0	1,997.7	1,982.7	1,982.7	4.4	39.7	-59.56	-142.1	-515.4	512.0	468.1	43.93	11.654	
2,100.0	2,096.7	2,081.7	2,081.7	4.7	41.6	-60.93	-142.1	-515.4	504.9	458.8	46.17	10.935	
2,200.0	2,195.7	2,180.7	2,180.7	5.0	43.6	-62.34	-142.1	-515.4	498.2	449.7	48.42	10.287	
2,300.0	2,294.7	2,279.7	2,279.7	5.3	45.6	-63.79	-142.1	-515.4	491.7	441.0	50.69	9.701	
2,400.0	2,393.7	2,378.7	2,378.7	5.5	47.6	-65.27	-142.1	-515.4	485.6	432.6	52.96	9.169	
2,500.0	2,492.7	2,477.7	2,477.7	5.8	49.6	-66.80	-142.1	-515.4	479.8	424.5	55.24	8.686	
2,600.0	2,591.7	2,576.7	2,576.7	6.1	51.5	-68.35	-142.1	-515.4	474.3	416.8	57.52	8.246	
2,700.0	2,690.7	2,675.7	2,675.7	6.5	53.5	-69.94	-142.1	-515.4	469.3	409.4	59.82	7.845	
2,800.0	2,789.7	2,774.7	2,774.7	6.8	55.5	-71.57	-142.1	-515.4	464.6	402.4	62.12	7.478	
2,900.0	2,888.7	2,873.7	2,873.7	7.1	57.5	-73.22	-142.1	-515.4	460.2	395.8	64.43	7.144	
3,000.0	2,987.7	2,972.7	2,972.7	7.4	59.5	-74.90	-142.1	-515.4	456.3	389.6	66.74	6.837	
3,100.0	3,086.6	3,071.6	3,071.6	7.7	61.4	-76.62	-142.1	-515.4	452.8	383.8	69.05	6.557	
3,200.0	3,185.6	3,170.6	3,170.6	8.1	63.4	-78.35	-142.1	-515.4	449.7	378.3	71.37	6.301	
3,300.0	3,284.6	3,269.6	3,269.6	8.4	65.4	-80.11	-142.1	-515.4	447.1	373.4	73.70	6.066	
3,400.0	3,383.6	3,368.6	3,368.6	8.7	67.4	-81.89	-142.1	-515.4	444.8	368.8	76.02	5.851	
3,500.0	3,482.6	3,467.6	3,467.6	9.0	69.4	-83.68	-142.1	-515.4	443.0	364.7	78.34	5.655	
3,600.0	3,581.6	3,566.6	3,566.6	9.4	71.3	-85.48	-142.1	-515.4	441.7	361.0	80.67	5.475	
3,700.0	3,680.6	3,665.6	3,665.6	9.7	73.3	-87.30	-142.1	-515.4	440.8	357.8	82.99	5.311	
3,800.0	3,779.6	3,764.6	3,764.6	10.0	75.3	-89.12	-142.1	-515.4	440.3	355.0	85.31	5.161	
3,848.5	3,827.6	3,812.6	3,812.6	10.2	76.3	-90.00	-142.1	-515.4	440.3	353.8	86.43	5.094	
3,900.0	3,878.6	3,863.6	3,863.6	10.4	77.3	-90.94	-142.1	-515.4	440.3	352.7	87.63	5.025	
4,000.0	3,977.6	3,962.6	3,962.6	10.7	79.3	-92.76	-142.1	-515.4	440.8	350.8	89.94	4.901	
4,100.0	4,076.6	4,061.6	4,061.6	11.0	81.2	-94.57	-142.1	-515.4	441.7	349.5	92.25	4.788	
4,200.0	4,175.6	4,160.6	4,160.6	11.4	83.2	-96.38	-142.1	-515.4	443.1	348.5	94.56	4.686	
4,300.0	4,274.6	4,259.6	4,259.6	11.7	85.2	-98.17	-142.1	-515.4	444.9	348.0	96.86	4.593	
4,400.0	4,373.6	4,358.6	4,358.6	12.0	87.2	-99.94	-142.1	-515.4	447.1	348.0	99.16	4.509	
4,500.0	4,472.6	4,457.6	4,457.6	12.4	89.2	-101.70	-142.1	-515.4	449.8	348.4	101.45	4.434	
4,600.0	4,571.6	4,556.6	4,556.6	12.7	91.1	-103.44	-142.1	-515.4	452.9	349.2	103.73	4.366	
4,700.0	4,670.6	4,655.6	4,655.6	13.1	93.1	-105.15	-142.1	-515.4	456.4	350.4	106.01	4.306	
4,800.0	4,769.6	4,754.6	4,754.6	13.4	95.1	-106.83	-142.1	-515.4	460.4	352.1	108.28	4.252	
4,900.0	4,868.6	4,853.6	4,853.6	13.7	97.1	-108.48	-142.1	-515.4	464.7	354.2	110.54	4.204	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - 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	4,967.6	4,952.6	4,952.6	14.1	99.1	-110.11	-142.1	-515.4	469.4	356.6	112.80	4.162	
5,100.0	5,066.6	5,051.6	5,051.6	14.4	101.0	-111.70	-142.1	-515.4	474.5	359.5	115.05	4.124	
5,200.0	5,165.7	5,150.7	5,150.7	14.7	103.0	-113.22	-142.1	-515.4	479.6	362.3	117.31	4.088	
5,300.0	5,265.2	5,250.2	5,250.2	14.9	105.0	-114.37	-142.1	-515.4	483.6	364.1	119.53	4.046	
5,400.0	5,365.0	5,350.0	5,350.0	15.1	107.0	-115.11	-142.1	-515.4	486.3	364.6	121.73	3.995	
5,500.0	5,464.9	5,449.9	5,449.9	15.3	109.0	-115.45	-142.1	-515.4	487.6	363.7	123.89	3.936	
5,600.0	5,564.9	5,549.9	5,549.9	15.5	111.0	-165.45	-142.1	-515.4	487.7	361.7	126.05	3.869	
5,700.0	5,664.9	5,649.9	5,649.9	15.6	113.0	-165.45	-142.1	-515.4	487.7	359.5	128.23	3.803	
5,800.0	5,764.9	5,749.9	5,749.9	15.8	115.0	-165.45	-142.1	-515.4	487.7	357.3	130.41	3.740	
5,900.0	5,864.9	5,849.9	5,849.9	16.0	117.0	-165.45	-142.1	-515.4	487.7	355.1	132.59	3.678	
6,000.0	5,964.9	5,949.9	5,949.9	16.2	119.0	-165.45	-142.1	-515.4	487.7	352.9	134.77	3.619	
6,100.0	6,064.9	6,049.9	6,049.9	16.3	121.0	14.56	-142.1	-515.4	487.5	350.6	136.91	3.561	
6,200.0	6,164.4	6,149.4	6,149.4	16.4	123.0	15.00	-142.1	-515.4	478.8	341.3	137.48	3.482	
6,300.0	6,261.9	6,246.9	6,246.9	16.5	124.9	16.15	-142.1	-515.4	457.6	321.8	135.85	3.369	
6,400.0	6,355.7	6,340.7	6,340.7	16.4	126.8	18.24	-142.1	-515.4	424.6	292.4	132.19	3.212	
6,500.0	6,444.2	6,429.2	6,429.2	16.4	128.6	21.73	-142.1	-515.4	380.4	253.3	127.08	2.993	
6,600.0	6,525.9	6,510.9	6,510.9	16.3	130.2	27.49	-142.1	-515.4	326.4	204.3	122.12	2.673	
6,700.0	6,599.4	6,584.4	6,584.4	16.2	131.7	37.10	-142.1	-515.4	264.9	143.7	121.19	2.186	
6,800.0	6,663.4	6,648.4	6,648.4	16.2	133.0	52.75	-142.1	-515.4	200.0	69.9	130.08	1.538	
6,900.0	6,716.9	6,701.9	6,701.9	16.2	134.0	73.94	-142.1	-515.4	142.9	-2.1	145.09	0.985	Level 1
6,981.7	6,752.1	6,737.1	6,737.1	16.3	134.7	90.00	-142.1	-515.4	122.5	-27.8	150.26	0.815	Level 1, CC, ES, SF
7,000.0	6,758.9	6,743.9	6,743.9	16.3	134.9	92.86	-142.1	-515.4	123.7	-26.6	150.28	0.823	Level 1
7,100.0	6,788.7	6,773.7	6,773.7	16.8	135.5	102.17	-142.1	-515.4	166.2	17.8	148.39	1.120	Level 2
7,200.0	6,805.7	6,790.7	6,790.7	17.6	135.8	100.35	-142.1	-515.4	243.8	93.5	150.30	1.622	
7,300.0	6,815.9	6,800.9	6,800.9	18.6	136.0	101.87	-142.1	-515.4	333.6	183.0	150.66	2.214	
7,400.0	6,819.9	6,804.9	6,804.9	19.7	136.1	90.03	-142.1	-515.4	428.1	272.8	155.28	2.757	
7,500.0	6,819.9	6,804.9	6,804.9	21.0	136.1	90.04	-142.1	-515.4	524.7	368.2	156.52	3.352	
7,600.0	6,819.9	6,804.9	6,804.9	22.3	136.1	90.05	-142.1	-515.4	622.4	464.5	157.85	3.943	
7,700.0	6,819.9	6,804.9	6,804.9	23.7	136.1	90.06	-142.1	-515.4	720.7	561.4	159.27	4.525	
7,800.0	6,819.9	6,804.9	6,804.9	25.2	136.1	90.07	-142.1	-515.4	819.4	658.7	160.76	5.097	
7,900.0	6,820.0	6,805.0	6,805.0	26.7	136.1	90.07	-142.1	-515.4	918.4	756.1	162.30	5.659	
8,000.0	6,820.0	6,805.0	6,805.0	28.3	136.1	90.08	-142.1	-515.4	1,017.6	853.7	163.89	6.209	
8,100.0	6,820.0	6,805.0	6,805.0	29.9	136.1	90.09	-142.1	-515.4	1,116.9	951.4	165.52	6.748	
8,200.0	6,820.0	6,805.0	6,805.0	31.5	136.1	90.10	-142.1	-515.4	1,216.4	1,049.2	167.18	7.276	
8,300.0	6,820.0	6,805.0	6,805.0	33.2	136.1	90.11	-142.1	-515.4	1,315.9	1,147.0	168.87	7.792	
8,400.0	6,820.0	6,805.0	6,805.0	34.9	136.1	90.12	-142.1	-515.4	1,415.5	1,244.9	170.59	8.298	
8,500.0	6,820.1	6,805.1	6,805.1	36.6	136.1	90.12	-142.1	-515.4	1,515.2	1,342.8	172.32	8.793	
8,600.0	6,820.1	6,805.1	6,805.1	38.4	136.1	90.13	-142.1	-515.4	1,614.9	1,440.8	174.08	9.277	
8,700.0	6,820.1	6,805.1	6,805.1	40.1	136.1	90.14	-142.1	-515.4	1,714.6	1,538.7	175.85	9.750	
8,800.0	6,820.1	6,805.1	6,805.1	41.9	136.1	90.15	-142.1	-515.4	1,814.3	1,636.7	177.63	10.214	
8,900.0	6,820.1	6,805.1	6,805.1	43.7	136.1	90.16	-142.1	-515.4	1,914.1	1,734.7	179.42	10.668	
9,000.0	6,820.1	6,805.1	6,805.1	45.5	136.1	90.16	-142.1	-515.4	2,013.9	1,832.7	181.23	11.113	
9,100.0	6,820.2	6,805.2	6,805.2	47.3	136.1	90.17	-142.1	-515.4	2,113.8	1,930.7	183.04	11.548	
9,200.0	6,820.2	6,805.2	6,805.2	49.1	136.1	90.18	-142.1	-515.4	2,213.6	2,028.7	184.87	11.974	
9,300.0	6,820.2	6,805.2	6,805.2	50.9	136.1	90.19	-142.1	-515.4	2,313.5	2,126.8	186.70	12.392	
9,400.0	6,820.2	6,805.2	6,805.2	52.7	136.1	90.20	-142.1	-515.4	2,413.3	2,224.8	188.53	12.801	
9,500.0	6,820.2	6,805.2	6,805.2	54.6	136.1	90.20	-142.1	-515.4	2,513.2	2,322.8	190.37	13.201	
9,600.0	6,820.3	6,805.3	6,805.3	56.4	136.1	90.21	-142.1	-515.4	2,613.1	2,420.9	192.22	13.594	
9,700.0	6,820.3	6,805.3	6,805.3	58.2	136.1	90.22	-142.1	-515.4	2,713.0	2,518.9	194.07	13.979	
9,800.0	6,820.3	6,805.3	6,805.3	60.1	136.1	90.23	-142.1	-515.4	2,812.9	2,616.9	195.93	14.357	
9,900.0	6,820.3	6,805.3	6,805.3	61.9	136.1	90.24	-142.1	-515.4	2,912.8	2,715.0	197.79	14.727	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - 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
10,000.0	6,820.3	6,805.3	6,805.3	63.8	136.1	90.25	-142.1	-515.4	3,012.7	2,813.0	199.65	15.090	
10,100.0	6,820.3	6,805.3	6,805.3	65.7	136.1	90.25	-142.1	-515.4	3,112.6	2,911.1	201.52	15.446	
10,200.0	6,820.4	6,805.4	6,805.4	67.5	136.1	90.26	-142.1	-515.4	3,212.5	3,009.2	203.39	15.795	
10,300.0	6,820.4	6,805.4	6,805.4	69.4	136.1	90.27	-142.1	-515.4	3,312.5	3,107.2	205.27	16.138	
10,400.0	6,820.4	6,805.4	6,805.4	71.3	136.1	90.28	-142.1	-515.4	3,412.4	3,205.3	207.14	16.474	
10,500.0	6,820.4	6,805.4	6,805.4	73.1	136.1	90.29	-142.1	-515.4	3,512.3	3,303.3	209.02	16.804	
10,600.0	6,820.4	6,805.4	6,805.4	75.0	136.1	90.29	-142.1	-515.4	3,612.3	3,401.4	210.90	17.128	
10,700.0	6,820.4	6,805.4	6,805.4	76.9	136.1	90.30	-142.1	-515.4	3,712.2	3,499.4	212.78	17.446	
10,800.0	6,820.5	6,805.5	6,805.5	78.8	136.1	90.31	-142.1	-515.4	3,812.2	3,597.5	214.67	17.759	
10,900.0	6,820.5	6,805.5	6,805.5	80.7	136.1	90.32	-142.1	-515.4	3,912.1	3,695.6	216.55	18.066	
11,000.0	6,820.5	6,805.5	6,805.5	82.5	136.1	90.33	-142.1	-515.4	4,012.1	3,793.6	218.44	18.367	
11,100.0	6,820.5	6,805.5	6,805.5	84.4	136.1	90.34	-142.1	-515.4	4,112.0	3,891.7	220.33	18.663	
11,200.0	6,820.5	6,805.5	6,805.5	86.3	136.1	90.34	-142.1	-515.4	4,212.0	3,989.8	222.22	18.954	
11,300.0	6,820.5	6,805.5	6,805.5	88.2	136.1	90.35	-142.1	-515.4	4,312.0	4,087.8	224.11	19.240	
11,400.0	6,820.6	6,805.6	6,805.6	90.1	136.1	90.36	-142.1	-515.4	4,411.9	4,185.9	226.00	19.521	
11,500.0	6,820.6	6,805.6	6,805.6	92.0	136.1	90.37	-142.1	-515.4	4,511.9	4,284.0	227.90	19.798	
11,600.0	6,820.6	6,805.6	6,805.6	93.9	136.1	90.38	-142.1	-515.4	4,611.8	4,382.0	229.79	20.070	
11,700.0	6,820.6	6,805.6	6,805.6	95.8	136.1	90.38	-142.1	-515.4	4,711.8	4,480.1	231.69	20.337	
11,800.0	6,820.6	6,805.6	6,805.6	97.7	136.1	90.39	-142.1	-515.4	4,811.8	4,578.2	233.59	20.600	
11,900.0	6,820.7	6,805.7	6,805.7	99.5	136.1	90.40	-142.1	-515.4	4,911.7	4,676.3	235.48	20.858	
12,000.0	6,820.7	6,805.7	6,805.7	101.4	136.1	90.41	-142.1	-515.4	5,011.7	4,774.3	237.38	21.112	
12,100.0	6,820.7	6,805.7	6,805.7	103.3	136.1	90.42	-142.1	-515.4	5,111.7	4,872.4	239.28	21.363	
12,200.0	6,820.7	6,805.7	6,805.7	105.2	136.1	90.43	-142.1	-515.4	5,211.6	4,970.5	241.18	21.609	
12,300.0	6,820.7	6,805.7	6,805.7	107.1	136.1	90.43	-142.1	-515.4	5,311.6	5,068.5	243.08	21.851	
12,400.0	6,820.7	6,805.7	6,805.7	109.0	136.1	90.44	-142.1	-515.4	5,411.6	5,166.6	244.99	22.089	
12,500.0	6,820.8	6,805.8	6,805.8	110.9	136.1	90.45	-142.1	-515.4	5,511.6	5,264.7	246.89	22.324	
12,600.0	6,820.8	6,805.8	6,805.8	112.8	136.1	90.46	-142.1	-515.4	5,611.5	5,362.8	248.79	22.555	
12,700.0	6,820.8	6,805.8	6,805.8	114.7	136.1	90.47	-142.1	-515.4	5,711.5	5,460.8	250.70	22.783	
12,800.0	6,820.8	6,805.8	6,805.8	116.6	136.1	90.47	-142.1	-515.4	5,811.5	5,558.9	252.60	23.007	
12,900.0	6,820.8	6,805.8	6,805.8	118.5	136.1	90.48	-142.1	-515.4	5,911.5	5,657.0	254.50	23.227	
13,000.0	6,820.8	6,805.8	6,805.8	120.4	136.1	90.49	-142.1	-515.4	6,011.5	5,755.0	256.41	23.445	
13,100.0	6,820.9	6,805.9	6,805.9	122.4	136.1	90.50	-142.1	-515.4	6,111.4	5,853.1	258.32	23.659	
13,200.0	6,820.9	6,805.9	6,805.9	124.3	136.1	90.51	-142.1	-515.4	6,211.4	5,951.2	260.22	23.870	
13,300.0	6,820.9	6,805.9	6,805.9	126.2	136.1	90.52	-142.1	-515.4	6,311.4	6,049.3	262.13	24.077	
13,400.0	6,820.9	6,805.9	6,805.9	128.1	136.1	90.52	-142.1	-515.4	6,411.4	6,147.3	264.04	24.282	
13,500.0	6,820.9	6,805.9	6,805.9	130.0	136.1	90.53	-142.1	-515.4	6,511.4	6,245.4	265.94	24.484	
13,600.0	6,820.9	6,805.9	6,805.9	131.9	136.1	90.54	-142.1	-515.4	6,611.3	6,343.5	267.85	24.683	
13,700.0	6,821.0	6,806.0	6,806.0	133.8	136.1	90.55	-142.1	-515.4	6,711.3	6,441.6	269.76	24.879	
13,800.0	6,821.0	6,806.0	6,806.0	135.7	136.1	90.56	-142.1	-515.4	6,811.3	6,539.6	271.67	25.072	
13,893.5	6,821.0	6,806.0	6,806.0	137.5	136.1	90.56	-142.1	-515.4	6,904.8	6,631.3	273.45	25.250	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - Sec.28-T5N-R64W - Hall 28-5 (Exist) - Wellbore #1 - Wellbore #1

Survey Program: 7600-UNKNOWN

Offset Site Error: 0.0 ft

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	-173.05	-754.1	-91.9	759.8				
100.0	100.0	85.0	85.0	0.1	1.7	-173.05	-754.1	-91.9	759.7	757.9	1.81	419.126	
200.0	200.0	185.0	185.0	0.3	3.7	-173.05	-754.1	-91.9	759.7	755.7	4.04	188.168	
300.0	300.0	285.0	285.0	0.6	5.7	-173.05	-754.1	-91.9	759.7	753.4	6.26	121.317	
400.0	400.0	385.0	385.0	0.8	7.7	-173.05	-754.1	-91.9	759.7	751.2	8.49	89.515	
500.0	500.0	485.0	485.0	1.0	9.7	-173.05	-754.1	-91.9	759.7	749.0	10.71	70.923	
600.0	600.0	585.0	585.0	1.2	11.7	-173.05	-754.1	-91.9	759.7	746.8	12.94	58.726	
700.0	700.0	685.0	685.0	1.5	13.7	-173.05	-754.1	-91.9	759.7	744.5	15.16	50.108	
800.0	800.0	785.0	785.0	1.7	15.7	-173.05	-754.1	-91.9	759.7	742.3	17.39	43.696	
900.0	900.0	885.0	885.0	1.9	17.7	-173.05	-754.1	-91.9	759.7	740.1	19.61	38.739	
1,000.0	1,000.0	985.0	985.0	2.1	19.7	-173.05	-754.1	-91.9	759.7	737.9	21.84	34.792	
1,100.0	1,100.0	1,085.0	1,085.0	2.4	21.7	-173.05	-754.1	-91.9	759.7	735.6	24.06	31.575	
1,200.0	1,200.0	1,185.0	1,185.0	2.6	23.7	-173.05	-754.1	-91.9	759.7	733.4	26.28	28.902	
1,300.0	1,300.0	1,285.0	1,285.0	2.8	25.7	-173.05	-754.1	-91.9	759.7	731.2	28.51	26.647	
1,400.0	1,400.0	1,385.0	1,385.0	3.0	27.7	-173.05	-754.1	-91.9	759.7	729.0	30.73	24.718	
1,500.0	1,500.0	1,485.0	1,485.0	3.3	29.7	-173.05	-754.1	-91.9	759.7	726.7	32.96	23.050	
1,600.0	1,600.0	1,585.0	1,585.0	3.5	31.7	-123.17	-754.1	-91.9	760.7	725.5	35.17	21.626	
1,700.0	1,699.8	1,684.8	1,684.8	3.7	33.7	-123.45	-754.1	-91.9	763.5	726.2	37.37	20.432	
1,800.0	1,799.5	1,784.5	1,784.5	3.9	35.7	-123.91	-754.1	-91.9	768.4	728.8	39.55	19.429	
1,900.0	1,898.7	1,883.7	1,883.7	4.2	37.7	-124.54	-754.1	-91.9	775.3	733.6	41.71	18.588	
2,000.0	1,997.7	1,982.7	1,982.7	4.4	39.7	-125.37	-754.1	-91.9	783.4	739.5	43.92	17.837	
2,100.0	2,096.7	2,081.7	2,081.7	4.7	41.6	-126.20	-754.1	-91.9	791.7	745.6	46.14	17.158	
2,200.0	2,195.7	2,180.7	2,180.7	5.0	43.6	-127.01	-754.1	-91.9	800.2	751.9	48.37	16.543	
2,300.0	2,294.7	2,279.7	2,279.7	5.3	45.6	-127.81	-754.1	-91.9	808.9	758.3	50.61	15.984	
2,400.0	2,393.7	2,378.7	2,378.7	5.5	47.6	-128.59	-754.1	-91.9	817.7	764.8	52.84	15.474	
2,500.0	2,492.7	2,477.7	2,477.7	5.8	49.6	-129.35	-754.1	-91.9	826.6	771.5	55.08	15.007	
2,600.0	2,591.7	2,576.7	2,576.7	6.1	51.5	-130.09	-754.1	-91.9	835.7	778.4	57.32	14.579	
2,700.0	2,690.7	2,675.7	2,675.7	6.5	53.5	-130.82	-754.1	-91.9	844.9	785.4	59.56	14.186	
2,800.0	2,789.7	2,774.7	2,774.7	6.8	55.5	-131.54	-754.1	-91.9	854.3	792.5	61.80	13.822	
2,900.0	2,888.7	2,873.7	2,873.7	7.1	57.5	-132.23	-754.1	-91.9	863.8	799.7	64.05	13.487	
3,000.0	2,987.7	2,972.7	2,972.7	7.4	59.5	-132.92	-754.1	-91.9	873.4	807.1	66.29	13.176	
3,100.0	3,086.6	3,071.6	3,071.6	7.7	61.4	-133.59	-754.1	-91.9	883.1	814.6	68.53	12.887	
3,200.0	3,185.6	3,170.6	3,170.6	8.1	63.4	-134.24	-754.1	-91.9	893.0	822.2	70.77	12.618	
3,300.0	3,284.6	3,269.6	3,269.6	8.4	65.4	-134.88	-754.1	-91.9	903.0	830.0	73.01	12.367	
3,400.0	3,383.6	3,368.6	3,368.6	8.7	67.4	-135.50	-754.1	-91.9	913.1	837.8	75.25	12.133	
3,500.0	3,482.6	3,467.6	3,467.6	9.0	69.4	-136.12	-754.1	-91.9	923.2	845.8	77.49	11.914	
3,600.0	3,581.6	3,566.6	3,566.6	9.4	71.3	-136.71	-754.1	-91.9	933.5	853.8	79.73	11.709	
3,700.0	3,680.6	3,665.6	3,665.6	9.7	73.3	-137.30	-754.1	-91.9	943.9	862.0	81.97	11.516	
3,800.0	3,779.6	3,764.6	3,764.6	10.0	75.3	-137.87	-754.1	-91.9	954.4	870.2	84.20	11.335	
3,900.0	3,878.6	3,863.6	3,863.6	10.4	77.3	-138.43	-754.1	-91.9	965.0	878.6	86.44	11.164	
4,000.0	3,977.6	3,962.6	3,962.6	10.7	79.3	-138.98	-754.1	-91.9	975.7	887.0	88.67	11.003	
4,100.0	4,076.6	4,061.6	4,061.6	11.0	81.2	-139.52	-754.1	-91.9	986.4	895.5	90.90	10.851	
4,200.0	4,175.6	4,160.6	4,160.6	11.4	83.2	-140.04	-754.1	-91.9	997.3	904.1	93.14	10.708	
4,300.0	4,274.6	4,259.6	4,259.6	11.7	85.2	-140.56	-754.1	-91.9	1,008.2	912.8	95.37	10.572	
4,400.0	4,373.6	4,358.6	4,358.6	12.0	87.2	-141.06	-754.1	-91.9	1,019.2	921.6	97.60	10.443	
4,500.0	4,472.6	4,457.6	4,457.6	12.4	89.2	-141.55	-754.1	-91.9	1,030.3	930.4	99.82	10.321	
4,600.0	4,571.6	4,556.6	4,556.6	12.7	91.1	-142.04	-754.1	-91.9	1,041.4	939.4	102.05	10.205	
4,700.0	4,670.6	4,655.6	4,655.6	13.1	93.1	-142.51	-754.1	-91.9	1,052.6	948.4	104.28	10.094	
4,800.0	4,769.6	4,754.6	4,754.6	13.4	95.1	-142.97	-754.1	-91.9	1,063.9	957.4	106.50	9.990	
4,900.0	4,868.6	4,853.6	4,853.6	13.7	97.1	-143.42	-754.1	-91.9	1,075.3	966.6	108.73	9.890	
5,000.0	4,967.6	4,952.6	4,952.6	14.1	99.1	-143.86	-754.1	-91.9	1,086.7	975.8	110.95	9.794	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - 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
5,100.0	5,066.6	5,051.6	5,051.6	14.4	101.0	-144.30	-754.1	-91.9	1,098.2	985.0	113.18	9.704	
5,200.0	5,165.7	5,150.7	5,150.7	14.7	103.0	-144.78	-754.1	-91.9	1,109.0	993.5	115.59	9.594	
5,300.0	5,265.2	5,250.2	5,250.2	14.9	105.0	-145.17	-754.1	-91.9	1,117.2	999.2	117.99	9.469	
5,400.0	5,365.0	5,350.0	5,350.0	15.1	107.0	-145.42	-754.1	-91.9	1,122.5	1,002.2	120.30	9.331	
5,500.0	5,464.9	5,449.9	5,449.9	15.3	109.0	-145.53	-754.1	-91.9	1,125.0	1,002.4	122.52	9.182	
5,600.0	5,564.9	5,549.9	5,549.9	15.5	111.0	164.48	-754.1	-91.9	1,125.1	1,000.4	124.69	9.024	
5,700.0	5,664.9	5,649.9	5,649.9	15.6	113.0	164.48	-754.1	-91.9	1,125.1	998.2	126.88	8.868	
5,800.0	5,764.9	5,749.9	5,749.9	15.8	115.0	164.48	-754.1	-91.9	1,125.1	996.0	129.08	8.717	
5,900.0	5,864.9	5,849.9	5,849.9	16.0	117.0	164.48	-754.1	-91.9	1,125.1	993.9	131.28	8.571	
6,000.0	5,964.9	5,949.9	5,949.9	16.2	119.0	164.48	-754.1	-91.9	1,125.1	991.7	133.48	8.429	
6,100.0	6,064.9	6,049.9	6,049.9	16.3	121.0	-15.53	-754.1	-91.9	1,124.9	989.3	135.62	8.295	
6,200.0	6,164.4	6,149.4	6,149.4	16.4	123.0	-15.83	-754.1	-91.9	1,116.2	980.1	136.17	8.197	
6,300.0	6,261.9	6,246.9	6,246.9	16.5	124.9	-16.59	-754.1	-91.9	1,095.2	960.7	134.51	8.142	
6,400.0	6,355.7	6,340.7	6,340.7	16.4	126.8	-17.92	-754.1	-91.9	1,062.1	931.4	130.74	8.124	
6,500.0	6,444.2	6,429.2	6,429.2	16.4	128.6	-19.94	-754.1	-91.9	1,017.7	892.5	125.18	8.130	
6,600.0	6,525.9	6,510.9	6,510.9	16.3	130.2	-22.93	-754.1	-91.9	962.9	844.3	118.59	8.119	
6,700.0	6,599.4	6,584.4	6,584.4	16.2	131.7	-27.27	-754.1	-91.9	898.8	786.3	112.52	7.988	
6,800.0	6,663.4	6,648.4	6,648.4	16.2	133.0	-33.57	-754.1	-91.9	826.9	717.1	109.79	7.532	
6,900.0	6,716.9	6,701.9	6,701.9	16.2	134.0	-42.53	-754.1	-91.9	748.9	634.8	114.11	6.563	
7,000.0	6,758.9	6,743.9	6,743.9	16.3	134.9	-54.58	-754.1	-91.9	666.9	540.2	126.71	5.263	
7,100.0	6,788.7	6,773.7	6,773.7	16.8	135.5	-68.69	-754.1	-91.9	583.3	441.5	141.86	4.112	
7,200.0	6,805.7	6,790.7	6,790.7	17.6	135.8	-81.95	-754.1	-91.9	501.6	350.3	151.29	3.315	
7,300.0	6,815.9	6,800.9	6,800.9	18.6	136.0	-85.25	-754.1	-91.9	426.2	272.7	153.47	2.777	
7,400.0	6,819.9	6,804.9	6,804.9	19.7	136.1	-89.99	-754.1	-91.9	362.4	207.1	155.28	2.334	
7,500.0	6,819.9	6,804.9	6,804.9	21.0	136.1	-90.00	-754.1	-91.9	317.8	161.3	156.52	2.030	
7,600.0	6,819.9	6,804.9	6,804.9	22.3	136.1	-90.00	-754.1	-91.9	301.0	143.2	157.85	1.907	
7,601.8	6,819.9	6,804.9	6,804.9	22.3	136.1	-90.00	-754.1	-91.9	301.0	143.1	157.88	1.907	CC, ES, SF
7,700.0	6,819.9	6,804.9	6,804.9	23.7	136.1	-90.00	-754.1	-91.9	316.6	157.3	159.27	1.988	
7,800.0	6,819.9	6,804.9	6,804.9	25.2	136.1	-90.01	-754.1	-91.9	360.4	199.6	160.76	2.242	
7,900.0	6,820.0	6,805.0	6,805.0	26.7	136.1	-90.01	-754.1	-91.9	423.7	261.4	162.30	2.611	
8,000.0	6,820.0	6,805.0	6,805.0	28.3	136.1	-90.01	-754.1	-91.9	499.1	335.3	163.89	3.046	
8,100.0	6,820.0	6,805.0	6,805.0	29.9	136.1	-90.02	-754.1	-91.9	582.0	416.5	165.52	3.516	
8,200.0	6,820.0	6,805.0	6,805.0	31.5	136.1	-90.02	-754.1	-91.9	669.6	502.5	167.18	4.005	
8,300.0	6,820.0	6,805.0	6,805.0	33.2	136.1	-90.02	-754.1	-91.9	760.3	591.4	168.88	4.502	
8,400.0	6,820.0	6,805.0	6,805.0	34.9	136.1	-90.03	-754.1	-91.9	853.0	682.4	170.59	5.000	
8,500.0	6,820.1	6,805.1	6,805.1	36.6	136.1	-90.03	-754.1	-91.9	947.3	774.9	172.33	5.497	
8,600.0	6,820.1	6,805.1	6,805.1	38.4	136.1	-90.03	-754.1	-91.9	1,042.6	868.5	174.08	5.989	
8,700.0	6,820.1	6,805.1	6,805.1	40.1	136.1	-90.04	-754.1	-91.9	1,138.7	962.8	175.85	6.475	
8,800.0	6,820.1	6,805.1	6,805.1	41.9	136.1	-90.04	-754.1	-91.9	1,235.4	1,057.8	177.63	6.955	
8,900.0	6,820.1	6,805.1	6,805.1	43.7	136.1	-90.04	-754.1	-91.9	1,332.6	1,153.2	179.43	7.427	
9,000.0	6,820.1	6,805.1	6,805.1	45.5	136.1	-90.05	-754.1	-91.9	1,430.2	1,249.0	181.23	7.891	
9,100.0	6,820.2	6,805.2	6,805.2	47.3	136.1	-90.05	-754.1	-91.9	1,528.1	1,345.1	183.05	8.348	
9,200.0	6,820.2	6,805.2	6,805.2	49.1	136.1	-90.05	-754.1	-91.9	1,626.3	1,441.4	184.87	8.797	
9,300.0	6,820.2	6,805.2	6,805.2	50.9	136.1	-90.06	-754.1	-91.9	1,724.6	1,537.9	186.70	9.237	
9,400.0	6,820.2	6,805.2	6,805.2	52.7	136.1	-90.06	-754.1	-91.9	1,823.2	1,634.6	188.54	9.670	
9,500.0	6,820.2	6,805.2	6,805.2	54.6	136.1	-90.06	-754.1	-91.9	1,921.9	1,731.5	190.38	10.095	
9,600.0	6,820.3	6,805.3	6,805.3	56.4	136.1	-90.07	-754.1	-91.9	2,020.7	1,828.5	192.23	10.512	
9,700.0	6,820.3	6,805.3	6,805.3	58.2	136.1	-90.07	-754.1	-91.9	2,119.6	1,925.6	194.08	10.921	
9,800.0	6,820.3	6,805.3	6,805.3	60.1	136.1	-90.07	-754.1	-91.9	2,218.7	2,022.7	195.94	11.323	
9,900.0	6,820.3	6,805.3	6,805.3	61.9	136.1	-90.08	-754.1	-91.9	2,317.8	2,120.0	197.80	11.718	
10,000.0	6,820.3	6,805.3	6,805.3	63.8	136.1	-90.08	-754.1	-91.9	2,417.0	2,217.3	199.66	12.105	

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 Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - 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
10,100.0	6,820.3	6,805.3	6,805.3	65.7	136.1	-90.08	-754.1	-91.9	2,516.2	2,314.7	201.53	12.486	
10,200.0	6,820.4	6,805.4	6,805.4	67.5	136.1	-90.09	-754.1	-91.9	2,615.5	2,412.1	203.40	12.859	
10,300.0	6,820.4	6,805.4	6,805.4	69.4	136.1	-90.09	-754.1	-91.9	2,714.9	2,509.6	205.27	13.226	
10,400.0	6,820.4	6,805.4	6,805.4	71.3	136.1	-90.09	-754.1	-91.9	2,814.3	2,607.2	207.15	13.586	
10,500.0	6,820.4	6,805.4	6,805.4	73.1	136.1	-90.10	-754.1	-91.9	2,913.8	2,704.7	209.03	13.939	
10,600.0	6,820.4	6,805.4	6,805.4	75.0	136.1	-90.10	-754.1	-91.9	3,013.2	2,802.3	210.91	14.287	
10,700.0	6,820.4	6,805.4	6,805.4	76.9	136.1	-90.10	-754.1	-91.9	3,112.8	2,900.0	212.79	14.628	
10,800.0	6,820.5	6,805.5	6,805.5	78.8	136.1	-90.11	-754.1	-91.9	3,212.3	2,997.6	214.68	14.963	
10,900.0	6,820.5	6,805.5	6,805.5	80.7	136.1	-90.11	-754.1	-91.9	3,311.9	3,095.3	216.56	15.293	
11,000.0	6,820.5	6,805.5	6,805.5	82.5	136.1	-90.11	-754.1	-91.9	3,411.5	3,193.0	218.45	15.617	
11,100.0	6,820.5	6,805.5	6,805.5	84.4	136.1	-90.12	-754.1	-91.9	3,511.1	3,290.8	220.34	15.935	
11,200.0	6,820.5	6,805.5	6,805.5	86.3	136.1	-90.12	-754.1	-91.9	3,610.7	3,388.5	222.23	16.248	
11,300.0	6,820.5	6,805.5	6,805.5	88.2	136.1	-90.12	-754.1	-91.9	3,710.4	3,486.3	224.12	16.555	
11,400.0	6,820.6	6,805.6	6,805.6	90.1	136.1	-90.13	-754.1	-91.9	3,810.1	3,584.1	226.02	16.858	
11,500.0	6,820.6	6,805.6	6,805.6	92.0	136.1	-90.13	-754.1	-91.9	3,909.8	3,681.9	227.91	17.155	
11,600.0	6,820.6	6,805.6	6,805.6	93.9	136.1	-90.13	-754.1	-91.9	4,009.5	3,779.7	229.81	17.447	
11,700.0	6,820.6	6,805.6	6,805.6	95.8	136.1	-90.14	-754.1	-91.9	4,109.2	3,877.5	231.70	17.735	
11,800.0	6,820.6	6,805.6	6,805.6	97.7	136.1	-90.14	-754.1	-91.9	4,208.9	3,975.3	233.60	18.018	
11,900.0	6,820.7	6,805.7	6,805.7	99.5	136.1	-90.14	-754.1	-91.9	4,308.7	4,073.2	235.50	18.296	
12,000.0	6,820.7	6,805.7	6,805.7	101.4	136.1	-90.15	-754.1	-91.9	4,408.5	4,171.1	237.40	18.570	
12,100.0	6,820.7	6,805.7	6,805.7	103.3	136.1	-90.15	-754.1	-91.9	4,508.2	4,268.9	239.30	18.839	
12,200.0	6,820.7	6,805.7	6,805.7	105.2	136.1	-90.15	-754.1	-91.9	4,608.0	4,366.8	241.20	19.105	
12,300.0	6,820.7	6,805.7	6,805.7	107.1	136.1	-90.16	-754.1	-91.9	4,707.8	4,464.7	243.10	19.366	
12,400.0	6,820.7	6,805.7	6,805.7	109.0	136.1	-90.16	-754.1	-91.9	4,807.6	4,562.6	245.00	19.623	
12,500.0	6,820.8	6,805.8	6,805.8	110.9	136.1	-90.16	-754.1	-91.9	4,907.4	4,660.5	246.91	19.876	
12,600.0	6,820.8	6,805.8	6,805.8	112.8	136.1	-90.17	-754.1	-91.9	5,007.2	4,758.4	248.81	20.125	
12,700.0	6,820.8	6,805.8	6,805.8	114.7	136.1	-90.17	-754.1	-91.9	5,107.0	4,856.3	250.71	20.370	
12,800.0	6,820.8	6,805.8	6,805.8	116.6	136.1	-90.17	-754.1	-91.9	5,206.9	4,954.3	252.62	20.612	
12,900.0	6,820.8	6,805.8	6,805.8	118.5	136.1	-90.18	-754.1	-91.9	5,306.7	5,052.2	254.52	20.849	
13,000.0	6,820.8	6,805.8	6,805.8	120.4	136.1	-90.18	-754.1	-91.9	5,406.5	5,150.1	256.43	21.084	
13,100.0	6,820.9	6,805.9	6,805.9	122.4	136.1	-90.18	-754.1	-91.9	5,506.4	5,248.1	258.34	21.315	
13,200.0	6,820.9	6,805.9	6,805.9	124.3	136.1	-90.19	-754.1	-91.9	5,606.3	5,346.0	260.24	21.542	
13,300.0	6,820.9	6,805.9	6,805.9	126.2	136.1	-90.19	-754.1	-91.9	5,706.1	5,444.0	262.15	21.767	
13,400.0	6,820.9	6,805.9	6,805.9	128.1	136.1	-90.19	-754.1	-91.9	5,806.0	5,541.9	264.06	21.987	
13,500.0	6,820.9	6,805.9	6,805.9	130.0	136.1	-90.20	-754.1	-91.9	5,905.8	5,639.9	265.97	22.205	
13,600.0	6,820.9	6,805.9	6,805.9	131.9	136.1	-90.20	-754.1	-91.9	6,005.7	5,737.8	267.88	22.420	
13,700.0	6,821.0	6,806.0	6,806.0	133.8	136.1	-90.20	-754.1	-91.9	6,105.6	5,835.8	269.78	22.631	
13,800.0	6,821.0	6,806.0	6,806.0	135.7	136.1	-90.21	-754.1	-91.9	6,205.5	5,933.8	271.69	22.840	
13,893.5	6,821.0	6,806.0	6,806.0	137.5	136.1	-90.21	-754.1	-91.9	6,298.8	6,025.3	273.48	23.032	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - Sec.28-T5N-R64W - Hendricks 33-2 (Exist) - Wellbore #1 - Wellbor

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	9.0	9.0	0.0	0.2	-174.69	-5,512.0	-512.8	5,535.8	5,535.6	0.18	N/A	
100.0	100.0	109.0	109.0	0.1	2.2	-174.69	-5,512.0	-512.8	5,535.8	5,533.5	2.29	2,414.658	
200.0	200.0	209.0	209.0	0.3	4.2	-174.69	-5,512.0	-512.8	5,535.8	5,531.3	4.52	1,225.454	
300.0	300.0	309.0	309.0	0.6	6.2	-174.69	-5,512.0	-512.8	5,535.8	5,529.1	6.74	821.078	
400.0	400.0	409.0	409.0	0.8	8.2	-174.69	-5,512.0	-512.8	5,535.8	5,526.8	8.97	617.361	
500.0	500.0	509.0	509.0	1.0	10.2	-174.69	-5,512.0	-512.8	5,535.8	5,524.6	11.19	494.637	
600.0	600.0	609.0	609.0	1.2	12.2	-174.69	-5,512.0	-512.8	5,535.8	5,522.4	13.42	412.614	
700.0	700.0	709.0	709.0	1.5	14.2	-174.69	-5,512.0	-512.8	5,535.8	5,520.2	15.64	353.925	
800.0	800.0	809.0	809.0	1.7	16.2	-174.69	-5,512.0	-512.8	5,535.8	5,517.9	17.87	309.852	
900.0	900.0	909.0	909.0	1.9	18.2	-174.69	-5,512.0	-512.8	5,535.8	5,515.7	20.09	275.540	
1,000.0	1,000.0	1,009.0	1,009.0	2.1	20.2	-174.69	-5,512.0	-512.8	5,535.8	5,513.5	22.32	248.070	
1,100.0	1,100.0	1,109.0	1,109.0	2.4	22.2	-174.69	-5,512.0	-512.8	5,535.8	5,511.3	24.54	225.581	
1,200.0	1,200.0	1,209.0	1,209.0	2.6	24.2	-174.69	-5,512.0	-512.8	5,535.8	5,509.0	26.76	206.830	
1,300.0	1,300.0	1,309.0	1,309.0	2.8	26.2	-174.69	-5,512.0	-512.8	5,535.8	5,506.8	28.99	190.957	
1,400.0	1,400.0	1,409.0	1,409.0	3.0	28.2	-174.69	-5,512.0	-512.8	5,535.8	5,504.6	31.21	177.347	
1,500.0	1,500.0	1,509.0	1,509.0	3.3	30.2	-174.69	-5,512.0	-512.8	5,535.8	5,502.4	33.44	165.548	
1,600.0	1,600.0	1,609.0	1,609.0	3.5	32.2	-124.71	-5,512.0	-512.8	5,536.8	5,501.1	35.65	155.299	
1,700.0	1,699.8	1,708.8	1,708.8	3.7	34.2	-124.70	-5,512.0	-512.8	5,539.8	5,501.9	37.85	146.375	
1,800.0	1,799.5	1,808.5	1,808.5	3.9	36.2	-124.69	-5,512.0	-512.8	5,544.7	5,504.7	40.02	138.535	
1,900.0	1,898.7	1,907.7	1,907.7	4.2	38.2	-124.68	-5,512.0	-512.8	5,551.7	5,509.5	42.19	131.601	
2,000.0	1,997.7	2,006.7	2,006.7	4.4	40.1	-124.79	-5,512.0	-512.8	5,559.8	5,515.4	44.40	125.212	
2,100.0	2,096.7	2,105.7	2,105.7	4.7	42.1	-124.91	-5,512.0	-512.8	5,568.0	5,521.3	46.63	119.398	
2,200.0	2,195.7	2,204.7	2,204.7	5.0	44.1	-125.03	-5,512.0	-512.8	5,576.1	5,527.2	48.87	114.098	
2,300.0	2,294.7	2,303.7	2,303.7	5.3	46.1	-125.15	-5,512.0	-512.8	5,584.3	5,533.2	51.11	109.250	
2,400.0	2,393.7	2,402.7	2,402.7	5.5	48.1	-125.26	-5,512.0	-512.8	5,592.5	5,539.1	53.36	104.800	
2,500.0	2,492.7	2,501.7	2,501.7	5.8	50.0	-125.38	-5,512.0	-512.8	5,600.7	5,545.1	55.62	100.703	
2,600.0	2,591.7	2,600.7	2,600.7	6.1	52.0	-125.50	-5,512.0	-512.8	5,609.0	5,551.1	57.87	96.919	
2,700.0	2,690.7	2,699.7	2,699.7	6.5	54.0	-125.62	-5,512.0	-512.8	5,617.3	5,557.1	60.13	93.415	
2,800.0	2,789.7	2,798.7	2,798.7	6.8	56.0	-125.73	-5,512.0	-512.8	5,625.6	5,563.2	62.39	90.161	
2,900.0	2,888.7	2,897.7	2,897.7	7.1	58.0	-125.85	-5,512.0	-512.8	5,633.9	5,569.2	64.66	87.133	
3,000.0	2,987.7	2,996.7	2,996.7	7.4	59.9	-125.96	-5,512.0	-512.8	5,642.2	5,575.3	66.93	84.307	
3,100.0	3,086.6	3,095.6	3,095.6	7.7	61.9	-126.08	-5,512.0	-512.8	5,650.6	5,581.4	69.19	81.665	
3,200.0	3,185.6	3,194.6	3,194.6	8.1	63.9	-126.19	-5,512.0	-512.8	5,659.0	5,587.5	71.46	79.189	
3,300.0	3,284.6	3,293.6	3,293.6	8.4	65.9	-126.31	-5,512.0	-512.8	5,667.4	5,593.7	73.73	76.865	
3,400.0	3,383.6	3,392.6	3,392.6	8.7	67.9	-126.42	-5,512.0	-512.8	5,675.9	5,599.9	76.00	74.679	
3,500.0	3,482.6	3,491.6	3,491.6	9.0	69.8	-126.54	-5,512.0	-512.8	5,684.3	5,606.0	78.28	72.619	
3,600.0	3,581.6	3,590.6	3,590.6	9.4	71.8	-126.65	-5,512.0	-512.8	5,692.8	5,612.2	80.55	70.675	
3,700.0	3,680.6	3,689.6	3,689.6	9.7	73.8	-126.76	-5,512.0	-512.8	5,701.3	5,618.5	82.82	68.838	
3,800.0	3,779.6	3,788.6	3,788.6	10.0	75.8	-126.88	-5,512.0	-512.8	5,709.8	5,624.7	85.10	67.099	
3,900.0	3,878.6	3,887.6	3,887.6	10.4	77.8	-126.99	-5,512.0	-512.8	5,718.4	5,631.0	87.37	65.450	
4,000.0	3,977.6	3,986.6	3,986.6	10.7	79.7	-127.10	-5,512.0	-512.8	5,727.0	5,637.3	89.65	63.885	
4,100.0	4,076.6	4,085.6	4,085.6	11.0	81.7	-127.21	-5,512.0	-512.8	5,735.5	5,643.6	91.92	62.397	
4,200.0	4,175.6	4,184.6	4,184.6	11.4	83.7	-127.32	-5,512.0	-512.8	5,744.2	5,650.0	94.20	60.981	
4,300.0	4,274.6	4,283.6	4,283.6	11.7	85.7	-127.44	-5,512.0	-512.8	5,752.8	5,656.3	96.47	59.632	
4,400.0	4,373.6	4,382.6	4,382.6	12.0	87.7	-127.55	-5,512.0	-512.8	5,761.5	5,662.7	98.75	58.346	
4,500.0	4,472.6	4,481.6	4,481.6	12.4	89.6	-127.66	-5,512.0	-512.8	5,770.1	5,669.1	101.02	57.118	
4,600.0	4,571.6	4,580.6	4,580.6	12.7	91.6	-127.77	-5,512.0	-512.8	5,778.8	5,675.6	103.30	55.944	
4,700.0	4,670.6	4,679.6	4,679.6	13.1	93.6	-127.88	-5,512.0	-512.8	5,787.6	5,682.0	105.57	54.820	
4,800.0	4,769.6	4,778.6	4,778.6	13.4	95.6	-127.99	-5,512.0	-512.8	5,796.3	5,688.5	107.85	53.745	
4,900.0	4,868.6	4,877.6	4,877.6	13.7	97.6	-128.10	-5,512.0	-512.8	5,805.1	5,695.0	110.12	52.714	
5,000.0	4,967.6	4,976.6	4,976.6	14.1	99.5	-128.21	-5,512.0	-512.8	5,813.9	5,701.5	112.40	51.725	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - Sec.28-T5N-R64W - Hendricks 33-2 (Exist) - Wellbore #1 - Wellbor

Offset Site Error: 0.0 ft

Offset Well Error: 0.0 ft

Survey Program: 7600-UNKNOWN

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	5,066.6	5,075.6	5,075.6	14.4	101.5	-128.31	-5,512.0	-512.8	5,822.7	5,708.0	114.68	50.775	
5,200.0	5,165.7	5,174.7	5,174.7	14.7	103.5	-128.51	-5,512.0	-512.8	5,831.0	5,713.9	117.05	49.818	
5,300.0	5,265.2	5,274.2	5,274.2	14.9	105.5	-128.68	-5,512.0	-512.8	5,837.2	5,717.8	119.37	48.901	
5,400.0	5,365.0	5,374.0	5,374.0	15.1	107.5	-128.79	-5,512.0	-512.8	5,841.2	5,719.6	121.63	48.025	
5,500.0	5,464.9	5,473.9	5,473.9	15.3	109.5	-128.84	-5,512.0	-512.8	5,843.1	5,719.3	123.82	47.188	
5,600.0	5,564.9	5,573.9	5,573.9	15.5	111.5	-178.83	-5,512.0	-512.8	5,843.2	5,717.2	125.98	46.381	
5,700.0	5,664.9	5,673.9	5,673.9	15.6	113.5	-178.83	-5,512.0	-512.8	5,843.2	5,715.1	128.17	45.590	
5,800.0	5,764.9	5,773.9	5,773.9	15.8	115.5	-178.83	-5,512.0	-512.8	5,843.2	5,712.9	130.36	44.825	
5,900.0	5,864.9	5,873.9	5,873.9	16.0	117.5	-178.83	-5,512.0	-512.8	5,843.2	5,710.7	132.55	44.085	
6,000.0	5,964.9	5,973.9	5,973.9	16.2	119.5	-178.83	-5,512.0	-512.8	5,843.2	5,708.5	134.74	43.368	
6,100.0	6,064.9	6,073.9	6,073.9	16.3	121.5	1.18	-5,512.0	-512.8	5,843.0	5,706.1	136.87	42.691	
6,200.0	6,164.4	6,173.4	6,173.4	16.4	123.5	1.19	-5,512.0	-512.8	5,834.0	5,696.7	137.31	42.487	
6,300.0	6,261.9	6,270.9	6,270.9	16.5	125.4	1.23	-5,512.0	-512.8	5,812.1	5,676.8	135.32	42.950	
6,400.0	6,355.7	6,364.7	6,364.7	16.4	127.3	1.30	-5,512.0	-512.8	5,777.7	5,646.8	130.84	44.157	
6,500.0	6,444.2	6,453.2	6,453.2	16.4	129.1	1.40	-5,512.0	-512.8	5,731.3	5,607.4	123.90	46.259	
6,600.0	6,525.9	6,534.9	6,534.9	16.3	130.7	1.55	-5,512.0	-512.8	5,673.8	5,559.2	114.56	49.524	
6,700.0	6,599.4	6,608.4	6,608.4	16.2	132.2	1.78	-5,512.0	-512.8	5,606.1	5,503.0	103.02	54.418	
6,800.0	6,663.4	6,672.4	6,672.4	16.2	133.4	2.11	-5,512.0	-512.8	5,529.3	5,439.8	89.52	61.770	
6,900.0	6,716.9	6,725.9	6,725.9	16.2	134.5	2.63	-5,512.0	-512.8	5,444.9	5,370.5	74.44	73.149	
7,000.0	6,758.9	6,767.9	6,767.9	16.3	135.4	3.56	-5,512.0	-512.8	5,354.3	5,295.9	58.40	91.689	
7,100.0	6,788.7	6,797.7	6,797.7	16.8	136.0	5.54	-5,512.0	-512.8	5,258.9	5,215.8	43.09	122.050	
7,200.0	6,805.7	6,814.7	6,814.7	17.6	136.3	12.35	-5,512.0	-512.8	5,160.5	5,118.8	41.73	123.678	
7,300.0	6,815.9	6,824.9	6,824.9	18.6	136.5	15.93	-5,512.0	-512.8	5,061.0	5,011.8	49.27	102.726	
7,400.0	6,819.9	6,828.9	6,828.9	19.7	136.6	89.59	-5,512.0	-512.8	4,961.2	4,805.4	155.77	31.850	
7,500.0	6,819.9	6,828.9	6,828.9	21.0	136.6	89.59	-5,512.0	-512.8	4,861.2	4,704.2	157.00	30.962	
7,600.0	6,819.9	6,828.9	6,828.9	22.3	136.6	89.60	-5,512.0	-512.8	4,761.2	4,602.9	158.34	30.070	
7,700.0	6,819.9	6,828.9	6,828.9	23.7	136.6	89.61	-5,512.0	-512.8	4,661.3	4,501.5	159.76	29.177	
7,800.0	6,819.9	6,828.9	6,828.9	25.2	136.6	89.62	-5,512.0	-512.8	4,561.3	4,400.0	161.24	28.288	
7,900.0	6,820.0	6,829.0	6,829.0	26.7	136.6	89.63	-5,512.0	-512.8	4,461.3	4,298.5	162.79	27.406	
8,000.0	6,820.0	6,829.0	6,829.0	28.3	136.6	89.64	-5,512.0	-512.8	4,361.4	4,197.0	164.38	26.533	
8,100.0	6,820.0	6,829.0	6,829.0	29.9	136.6	89.64	-5,512.0	-512.8	4,261.4	4,095.4	166.01	25.670	
8,200.0	6,820.0	6,829.0	6,829.0	31.5	136.6	89.65	-5,512.0	-512.8	4,161.4	3,993.8	167.67	24.819	
8,300.0	6,820.0	6,829.0	6,829.0	33.2	136.6	89.66	-5,512.0	-512.8	4,061.5	3,892.1	169.36	23.981	
8,400.0	6,820.0	6,829.0	6,829.0	34.9	136.6	89.67	-5,512.0	-512.8	3,961.5	3,790.5	171.08	23.157	
8,500.0	6,820.1	6,829.1	6,829.1	36.6	136.6	89.68	-5,512.0	-512.8	3,861.6	3,688.8	172.81	22.346	
8,600.0	6,820.1	6,829.1	6,829.1	38.4	136.6	89.69	-5,512.0	-512.8	3,761.6	3,587.1	174.57	21.548	
8,700.0	6,820.1	6,829.1	6,829.1	40.1	136.6	89.69	-5,512.0	-512.8	3,661.7	3,485.3	176.34	20.765	
8,800.0	6,820.1	6,829.1	6,829.1	41.9	136.6	89.70	-5,512.0	-512.8	3,561.7	3,383.6	178.12	19.996	
8,900.0	6,820.1	6,829.1	6,829.1	43.7	136.6	89.71	-5,512.0	-512.8	3,461.8	3,281.9	179.91	19.242	
9,000.0	6,820.1	6,829.1	6,829.1	45.5	136.6	89.72	-5,512.0	-512.8	3,361.9	3,180.1	181.72	18.500	
9,100.0	6,820.2	6,829.2	6,829.2	47.3	136.6	89.73	-5,512.0	-512.8	3,261.9	3,078.4	183.53	17.773	
9,200.0	6,820.2	6,829.2	6,829.2	49.1	136.6	89.74	-5,512.0	-512.8	3,162.0	2,976.6	185.35	17.059	
9,300.0	6,820.2	6,829.2	6,829.2	50.9	136.6	89.74	-5,512.0	-512.8	3,062.1	2,874.9	187.18	16.359	
9,400.0	6,820.2	6,829.2	6,829.2	52.7	136.6	89.75	-5,512.0	-512.8	2,962.1	2,773.1	189.02	15.671	
9,500.0	6,820.2	6,829.2	6,829.2	54.6	136.6	89.76	-5,512.0	-512.8	2,862.2	2,671.4	190.86	14.996	
9,600.0	6,820.3	6,829.3	6,829.3	56.4	136.6	89.77	-5,512.0	-512.8	2,762.3	2,569.6	192.71	14.334	
9,700.0	6,820.3	6,829.3	6,829.3	58.2	136.6	89.78	-5,512.0	-512.8	2,662.4	2,467.9	194.56	13.684	
9,800.0	6,820.3	6,829.3	6,829.3	60.1	136.6	89.79	-5,512.0	-512.8	2,562.5	2,366.1	196.42	13.046	
9,900.0	6,820.3	6,829.3	6,829.3	61.9	136.6	89.79	-5,512.0	-512.8	2,462.6	2,264.4	198.28	12.420	
10,000.0	6,820.3	6,829.3	6,829.3	63.8	136.6	89.80	-5,512.0	-512.8	2,362.8	2,162.6	200.14	11.805	
10,100.0	6,820.3	6,829.3	6,829.3	65.7	136.6	89.81	-5,512.0	-512.8	2,262.9	2,060.9	202.01	11.202	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - Sec.28-T5N-R64W - Hendricks 33-2 (Exist) - Wellbore #1 - Wellbor

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
10,200.0	6,820.4	6,829.4	6,829.4	67.5	136.6	89.82	-5,512.0	-512.8	2,163.0	1,959.2	203.88	10.609	
10,300.0	6,820.4	6,829.4	6,829.4	69.4	136.6	89.83	-5,512.0	-512.8	2,063.2	1,857.4	205.76	10.027	
10,400.0	6,820.4	6,829.4	6,829.4	71.3	136.6	89.84	-5,512.0	-512.8	1,963.4	1,755.7	207.63	9.456	
10,500.0	6,820.4	6,829.4	6,829.4	73.1	136.6	89.84	-5,512.0	-512.8	1,863.6	1,654.1	209.51	8.895	
10,600.0	6,820.4	6,829.4	6,829.4	75.0	136.6	89.85	-5,512.0	-512.8	1,763.8	1,552.4	211.39	8.344	
10,700.0	6,820.4	6,829.4	6,829.4	76.9	136.6	89.86	-5,512.0	-512.8	1,664.0	1,450.8	213.27	7.802	
10,800.0	6,820.5	6,829.5	6,829.5	78.8	136.6	89.87	-5,512.0	-512.8	1,564.3	1,349.2	215.16	7.271	
10,900.0	6,820.5	6,829.5	6,829.5	80.7	136.6	89.88	-5,512.0	-512.8	1,464.6	1,247.6	217.04	6.748	
11,000.0	6,820.5	6,829.5	6,829.5	82.5	136.6	89.89	-5,512.0	-512.8	1,365.0	1,146.1	218.93	6.235	
11,100.0	6,820.5	6,829.5	6,829.5	84.4	136.6	89.89	-5,512.0	-512.8	1,265.4	1,044.6	220.82	5.730	
11,200.0	6,820.5	6,829.5	6,829.5	86.3	136.6	89.90	-5,512.0	-512.8	1,165.9	943.2	222.71	5.235	
11,300.0	6,820.5	6,829.5	6,829.5	88.2	136.6	89.91	-5,512.0	-512.8	1,066.5	841.9	224.60	4.748	
11,400.0	6,820.6	6,829.6	6,829.6	90.1	136.6	89.92	-5,512.0	-512.8	967.2	740.7	226.50	4.270	
11,500.0	6,820.6	6,829.6	6,829.6	92.0	136.6	89.93	-5,512.0	-512.8	868.0	639.6	228.39	3.801	
11,600.0	6,820.6	6,829.6	6,829.6	93.9	136.6	89.94	-5,512.0	-512.8	769.1	538.8	230.29	3.340	
11,700.0	6,820.6	6,829.6	6,829.6	95.8	136.6	89.94	-5,512.0	-512.8	670.5	438.3	232.18	2.888	
11,800.0	6,820.6	6,829.6	6,829.6	97.7	136.6	89.95	-5,512.0	-512.8	572.4	338.3	234.08	2.445	
11,900.0	6,820.7	6,829.7	6,829.7	99.5	136.6	89.96	-5,512.0	-512.8	475.1	239.1	235.98	2.013	
12,000.0	6,820.7	6,829.7	6,829.7	101.4	136.6	89.97	-5,512.0	-512.8	379.1	141.3	237.88	1.594	
12,100.0	6,820.7	6,829.7	6,829.7	103.3	136.6	89.98	-5,512.0	-512.8	286.0	46.2	239.78	1.193	Level 2
12,200.0	6,820.7	6,829.7	6,829.7	105.2	136.6	89.99	-5,512.0	-512.8	199.7	-42.0	241.68	0.826	Level 1
12,300.0	6,820.7	6,829.7	6,829.7	107.1	136.6	90.00	-5,512.0	-512.8	133.9	-109.7	243.58	0.550	Level 1
12,359.7	6,820.7	6,829.7	6,829.7	108.3	136.6	90.00	-5,512.0	-512.8	119.8	-124.9	244.72	0.490	Level 1, CC, ES, SF
12,400.0	6,820.7	6,829.7	6,829.7	109.0	136.6	90.00	-5,512.0	-512.8	126.4	-119.1	245.48	0.515	Level 1
12,500.0	6,820.8	6,829.8	6,829.8	110.9	136.6	90.01	-5,512.0	-512.8	184.5	-62.9	247.38	0.746	Level 1
12,600.0	6,820.8	6,829.8	6,829.8	112.8	136.6	90.02	-5,512.0	-512.8	268.5	19.2	249.29	1.077	Level 2
12,700.0	6,820.8	6,829.8	6,829.8	114.7	136.6	90.03	-5,512.0	-512.8	360.8	109.6	251.19	1.436	Level 3
12,800.0	6,820.8	6,829.8	6,829.8	116.6	136.6	90.04	-5,512.0	-512.8	456.3	203.2	253.10	1.803	
12,900.0	6,820.8	6,829.8	6,829.8	118.5	136.6	90.05	-5,512.0	-512.8	553.4	298.4	255.00	2.170	
13,000.0	6,820.8	6,829.8	6,829.8	120.4	136.6	90.05	-5,512.0	-512.8	651.4	394.5	256.91	2.536	
13,100.0	6,820.9	6,829.9	6,829.9	122.4	136.6	90.06	-5,512.0	-512.8	749.9	491.1	258.81	2.898	
13,200.0	6,820.9	6,829.9	6,829.9	124.3	136.6	90.07	-5,512.0	-512.8	848.8	588.1	260.72	3.256	
13,300.0	6,820.9	6,829.9	6,829.9	126.2	136.6	90.08	-5,512.0	-512.8	947.9	685.3	262.63	3.609	
13,400.0	6,820.9	6,829.9	6,829.9	128.1	136.6	90.09	-5,512.0	-512.8	1,047.2	782.6	264.53	3.958	
13,500.0	6,820.9	6,829.9	6,829.9	130.0	136.6	90.10	-5,512.0	-512.8	1,146.6	880.1	266.44	4.303	
13,600.0	6,820.9	6,829.9	6,829.9	131.9	136.6	90.10	-5,512.0	-512.8	1,246.1	977.7	268.35	4.643	
13,700.0	6,821.0	6,830.0	6,830.0	133.8	136.6	90.11	-5,512.0	-512.8	1,345.6	1,075.4	270.26	4.979	
13,800.0	6,821.0	6,830.0	6,830.0	135.7	136.6	90.12	-5,512.0	-512.8	1,445.3	1,173.1	272.17	5.310	
13,893.5	6,821.0	6,830.0	6,830.0	137.5	136.6	90.13	-5,512.0	-512.8	1,538.4	1,264.5	273.95	5.616	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - Sec.28-T5N-R64W - Hendricks 33-4 (Exist) - Wellbore #1 - Wellbor

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	31.0	31.0	0.0	0.6	-175.09	-6,907.3	-593.6	6,932.8	6,932.1	0.62	N/A	
100.0	100.0	131.0	131.0	0.1	2.6	-175.09	-6,907.3	-593.6	6,932.8	6,930.0	2.73	2,537.076	
200.0	200.0	231.0	231.0	0.3	4.6	-175.09	-6,907.3	-593.6	6,932.8	6,927.8	4.96	1,398.483	
300.0	300.0	331.0	331.0	0.6	6.6	-175.09	-6,907.3	-593.6	6,932.8	6,925.6	7.18	965.283	
400.0	400.0	431.0	431.0	0.8	8.6	-175.09	-6,907.3	-593.6	6,932.8	6,923.4	9.41	736.989	
500.0	500.0	531.0	531.0	1.0	10.6	-175.09	-6,907.3	-593.6	6,932.8	6,921.1	11.63	596.027	
600.0	600.0	631.0	631.0	1.2	12.6	-175.09	-6,907.3	-593.6	6,932.8	6,918.9	13.86	500.329	
700.0	700.0	731.0	731.0	1.5	14.6	-175.09	-6,907.3	-593.6	6,932.8	6,916.7	16.08	431.111	
800.0	800.0	831.0	831.0	1.7	16.6	-175.09	-6,907.3	-593.6	6,932.8	6,914.5	18.31	378.717	
900.0	900.0	931.0	931.0	1.9	18.6	-175.09	-6,907.3	-593.6	6,932.8	6,912.2	20.53	337.678	
1,000.0	1,000.0	1,031.0	1,031.0	2.1	20.6	-175.09	-6,907.3	-593.6	6,932.8	6,910.0	22.76	304.664	
1,100.0	1,100.0	1,131.0	1,131.0	2.4	22.6	-175.09	-6,907.3	-593.6	6,932.8	6,907.8	24.98	277.530	
1,200.0	1,200.0	1,231.0	1,231.0	2.6	24.6	-175.09	-6,907.3	-593.6	6,932.8	6,905.6	27.20	254.834	
1,300.0	1,300.0	1,331.0	1,331.0	2.8	26.6	-175.09	-6,907.3	-593.6	6,932.8	6,903.3	29.43	235.570	
1,400.0	1,400.0	1,431.0	1,431.0	3.0	28.6	-175.09	-6,907.3	-593.6	6,932.8	6,901.1	31.65	219.013	
1,500.0	1,500.0	1,531.0	1,531.0	3.3	30.6	-175.09	-6,907.3	-593.6	6,932.8	6,898.9	33.88	204.631	
1,600.0	1,600.0	1,631.0	1,631.0	3.5	32.6	-125.11	-6,907.3	-593.6	6,933.8	6,897.7	36.09	192.112	
1,700.0	1,699.8	1,730.8	1,730.8	3.7	34.6	-125.09	-6,907.3	-593.6	6,936.8	6,898.5	38.29	181.186	
1,800.0	1,799.5	1,830.5	1,830.5	3.9	36.6	-125.07	-6,907.3	-593.6	6,941.8	6,901.3	40.46	171.564	
1,900.0	1,898.7	1,929.7	1,929.7	4.2	38.6	-125.03	-6,907.3	-593.6	6,948.8	6,906.2	42.62	163.034	
2,000.0	1,997.7	2,028.7	2,028.7	4.4	40.6	-125.12	-6,907.3	-593.6	6,957.0	6,912.2	44.84	155.155	
2,100.0	2,096.7	2,127.7	2,127.7	4.7	42.6	-125.22	-6,907.3	-593.6	6,965.2	6,918.1	47.07	147.977	
2,200.0	2,195.7	2,226.7	2,226.7	5.0	44.5	-125.31	-6,907.3	-593.6	6,973.4	6,924.1	49.31	141.429	
2,300.0	2,294.7	2,325.7	2,325.7	5.3	46.5	-125.40	-6,907.3	-593.6	6,981.7	6,930.1	51.55	135.434	
2,400.0	2,393.7	2,424.7	2,424.7	5.5	48.5	-125.50	-6,907.3	-593.6	6,989.9	6,936.1	53.80	129.926	
2,500.0	2,492.7	2,523.7	2,523.7	5.8	50.5	-125.59	-6,907.3	-593.6	6,998.2	6,942.1	56.05	124.852	
2,600.0	2,591.7	2,622.7	2,622.7	6.1	52.5	-125.68	-6,907.3	-593.6	7,006.5	6,948.2	58.31	120.162	
2,700.0	2,690.7	2,721.7	2,721.7	6.5	54.4	-125.78	-6,907.3	-593.6	7,014.8	6,954.2	60.57	115.817	
2,800.0	2,789.7	2,820.7	2,820.7	6.8	56.4	-125.87	-6,907.3	-593.6	7,023.1	6,960.3	62.83	111.779	
2,900.0	2,888.7	2,919.7	2,919.7	7.1	58.4	-125.96	-6,907.3	-593.6	7,031.5	6,966.4	65.09	108.019	
3,000.0	2,987.7	3,018.7	3,018.7	7.4	60.4	-126.06	-6,907.3	-593.6	7,039.8	6,972.5	67.36	104.508	
3,100.0	3,086.6	3,117.6	3,117.6	7.7	62.4	-126.15	-6,907.3	-593.6	7,048.2	6,978.6	69.63	101.225	
3,200.0	3,185.6	3,216.6	3,216.6	8.1	64.3	-126.24	-6,907.3	-593.6	7,056.6	6,984.7	71.90	98.146	
3,300.0	3,284.6	3,315.6	3,315.6	8.4	66.3	-126.33	-6,907.3	-593.6	7,065.1	6,990.9	74.17	95.255	
3,400.0	3,383.6	3,414.6	3,414.6	8.7	68.3	-126.42	-6,907.3	-593.6	7,073.5	6,997.1	76.44	92.534	
3,500.0	3,482.6	3,513.6	3,513.6	9.0	70.3	-126.52	-6,907.3	-593.6	7,082.0	7,003.2	78.71	89.970	
3,600.0	3,581.6	3,612.6	3,612.6	9.4	72.3	-126.61	-6,907.3	-593.6	7,090.4	7,009.4	80.99	87.549	
3,700.0	3,680.6	3,711.6	3,711.6	9.7	74.2	-126.70	-6,907.3	-593.6	7,098.9	7,015.7	83.26	85.259	
3,800.0	3,779.6	3,810.6	3,810.6	10.0	76.2	-126.79	-6,907.3	-593.6	7,107.4	7,021.9	85.54	83.091	
3,900.0	3,878.6	3,909.6	3,909.6	10.4	78.2	-126.88	-6,907.3	-593.6	7,116.0	7,028.2	87.81	81.035	
4,000.0	3,977.6	4,008.6	4,008.6	10.7	80.2	-126.97	-6,907.3	-593.6	7,124.5	7,034.4	90.09	79.083	
4,100.0	4,076.6	4,107.6	4,107.6	11.0	82.2	-127.06	-6,907.3	-593.6	7,133.1	7,040.7	92.37	77.227	
4,200.0	4,175.6	4,206.6	4,206.6	11.4	84.1	-127.15	-6,907.3	-593.6	7,141.7	7,047.0	94.64	75.460	
4,300.0	4,274.6	4,305.6	4,305.6	11.7	86.1	-127.24	-6,907.3	-593.6	7,150.3	7,053.4	96.92	73.776	
4,400.0	4,373.6	4,404.6	4,404.6	12.0	88.1	-127.33	-6,907.3	-593.6	7,158.9	7,059.7	99.20	72.170	
4,500.0	4,472.6	4,503.6	4,503.6	12.4	90.1	-127.42	-6,907.3	-593.6	7,167.5	7,066.1	101.47	70.635	
4,600.0	4,571.6	4,602.6	4,602.6	12.7	92.1	-127.51	-6,907.3	-593.6	7,176.2	7,072.4	103.75	69.168	
4,700.0	4,670.6	4,701.6	4,701.6	13.1	94.0	-127.60	-6,907.3	-593.6	7,184.9	7,078.8	106.03	67.765	
4,800.0	4,769.6	4,800.6	4,800.6	13.4	96.0	-127.68	-6,907.3	-593.6	7,193.5	7,085.2	108.30	66.420	
4,900.0	4,868.6	4,899.6	4,899.6	13.7	98.0	-127.77	-6,907.3	-593.6	7,202.3	7,091.7	110.58	65.131	
5,000.0	4,967.6	4,998.6	4,998.6	14.1	100.0	-127.86	-6,907.3	-593.6	7,211.0	7,098.1	112.86	63.894	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - Sec.28-T5N-R64W - Hendricks 33-4 (Exist) - Wellbore #1 - Wellbor

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
5,100.0	5,066.6	5,097.6	5,097.6	14.4	102.0	-127.95	-6,907.3	-593.6	7,219.7	7,104.6	115.14	62.706	
5,200.0	5,165.7	5,196.7	5,196.7	14.7	103.9	-128.12	-6,907.3	-593.6	7,227.9	7,110.4	117.51	61.511	
5,300.0	5,265.2	5,296.2	5,296.2	14.9	105.9	-128.28	-6,907.3	-593.6	7,234.1	7,114.3	119.83	60.371	
5,400.0	5,365.0	5,396.0	5,396.0	15.1	107.9	-128.38	-6,907.3	-593.6	7,238.1	7,116.0	122.09	59.285	
5,500.0	5,464.9	5,495.9	5,495.9	15.3	109.9	-128.43	-6,907.3	-593.6	7,239.9	7,115.7	124.28	58.253	
5,600.0	5,564.9	5,595.9	5,595.9	15.5	111.9	-178.41	-6,907.3	-593.6	7,240.1	7,113.6	126.44	57.260	
5,700.0	5,664.9	5,695.9	5,695.9	15.6	113.9	-178.41	-6,907.3	-593.6	7,240.1	7,111.5	128.63	56.287	
5,800.0	5,764.9	5,795.9	5,795.9	15.8	115.9	-178.41	-6,907.3	-593.6	7,240.1	7,109.3	130.82	55.346	
5,900.0	5,864.9	5,895.9	5,895.9	16.0	117.9	-178.41	-6,907.3	-593.6	7,240.1	7,107.1	133.00	54.435	
6,000.0	5,964.9	5,995.9	5,995.9	16.2	119.9	-178.41	-6,907.3	-593.6	7,240.1	7,104.9	135.19	53.553	
6,100.0	6,064.9	6,095.9	6,095.9	16.3	121.9	1.59	-6,907.3	-593.6	7,239.8	7,102.5	137.32	52.721	
6,200.0	6,164.4	6,195.4	6,195.4	16.4	123.9	1.61	-6,907.3	-593.6	7,230.9	7,093.1	137.77	52.486	
6,300.0	6,261.9	6,292.9	6,292.9	16.5	125.9	1.66	-6,907.3	-593.6	7,209.0	7,073.2	135.76	53.099	
6,400.0	6,355.7	6,386.7	6,386.7	16.4	127.7	1.75	-6,907.3	-593.6	7,174.5	7,043.3	131.27	54.655	
6,500.0	6,444.2	6,475.2	6,475.2	16.4	129.5	1.89	-6,907.3	-593.6	7,128.2	7,003.9	124.30	57.346	
6,600.0	6,525.9	6,556.9	6,556.9	16.3	131.1	2.09	-6,907.3	-593.6	7,070.6	6,955.7	114.95	61.512	
6,700.0	6,599.4	6,630.4	6,630.4	16.2	132.6	2.38	-6,907.3	-593.6	7,003.0	6,899.6	103.38	67.739	
6,800.0	6,663.4	6,694.4	6,694.4	16.2	133.9	2.82	-6,907.3	-593.6	6,926.3	6,836.4	89.88	77.062	
6,900.0	6,716.9	6,747.9	6,747.9	16.2	135.0	3.51	-6,907.3	-593.6	6,841.9	6,767.0	74.86	91.398	
7,000.0	6,758.9	6,789.9	6,789.9	16.3	135.8	4.72	-6,907.3	-593.6	6,751.2	6,692.1	59.09	114.262	
7,100.0	6,788.7	6,819.7	6,819.7	16.8	136.4	7.32	-6,907.3	-593.6	6,655.9	6,610.8	45.04	147.776	
7,200.0	6,805.7	6,836.7	6,836.7	17.6	136.7	16.10	-6,907.3	-593.6	6,557.5	6,507.3	50.21	130.613	
7,300.0	6,815.9	6,846.9	6,846.9	18.6	136.9	20.54	-6,907.3	-593.6	6,458.0	6,397.9	60.16	107.356	
7,400.0	6,819.9	6,850.9	6,850.9	19.7	137.0	89.68	-6,907.3	-593.6	6,358.2	6,202.0	156.21	40.704	
7,500.0	6,819.9	6,850.9	6,850.9	21.0	137.0	89.69	-6,907.3	-593.6	6,258.2	6,100.8	157.44	39.749	
7,600.0	6,819.9	6,850.9	6,850.9	22.3	137.0	89.69	-6,907.3	-593.6	6,158.3	5,999.5	158.78	38.785	
7,700.0	6,819.9	6,850.9	6,850.9	23.7	137.0	89.70	-6,907.3	-593.6	6,058.3	5,898.1	160.20	37.818	
7,800.0	6,819.9	6,850.9	6,850.9	25.2	137.0	89.70	-6,907.3	-593.6	5,958.4	5,796.7	161.68	36.852	
7,900.0	6,820.0	6,851.0	6,851.0	26.7	137.0	89.71	-6,907.3	-593.6	5,858.5	5,695.2	163.23	35.892	
8,000.0	6,820.0	6,851.0	6,851.0	28.3	137.0	89.71	-6,907.3	-593.6	5,758.5	5,593.7	164.82	34.939	
8,100.0	6,820.0	6,851.0	6,851.0	29.9	137.0	89.72	-6,907.3	-593.6	5,658.6	5,492.1	166.45	33.996	
8,200.0	6,820.0	6,851.0	6,851.0	31.5	137.0	89.72	-6,907.3	-593.6	5,558.6	5,390.5	168.11	33.066	
8,300.0	6,820.0	6,851.0	6,851.0	33.2	137.0	89.73	-6,907.3	-593.6	5,458.7	5,288.9	169.80	32.148	
8,400.0	6,820.0	6,851.0	6,851.0	34.9	137.0	89.73	-6,907.3	-593.6	5,358.8	5,187.3	171.52	31.244	
8,500.0	6,820.1	6,851.1	6,851.1	36.6	137.0	89.74	-6,907.3	-593.6	5,258.9	5,085.6	173.25	30.354	
8,600.0	6,820.1	6,851.1	6,851.1	38.4	137.0	89.74	-6,907.3	-593.6	5,158.9	4,983.9	175.01	29.479	
8,700.0	6,820.1	6,851.1	6,851.1	40.1	137.0	89.75	-6,907.3	-593.6	5,059.0	4,882.2	176.77	28.618	
8,800.0	6,820.1	6,851.1	6,851.1	41.9	137.0	89.75	-6,907.3	-593.6	4,959.1	4,780.5	178.56	27.773	
8,900.0	6,820.1	6,851.1	6,851.1	43.7	137.0	89.76	-6,907.3	-593.6	4,859.2	4,678.8	180.35	26.943	
9,000.0	6,820.1	6,851.1	6,851.1	45.5	137.0	89.76	-6,907.3	-593.6	4,759.3	4,577.1	182.16	26.127	
9,100.0	6,820.2	6,851.2	6,851.2	47.3	137.0	89.77	-6,907.3	-593.6	4,659.3	4,475.4	183.97	25.326	
9,200.0	6,820.2	6,851.2	6,851.2	49.1	137.0	89.77	-6,907.3	-593.6	4,559.4	4,373.6	185.79	24.540	
9,300.0	6,820.2	6,851.2	6,851.2	50.9	137.0	89.78	-6,907.3	-593.6	4,459.5	4,271.9	187.62	23.768	
9,400.0	6,820.2	6,851.2	6,851.2	52.7	137.0	89.78	-6,907.3	-593.6	4,359.6	4,170.2	189.46	23.011	
9,500.0	6,820.2	6,851.2	6,851.2	54.6	137.0	89.79	-6,907.3	-593.6	4,259.8	4,068.4	191.30	22.267	
9,600.0	6,820.3	6,851.3	6,851.3	56.4	137.0	89.79	-6,907.3	-593.6	4,159.9	3,966.7	193.15	21.537	
9,700.0	6,820.3	6,851.3	6,851.3	58.2	137.0	89.80	-6,907.3	-593.6	4,060.0	3,865.0	195.00	20.820	
9,800.0	6,820.3	6,851.3	6,851.3	60.1	137.0	89.80	-6,907.3	-593.6	3,960.1	3,763.3	196.86	20.116	
9,900.0	6,820.3	6,851.3	6,851.3	61.9	137.0	89.81	-6,907.3	-593.6	3,860.2	3,661.5	198.72	19.426	
10,000.0	6,820.3	6,851.3	6,851.3	63.8	137.0	89.81	-6,907.3	-593.6	3,760.4	3,559.8	200.58	18.747	
10,100.0	6,820.3	6,851.3	6,851.3	65.7	137.0	89.82	-6,907.3	-593.6	3,660.5	3,458.1	202.45	18.081	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chestnut 28M-HZ - Sec.28-T5N-R64W - Hendricks 33-4 (Exist) - Wellbore #1 - Wellbor

Offset Site Error: 0.0 ft

Survey Program: 7600-UNKNOWN

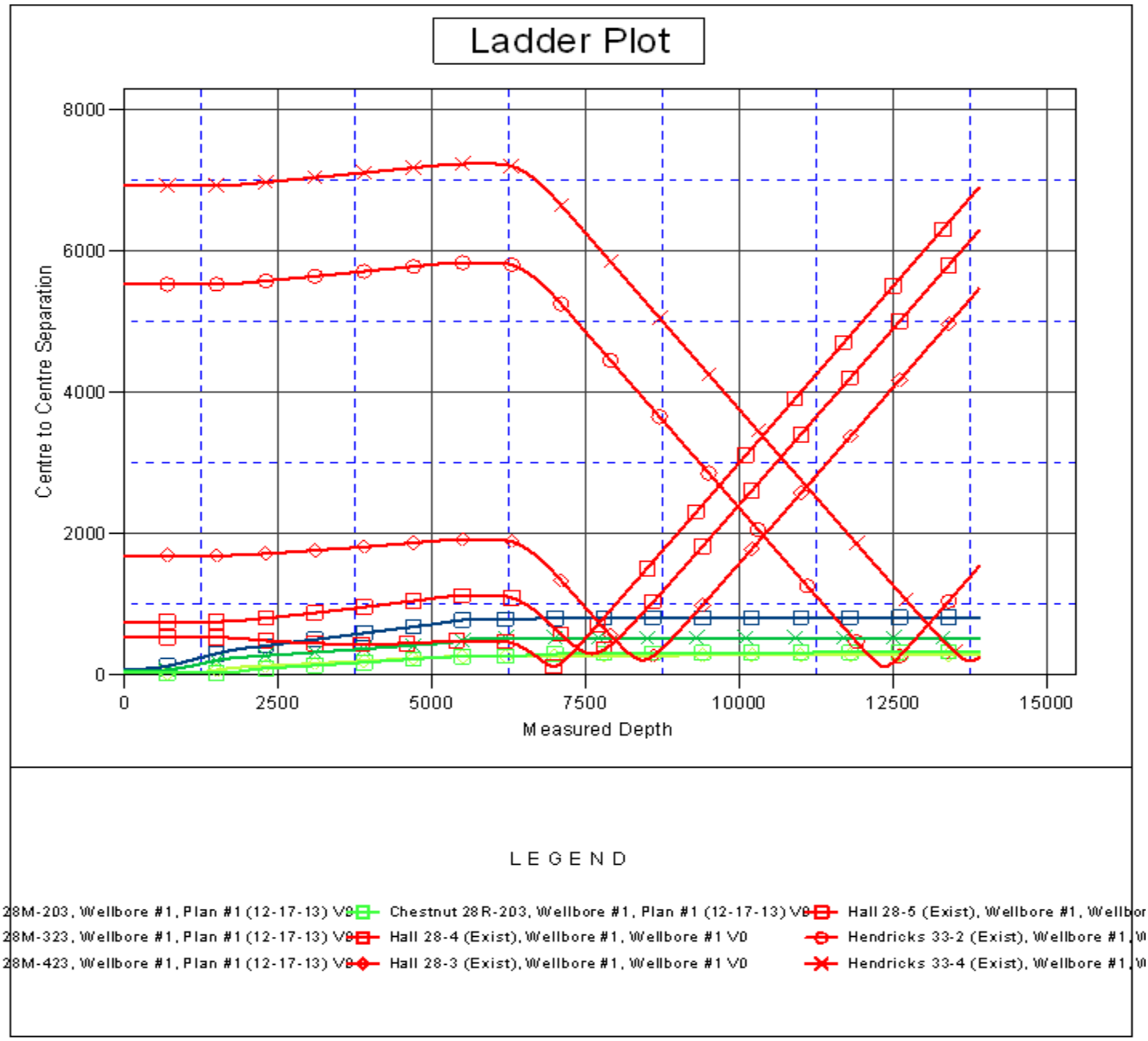
Offset Well Error: 0.0 ft

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
10,200.0	6,820.4	6,851.4	6,851.4	67.5	137.0	89.82	-6,907.3	-593.6	3,560.7	3,356.4	204.32	17.427	
10,300.0	6,820.4	6,851.4	6,851.4	69.4	137.0	89.83	-6,907.3	-593.6	3,460.8	3,254.6	206.20	16.784	
10,400.0	6,820.4	6,851.4	6,851.4	71.3	137.0	89.83	-6,907.3	-593.6	3,361.0	3,152.9	208.07	16.153	
10,500.0	6,820.4	6,851.4	6,851.4	73.1	137.0	89.84	-6,907.3	-593.6	3,261.2	3,051.3	209.95	15.533	
10,600.0	6,820.4	6,851.4	6,851.4	75.0	137.0	89.84	-6,907.3	-593.6	3,161.4	2,949.6	211.83	14.924	
10,700.0	6,820.4	6,851.4	6,851.4	76.9	137.0	89.85	-6,907.3	-593.6	3,061.6	2,847.9	213.71	14.326	
10,800.0	6,820.5	6,851.5	6,851.5	78.8	137.0	89.85	-6,907.3	-593.6	2,961.8	2,746.2	215.60	13.738	
10,900.0	6,820.5	6,851.5	6,851.5	80.7	137.0	89.86	-6,907.3	-593.6	2,862.1	2,644.6	217.48	13.160	
11,000.0	6,820.5	6,851.5	6,851.5	82.5	137.0	89.86	-6,907.3	-593.6	2,762.3	2,542.9	219.37	12.592	
11,100.0	6,820.5	6,851.5	6,851.5	84.4	137.0	89.87	-6,907.3	-593.6	2,662.6	2,441.3	221.26	12.034	
11,200.0	6,820.5	6,851.5	6,851.5	86.3	137.0	89.87	-6,907.3	-593.6	2,562.9	2,339.7	223.15	11.485	
11,300.0	6,820.5	6,851.5	6,851.5	88.2	137.0	89.88	-6,907.3	-593.6	2,463.2	2,238.2	225.04	10.946	
11,400.0	6,820.6	6,851.6	6,851.6	90.1	137.0	89.88	-6,907.3	-593.6	2,363.6	2,136.6	226.94	10.415	
11,500.0	6,820.6	6,851.6	6,851.6	92.0	137.0	89.89	-6,907.3	-593.6	2,263.9	2,035.1	228.83	9.893	
11,600.0	6,820.6	6,851.6	6,851.6	93.9	137.0	89.89	-6,907.3	-593.6	2,164.3	1,933.6	230.73	9.381	
11,700.0	6,820.6	6,851.6	6,851.6	95.8	137.0	89.90	-6,907.3	-593.6	2,064.8	1,832.2	232.62	8.876	
11,800.0	6,820.6	6,851.6	6,851.6	97.7	137.0	89.90	-6,907.3	-593.6	1,965.3	1,730.8	234.52	8.380	
11,900.0	6,820.7	6,851.7	6,851.7	99.5	137.0	89.91	-6,907.3	-593.6	1,865.8	1,629.4	236.42	7.892	
12,000.0	6,820.7	6,851.7	6,851.7	101.4	137.0	89.91	-6,907.3	-593.6	1,766.5	1,528.1	238.32	7.412	
12,100.0	6,820.7	6,851.7	6,851.7	103.3	137.0	89.92	-6,907.3	-593.6	1,667.1	1,426.9	240.22	6.940	
12,200.0	6,820.7	6,851.7	6,851.7	105.2	137.0	89.92	-6,907.3	-593.6	1,567.9	1,325.8	242.12	6.476	
12,300.0	6,820.7	6,851.7	6,851.7	107.1	137.0	89.93	-6,907.3	-593.6	1,468.8	1,224.8	244.02	6.019	
12,400.0	6,820.7	6,851.7	6,851.7	109.0	137.0	89.93	-6,907.3	-593.6	1,369.8	1,123.9	245.92	5.570	
12,500.0	6,820.8	6,851.8	6,851.8	110.9	137.0	89.94	-6,907.3	-593.6	1,271.0	1,023.1	247.83	5.128	
12,600.0	6,820.8	6,851.8	6,851.8	112.8	137.0	89.94	-6,907.3	-593.6	1,172.3	922.6	249.73	4.694	
12,700.0	6,820.8	6,851.8	6,851.8	114.7	137.0	89.95	-6,907.3	-593.6	1,073.9	822.3	251.63	4.268	
12,800.0	6,820.8	6,851.8	6,851.8	116.6	137.0	89.95	-6,907.3	-593.6	975.9	722.3	253.54	3.849	
12,900.0	6,820.8	6,851.8	6,851.8	118.5	137.0	89.96	-6,907.3	-593.6	878.3	622.8	255.44	3.438	
13,000.0	6,820.8	6,851.8	6,851.8	120.4	137.0	89.96	-6,907.3	-593.6	781.2	523.9	257.35	3.036	
13,100.0	6,820.9	6,851.9	6,851.9	122.4	137.0	89.97	-6,907.3	-593.6	685.1	425.8	259.26	2.642	
13,200.0	6,820.9	6,851.9	6,851.9	124.3	137.0	89.97	-6,907.3	-593.6	590.2	329.0	261.16	2.260	
13,300.0	6,820.9	6,851.9	6,851.9	126.2	137.0	89.98	-6,907.3	-593.6	497.3	234.2	263.07	1.890	
13,400.0	6,820.9	6,851.9	6,851.9	128.1	137.0	89.98	-6,907.3	-593.6	407.8	142.8	264.98	1.539	
13,500.0	6,820.9	6,851.9	6,851.9	130.0	137.0	89.99	-6,907.3	-593.6	324.5	57.6	266.88	1.216	Level 2
13,600.0	6,820.9	6,851.9	6,851.9	131.9	137.0	89.99	-6,907.3	-593.6	253.6	-15.2	268.79	0.943	Level 1
13,700.0	6,821.0	6,852.0	6,852.0	133.8	137.0	90.00	-6,907.3	-593.6	208.1	-62.6	270.70	0.769	Level 1
13,755.0	6,821.0	6,852.0	6,852.0	134.8	137.0	90.00	-6,907.3	-593.6	200.7	-71.1	271.75	0.738	Level 1, CC, ES, SF
13,800.0	6,821.0	6,852.0	6,852.0	135.7	137.0	90.00	-6,907.3	-593.6	205.6	-67.0	272.61	0.754	Level 1
13,893.5	6,821.0	6,852.0	6,852.0	137.5	137.0	90.01	-6,907.3	-593.6	243.8	-30.6	274.40	0.888	Level 1

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**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: Chestnut 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 Chestnut 28R-443
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chestnut 28M-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chestnut 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 #1 (12-17-13)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4635.0ft (RKB - 15')	Coordinates are relative to: Chestnut 28R-443
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 °	Grid Convergence at Surface is: 0.61°