PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Chesnut 28R-423**

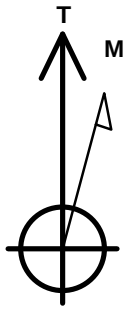
Surface Location: Chesnut 28U-HZ Pad Sec.28-T5N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4620.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1381411.01	3265114.57	40.376470	-104.548410	

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

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 380'FNL & 880'FEL, SEC. 28		0.0	0.0	Point
BHL 2131'FNL & 563'FEL, SEC. 33	6777.0	-7027.5	342.6	Point



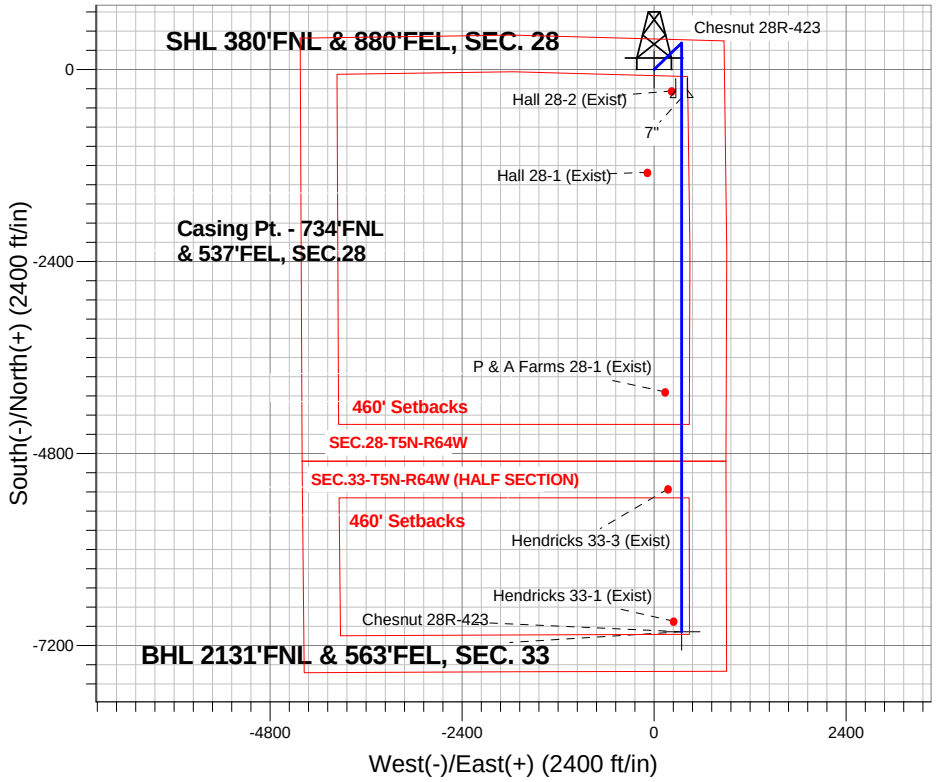
Azimuths to True North
Magnetic North: 8.39°

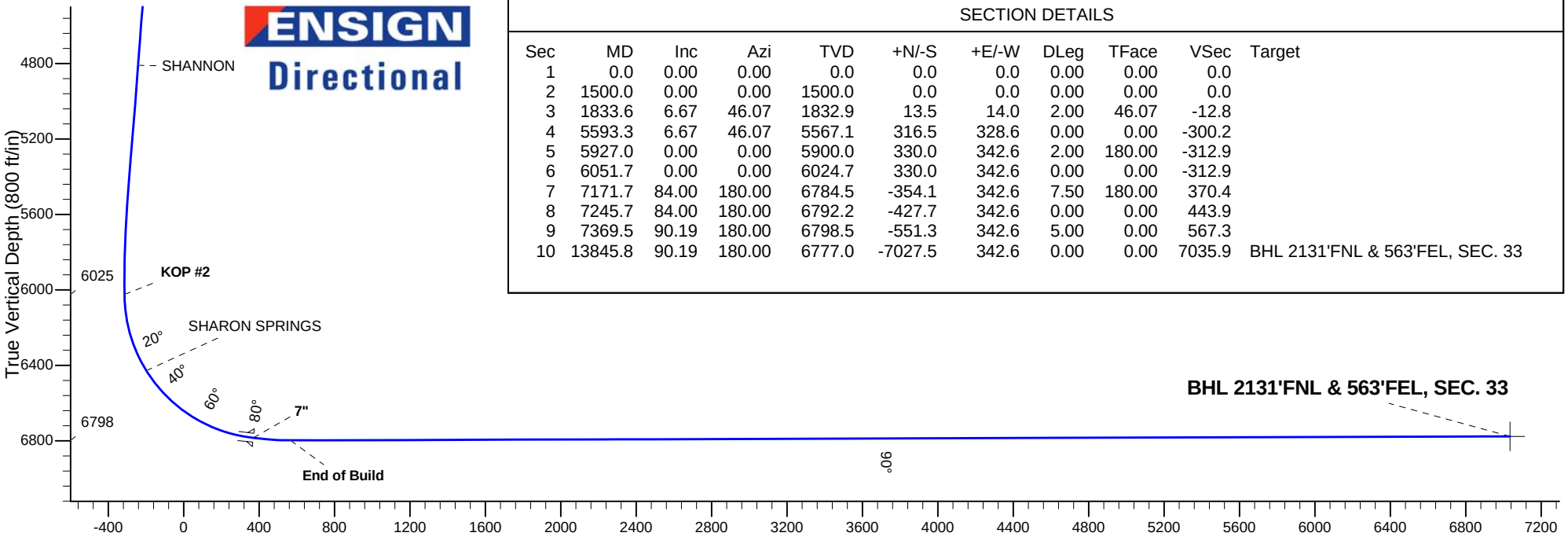
Magnetic Field
Strength: 52862.4snT
Dip Angle: 66.97°
Date: 2/13/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1500.0	1500.0	KOP #1
6024.7	6051.7	KOP #2
6798.5	7369.5	End of Build

Chesnut 28U-HZ Pad Sec.28-T5N-R64W
Chesnut 28R-423
Plan #1 (2-13-14)
15:00, February 13 2014





SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	1833.6	6.67	46.07	1832.9	13.5	14.0	2.00	46.07	-12.8	
4	5593.3	6.67	46.07	5567.1	316.5	328.6	0.00	0.00	-300.2	
5	5927.0	0.00	0.00	5900.0	330.0	342.6	2.00	180.00	-312.9	
6	6051.7	0.00	0.00	6024.7	330.0	342.6	0.00	0.00	-312.9	
7	7171.7	84.00	180.00	6784.5	-354.1	342.6	7.50	180.00	370.4	
8	7245.7	84.00	180.00	6792.2	-427.7	342.6	0.00	0.00	443.9	
9	7369.5	90.19	180.00	6798.5	-551.3	342.6	5.00	0.00	567.3	
10	13845.8	90.19	180.00	6777.0	-7027.5	342.6	0.00	0.00	7035.9	BHL 2131'FNL & 563'FEL, SEC. 33

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T5N-R64W
Chesnut 28U-HZ Pad Sec.28-T5N-R64W
Chesnut 28R-423

Wellbore #1

Plan: Plan #1 (2-13-14)

Standard Planning Report

13 February, 2014

PDC ENERGY
Growing E&P Value

Database:	Landmark	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Project:	SEC.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**North Reference:**	True
Well:	Chesnut 28R-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-13-14)		

Project SEC.28-T5N-R64W, Weld County, Colorado

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site Chesnut 28U-HZ Pad Sec.28-T5N-R64W

Site Position:		**Northing:**	1,381,414.04 ft	**Latitude:**	40.376480
From:	Lat/Long	**Easting:**	3,265,056.03 ft	**Longitude:**	-104.548620
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.61 °

Well Chesnut 28R-423

Well Position	**+N/-S**	-3.7 ft	**Northing:**	1,381,411.01 ft	**Latitude:**	40.376470
	+E/-W	58.5 ft	**Easting:**	3,265,114.57 ft	**Longitude:**	-104.548410
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	2/13/2014	8.39	66.97	52,862

Design Plan #1 (2-13-14)

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	177.21

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	
1,833.6	6.67	46.07	1,832.9	13.5	14.0	2.00	2.00	0.00	46.07	
5,593.3	6.67	46.07	5,567.1	316.5	328.6	0.00	0.00	0.00	0.00	
5,927.0	0.00	0.00	5,900.0	330.0	342.6	2.00	-2.00	0.00	180.00	
6,051.7	0.00	0.00	6,024.7	330.0	342.6	0.00	0.00	0.00	0.00	
7,171.7	84.00	180.00	6,784.5	-354.1	342.6	7.50	7.50	0.00	180.00	
7,245.7	84.00	180.00	6,792.2	-427.7	342.6	0.00	0.00	0.00	0.00	
7,369.5	90.19	180.00	6,798.5	-551.3	342.6	5.00	5.00	0.00	0.00	
13,845.8	90.19	180.00	6,777.0	-7,027.5	342.6	0.00	0.00	0.00	0.00	BHL 2131'FNL & 56

Database:	Landmark	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
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Project:	SEC.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**North Reference:**	True
Well:	Chesnut 28R-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-13-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 380'FNL & 880'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	46.07	1,600.0	1.2	1.3	-1.1	2.00	2.00	0.00
1,700.0	4.00	46.07	1,699.8	4.8	5.0	-4.6	2.00	2.00	0.00
1,800.0	6.00	46.07	1,799.5	10.9	11.3	-10.3	2.00	2.00	0.00
1,833.6	6.67	46.07	1,832.9	13.5	14.0	-12.8	2.00	2.00	0.00
1,900.0	6.67	46.07	1,898.8	18.8	19.5	-17.8	0.00	0.00	0.00
2,000.0	6.67	46.07	1,998.1	26.9	27.9	-25.5	0.00	0.00	0.00
2,100.0	6.67	46.07	2,097.4	34.9	36.3	-33.1	0.00	0.00	0.00
2,200.0	6.67	46.07	2,196.8	43.0	44.6	-40.8	0.00	0.00	0.00
2,300.0	6.67	46.07	2,296.1	51.1	53.0	-48.4	0.00	0.00	0.00
2,400.0	6.67	46.07	2,395.4	59.1	61.4	-56.1	0.00	0.00	0.00
2,500.0	6.67	46.07	2,494.7	67.2	69.7	-63.7	0.00	0.00	0.00
2,600.0	6.67	46.07	2,594.1	75.2	78.1	-71.3	0.00	0.00	0.00
2,700.0	6.67	46.07	2,693.4	83.3	86.5	-79.0	0.00	0.00	0.00
2,800.0	6.67	46.07	2,792.7	91.4	94.9	-86.6	0.00	0.00	0.00
2,900.0	6.67	46.07	2,892.0	99.4	103.2	-94.3	0.00	0.00	0.00
3,000.0	6.67	46.07	2,991.3	107.5	111.6	-101.9	0.00	0.00	0.00
3,100.0	6.67	46.07	3,090.7	115.5	120.0	-109.6	0.00	0.00	0.00
3,200.0	6.67	46.07	3,190.0	123.6	128.3	-117.2	0.00	0.00	0.00
3,300.0	6.67	46.07	3,289.3	131.7	136.7	-124.9	0.00	0.00	0.00
3,400.0	6.67	46.07	3,388.6	139.7	145.1	-132.5	0.00	0.00	0.00
3,428.6	6.67	46.07	3,417.0	142.0	147.5	-134.7	0.00	0.00	0.00
PARKMAN									
3,500.0	6.67	46.07	3,488.0	147.8	153.4	-140.1	0.00	0.00	0.00
3,600.0	6.67	46.07	3,587.3	155.9	161.8	-147.8	0.00	0.00	0.00
3,700.0	6.67	46.07	3,686.6	163.9	170.2	-155.4	0.00	0.00	0.00
3,800.0	6.67	46.07	3,785.9	172.0	178.5	-163.1	0.00	0.00	0.00
3,900.0	6.67	46.07	3,885.2	180.0	186.9	-170.7	0.00	0.00	0.00
4,000.0	6.67	46.07	3,984.6	188.1	195.3	-178.4	0.00	0.00	0.00
4,100.0	6.67	46.07	4,083.9	196.2	203.6	-186.0	0.00	0.00	0.00
4,140.4	6.67	46.07	4,124.0	199.4	207.0	-189.1	0.00	0.00	0.00
SUSSEX									
4,200.0	6.67	46.07	4,183.2	204.2	212.0	-193.7	0.00	0.00	0.00
4,300.0	6.67	46.07	4,282.5	212.3	220.4	-201.3	0.00	0.00	0.00
4,400.0	6.67	46.07	4,381.9	220.3	228.8	-208.9	0.00	0.00	0.00

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Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**North Reference:**	True
Well:	Chesnut 28R-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-13-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	6.67	46.07	4,481.2	228.4	237.1	-216.6	0.00	0.00	0.00
4,600.0	6.67	46.07	4,580.5	236.5	245.5	-224.2	0.00	0.00	0.00
4,700.0	6.67	46.07	4,679.8	244.5	253.9	-231.9	0.00	0.00	0.00
4,800.0	6.67	46.07	4,779.2	252.6	262.2	-239.5	0.00	0.00	0.00
4,831.1	6.67	46.07	4,810.0	255.1	264.8	-241.9	0.00	0.00	0.00
SHANNON									
4,900.0	6.67	46.07	4,878.5	260.6	270.6	-247.2	0.00	0.00	0.00
5,000.0	6.67	46.07	4,977.8	268.7	279.0	-254.8	0.00	0.00	0.00
5,100.0	6.67	46.07	5,077.1	276.8	287.3	-262.4	0.00	0.00	0.00
5,200.0	6.67	46.07	5,176.4	284.8	295.7	-270.1	0.00	0.00	0.00
5,300.0	6.67	46.07	5,275.8	292.9	304.1	-277.7	0.00	0.00	0.00
5,400.0	6.67	46.07	5,375.1	301.0	312.4	-285.4	0.00	0.00	0.00
5,500.0	6.67	46.07	5,474.4	309.0	320.8	-293.0	0.00	0.00	0.00
5,593.3	6.67	46.07	5,567.1	316.5	328.6	-300.2	0.00	0.00	0.00
5,600.0	6.54	46.07	5,573.7	317.1	329.2	-300.7	2.00	-2.00	0.00
5,700.0	4.54	46.07	5,673.3	323.8	336.1	-307.0	2.00	-2.00	0.00
5,800.0	2.54	46.07	5,773.1	328.0	340.6	-311.1	2.00	-2.00	0.00
5,900.0	0.54	46.07	5,873.0	329.9	342.5	-312.8	2.00	-2.00	0.00
5,927.0	0.00	0.00	5,900.0	330.0	342.6	-312.9	2.00	-2.00	0.00
6,000.0	0.00	0.00	5,973.0	330.0	342.6	-312.9	0.00	0.00	0.00
6,051.7	0.00	0.00	6,024.7	330.0	342.6	-312.9	0.00	0.00	0.00
KOP #2									
6,100.0	3.62	180.00	6,073.0	328.5	342.6	-311.4	7.50	7.50	0.00
6,200.0	11.12	180.00	6,172.1	315.6	342.6	-298.6	7.50	7.50	0.00
6,300.0	18.62	180.00	6,268.7	290.0	342.6	-273.0	7.50	7.50	0.00
6,400.0	26.12	180.00	6,361.1	252.0	342.6	-235.0	7.50	7.50	0.00
6,476.5	31.86	180.00	6,428.0	214.9	342.6	-197.9	7.50	7.50	0.00
SHARON SPRINGS									
6,500.0	33.62	180.00	6,447.7	202.2	342.6	-185.3	7.50	7.50	0.00
6,600.0	41.12	180.00	6,527.1	141.5	342.6	-124.7	7.50	7.50	0.00
6,700.0	48.62	180.00	6,598.0	71.0	342.6	-54.3	7.50	7.50	0.00
6,800.0	56.12	180.00	6,659.0	-8.1	342.6	24.8	7.50	7.50	0.00
6,900.0	63.62	180.00	6,709.1	-94.5	342.6	111.1	7.50	7.50	0.00
7,000.0	71.12	180.00	6,747.6	-186.8	342.6	203.2	7.50	7.50	0.00
7,100.0	78.62	180.00	6,773.6	-283.3	342.6	299.6	7.50	7.50	0.00
7,171.7	84.00	180.00	6,784.5	-354.1	342.6	370.4	7.50	7.50	0.00
7"									
7,200.0	84.00	180.00	6,787.4	-382.2	342.6	398.5	0.00	0.00	0.00
7,245.7	84.00	180.00	6,792.2	-427.7	342.6	443.9	0.00	0.00	0.00
7,300.0	86.72	180.00	6,796.6	-481.8	342.6	497.9	5.00	5.00	0.00
7,369.5	90.19	180.00	6,798.5	-551.3	342.6	567.3	5.00	5.00	0.00
End of Build									
7,400.0	90.19	180.00	6,798.4	-581.8	342.6	597.8	0.00	0.00	0.00
7,500.0	90.19	180.00	6,798.0	-681.8	342.6	697.7	0.00	0.00	0.00
7,600.0	90.19	180.00	6,797.7	-781.8	342.6	797.5	0.00	0.00	0.00
7,700.0	90.19	180.00	6,797.4	-881.8	342.6	897.4	0.00	0.00	0.00
7,800.0	90.19	180.00	6,797.0	-981.8	342.6	997.3	0.00	0.00	0.00
7,900.0	90.19	180.00	6,796.7	-1,081.8	342.6	1,097.2	0.00	0.00	0.00
8,000.0	90.19	180.00	6,796.4	-1,181.8	342.6	1,197.1	0.00	0.00	0.00
8,100.0	90.19	180.00	6,796.1	-1,281.8	342.6	1,296.9	0.00	0.00	0.00
8,200.0	90.19	180.00	6,795.7	-1,381.8	342.6	1,396.8	0.00	0.00	0.00
8,300.0	90.19	180.00	6,795.4	-1,481.8	342.6	1,496.7	0.00	0.00	0.00

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Project:	SEC.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**North Reference:**	True
Well:	Chesnut 28R-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-13-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,400.0	90.19	180.00	6,795.1	-1,581.8	342.6	1,596.6	0.00	0.00	0.00
8,500.0	90.19	180.00	6,794.7	-1,681.8	342.6	1,696.5	0.00	0.00	0.00
8,600.0	90.19	180.00	6,794.4	-1,781.8	342.6	1,796.3	0.00	0.00	0.00
8,700.0	90.19	180.00	6,794.1	-1,881.8	342.6	1,896.2	0.00	0.00	0.00
8,800.0	90.19	180.00	6,793.7	-1,981.8	342.6	1,996.1	0.00	0.00	0.00
8,900.0	90.19	180.00	6,793.4	-2,081.8	342.6	2,096.0	0.00	0.00	0.00
9,000.0	90.19	180.00	6,793.1	-2,181.8	342.6	2,195.9	0.00	0.00	0.00
9,100.0	90.19	180.00	6,792.7	-2,281.8	342.6	2,295.7	0.00	0.00	0.00
9,200.0	90.19	180.00	6,792.4	-2,381.8	342.6	2,395.6	0.00	0.00	0.00
9,300.0	90.19	180.00	6,792.1	-2,481.8	342.6	2,495.5	0.00	0.00	0.00
9,400.0	90.19	180.00	6,791.7	-2,581.8	342.6	2,595.4	0.00	0.00	0.00
9,500.0	90.19	180.00	6,791.4	-2,681.8	342.6	2,695.3	0.00	0.00	0.00
9,600.0	90.19	180.00	6,791.1	-2,781.8	342.6	2,795.1	0.00	0.00	0.00
9,700.0	90.19	180.00	6,790.7	-2,881.8	342.6	2,895.0	0.00	0.00	0.00
9,800.0	90.19	180.00	6,790.4	-2,981.8	342.6	2,994.9	0.00	0.00	0.00
9,900.0	90.19	180.00	6,790.1	-3,081.8	342.6	3,094.8	0.00	0.00	0.00
10,000.0	90.19	180.00	6,789.8	-3,181.8	342.6	3,194.7	0.00	0.00	0.00
10,100.0	90.19	180.00	6,789.4	-3,281.8	342.6	3,294.6	0.00	0.00	0.00
10,200.0	90.19	180.00	6,789.1	-3,381.8	342.6	3,394.4	0.00	0.00	0.00
10,300.0	90.19	180.00	6,788.8	-3,481.8	342.6	3,494.3	0.00	0.00	0.00
10,400.0	90.19	180.00	6,788.4	-3,581.8	342.6	3,594.2	0.00	0.00	0.00
10,500.0	90.19	180.00	6,788.1	-3,681.8	342.6	3,694.1	0.00	0.00	0.00
10,600.0	90.19	180.00	6,787.8	-3,781.8	342.6	3,794.0	0.00	0.00	0.00
10,700.0	90.19	180.00	6,787.4	-3,881.8	342.6	3,893.8	0.00	0.00	0.00
10,800.0	90.19	180.00	6,787.1	-3,981.8	342.6	3,993.7	0.00	0.00	0.00
10,900.0	90.19	180.00	6,786.8	-4,081.8	342.6	4,093.6	0.00	0.00	0.00
11,000.0	90.19	180.00	6,786.4	-4,181.8	342.6	4,193.5	0.00	0.00	0.00
11,100.0	90.19	180.00	6,786.1	-4,281.8	342.6	4,293.4	0.00	0.00	0.00
11,200.0	90.19	180.00	6,785.8	-4,381.8	342.6	4,393.2	0.00	0.00	0.00
11,300.0	90.19	180.00	6,785.4	-4,481.8	342.6	4,493.1	0.00	0.00	0.00
11,400.0	90.19	180.00	6,785.1	-4,581.8	342.6	4,593.0	0.00	0.00	0.00
11,500.0	90.19	180.00	6,784.8	-4,681.8	342.6	4,692.9	0.00	0.00	0.00
11,600.0	90.19	180.00	6,784.4	-4,781.8	342.6	4,792.8	0.00	0.00	0.00
11,700.0	90.19	180.00	6,784.1	-4,881.8	342.6	4,892.6	0.00	0.00	0.00
11,800.0	90.19	180.00	6,783.8	-4,981.8	342.6	4,992.5	0.00	0.00	0.00
11,900.0	90.19	180.00	6,783.5	-5,081.8	342.6	5,092.4	0.00	0.00	0.00
12,000.0	90.19	180.00	6,783.1	-5,181.8	342.6	5,192.3	0.00	0.00	0.00
12,100.0	90.19	180.00	6,782.8	-5,281.8	342.6	5,292.2	0.00	0.00	0.00
12,200.0	90.19	180.00	6,782.5	-5,381.8	342.6	5,392.1	0.00	0.00	0.00
12,300.0	90.19	180.00	6,782.1	-5,481.8	342.6	5,491.9	0.00	0.00	0.00
12,400.0	90.19	180.00	6,781.8	-5,581.8	342.6	5,591.8	0.00	0.00	0.00
12,500.0	90.19	180.00	6,781.5	-5,681.8	342.6	5,691.7	0.00	0.00	0.00
12,600.0	90.19	180.00	6,781.1	-5,781.8	342.6	5,791.6	0.00	0.00	0.00
12,700.0	90.19	180.00	6,780.8	-5,881.7	342.6	5,891.5	0.00	0.00	0.00
12,800.0	90.19	180.00	6,780.5	-5,981.7	342.6	5,991.3	0.00	0.00	0.00
12,900.0	90.19	180.00	6,780.1	-6,081.7	342.6	6,091.2	0.00	0.00	0.00
13,000.0	90.19	180.00	6,779.8	-6,181.7	342.6	6,191.1	0.00	0.00	0.00
13,100.0	90.19	180.00	6,779.5	-6,281.7	342.6	6,291.0	0.00	0.00	0.00
13,200.0	90.19	180.00	6,779.1	-6,381.7	342.6	6,390.9	0.00	0.00	0.00
13,300.0	90.19	180.00	6,778.8	-6,481.7	342.6	6,490.7	0.00	0.00	0.00
13,400.0	90.19	180.00	6,778.5	-6,581.7	342.6	6,590.6	0.00	0.00	0.00
13,500.0	90.19	180.00	6,778.1	-6,681.7	342.6	6,690.5	0.00	0.00	0.00
13,600.0	90.19	180.00	6,777.8	-6,781.7	342.6	6,790.4	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Project:	SEC.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**North Reference:**	True
Well:	Chesnut 28R-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-13-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,700.0	90.19	180.00	6,777.5	-6,881.7	342.6	6,890.3	0.00	0.00	0.00
13,800.0	90.19	180.00	6,777.2	-6,981.7	342.6	6,990.1	0.00	0.00	0.00
13,845.8	90.19	180.00	6,777.0	-7,027.5	342.6	7,035.9	0.00	0.00	0.00
BHL 2131'FNL & 563'FEL, SEC. 33									

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
SHL 380'FNL & 880'F - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,381,411.02	3,265,114.57	40.376470	-104.548410
BHL 2131'FNL & 563' - plan hits target center - Point	0.00	0.00	6,777.0	-7,027.5	342.6	1,374,387.87	3,265,532.54	40.357180	-104.547181

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,171.7	6,784.5	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,428.6	3,417.0	PARKMAN		0.00	
4,140.4	4,124.0	SUSSEX		0.00	
4,831.1	4,810.0	SHANNON		0.00	
6,476.5	6,428.0	SHARON SPRINGS		0.00	

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
6,051.7	6,024.7	330.0	342.6	KOP #2
7,369.5	6,798.5	-551.3	342.6	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T5N-R64W
Chesnut 28U-HZ Pad Sec.28-T5N-R64W
Chesnut 28R-423

Wellbore #1
Plan #1 (2-13-14)

Anticollision Report

13 February, 2014

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Reference Plan #1 (2-13-14)

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 2/13/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,845.8	Plan #1 (2-13-14) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Chesnut 28U-HZ Pad Sec.28-T5N-R64W						
Chesnut 28R-323 - Wellbore #1 - Plan #1 (2-13-14)	1,500.0	1,500.0	30.6	24.1	4.702	CC, ES
Chesnut 28R-323 - Wellbore #1 - Plan #1 (2-13-14)	13,845.8	13,818.2	338.5	73.5	1.277	Level 3, SF
Chesnut 28R-403 - Wellbore #1 - Plan #1 (2-13-14)	1,000.0	1,000.0	58.6	54.4	13.727	CC, ES
Chesnut 28R-403 - Wellbore #1 - Plan #1 (2-13-14)	13,845.8	13,844.7	696.6	422.5	2.541	SF
Chesnut 28U-243 - Wellbore #1 - Plan #1 (2-13-14)	1,200.0	1,200.0	30.6	25.5	5.928	CC
Chesnut 28U-243 - Wellbore #1 - Plan #1 (2-13-14)	13,845.8	13,755.1	130.2	-88.8	0.595	Level 1, ES, SF
Chesnut 28U-403 - Wellbore #1 - Plan #1 (2-13-14)	1,000.0	999.0	61.3	57.0	14.361	CC, ES
Chesnut 28U-403 - Wellbore #1 - Plan #1 (2-13-14)	13,845.8	13,871.7	362.5	88.6	1.324	Level 3, SF
Existing Wells - Chesnut Pads - Sec.28-T5N-R64W						
Hall 28-1 (Exist) - Wellbore #1 - Wellbore #1	8,104.2	6,776.0	426.2	260.7	2.575	CC, ES, SF
Hall 28-2 (Exist) - Wellbore #1 - Wellbore #1	7,086.0	6,750.8	122.5	-28.8	0.809	Level 1, CC, ES, SF
Hendricks 33-1 (Exist) - Wellbore #1 - Wellbore #1	13,714.6	6,800.4	100.1	-170.4	0.370	Level 1, CC, ES, SF
Hendricks 33-3 (Exist) - Wellbore #1 - Wellbore #1	12,060.6	6,790.9	169.8	-69.0	0.711	Level 1, CC, ES, SF
P & A Farms 28-1 (Exist) - Wellbore #1 - Wellbore #1	10,847.5	6,804.9	206.1	-10.1	0.953	Level 1, CC, ES, SF

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28R-323 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.01	0.0	-30.6	30.6				
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	0.0	-30.6	30.6	30.4	0.22	136.355	
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	0.0	-30.6	30.6	30.0	0.67	45.452	
300.0	300.0	300.0	300.0	0.6	0.6	-90.01	0.0	-30.6	30.6	29.5	1.12	27.271	
400.0	400.0	400.0	400.0	0.8	0.8	-90.01	0.0	-30.6	30.6	29.1	1.57	19.479	
500.0	500.0	500.0	500.0	1.0	1.0	-90.01	0.0	-30.6	30.6	28.6	2.02	15.151	
600.0	600.0	600.0	600.0	1.2	1.2	-90.01	0.0	-30.6	30.6	28.2	2.47	12.396	
700.0	700.0	700.0	700.0	1.5	1.5	-90.01	0.0	-30.6	30.6	27.7	2.92	10.489	
800.0	800.0	800.0	800.0	1.7	1.7	-90.01	0.0	-30.6	30.6	27.3	3.37	9.090	
900.0	900.0	900.0	900.0	1.9	1.9	-90.01	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	-90.01	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	-90.01	0.0	-30.6	30.6	25.9	4.72	6.493	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28R-323 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.01	0.0	-30.6	30.6	25.5	5.17	5.929	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-90.01	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	-90.01	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	-90.01	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	-138.24	0.0	-30.6	31.9	25.0	6.96	4.587	
1,700.0	1,699.8	1,699.8	1,699.8	3.7	3.7	-143.74	0.0	-30.6	36.0	28.6	7.40	4.868	
1,800.0	1,799.5	1,799.5	1,799.5	3.9	3.9	-150.49	0.0	-30.6	43.3	35.5	7.82	5.541	
1,833.6	1,832.9	1,832.9	1,832.9	4.0	4.0	-152.71	0.0	-30.6	46.6	38.6	7.96	5.853	
1,900.0	1,898.8	1,898.8	1,898.8	4.2	4.2	-156.49	0.0	-30.6	53.6	45.3	8.26	6.492	
2,000.0	1,998.1	1,998.1	1,998.1	4.4	4.4	-160.61	0.0	-30.6	64.4	55.7	8.70	7.407	
2,100.0	2,097.4	2,098.9	2,098.9	4.7	4.6	-162.51	1.7	-30.4	74.5	65.4	9.14	8.150	
2,200.0	2,196.8	2,200.2	2,200.0	4.9	4.8	-161.94	6.9	-29.7	82.7	73.1	9.59	8.615	
2,300.0	2,296.1	2,301.5	2,300.9	5.2	5.1	-159.56	15.7	-28.4	88.9	78.8	10.05	8.844	
2,400.0	2,395.4	2,401.2	2,400.1	5.5	5.3	-156.68	25.9	-26.9	94.5	83.9	10.52	8.982	
2,500.0	2,494.7	2,501.0	2,499.3	5.7	5.5	-154.12	36.1	-25.4	100.2	89.2	10.99	9.120	
2,600.0	2,594.1	2,600.7	2,598.5	6.0	5.8	-151.85	46.3	-24.0	106.2	94.7	11.48	9.254	
2,700.0	2,693.4	2,700.4	2,697.7	6.3	6.0	-149.82	56.6	-22.5	112.3	100.3	11.97	9.383	
2,800.0	2,792.7	2,800.2	2,797.0	6.6	6.3	-148.00	66.8	-21.0	118.5	106.1	12.47	9.507	
2,900.0	2,892.0	2,899.9	2,896.2	6.9	6.5	-146.36	77.0	-19.6	124.9	111.9	12.98	9.623	
3,000.0	2,991.3	2,999.7	2,995.4	7.1	6.8	-144.88	87.2	-18.1	131.3	117.8	13.49	9.734	
3,100.0	3,090.7	3,099.4	3,094.6	7.4	7.0	-143.54	97.5	-16.6	137.8	123.8	14.01	9.837	
3,200.0	3,190.0	3,199.1	3,193.8	7.7	7.3	-142.33	107.7	-15.1	144.4	129.9	14.54	9.935	
3,300.0	3,289.3	3,298.9	3,293.0	8.0	7.5	-141.22	117.9	-13.7	151.0	136.0	15.07	10.026	
3,400.0	3,388.6	3,398.6	3,392.2	8.3	7.8	-140.20	128.1	-12.2	157.7	142.1	15.60	10.112	
3,500.0	3,488.0	3,498.4	3,491.4	8.6	8.1	-139.26	138.3	-10.7	164.5	148.3	16.14	10.192	
3,600.0	3,587.3	3,598.1	3,590.6	8.9	8.4	-138.40	148.6	-9.3	171.3	154.6	16.68	10.268	
3,700.0	3,686.6	3,697.8	3,689.8	9.2	8.6	-137.61	158.8	-7.8	178.1	160.8	17.22	10.339	
3,800.0	3,785.9	3,797.6	3,789.0	9.5	8.9	-136.87	169.0	-6.3	184.9	167.1	17.77	10.406	
3,900.0	3,885.2	3,897.3	3,888.2	9.8	9.2	-136.19	179.2	-4.8	191.8	173.5	18.32	10.469	
4,000.0	3,984.6	3,997.0	3,987.4	10.1	9.4	-135.55	189.5	-3.4	198.7	179.8	18.87	10.529	
4,100.0	4,083.9	4,096.8	4,086.6	10.4	9.7	-134.96	199.7	-1.9	205.6	186.2	19.42	10.585	
4,200.0	4,183.2	4,196.5	4,185.8	10.7	10.0	-134.40	209.9	-0.4	212.5	192.6	19.98	10.638	
4,300.0	4,282.5	4,296.3	4,285.0	11.0	10.3	-133.88	220.1	1.0	219.5	199.0	20.54	10.688	
4,400.0	4,381.9	4,396.0	4,384.2	11.3	10.5	-133.40	230.3	2.5	226.5	205.4	21.10	10.736	
4,500.0	4,481.2	4,495.7	4,483.4	11.6	10.8	-132.94	240.6	4.0	233.5	211.8	21.66	10.781	
4,600.0	4,580.5	4,595.5	4,582.6	11.9	11.1	-132.51	250.8	5.5	240.5	218.3	22.22	10.824	
4,700.0	4,679.8	4,695.2	4,681.8	12.2	11.4	-132.10	261.0	6.9	247.5	224.7	22.78	10.864	
4,800.0	4,779.2	4,795.0	4,781.0	12.5	11.7	-131.71	271.2	8.4	254.5	231.2	23.34	10.903	
4,900.0	4,878.5	4,894.7	4,880.2	12.8	11.9	-131.35	281.5	9.9	261.6	237.7	23.91	10.940	
5,000.0	4,977.8	4,994.4	4,979.4	13.1	12.2	-131.01	291.7	11.3	268.6	244.1	24.48	10.975	
5,100.0	5,077.1	5,094.2	5,078.6	13.4	12.5	-130.68	301.9	12.8	275.7	250.6	25.04	11.009	
5,200.0	5,176.4	5,193.9	5,177.8	13.7	12.8	-130.37	312.1	14.3	282.7	257.1	25.61	11.041	
5,300.0	5,275.8	5,293.3	5,276.8	14.0	13.0	-130.26	321.4	15.6	289.9	263.7	26.14	11.088	
5,400.0	5,375.1	5,392.5	5,375.8	14.3	13.2	-130.80	327.3	16.5	297.1	270.6	26.60	11.173	
5,500.0	5,474.4	5,491.4	5,474.6	14.6	13.4	-131.95	329.9	16.8	304.7	277.7	27.00	11.286	
5,593.3	5,567.1	5,583.9	5,567.1	14.9	13.6	-133.41	330.0	16.9	312.1	284.7	27.35	11.408	
5,600.0	5,573.7	5,590.5	5,573.7	14.9	13.6	-133.52	330.0	16.9	312.6	285.2	27.38	11.417	
5,700.0	5,673.3	5,690.0	5,673.3	15.2	13.8	-134.87	330.0	16.9	319.3	291.6	27.75	11.508	
5,800.0	5,773.1	5,789.8	5,773.1	15.4	14.0	-135.70	330.0	16.9	323.7	295.6	28.11	11.516	
5,900.0	5,873.0	5,889.8	5,873.0	15.5	14.2	-136.06	330.0	16.9	325.7	297.2	28.46	11.441	
5,927.0	5,900.0	5,916.8	5,900.0	15.6	14.2	-90.00	330.0	16.9	325.7	297.2	28.56	11.407	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28R-323 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,000.0	5,973.0	5,989.8	5,973.0	15.7	14.4	-90.00	330.0	16.9	325.7	296.9	28.84	11.297	
6,026.2	5,999.2	6,016.0	5,999.2	15.7	14.4	-90.00	330.0	16.9	325.7	296.8	28.94	11.256	
6,051.7	6,024.7	6,041.5	6,024.7	15.8	14.5	-90.03	329.8	16.9	325.7	296.7	29.03	11.219	
6,100.0	6,073.0	6,089.7	6,072.9	15.9	14.5	89.79	327.3	16.9	325.8	296.6	29.16	11.169	
6,150.0	6,122.8	6,139.6	6,122.4	15.9	14.6	89.60	321.4	16.9	325.8	296.5	29.25	11.137	
6,200.0	6,172.1	6,189.4	6,171.4	15.9	14.6	89.42	312.4	16.9	325.8	296.5	29.30	11.120	
6,250.0	6,220.8	6,239.2	6,219.6	16.0	14.6	89.24	300.2	16.9	325.8	296.5	29.31	11.115	
6,300.0	6,268.7	6,288.8	6,266.9	16.0	14.6	89.06	285.0	16.9	325.8	296.5	29.29	11.121	
6,350.0	6,315.5	6,338.5	6,313.0	15.9	14.6	88.89	266.7	16.9	325.8	296.6	29.26	11.136	
6,400.0	6,361.1	6,388.0	6,357.7	15.9	14.6	88.72	245.5	16.9	325.8	296.6	29.21	11.155	
6,450.0	6,405.2	6,437.5	6,401.0	15.9	14.5	88.55	221.4	16.9	325.9	296.7	29.16	11.176	
6,500.0	6,447.7	6,486.9	6,442.5	15.9	14.5	88.40	194.7	16.9	325.9	296.8	29.11	11.195	
6,550.0	6,488.4	6,536.3	6,482.2	15.8	14.5	88.25	165.3	16.9	325.9	296.8	29.08	11.208	
6,600.0	6,527.1	6,585.6	6,519.9	15.8	14.5	88.10	133.5	16.9	325.9	296.8	29.08	11.209	
6,650.0	6,563.7	6,634.9	6,555.4	15.7	14.5	87.97	99.4	16.9	326.0	296.8	29.12	11.195	
6,700.0	6,598.0	6,684.1	6,588.6	15.7	14.6	87.84	63.0	16.9	326.0	296.8	29.21	11.161	
6,750.0	6,629.8	6,733.3	6,619.4	15.7	14.7	87.73	24.7	16.9	326.0	296.6	29.36	11.104	
6,800.0	6,659.0	6,782.4	6,647.6	15.7	14.8	87.62	-15.5	16.9	326.0	296.4	29.58	11.021	
6,850.0	6,685.5	6,831.6	6,673.2	15.7	14.9	87.52	-57.5	16.9	326.1	296.2	29.88	10.911	
6,900.0	6,709.1	6,880.6	6,696.0	15.8	15.1	87.43	-100.9	16.9	326.1	295.8	30.27	10.772	
6,950.0	6,729.9	6,929.7	6,715.9	15.9	15.4	87.36	-145.7	16.9	326.1	295.3	30.75	10.605	
7,000.0	6,747.6	6,978.7	6,733.0	16.1	15.7	87.29	-191.7	16.9	326.1	294.8	31.32	10.413	
7,050.0	6,762.2	7,027.7	6,747.0	16.5	16.0	87.24	-238.6	16.9	326.1	294.1	31.98	10.199	
7,100.0	6,773.6	7,076.7	6,758.0	16.8	16.4	87.20	-286.3	16.9	326.1	293.4	32.73	9.966	
7,150.0	6,781.9	7,125.7	6,765.9	17.3	16.8	87.17	-334.7	16.9	326.1	292.6	33.56	9.719	
7,171.7	6,784.5	7,146.9	6,768.4	17.5	17.0	87.16	-355.7	16.9	326.1	292.2	33.94	9.609	
7,200.0	6,787.4	7,174.6	6,770.7	17.7	17.3	87.06	-383.4	16.9	326.2	291.7	34.47	9.463	
7,245.7	6,792.2	7,219.1	6,772.4	18.2	17.7	86.53	-427.8	16.9	326.4	291.0	35.35	9.233	
7,300.0	6,796.6	7,272.8	6,771.8	18.8	18.3	85.66	-481.5	16.9	326.7	290.2	36.45	8.963	
7,369.5	6,798.5	7,342.2	6,770.9	19.6	19.1	85.16	-550.9	16.9	326.9	288.9	38.00	8.602	
7,400.0	6,798.4	7,372.7	6,770.5	19.9	19.5	85.11	-581.4	16.9	326.9	288.2	38.73	8.441	
7,500.0	6,798.0	7,472.7	6,769.2	21.2	20.8	84.94	-681.4	16.9	327.0	285.8	41.27	7.924	
7,600.0	6,797.7	7,572.7	6,767.9	22.6	22.1	84.76	-781.4	16.9	327.1	283.1	43.99	7.436	
7,700.0	6,797.4	7,672.7	6,766.5	24.0	23.6	84.59	-881.4	16.9	327.2	280.3	46.86	6.983	
7,800.0	6,797.0	7,772.7	6,765.2	25.5	25.1	84.42	-981.4	16.9	327.3	277.4	49.86	6.565	
7,900.0	6,796.7	7,872.7	6,763.9	27.0	26.7	84.24	-1,081.3	16.9	327.4	274.4	52.96	6.182	
8,000.0	6,796.4	7,972.7	6,762.6	28.6	28.3	84.07	-1,181.3	16.9	327.5	271.4	56.14	5.833	
8,100.0	6,796.1	8,072.7	6,761.2	30.3	29.9	83.90	-1,281.3	16.9	327.6	268.2	59.40	5.515	
8,200.0	6,795.7	8,172.7	6,759.9	31.9	31.6	83.72	-1,381.3	16.9	327.7	265.0	62.72	5.225	
8,300.0	6,795.4	8,272.7	6,758.6	33.6	33.3	83.55	-1,481.3	16.9	327.8	261.7	66.08	4.961	
8,400.0	6,795.1	8,372.7	6,757.2	35.3	35.1	83.38	-1,581.3	16.9	327.9	258.4	69.49	4.719	
8,500.0	6,794.7	8,472.6	6,755.9	37.0	36.8	83.21	-1,681.3	16.9	328.1	255.1	72.94	4.498	
8,600.0	6,794.4	8,572.6	6,754.6	38.8	38.6	83.03	-1,781.2	16.9	328.2	251.8	76.42	4.295	
8,700.0	6,794.1	8,672.6	6,753.3	40.6	40.3	82.86	-1,881.2	16.9	328.3	248.4	79.92	4.108	
8,800.0	6,793.7	8,772.6	6,751.9	42.3	42.1	82.69	-1,981.2	16.9	328.4	245.0	83.44	3.936	
8,900.0	6,793.4	8,872.6	6,750.6	44.1	43.9	82.52	-2,081.2	16.9	328.5	241.6	86.99	3.777	
9,000.0	6,793.1	8,972.6	6,749.3	45.9	45.7	82.34	-2,181.2	16.9	328.7	238.1	90.55	3.630	
9,100.0	6,792.7	9,072.6	6,748.0	47.7	47.6	82.17	-2,281.2	16.9	328.8	234.7	94.12	3.494	
9,200.0	6,792.4	9,172.6	6,746.6	49.5	49.4	82.00	-2,381.2	16.9	328.9	231.2	97.71	3.367	
9,300.0	6,792.1	9,272.6	6,745.3	51.4	51.2	81.83	-2,481.1	16.9	329.1	227.8	101.30	3.249	
9,400.0	6,791.7	9,372.6	6,744.0	53.2	53.1	81.66	-2,581.1	16.9	329.2	224.3	104.91	3.138	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28R-323 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,500.0	6,791.4	9,472.6	6,742.7	55.0	54.9	81.49	-2,681.1	16.9	329.4	220.9	108.52	3.035	
9,600.0	6,791.1	9,572.6	6,741.3	56.9	56.8	81.32	-2,781.1	16.9	329.5	217.4	112.14	2.939	
9,700.0	6,790.7	9,672.6	6,740.0	58.7	58.6	81.15	-2,881.1	16.9	329.7	213.9	115.77	2.848	
9,800.0	6,790.4	9,772.6	6,738.7	60.6	60.5	80.97	-2,981.1	16.9	329.8	210.4	119.39	2.763	
9,900.0	6,790.1	9,872.6	6,737.4	62.4	62.3	80.80	-3,081.1	16.9	330.0	207.0	123.03	2.682	
10,000.0	6,789.8	9,972.6	6,736.0	64.3	64.2	80.63	-3,181.1	16.9	330.2	203.5	126.66	2.607	
10,100.0	6,789.4	10,072.6	6,734.7	66.2	66.1	80.46	-3,281.0	16.9	330.3	200.0	130.30	2.535	
10,200.0	6,789.1	10,172.6	6,733.4	68.0	68.0	80.29	-3,381.0	16.9	330.5	196.5	133.94	2.467	
10,300.0	6,788.8	10,272.6	6,732.0	69.9	69.8	80.12	-3,481.0	16.9	330.6	193.1	137.58	2.403	
10,400.0	6,788.4	10,372.6	6,730.7	71.8	71.7	79.95	-3,581.0	16.9	330.8	189.6	141.22	2.343	
10,500.0	6,788.1	10,472.5	6,729.4	73.6	73.6	79.78	-3,681.0	16.9	331.0	186.1	144.86	2.285	
10,600.0	6,787.8	10,572.5	6,728.1	75.5	75.5	79.61	-3,781.0	16.9	331.2	182.7	148.51	2.230	
10,700.0	6,787.4	10,672.5	6,726.7	77.4	77.4	79.45	-3,881.0	16.9	331.4	179.2	152.15	2.178	
10,800.0	6,787.1	10,772.5	6,725.4	79.3	79.2	79.28	-3,980.9	16.9	331.5	175.8	155.79	2.128	
10,900.0	6,786.8	10,872.5	6,724.1	81.2	81.1	79.11	-4,080.9	16.9	331.7	172.3	159.42	2.081	
11,000.0	6,786.4	10,972.5	6,722.8	83.1	83.0	78.94	-4,180.9	16.9	331.9	168.9	163.06	2.036	
11,100.0	6,786.1	11,072.5	6,721.4	84.9	84.9	78.77	-4,280.9	16.9	332.1	165.4	166.70	1.992	
11,200.0	6,785.8	11,172.5	6,720.1	86.8	86.8	78.60	-4,380.9	16.9	332.3	162.0	170.33	1.951	
11,300.0	6,785.4	11,272.5	6,718.8	88.7	88.7	78.43	-4,480.9	16.9	332.5	158.5	173.96	1.911	
11,400.0	6,785.1	11,372.5	6,717.5	90.6	90.6	78.27	-4,580.9	16.9	332.7	155.1	177.59	1.873	
11,500.0	6,784.8	11,472.5	6,716.1	92.5	92.5	78.10	-4,680.8	16.9	332.9	151.7	181.21	1.837	
11,600.0	6,784.4	11,572.5	6,714.8	94.4	94.4	77.93	-4,780.8	16.9	333.1	148.3	184.83	1.802	
11,700.0	6,784.1	11,672.5	6,713.5	96.3	96.3	77.76	-4,880.8	16.9	333.3	144.9	188.45	1.769	
11,800.0	6,783.8	11,772.5	6,712.2	98.2	98.2	77.60	-4,980.8	16.9	333.5	141.5	192.07	1.737	
11,900.0	6,783.5	11,872.5	6,710.8	100.1	100.1	77.43	-5,080.8	16.9	333.7	138.1	195.68	1.706	
12,000.0	6,783.1	11,972.5	6,709.5	102.0	102.0	77.26	-5,180.8	16.9	334.0	134.7	199.29	1.676	
12,100.0	6,782.8	12,072.5	6,708.2	103.9	103.9	77.10	-5,280.8	16.9	334.2	131.3	202.89	1.647	
12,200.0	6,782.5	12,172.5	6,706.8	105.8	105.8	76.93	-5,380.7	16.9	334.4	127.9	206.49	1.619	
12,300.0	6,782.1	12,272.5	6,705.5	107.7	107.7	76.77	-5,480.7	16.9	334.6	124.5	210.09	1.593	
12,400.0	6,781.8	12,372.5	6,704.2	109.6	109.6	76.60	-5,580.7	16.9	334.9	121.2	213.68	1.567	
12,500.0	6,781.5	12,472.4	6,702.9	111.5	111.5	76.43	-5,680.7	16.9	335.1	117.8	217.27	1.542	
12,600.0	6,781.1	12,572.4	6,701.5	113.4	113.4	76.27	-5,780.7	16.9	335.3	114.5	220.85	1.518	
12,700.0	6,780.8	12,672.4	6,700.2	115.3	115.3	76.10	-5,880.7	16.9	335.6	111.1	224.43	1.495	Level 3
12,800.0	6,780.5	12,772.4	6,698.9	117.2	117.2	75.94	-5,980.7	16.9	335.8	107.8	228.00	1.473	Level 3
12,900.0	6,780.1	12,872.4	6,697.6	119.1	119.1	75.77	-6,080.7	16.9	336.1	104.5	231.57	1.451	Level 3
13,000.0	6,779.8	12,972.4	6,696.2	121.0	121.0	75.61	-6,180.6	16.9	336.3	101.2	235.13	1.430	Level 3
13,100.0	6,779.5	13,072.4	6,694.9	122.9	122.9	75.45	-6,280.6	16.9	336.5	97.9	238.69	1.410	Level 3
13,200.0	6,779.1	13,172.4	6,693.6	124.8	124.8	75.28	-6,380.6	16.9	336.8	94.6	242.24	1.390	Level 3
13,300.0	6,778.8	13,272.4	6,692.3	126.7	126.7	75.12	-6,480.6	16.9	337.1	91.3	245.79	1.371	Level 3
13,400.0	6,778.5	13,372.4	6,690.9	128.6	128.6	74.96	-6,580.6	16.9	337.3	88.0	249.33	1.353	Level 3
13,500.0	6,778.1	13,472.4	6,689.6	130.5	130.5	74.79	-6,680.6	16.9	337.6	84.7	252.87	1.335	Level 3
13,600.0	6,777.8	13,572.4	6,688.3	132.4	132.4	74.63	-6,780.6	16.9	337.8	81.4	256.40	1.318	Level 3
13,700.0	6,777.5	13,672.4	6,686.9	134.3	134.3	74.47	-6,880.5	16.9	338.1	78.2	259.93	1.301	Level 3
13,800.0	6,777.2	13,772.4	6,685.6	136.2	136.3	74.31	-6,980.5	16.9	338.4	74.9	263.45	1.284	Level 3
13,845.8	6,777.0	13,818.2	6,685.0	137.1	137.1	74.23	-7,026.3	16.9	338.5	73.5	264.99	1.277	Level 3, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28R-403 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-86.44	3.6	-58.5	58.6				
100.0	100.0	100.0	100.0	0.1	0.1	-86.44	3.6	-58.5	58.6	58.4	0.22	260.819	
200.0	200.0	200.0	200.0	0.3	0.3	-86.44	3.6	-58.5	58.6	57.9	0.67	86.940	
300.0	300.0	300.0	300.0	0.6	0.6	-86.44	3.6	-58.5	58.6	57.5	1.12	52.164	
400.0	400.0	400.0	400.0	0.8	0.8	-86.44	3.6	-58.5	58.6	57.0	1.57	37.260	
500.0	500.0	500.0	500.0	1.0	1.0	-86.44	3.6	-58.5	58.6	56.6	2.02	28.980	
600.0	600.0	600.0	600.0	1.2	1.2	-86.44	3.6	-58.5	58.6	56.2	2.47	23.711	
700.0	700.0	700.0	700.0	1.5	1.5	-86.44	3.6	-58.5	58.6	55.7	2.92	20.063	
800.0	800.0	800.0	800.0	1.7	1.7	-86.44	3.6	-58.5	58.6	55.3	3.37	17.388	
900.0	900.0	900.0	900.0	1.9	1.9	-86.44	3.6	-58.5	58.6	54.8	3.82	15.342	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-86.44	3.6	-58.5	58.6	54.4	4.27	13.727	CC, ES
1,100.0	1,100.0	1,098.5	1,098.5	2.4	2.4	-85.30	4.9	-59.6	59.9	55.1	4.71	12.700	
1,200.0	1,200.0	1,196.8	1,196.7	2.6	2.6	-82.16	8.7	-63.0	63.7	58.5	5.16	12.356	
1,300.0	1,300.0	1,294.6	1,294.1	2.8	2.8	-77.73	14.9	-68.6	70.5	64.9	5.60	12.573	
1,400.0	1,400.0	1,392.9	1,391.7	3.0	3.0	-72.93	23.4	-76.2	80.1	74.1	6.07	13.210	
1,500.0	1,500.0	1,492.2	1,490.3	3.3	3.3	-69.00	32.3	-84.2	90.7	84.1	6.54	13.862	
1,600.0	1,600.0	1,591.4	1,588.8	3.5	3.6	-112.68	41.2	-92.1	102.2	95.3	6.95	14.714	
1,700.0	1,699.8	1,690.6	1,687.3	3.7	3.8	-112.33	50.1	-100.1	115.1	107.7	7.39	15.577	
1,800.0	1,799.5	1,789.5	1,785.5	3.9	4.1	-113.42	59.0	-108.0	129.4	121.6	7.84	16.499	
1,833.6	1,832.9	1,822.7	1,818.4	4.0	4.2	-114.02	61.9	-110.7	134.5	126.5	8.00	16.822	
1,900.0	1,898.8	1,888.2	1,883.4	4.2	4.4	-115.40	67.8	-115.9	144.9	136.6	8.31	17.436	
2,000.0	1,998.1	1,986.9	1,981.4	4.4	4.7	-117.13	76.6	-123.9	160.6	151.8	8.79	18.276	
2,100.0	2,097.4	2,085.5	2,079.3	4.7	5.0	-118.56	85.5	-131.8	176.4	167.1	9.27	19.023	
2,200.0	2,196.8	2,184.2	2,177.2	4.9	5.3	-119.75	94.3	-139.7	192.3	182.6	9.77	19.690	
2,300.0	2,296.1	2,282.8	2,275.2	5.2	5.6	-120.76	103.2	-147.6	208.3	198.1	10.27	20.287	
2,400.0	2,395.4	2,381.5	2,373.1	5.5	5.9	-121.62	112.0	-155.5	224.4	213.6	10.77	20.824	
2,500.0	2,494.7	2,480.1	2,471.0	5.7	6.1	-122.37	120.9	-163.4	240.5	229.2	11.29	21.308	
2,600.0	2,594.1	2,578.8	2,569.0	6.0	6.4	-123.03	129.7	-171.4	256.6	244.8	11.80	21.746	
2,700.0	2,693.4	2,677.4	2,666.9	6.3	6.7	-123.60	138.6	-179.3	272.7	260.4	12.32	22.144	
2,800.0	2,792.7	2,776.1	2,764.8	6.6	7.0	-124.12	147.4	-187.2	288.9	276.1	12.84	22.506	
2,900.0	2,892.0	2,874.7	2,862.8	6.9	7.4	-124.58	156.2	-195.1	305.1	291.7	13.36	22.838	
3,000.0	2,991.3	2,973.4	2,960.7	7.1	7.7	-124.99	165.1	-203.0	321.3	307.4	13.88	23.142	
3,100.0	3,090.7	3,072.0	3,058.6	7.4	8.0	-125.36	173.9	-211.0	337.5	323.1	14.41	23.422	
3,200.0	3,190.0	3,170.7	3,156.6	7.7	8.3	-125.70	182.8	-218.9	353.8	338.8	14.94	23.680	
3,300.0	3,289.3	3,269.3	3,254.5	8.0	8.6	-126.01	191.6	-226.8	370.0	354.6	15.47	23.919	
3,400.0	3,388.6	3,368.0	3,352.4	8.3	8.9	-126.29	200.5	-234.7	386.3	370.3	16.00	24.140	
3,500.0	3,488.0	3,466.6	3,450.4	8.6	9.2	-126.55	209.3	-242.6	402.6	386.0	16.53	24.346	
3,600.0	3,587.3	3,565.3	3,548.3	8.9	9.5	-126.79	218.2	-250.5	418.8	401.8	17.07	24.538	
3,700.0	3,686.6	3,663.9	3,646.3	9.2	9.8	-127.01	227.0	-258.5	435.1	417.5	17.60	24.717	
3,800.0	3,785.9	3,762.6	3,744.2	9.5	10.1	-127.22	235.9	-266.4	451.4	433.3	18.14	24.885	
3,900.0	3,885.2	3,861.2	3,842.1	9.8	10.4	-127.41	244.7	-274.3	467.7	449.0	18.68	25.042	
4,000.0	3,984.6	3,959.9	3,940.1	10.1	10.7	-127.59	253.5	-282.2	484.0	464.8	19.21	25.190	
4,100.0	4,083.9	4,058.5	4,038.0	10.4	11.0	-127.76	262.4	-290.1	500.3	480.5	19.75	25.328	
4,200.0	4,183.2	4,157.2	4,135.9	10.7	11.3	-127.91	271.2	-298.0	516.6	496.3	20.29	25.459	
4,300.0	4,282.5	4,255.8	4,233.9	11.0	11.6	-128.06	280.1	-306.0	532.9	512.1	20.83	25.583	
4,400.0	4,381.9	4,354.5	4,331.8	11.3	12.0	-128.20	288.9	-313.9	549.2	527.9	21.37	25.699	
4,500.0	4,481.2	4,453.2	4,429.7	11.6	12.3	-128.33	297.8	-321.8	565.5	543.6	21.91	25.810	
4,600.0	4,580.5	4,551.8	4,527.7	11.9	12.6	-128.45	306.6	-329.7	581.9	559.4	22.45	25.915	
4,700.0	4,679.8	4,650.5	4,625.6	12.2	12.9	-128.57	315.5	-337.6	598.2	575.2	22.99	26.014	
4,800.0	4,779.2	4,762.3	4,736.8	12.5	13.2	-128.77	324.6	-345.8	613.8	590.2	23.53	26.087	
4,900.0	4,878.5	4,880.6	4,854.8	12.8	13.4	-129.24	330.9	-351.5	626.5	602.4	24.04	26.062	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28R-403 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,977.8	4,999.3	4,973.4	13.1	13.6	-130.00	333.6	-353.8	636.1	611.6	24.53	25.937	
5,100.0	5,077.1	5,103.0	5,077.1	13.4	13.8	-130.81	333.6	-353.9	643.8	618.8	24.98	25.766	
5,200.0	5,176.4	5,202.3	5,176.4	13.7	13.9	-131.58	333.6	-353.9	651.4	626.0	25.45	25.592	
5,300.0	5,275.8	5,301.7	5,275.8	14.0	14.1	-132.34	333.6	-353.9	659.2	633.3	25.92	25.431	
5,400.0	5,375.1	5,401.0	5,375.1	14.3	14.3	-133.07	333.6	-353.9	667.2	640.8	26.39	25.281	
5,500.0	5,474.4	5,500.3	5,474.4	14.6	14.5	-133.79	333.6	-353.9	675.2	648.3	26.86	25.141	
5,593.3	5,567.1	5,593.0	5,567.1	14.9	14.7	-134.44	333.6	-353.9	682.7	655.5	27.29	25.019	
5,600.0	5,573.7	5,599.6	5,573.7	14.9	14.7	-134.50	333.6	-353.9	683.3	656.0	27.32	25.010	
5,700.0	5,673.3	5,699.2	5,673.3	15.2	14.9	-135.16	333.6	-353.9	690.1	662.3	27.76	24.858	
5,800.0	5,773.1	5,799.0	5,773.1	15.4	15.0	-135.58	333.6	-353.9	694.5	666.3	28.17	24.652	
5,900.0	5,873.0	5,898.9	5,873.0	15.5	15.2	-135.76	333.6	-353.9	696.4	667.9	28.55	24.392	
5,927.0	5,900.0	5,925.9	5,900.0	15.6	15.3	-89.70	333.6	-353.9	696.5	667.9	28.65	24.312	
6,000.0	5,973.0	5,998.9	5,973.0	15.7	15.4	-89.70	333.6	-353.9	696.5	667.6	28.92	24.081	
6,051.7	6,024.7	6,050.6	6,024.7	15.8	15.5	-89.70	333.6	-353.9	696.5	667.4	29.13	23.914	
6,100.0	6,073.0	6,099.2	6,073.2	15.9	15.6	90.28	331.9	-353.9	696.5	667.2	29.27	23.797	
6,150.0	6,122.8	6,149.4	6,123.2	15.9	15.6	90.26	326.8	-353.9	696.5	667.1	29.37	23.717	
6,200.0	6,172.1	6,199.6	6,172.7	15.9	15.6	90.24	318.5	-353.9	696.5	667.1	29.43	23.670	
6,250.0	6,220.8	6,249.8	6,221.5	16.0	15.7	90.21	306.9	-353.9	696.5	667.1	29.45	23.652	
6,300.0	6,268.7	6,299.9	6,269.4	16.0	15.7	90.19	292.2	-353.9	696.5	667.1	29.44	23.658	
6,350.0	6,315.5	6,350.1	6,316.3	15.9	15.6	90.16	274.3	-353.9	696.5	667.1	29.41	23.683	
6,400.0	6,361.1	6,400.2	6,361.8	15.9	15.6	90.14	253.5	-353.9	696.5	667.2	29.36	23.722	
6,450.0	6,405.2	6,450.3	6,405.9	15.9	15.6	90.11	229.7	-353.9	696.5	667.2	29.31	23.765	
6,500.0	6,447.7	6,500.4	6,448.3	15.9	15.6	90.08	203.0	-353.9	696.5	667.3	29.26	23.806	
6,550.0	6,488.4	6,550.4	6,488.9	15.8	15.5	90.06	173.7	-353.9	696.5	667.3	29.22	23.834	
6,600.0	6,527.1	6,600.4	6,527.4	15.8	15.5	90.03	141.8	-353.9	696.5	667.3	29.22	23.841	
6,625.1	6,545.8	6,625.5	6,545.9	15.8	15.5	90.02	124.9	-353.9	696.5	667.3	29.23	23.828	
6,650.0	6,563.7	6,650.5	6,563.7	15.7	15.5	90.00	107.5	-353.9	696.5	667.3	29.25	23.816	
6,700.0	6,598.0	6,700.4	6,597.7	15.7	15.4	89.97	70.8	-353.9	696.5	667.2	29.33	23.750	
6,750.0	6,629.8	6,750.4	6,629.2	15.7	15.4	89.95	32.1	-353.9	696.5	667.0	29.47	23.635	
6,800.0	6,659.0	6,800.4	6,658.2	15.7	15.4	89.92	-8.7	-353.9	696.5	666.8	29.68	23.464	
6,850.0	6,685.5	6,850.3	6,684.3	15.7	15.4	89.89	-51.2	-353.9	696.5	666.5	29.98	23.232	
6,900.0	6,709.1	6,900.2	6,707.7	15.8	15.4	89.87	-95.3	-353.9	696.5	666.1	30.36	22.939	
6,950.0	6,729.9	6,950.1	6,728.1	15.9	15.6	89.84	-140.8	-353.9	696.5	665.7	30.84	22.586	
7,000.0	6,747.6	7,000.0	6,745.5	16.1	15.9	89.82	-187.6	-353.9	696.5	665.1	31.41	22.176	
7,006.3	6,749.6	7,006.2	6,747.4	16.2	15.9	89.81	-193.5	-353.9	696.5	665.0	31.49	22.118	
7,050.0	6,762.2	7,049.8	6,759.7	16.5	16.2	89.79	-235.2	-353.9	696.5	664.4	32.07	21.718	
7,100.0	6,773.6	7,099.6	6,770.9	16.8	16.6	89.77	-283.8	-353.9	696.5	663.7	32.83	21.218	
7,150.0	6,781.9	7,149.4	6,778.8	17.3	17.1	89.75	-332.9	-353.9	696.5	662.9	33.67	20.688	
7,171.7	6,784.5	7,171.0	6,781.3	17.5	17.3	89.74	-354.4	-353.9	696.5	662.5	34.06	20.450	
7,200.0	6,787.4	7,199.3	6,784.3	17.7	17.6	89.74	-382.6	-353.9	696.5	661.9	34.59	20.135	
7,217.9	6,789.3	7,217.3	6,786.1	17.9	17.7	89.74	-400.4	-353.9	696.5	661.6	34.95	19.929	
7,245.7	6,792.2	7,245.0	6,789.0	18.2	18.0	89.74	-428.0	-353.9	696.5	661.0	35.51	19.616	
7,300.0	6,796.6	7,299.2	6,793.2	18.8	18.6	89.72	-482.0	-353.9	696.5	659.9	36.67	18.996	
7,369.5	6,798.5	7,368.4	6,794.9	19.6	19.4	89.70	-551.3	-353.9	696.5	658.3	38.26	18.205	
7,400.0	6,798.4	7,399.0	6,794.8	19.9	19.8	89.70	-581.8	-353.9	696.5	657.5	39.00	17.862	
7,500.0	6,798.0	7,499.0	6,794.4	21.2	21.1	89.70	-681.8	-353.9	696.5	655.0	41.55	16.765	
7,600.0	6,797.7	7,599.0	6,794.0	22.6	22.4	89.69	-781.8	-353.9	696.5	652.2	44.28	15.728	
7,700.0	6,797.4	7,699.0	6,793.6	24.0	23.9	89.69	-881.8	-353.9	696.5	649.3	47.18	14.764	
7,800.0	6,797.0	7,799.0	6,793.2	25.5	25.4	89.68	-981.8	-353.9	696.5	646.3	50.20	13.876	
7,900.0	6,796.7	7,899.0	6,792.8	27.0	26.9	89.68	-1,081.8	-353.9	696.5	643.2	53.32	13.063	
8,000.0	6,796.4	7,999.0	6,792.4	28.6	28.5	89.68	-1,181.8	-353.9	696.5	640.0	56.54	12.320	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28R-403 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,100.0	6,796.1	8,099.0	6,792.1	30.3	30.2	89.67	-1,281.8	-353.9	696.5	636.7	59.82	11.643	
8,200.0	6,795.7	8,199.0	6,791.7	31.9	31.9	89.67	-1,381.8	-353.9	696.5	633.4	63.17	11.025	
8,300.0	6,795.4	8,299.0	6,791.3	33.6	33.5	89.66	-1,481.8	-353.9	696.5	629.9	66.58	10.462	
8,400.0	6,795.1	8,399.0	6,790.9	35.3	35.3	89.66	-1,581.8	-353.9	696.5	626.5	70.03	9.947	
8,500.0	6,794.7	8,499.0	6,790.5	37.0	37.0	89.65	-1,681.8	-353.9	696.5	623.0	73.51	9.475	
8,600.0	6,794.4	8,599.0	6,790.1	38.8	38.8	89.65	-1,781.8	-353.9	696.5	619.5	77.04	9.042	
8,700.0	6,794.1	8,699.0	6,789.8	40.6	40.5	89.65	-1,881.8	-353.9	696.5	615.9	80.59	8.643	
8,800.0	6,793.7	8,799.0	6,789.4	42.3	42.3	89.64	-1,981.8	-353.9	696.5	612.4	84.16	8.276	
8,900.0	6,793.4	8,899.0	6,789.0	44.1	44.1	89.64	-2,081.8	-353.9	696.5	608.8	87.76	7.937	
9,000.0	6,793.1	8,999.0	6,788.6	45.9	45.9	89.63	-2,181.8	-353.9	696.5	605.2	91.38	7.622	
9,100.0	6,792.7	9,099.0	6,788.2	47.7	47.7	89.63	-2,281.8	-353.9	696.5	601.5	95.02	7.331	
9,200.0	6,792.4	9,199.0	6,787.8	49.5	49.5	89.62	-2,381.7	-353.9	696.5	597.9	98.67	7.059	
9,300.0	6,792.1	9,299.0	6,787.5	51.4	51.4	89.62	-2,481.7	-353.9	696.5	594.2	102.33	6.806	
9,400.0	6,791.7	9,399.0	6,787.1	53.2	53.2	89.62	-2,581.7	-353.9	696.5	590.5	106.01	6.570	
9,500.0	6,791.4	9,499.0	6,786.7	55.0	55.0	89.61	-2,681.7	-353.9	696.5	586.8	109.70	6.349	
9,600.0	6,791.1	9,599.0	6,786.3	56.9	56.9	89.61	-2,781.7	-353.9	696.5	583.1	113.40	6.142	
9,700.0	6,790.7	9,699.0	6,785.9	58.7	58.7	89.60	-2,881.7	-353.9	696.5	579.4	117.11	5.948	
9,800.0	6,790.4	9,799.0	6,785.5	60.6	60.6	89.60	-2,981.7	-353.9	696.5	575.7	120.83	5.765	
9,900.0	6,790.1	9,899.0	6,785.2	62.4	62.5	89.59	-3,081.7	-353.9	696.5	572.0	124.55	5.592	
10,000.0	6,789.8	9,999.0	6,784.8	64.3	64.3	89.59	-3,181.7	-353.9	696.5	568.3	128.28	5.430	
10,100.0	6,789.4	10,099.0	6,784.4	66.2	66.2	89.59	-3,281.7	-353.9	696.5	564.5	132.02	5.276	
10,200.0	6,789.1	10,199.0	6,784.0	68.0	68.0	89.58	-3,381.7	-353.9	696.5	560.8	135.76	5.131	
10,300.0	6,788.8	10,299.0	6,783.6	69.9	69.9	89.58	-3,481.7	-353.9	696.5	557.0	139.51	4.993	
10,400.0	6,788.4	10,399.0	6,783.2	71.8	71.8	89.57	-3,581.7	-353.9	696.5	553.3	143.26	4.862	
10,500.0	6,788.1	10,499.0	6,782.8	73.6	73.7	89.57	-3,681.7	-353.9	696.5	549.5	147.02	4.738	
10,600.0	6,787.8	10,599.0	6,782.5	75.5	75.5	89.56	-3,781.7	-353.9	696.5	545.8	150.79	4.619	
10,700.0	6,787.4	10,699.0	6,782.1	77.4	77.4	89.56	-3,881.7	-353.9	696.5	542.0	154.55	4.507	
10,800.0	6,787.1	10,799.0	6,781.7	79.3	79.3	89.56	-3,981.7	-353.9	696.5	538.2	158.32	4.400	
10,900.0	6,786.8	10,899.0	6,781.3	81.2	81.2	89.55	-4,081.7	-353.9	696.5	534.4	162.09	4.297	
11,000.0	6,786.4	10,999.0	6,780.9	83.1	83.1	89.55	-4,181.7	-353.9	696.5	530.7	165.87	4.199	
11,100.0	6,786.1	11,099.0	6,780.5	84.9	85.0	89.54	-4,281.7	-353.9	696.5	526.9	169.65	4.106	
11,200.0	6,785.8	11,199.0	6,780.2	86.8	86.9	89.54	-4,381.7	-353.9	696.5	523.1	173.43	4.016	
11,300.0	6,785.4	11,299.0	6,779.8	88.7	88.7	89.53	-4,481.7	-353.9	696.5	519.3	177.22	3.930	
11,400.0	6,785.1	11,399.0	6,779.4	90.6	90.6	89.53	-4,581.7	-353.9	696.5	515.5	181.00	3.848	
11,500.0	6,784.8	11,499.0	6,779.0	92.5	92.5	89.53	-4,681.7	-353.9	696.5	511.8	184.79	3.769	
11,600.0	6,784.4	11,599.0	6,778.6	94.4	94.4	89.52	-4,781.7	-353.9	696.5	508.0	188.58	3.694	
11,700.0	6,784.1	11,699.0	6,778.2	96.3	96.3	89.52	-4,881.7	-353.9	696.5	504.2	192.38	3.621	
11,800.0	6,783.8	11,799.0	6,777.9	98.2	98.2	89.51	-4,981.7	-353.9	696.5	500.4	196.17	3.551	
11,900.0	6,783.5	11,899.0	6,777.5	100.1	100.1	89.51	-5,081.7	-353.9	696.6	496.6	199.97	3.483	
12,000.0	6,783.1	11,999.0	6,777.1	102.0	102.0	89.50	-5,181.7	-353.9	696.6	492.8	203.77	3.418	
12,100.0	6,782.8	12,099.0	6,776.7	103.9	103.9	89.50	-5,281.7	-353.9	696.6	489.0	207.57	3.356	
12,200.0	6,782.5	12,199.0	6,776.3	105.8	105.8	89.50	-5,381.7	-353.9	696.6	485.2	211.37	3.295	
12,300.0	6,782.1	12,299.0	6,775.9	107.7	107.7	89.49	-5,481.7	-353.9	696.6	481.4	215.17	3.237	
12,400.0	6,781.8	12,399.0	6,775.6	109.6	109.6	89.49	-5,581.7	-353.9	696.6	477.6	218.98	3.181	
12,500.0	6,781.5	12,499.0	6,775.2	111.5	111.5	89.48	-5,681.7	-353.9	696.6	473.8	222.78	3.127	
12,600.0	6,781.1	12,599.0	6,774.8	113.4	113.4	89.48	-5,781.7	-353.9	696.6	470.0	226.59	3.074	
12,700.0	6,780.8	12,699.0	6,774.4	115.3	115.3	89.47	-5,881.7	-353.9	696.6	466.2	230.40	3.023	
12,800.0	6,780.5	12,799.0	6,774.0	117.2	117.2	89.47	-5,981.7	-353.9	696.6	462.3	234.21	2.974	
12,900.0	6,780.1	12,899.0	6,773.6	119.1	119.1	89.46	-6,081.7	-353.9	696.6	458.5	238.02	2.926	
13,000.0	6,779.8	12,999.0	6,773.2	121.0	121.0	89.46	-6,181.7	-353.9	696.6	454.7	241.83	2.880	
13,100.0	6,779.5	13,099.0	6,772.9	122.9	122.9	89.46	-6,281.7	-353.9	696.6	450.9	245.64	2.836	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28R-403 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
13,200.0	6,779.1	13,199.0	6,772.5	124.8	124.8	89.45	-6,381.7	-353.9	696.6	447.1	249.45	2.792	
13,300.0	6,778.8	13,299.0	6,772.1	126.7	126.8	89.45	-6,481.7	-353.9	696.6	443.3	253.27	2.750	
13,400.0	6,778.5	13,399.0	6,771.7	128.6	128.7	89.44	-6,581.7	-353.9	696.6	439.5	257.08	2.709	
13,500.0	6,778.1	13,499.0	6,771.3	130.5	130.6	89.44	-6,681.7	-353.9	696.6	435.7	260.90	2.670	
13,600.0	6,777.8	13,599.0	6,770.9	132.4	132.5	89.43	-6,781.7	-353.9	696.6	431.8	264.71	2.631	
13,700.0	6,777.5	13,699.0	6,770.6	134.3	134.4	89.43	-6,881.7	-353.9	696.6	428.0	268.53	2.594	
13,800.0	6,777.2	13,799.0	6,770.2	136.2	136.3	89.43	-6,981.7	-353.9	696.6	424.2	272.35	2.558	
13,845.8	6,777.0	13,844.7	6,770.0	137.1	137.2	89.42	-7,027.5	-353.9	696.6	422.5	274.10	2.541	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28U-243 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	30.6	30.6				
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	30.6	30.6	30.4	0.22	136.355	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	30.6	30.6	30.0	0.67	45.452	
300.0	300.0	300.0	300.0	0.6	0.6	90.00	0.0	30.6	30.6	29.5	1.12	27.271	
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	30.6	30.6	29.1	1.57	19.479	
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	30.6	30.6	28.6	2.02	15.151	
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	30.6	30.6	28.2	2.47	12.396	
700.0	700.0	700.0	700.0	1.5	1.5	90.00	0.0	30.6	30.6	27.7	2.92	10.489	
800.0	800.0	800.0	800.0	1.7	1.7	90.00	0.0	30.6	30.6	27.3	3.37	9.090	
900.0	900.0	900.0	900.0	1.9	1.9	90.00	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	90.00	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	90.00	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	90.00	0.0	30.6	30.6	25.5	5.17	5.928	CC
1,300.0	1,300.0	1,299.1	1,299.1	2.8	2.8	88.07	1.1	32.0	32.0	26.4	5.61	5.704	
1,400.0	1,400.0	1,398.0	1,397.9	3.0	3.0	83.20	4.3	36.0	36.3	30.2	6.05	5.995	
1,500.0	1,500.0	1,496.5	1,495.9	3.3	3.2	77.28	9.6	42.6	43.8	37.3	6.50	6.746	
1,600.0	1,600.0	1,594.4	1,593.2	3.5	3.5	26.46	17.0	51.8	53.4	46.4	6.93	7.703	
1,700.0	1,699.8	1,693.0	1,690.6	3.7	3.7	23.52	26.3	63.3	62.8	55.4	7.35	8.536	
1,800.0	1,799.5	1,792.7	1,789.2	3.9	4.0	22.28	36.0	75.3	69.6	61.8	7.78	8.938	
1,833.6	1,832.9	1,826.3	1,822.4	4.0	4.1	22.16	39.3	79.4	71.1	63.2	7.93	8.971	
1,900.0	1,898.8	1,892.6	1,887.9	4.2	4.3	22.07	45.7	87.4	73.8	65.6	8.23	8.974	
2,000.0	1,998.1	1,992.6	1,986.6	4.4	4.6	21.94	55.4	99.5	77.9	69.2	8.68	8.972	
2,100.0	2,097.4	2,092.5	2,085.3	4.7	4.9	21.82	65.1	111.5	82.0	72.8	9.15	8.965	
2,200.0	2,196.8	2,192.4	2,184.0	4.9	5.2	21.71	74.9	123.6	86.1	76.5	9.61	8.954	
2,300.0	2,296.1	2,292.3	2,282.7	5.2	5.6	21.62	84.6	135.6	90.2	80.1	10.08	8.941	
2,400.0	2,395.4	2,392.2	2,381.4	5.5	5.9	21.53	94.3	147.7	94.3	83.7	10.56	8.927	
2,500.0	2,494.7	2,492.1	2,480.1	5.7	6.2	21.45	104.0	159.8	98.3	87.3	11.04	8.912	
2,600.0	2,594.1	2,592.1	2,578.8	6.0	6.6	21.37	113.7	171.8	102.4	90.9	11.52	8.896	
2,700.0	2,693.4	2,692.0	2,677.5	6.3	6.9	21.31	123.4	183.9	106.5	94.5	12.00	8.879	
2,800.0	2,792.7	2,791.9	2,776.2	6.6	7.2	21.24	133.1	195.9	110.6	98.1	12.48	8.863	
2,900.0	2,892.0	2,891.8	2,874.9	6.9	7.6	21.18	142.9	208.0	114.7	101.7	12.97	8.847	
3,000.0	2,991.3	2,991.7	2,973.7	7.1	7.9	21.13	152.6	220.1	118.8	105.3	13.45	8.831	
3,100.0	3,090.7	3,091.6	3,072.4	7.4	8.3	21.08	162.3	232.1	122.9	108.9	13.94	8.815	
3,200.0	3,190.0	3,191.5	3,171.1	7.7	8.6	21.03	172.0	244.2	127.0	112.5	14.43	8.799	
3,300.0	3,289.3	3,291.5	3,269.8	8.0	9.0	20.98	181.7	256.2	131.1	116.1	14.92	8.784	
3,400.0	3,388.6	3,391.4	3,368.5	8.3	9.3	20.94	191.4	268.3	135.1	119.7	15.41	8.770	
3,500.0	3,488.0	3,491.3	3,467.2	8.6	9.7	20.90	201.1	280.4	139.2	123.3	15.90	8.756	
3,600.0	3,587.3	3,591.2	3,565.9	8.9	10.0	20.86	210.9	292.4	143.3	126.9	16.40	8.742	
3,700.0	3,686.6	3,691.1	3,664.6	9.2	10.4	20.83	220.6	304.5	147.4	130.5	16.89	8.729	
3,800.0	3,785.9	3,791.0	3,763.3	9.5	10.8	20.80	230.3	316.5	151.5	134.1	17.38	8.716	
3,900.0	3,885.2	3,891.0	3,862.0	9.8	11.1	20.76	240.0	328.6	155.6	137.7	17.88	8.704	
4,000.0	3,984.6	3,990.9	3,960.7	10.1	11.5	20.73	249.7	340.7	159.7	141.3	18.37	8.692	
4,100.0	4,083.9	4,090.8	4,059.5	10.4	11.8	20.70	259.4	352.7	163.8	144.9	18.87	8.680	
4,200.0	4,183.2	4,190.7	4,158.2	10.7	12.2	20.68	269.1	364.8	167.9	148.5	19.36	8.669	
4,300.0	4,282.5	4,290.6	4,256.9	11.0	12.5	20.65	278.8	376.8	172.0	152.1	19.86	8.658	
4,400.0	4,381.9	4,390.5	4,355.6	11.3	12.9	20.63	288.6	388.9	176.0	155.7	20.36	8.648	
4,500.0	4,481.2	4,490.5	4,454.3	11.6	13.3	20.60	298.3	401.0	180.1	159.3	20.86	8.638	
4,600.0	4,580.5	4,590.4	4,553.0	11.9	13.6	20.58	308.0	413.0	184.2	162.9	21.35	8.628	
4,700.0	4,679.8	4,696.8	4,658.4	12.2	13.9	20.71	317.2	424.4	186.6	164.8	21.82	8.552	
4,800.0	4,779.2	4,803.5	4,764.5	12.5	14.2	21.17	323.9	432.8	185.5	163.2	22.30	8.318	
4,900.0	4,878.5	4,909.8	4,870.7	12.8	14.4	22.00	328.2	438.1	180.7	158.0	22.78	7.935	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28U-243 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,977.8	5,015.7	4,976.4	13.1	14.5	23.26	329.9	440.3	172.5	149.3	23.27	7.413	
5,100.0	5,077.1	5,116.3	5,077.1	13.4	14.7	24.89	330.0	440.3	162.0	138.2	23.80	6.807	
5,200.0	5,176.4	5,215.7	5,176.4	13.7	14.9	26.74	330.0	440.3	151.5	127.2	24.36	6.221	
5,300.0	5,275.8	5,315.0	5,275.8	14.0	15.0	28.86	330.0	440.3	141.2	116.3	24.94	5.663	
5,400.0	5,375.1	5,414.3	5,375.1	14.3	15.2	31.30	330.0	440.3	131.2	105.6	25.56	5.131	
5,500.0	5,474.4	5,513.6	5,474.4	14.6	15.4	34.15	330.0	440.3	121.4	95.1	26.23	4.627	
5,593.3	5,567.1	5,606.3	5,567.1	14.9	15.5	37.24	330.0	440.3	112.5	85.6	26.90	4.183	
5,600.0	5,573.7	5,612.9	5,573.7	14.9	15.5	37.47	330.0	440.3	111.9	85.0	26.95	4.153	
5,700.0	5,673.3	5,712.5	5,673.3	15.2	15.7	40.59	330.0	440.3	104.4	76.8	27.61	3.781	
5,800.0	5,773.1	5,812.3	5,773.1	15.4	15.9	42.83	330.0	440.3	99.8	71.6	28.18	3.542	
5,900.0	5,873.0	5,912.2	5,873.0	15.5	16.0	43.88	330.0	440.3	97.8	69.2	28.61	3.420	
5,927.0	5,900.0	5,939.2	5,900.0	15.6	16.1	90.00	330.0	440.3	97.7	69.0	28.70	3.406	
5,958.5	5,931.5	5,970.7	5,931.5	15.6	16.1	90.01	330.0	440.3	97.7	68.9	28.82	3.392	
6,000.0	5,973.0	6,012.2	5,972.9	15.7	16.2	90.85	328.6	440.3	97.8	68.7	29.03	3.368	
6,051.7	6,024.7	6,063.4	6,023.9	15.8	16.2	93.69	323.7	440.3	98.0	68.5	29.42	3.329	
6,100.0	6,073.0	6,110.7	6,070.6	15.9	16.3	-82.75	316.2	440.3	98.5	68.7	29.83	3.303	
6,150.0	6,122.8	6,159.3	6,118.0	15.9	16.3	-79.18	305.5	440.3	99.5	69.4	30.19	3.298	
6,200.0	6,172.1	6,207.5	6,164.3	15.9	16.3	-75.74	291.9	440.3	100.9	70.5	30.45	3.314	
6,250.0	6,220.8	6,255.4	6,209.3	16.0	16.3	-72.46	275.5	440.3	102.6	72.0	30.62	3.350	
6,300.0	6,268.7	6,302.9	6,252.8	16.0	16.3	-69.37	256.5	440.3	104.5	73.8	30.68	3.407	
6,350.0	6,315.5	6,350.0	6,294.7	15.9	16.2	-66.50	235.1	440.3	106.7	76.1	30.64	3.483	
6,400.0	6,361.1	6,397.0	6,335.2	15.9	16.2	-63.81	211.1	440.3	109.1	78.6	30.48	3.578	
6,450.0	6,405.2	6,443.6	6,373.7	15.9	16.2	-61.34	185.0	440.3	111.5	81.3	30.23	3.689	
6,500.0	6,447.7	6,490.0	6,410.4	15.9	16.1	-59.08	156.7	440.3	114.1	84.2	29.90	3.816	
6,550.0	6,488.4	6,536.0	6,445.1	15.8	16.1	-57.02	126.4	440.3	116.7	87.2	29.50	3.956	
6,600.0	6,527.1	6,581.8	6,477.8	15.8	16.0	-55.16	94.3	440.3	119.3	90.2	29.04	4.106	
6,650.0	6,563.7	6,627.4	6,508.3	15.7	16.0	-53.48	60.4	440.3	121.8	93.2	28.56	4.264	
6,700.0	6,598.0	6,672.8	6,536.7	15.7	16.0	-51.97	25.0	440.3	124.2	96.2	28.08	4.425	
6,750.0	6,629.8	6,718.1	6,562.7	15.7	16.0	-50.63	-12.0	440.3	126.6	99.0	27.61	4.585	
6,800.0	6,659.0	6,763.1	6,586.5	15.7	16.0	-49.45	-50.2	440.3	128.8	101.6	27.20	4.734	
6,850.0	6,685.5	6,808.0	6,607.9	15.7	16.0	-48.41	-89.7	440.3	130.8	103.9	26.86	4.869	
6,900.0	6,709.1	6,852.7	6,626.9	15.8	16.1	-47.51	-130.2	440.3	132.6	106.0	26.62	4.982	
6,950.0	6,729.9	6,900.0	6,644.3	15.9	16.3	-46.71	-174.1	440.3	134.3	107.8	26.51	5.066	
7,000.0	6,747.6	6,941.9	6,657.5	16.1	16.5	-46.11	-213.9	440.3	135.7	109.1	26.54	5.111	
7,050.0	6,762.2	6,986.3	6,669.0	16.5	16.7	-45.60	-256.8	440.3	136.8	110.1	26.74	5.118	
7,100.0	6,773.6	7,030.7	6,678.1	16.8	17.1	-45.20	-300.2	440.3	137.8	110.7	27.10	5.083	
7,150.0	6,781.9	7,075.1	6,684.5	17.3	17.4	-44.92	-344.1	440.3	138.4	110.8	27.64	5.008	
7,171.7	6,784.5	7,094.3	6,686.6	17.5	17.6	-44.83	-363.2	440.3	138.6	110.7	27.93	4.964	
7,200.0	6,787.4	7,119.3	6,688.5	17.7	17.8	-44.63	-388.2	440.3	139.2	111.0	28.26	4.927	
7,245.7	6,792.2	7,159.6	6,689.8	18.2	18.2	-43.81	-428.4	440.3	141.5	112.9	28.67	4.938	
7,300.0	6,796.6	7,213.0	6,689.9	18.8	18.8	-42.53	-481.8	440.3	144.7	115.5	29.24	4.949	
7,369.5	6,798.5	7,282.5	6,689.9	19.6	19.6	-41.99	-551.3	440.3	146.1	115.7	30.45	4.799	
7,400.0	6,798.4	7,313.0	6,689.9	19.9	20.0	-42.02	-581.8	440.3	146.0	115.0	31.00	4.710	
7,500.0	6,798.0	7,413.0	6,689.9	21.2	21.2	-42.11	-681.8	440.3	145.8	112.9	32.92	4.428	
7,600.0	6,797.7	7,513.0	6,689.9	22.6	22.6	-42.20	-781.8	440.3	145.5	110.6	34.96	4.162	
7,700.0	6,797.4	7,613.0	6,689.9	24.0	24.0	-42.29	-881.8	440.3	145.3	108.1	37.11	3.914	
7,800.0	6,797.0	7,713.0	6,689.9	25.5	25.5	-42.38	-981.8	440.3	145.0	105.6	39.35	3.685	
7,900.0	6,796.7	7,813.0	6,690.0	27.0	27.0	-42.48	-1,081.8	440.3	144.7	103.1	41.67	3.473	
8,000.0	6,796.4	7,913.0	6,690.0	28.6	28.6	-42.57	-1,181.8	440.3	144.5	100.4	44.06	3.279	
8,100.0	6,796.1	8,013.0	6,690.0	30.3	30.2	-42.67	-1,281.8	440.3	144.2	97.7	46.51	3.101	
8,200.0	6,795.7	8,113.0	6,690.0	31.9	31.9	-42.76	-1,381.8	440.3	144.0	95.0	49.01	2.938	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28U-243 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,300.0	6,795.4	8,213.0	6,690.0	33.6	33.6	-42.85	-1,481.8	440.3	143.7	92.2	51.56	2.788	
8,400.0	6,795.1	8,313.0	6,690.1	35.3	35.3	-42.95	-1,581.8	440.3	143.5	89.3	54.14	2.650	
8,500.0	6,794.7	8,413.0	6,690.1	37.0	37.0	-43.04	-1,681.8	440.3	143.2	86.4	56.76	2.523	
8,600.0	6,794.4	8,513.0	6,690.1	38.8	38.8	-43.14	-1,781.8	440.3	142.9	83.5	59.41	2.406	
8,700.0	6,794.1	8,613.0	6,690.1	40.6	40.5	-43.23	-1,881.8	440.3	142.7	80.6	62.09	2.298	
8,800.0	6,793.7	8,713.0	6,690.1	42.3	42.3	-43.33	-1,981.8	440.3	142.4	77.6	64.80	2.198	
8,900.0	6,793.4	8,813.0	6,690.1	44.1	44.1	-43.43	-2,081.8	440.3	142.2	74.7	67.53	2.105	
9,000.0	6,793.1	8,913.0	6,690.2	45.9	45.9	-43.52	-2,181.8	440.3	141.9	71.6	70.29	2.019	
9,100.0	6,792.7	9,013.0	6,690.2	47.7	47.7	-43.62	-2,281.8	440.3	141.7	68.6	73.06	1.939	
9,200.0	6,792.4	9,113.0	6,690.2	49.5	49.5	-43.72	-2,381.8	440.3	141.4	65.6	75.85	1.864	
9,300.0	6,792.1	9,213.0	6,690.2	51.4	51.3	-43.82	-2,481.8	440.3	141.2	62.5	78.67	1.795	
9,400.0	6,791.7	9,313.0	6,690.2	53.2	53.2	-43.91	-2,581.8	440.3	140.9	59.4	81.50	1.729	
9,500.0	6,791.4	9,413.0	6,690.2	55.0	55.0	-44.01	-2,681.8	440.3	140.7	56.3	84.34	1.668	
9,600.0	6,791.1	9,513.0	6,690.3	56.9	56.8	-44.11	-2,781.8	440.3	140.4	53.2	87.20	1.610	
9,700.0	6,790.7	9,613.0	6,690.3	58.7	58.7	-44.21	-2,881.8	440.3	140.2	50.1	90.08	1.556	
9,800.0	6,790.4	9,713.0	6,690.3	60.6	60.5	-44.31	-2,981.8	440.3	139.9	46.9	92.97	1.505	
9,900.0	6,790.1	9,813.0	6,690.3	62.4	62.4	-44.41	-3,081.8	440.3	139.7	43.8	95.88	1.457	Level 3
10,000.0	6,789.8	9,913.0	6,690.3	64.3	64.2	-44.51	-3,181.8	440.3	139.4	40.6	98.79	1.411	Level 3
10,100.0	6,789.4	10,013.0	6,690.3	66.2	66.1	-44.61	-3,281.8	440.3	139.2	37.4	101.72	1.368	Level 3
10,200.0	6,789.1	10,113.0	6,690.4	68.0	68.0	-44.71	-3,381.8	440.3	138.9	34.3	104.67	1.327	Level 3
10,300.0	6,788.8	10,213.0	6,690.4	69.9	69.8	-44.81	-3,481.8	440.3	138.7	31.1	107.62	1.289	Level 3
10,400.0	6,788.4	10,313.0	6,690.4	71.8	71.7	-44.92	-3,581.8	440.3	138.4	27.8	110.59	1.252	Level 3
10,500.0	6,788.1	10,413.0	6,690.4	73.6	73.6	-45.02	-3,681.8	440.3	138.2	24.6	113.57	1.217	Level 2
10,600.0	6,787.8	10,513.0	6,690.4	75.5	75.5	-45.12	-3,781.8	440.3	137.9	21.4	116.56	1.183	Level 2
10,700.0	6,787.4	10,613.0	6,690.5	77.4	77.3	-45.22	-3,881.8	440.3	137.7	18.1	119.56	1.152	Level 2
10,800.0	6,787.1	10,713.0	6,690.5	79.3	79.2	-45.33	-3,981.8	440.3	137.4	14.9	122.57	1.121	Level 2
10,900.0	6,786.8	10,813.0	6,690.5	81.2	81.1	-45.43	-4,081.8	440.3	137.2	11.6	125.59	1.092	Level 2
11,000.0	6,786.4	10,912.9	6,690.5	83.1	83.0	-45.53	-4,181.8	440.3	137.0	8.3	128.63	1.065	Level 2
11,100.0	6,786.1	11,012.9	6,690.5	84.9	84.9	-45.64	-4,281.8	440.3	136.7	5.0	131.67	1.038	Level 2
11,200.0	6,785.8	11,112.9	6,690.5	86.8	86.8	-45.74	-4,381.8	440.3	136.5	1.7	134.73	1.013	Level 2
11,300.0	6,785.4	11,212.9	6,690.6	88.7	88.7	-45.85	-4,481.8	440.3	136.2	-1.6	137.79	0.989	Level 1
11,400.0	6,785.1	11,312.9	6,690.6	90.6	90.5	-45.95	-4,581.8	440.3	136.0	-4.9	140.87	0.965	Level 1
11,500.0	6,784.8	11,412.9	6,690.6	92.5	92.4	-46.06	-4,681.8	440.3	135.7	-8.2	143.95	0.943	Level 1
11,600.0	6,784.4	11,512.9	6,690.6	94.4	94.3	-46.17	-4,781.8	440.3	135.5	-11.6	147.05	0.921	Level 1
11,700.0	6,784.1	11,612.9	6,690.6	96.3	96.2	-46.27	-4,881.8	440.3	135.3	-14.9	150.15	0.901	Level 1
11,800.0	6,783.8	11,712.9	6,690.6	98.2	98.1	-46.38	-4,981.8	440.3	135.0	-18.3	153.27	0.881	Level 1
11,900.0	6,783.5	11,812.9	6,690.7	100.1	100.0	-46.49	-5,081.8	440.3	134.8	-21.6	156.39	0.862	Level 1
12,000.0	6,783.1	11,912.9	6,690.7	102.0	101.9	-46.60	-5,181.8	440.3	134.5	-25.0	159.52	0.843	Level 1
12,100.0	6,782.8	12,012.9	6,690.7	103.9	103.8	-46.70	-5,281.8	440.3	134.3	-28.4	162.67	0.826	Level 1
12,200.0	6,782.5	12,112.9	6,690.7	105.8	105.7	-46.81	-5,381.8	440.3	134.1	-31.8	165.82	0.808	Level 1
12,300.0	6,782.1	12,212.9	6,690.7	107.7	107.6	-46.92	-5,481.8	440.3	133.8	-35.2	168.98	0.792	Level 1
12,400.0	6,781.8	12,312.9	6,690.7	109.6	109.5	-47.03	-5,581.8	440.3	133.6	-38.6	172.16	0.776	Level 1
12,500.0	6,781.5	12,412.9	6,690.8	111.5	111.4	-47.14	-5,681.8	440.3	133.3	-42.0	175.34	0.760	Level 1
12,600.0	6,781.1	12,512.9	6,690.8	113.4	113.3	-47.25	-5,781.8	440.3	133.1	-45.4	178.53	0.746	Level 1
12,700.0	6,780.8	12,612.9	6,690.8	115.3	115.2	-47.36	-5,881.8	440.3	132.9	-48.9	181.73	0.731	Level 1
12,800.0	6,780.5	12,712.9	6,690.8	117.2	117.1	-47.47	-5,981.8	440.3	132.6	-52.3	184.94	0.717	Level 1
12,900.0	6,780.1	12,812.9	6,690.8	119.1	119.0	-47.58	-6,081.8	440.3	132.4	-55.8	188.16	0.704	Level 1
13,000.0	6,779.8	12,912.9	6,690.9	121.0	120.9	-47.69	-6,181.8	440.3	132.2	-59.2	191.39	0.691	Level 1
13,100.0	6,779.5	13,012.9	6,690.9	122.9	122.8	-47.81	-6,281.8	440.3	131.9	-62.7	194.63	0.678	Level 1
13,200.0	6,779.1	13,112.9	6,690.9	124.8	124.7	-47.92	-6,381.8	440.3	131.7	-66.2	197.87	0.665	Level 1
13,300.0	6,778.8	13,212.9	6,690.9	126.7	126.6	-48.03	-6,481.8	440.3	131.5	-69.7	201.13	0.654	Level 1

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28U-243 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
13,400.0	6,778.5	13,312.9	6,690.9	128.6	128.5	-48.14	-6,581.8	440.3	131.2	-73.2	204.40	0.642	Level 1
13,500.0	6,778.1	13,412.9	6,690.9	130.5	130.4	-48.26	-6,681.8	440.3	131.0	-76.7	207.67	0.631	Level 1
13,600.0	6,777.8	13,512.9	6,691.0	132.4	132.3	-48.37	-6,781.8	440.3	130.8	-80.2	210.96	0.620	Level 1
13,700.0	6,777.5	13,612.9	6,691.0	134.3	134.3	-48.49	-6,881.8	440.3	130.5	-83.7	214.25	0.609	Level 1
13,800.0	6,777.2	13,712.9	6,691.0	136.2	136.2	-48.60	-6,981.8	440.3	130.3	-87.3	217.55	0.599	Level 1
13,836.2	6,777.0	13,749.1	6,691.0	136.9	136.9	-48.64	-7,018.0	440.3	130.2	-88.5	218.75	0.595	Level 1
13,845.8	6,777.0	13,755.1	6,691.0	137.1	137.0	-48.65	-7,023.9	440.3	130.2	-88.8	219.00	0.595	Level 1, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28U-403 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	61.3	61.3				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	61.3	61.3	61.1	0.22	274.079	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	61.3	61.3	60.6	0.67	91.208	
300.0	300.0	299.0	299.0	0.6	0.6	90.00	0.0	61.3	61.3	60.2	1.12	54.652	
400.0	400.0	399.0	399.0	0.8	0.8	90.00	0.0	61.3	61.3	59.7	1.57	39.014	
500.0	500.0	499.0	499.0	1.0	1.0	90.00	0.0	61.3	61.3	59.3	2.02	30.335	
600.0	600.0	599.0	599.0	1.2	1.2	90.00	0.0	61.3	61.3	58.8	2.47	24.814	
700.0	700.0	699.0	699.0	1.5	1.5	90.00	0.0	61.3	61.3	58.4	2.92	20.994	
800.0	800.0	799.0	799.0	1.7	1.7	90.00	0.0	61.3	61.3	57.9	3.37	18.193	
900.0	900.0	899.0	899.0	1.9	1.9	90.00	0.0	61.3	61.3	57.5	3.82	16.051	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	90.00	0.0	61.3	61.3	57.0	4.27	14.361	CC, ES
1,100.0	1,100.0	1,097.1	1,097.1	2.4	2.3	89.31	0.8	62.8	62.8	58.1	4.71	13.340	
1,200.0	1,200.0	1,195.0	1,194.8	2.6	2.6	87.42	3.0	67.2	67.4	62.3	5.14	13.104	
1,300.0	1,300.0	1,292.4	1,291.9	2.8	2.8	84.79	6.8	74.6	75.2	69.6	5.58	13.468	
1,400.0	1,400.0	1,389.1	1,387.9	3.0	3.0	81.92	12.0	84.8	86.3	80.3	6.03	14.312	
1,500.0	1,500.0	1,485.7	1,483.4	3.3	3.3	79.17	18.7	97.8	100.8	94.3	6.49	15.519	
1,600.0	1,600.0	1,584.7	1,581.1	3.5	3.6	31.17	26.0	111.9	114.8	107.9	6.90	16.639	
1,700.0	1,699.8	1,684.0	1,679.1	3.7	3.9	30.47	33.3	126.2	126.0	118.7	7.34	17.176	
1,800.0	1,799.5	1,783.7	1,777.5	3.9	4.2	30.64	40.6	140.5	134.2	126.4	7.77	17.261	
1,833.6	1,832.9	1,817.3	1,810.6	4.0	4.3	30.86	43.0	145.3	136.2	128.3	7.92	17.199	
1,900.0	1,898.8	1,883.5	1,876.0	4.2	4.5	31.41	47.9	154.8	140.0	131.8	8.23	17.019	
2,000.0	1,998.1	1,983.3	1,974.5	4.4	4.8	32.18	55.2	169.1	145.7	137.0	8.70	16.757	
2,100.0	2,097.4	2,083.1	2,073.0	4.7	5.2	32.90	62.6	183.3	151.5	142.3	9.17	16.512	
2,200.0	2,196.8	2,183.0	2,171.6	4.9	5.5	33.56	69.9	197.6	157.2	147.6	9.66	16.283	
2,300.0	2,296.1	2,282.8	2,270.1	5.2	5.9	34.18	77.2	211.9	163.0	152.9	10.15	16.067	
2,400.0	2,395.4	2,382.6	2,368.6	5.5	6.2	34.75	84.5	226.2	168.8	158.2	10.64	15.865	
2,500.0	2,494.7	2,482.4	2,467.1	5.7	6.6	35.29	91.9	240.5	174.6	163.5	11.14	15.674	
2,600.0	2,594.1	2,582.2	2,565.6	6.0	6.9	35.79	99.2	254.8	180.4	168.8	11.65	15.495	
2,700.0	2,693.4	2,682.0	2,664.1	6.3	7.3	36.26	106.5	269.1	186.3	174.1	12.15	15.327	
2,800.0	2,792.7	2,781.9	2,762.7	6.6	7.7	36.70	113.9	283.4	192.1	179.5	12.67	15.168	
2,900.0	2,892.0	2,881.7	2,861.2	6.9	8.0	37.11	121.2	297.7	198.0	184.8	13.18	15.018	
3,000.0	2,991.3	2,981.5	2,959.7	7.1	8.4	37.50	128.5	312.0	203.9	190.2	13.70	14.877	
3,100.0	3,090.7	3,081.3	3,058.2	7.4	8.7	37.87	135.9	326.3	209.7	195.5	14.23	14.744	
3,200.0	3,190.0	3,181.1	3,156.7	7.7	9.1	38.22	143.2	340.6	215.6	200.9	14.75	14.617	
3,300.0	3,289.3	3,281.0	3,255.2	8.0	9.5	38.55	150.5	354.9	221.5	206.2	15.28	14.498	
3,400.0	3,388.6	3,380.8	3,353.8	8.3	9.8	38.87	157.8	369.2	227.4	211.6	15.81	14.385	
3,500.0	3,488.0	3,480.6	3,452.3	8.6	10.2	39.16	165.2	383.5	233.3	217.0	16.34	14.277	
3,600.0	3,587.3	3,580.4	3,550.8	8.9	10.6	39.45	172.5	397.8	239.3	222.4	16.88	14.175	
3,700.0	3,686.6	3,680.2	3,649.3	9.2	10.9	39.72	179.8	412.1	245.2	227.8	17.42	14.078	
3,800.0	3,785.9	3,780.0	3,747.8	9.5	11.3	39.97	187.2	426.4	251.1	233.1	17.95	13.986	
3,900.0	3,885.2	3,879.9	3,846.3	9.8	11.7	40.22	194.5	440.7	257.0	238.5	18.49	13.898	
4,000.0	3,984.6	3,979.7	3,944.9	10.1	12.1	40.45	201.8	455.0	263.0	243.9	19.04	13.814	
4,100.0	4,083.9	4,079.5	4,043.4	10.4	12.4	40.67	209.1	469.3	268.9	249.3	19.58	13.734	
4,200.0	4,183.2	4,179.3	4,141.9	10.7	12.8	40.89	216.5	483.6	274.8	254.7	20.12	13.657	
4,300.0	4,282.5	4,279.1	4,240.4	11.0	13.2	41.09	223.8	497.9	280.8	260.1	20.67	13.584	
4,400.0	4,381.9	4,379.0	4,338.9	11.3	13.5	41.29	231.1	512.2	286.7	265.5	21.22	13.514	
4,500.0	4,481.2	4,478.8	4,437.4	11.6	13.9	41.48	238.5	526.5	292.7	270.9	21.77	13.447	
4,600.0	4,580.5	4,578.6	4,536.0	11.9	14.3	41.66	245.8	540.8	298.7	276.3	22.32	13.383	
4,700.0	4,679.8	4,678.4	4,634.5	12.2	14.7	41.83	253.1	555.1	304.6	281.7	22.87	13.321	
4,800.0	4,779.2	4,778.2	4,733.0	12.5	15.0	42.00	260.4	569.4	310.6	287.2	23.42	13.262	
4,900.0	4,878.5	4,878.0	4,831.5	12.8	15.4	42.16	267.8	583.7	316.5	292.6	23.97	13.206	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28U-403 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,977.8	4,977.9	4,930.0	13.1	15.8	42.31	275.1	598.0	322.5	298.0	24.52	13.151	
5,100.0	5,077.1	5,077.7	5,028.5	13.4	16.1	42.46	282.4	612.3	328.5	303.4	25.08	13.099	
5,200.0	5,176.4	5,177.5	5,127.1	13.7	16.5	42.61	289.8	626.6	334.4	308.8	25.63	13.048	
5,300.0	5,275.8	5,277.3	5,225.6	14.0	16.9	42.74	297.1	640.9	340.4	314.2	26.19	12.999	
5,400.0	5,375.1	5,377.1	5,324.1	14.3	17.3	42.88	304.4	655.2	346.4	319.7	26.74	12.953	
5,500.0	5,474.4	5,477.0	5,422.6	14.6	17.6	43.01	311.7	669.5	352.4	325.1	27.30	12.907	
5,593.3	5,567.1	5,579.8	5,524.3	14.9	17.9	43.23	318.7	683.1	356.9	329.1	27.81	12.833	
5,600.0	5,573.7	5,587.2	5,531.7	14.9	18.0	43.26	319.2	683.9	357.1	329.3	27.85	12.825	
5,700.0	5,673.3	5,699.8	5,643.5	15.2	18.2	43.61	324.8	694.9	359.9	331.6	28.32	12.710	
5,800.0	5,773.1	5,812.4	5,755.9	15.4	18.5	43.83	328.3	701.9	361.7	332.9	28.72	12.593	
5,900.0	5,873.0	5,925.1	5,868.5	15.5	18.6	43.92	329.9	704.9	362.5	333.4	29.06	12.472	
5,927.0	5,900.0	5,955.5	5,898.9	15.6	18.7	90.00	330.0	705.1	362.5	333.4	29.14	12.439	
6,000.0	5,973.0	6,028.6	5,972.0	15.7	18.8	90.00	330.0	705.1	362.5	333.1	29.40	12.329	
6,051.7	6,024.7	6,080.3	6,023.7	15.8	18.9	90.00	330.0	705.1	362.5	332.9	29.60	12.247	
6,100.0	6,073.0	6,128.6	6,072.0	15.9	18.9	-90.01	328.5	705.1	362.5	332.8	29.74	12.188	
6,150.0	6,122.8	6,178.6	6,121.8	15.9	18.9	-90.02	323.8	705.1	362.5	332.7	29.84	12.147	
6,200.0	6,172.1	6,228.6	6,171.1	15.9	19.0	-90.03	315.8	705.1	362.5	332.6	29.90	12.122	
6,250.0	6,220.8	6,278.6	6,219.9	16.0	19.0	-90.04	304.6	705.1	362.5	332.6	29.93	12.112	
6,300.0	6,268.7	6,328.7	6,267.8	16.0	19.0	-90.05	290.3	705.1	362.5	332.6	29.92	12.114	
6,350.0	6,315.5	6,378.7	6,314.6	15.9	19.0	-90.06	272.8	705.1	362.5	332.6	29.90	12.126	
6,400.0	6,361.1	6,428.7	6,360.3	15.9	19.0	-90.07	252.4	705.1	362.5	332.6	29.85	12.144	
6,450.0	6,405.2	6,478.7	6,404.5	15.9	18.9	-90.08	228.9	705.1	362.5	332.7	29.80	12.166	
6,500.0	6,447.7	6,528.8	6,447.0	15.9	18.9	-90.09	202.6	705.1	362.5	332.8	29.75	12.186	
6,550.0	6,488.4	6,578.8	6,487.8	15.8	18.9	-90.09	173.6	705.1	362.5	332.8	29.71	12.201	
6,600.0	6,527.1	6,628.9	6,526.6	15.8	18.8	-90.10	142.0	705.1	362.5	332.8	29.70	12.206	
6,650.0	6,563.7	6,678.9	6,563.2	15.7	18.8	-90.11	107.9	705.1	362.5	332.8	29.72	12.196	
6,700.0	6,598.0	6,728.9	6,597.5	15.7	18.8	-90.12	71.5	705.1	362.5	332.7	29.80	12.166	
6,750.0	6,629.8	6,779.0	6,629.4	15.7	18.7	-90.12	32.9	705.1	362.5	332.6	29.93	12.112	
6,800.0	6,659.0	6,829.0	6,658.6	15.7	18.7	-90.13	-7.7	705.1	362.5	332.4	30.13	12.031	
6,850.0	6,685.5	6,879.1	6,685.2	15.7	18.8	-90.14	-50.1	705.1	362.5	332.1	30.41	11.920	
6,900.0	6,709.1	6,929.2	6,708.9	15.8	18.8	-90.14	-94.2	705.1	362.5	331.7	30.78	11.778	
6,950.0	6,729.9	6,979.2	6,729.7	15.9	18.9	-90.14	-139.7	705.1	362.5	331.3	31.23	11.606	
7,000.0	6,747.6	7,029.3	6,747.5	16.1	19.0	-90.15	-186.5	705.1	362.5	330.7	31.78	11.405	
7,050.0	6,762.2	7,079.3	6,762.1	16.5	19.2	-90.15	-234.3	705.1	362.5	330.1	32.43	11.179	
7,100.0	6,773.6	7,129.4	6,773.6	16.8	19.4	-90.15	-283.1	705.1	362.5	329.3	33.16	10.931	
7,150.0	6,781.9	7,179.5	6,781.9	17.3	19.7	-90.15	-332.4	705.1	362.5	328.5	33.98	10.666	
7,171.7	6,784.5	7,201.2	6,784.4	17.5	19.8	-90.16	-354.0	705.1	362.5	328.1	34.36	10.549	
7,200.0	6,787.4	7,229.5	6,787.4	17.7	20.0	-90.16	-382.1	705.1	362.5	327.6	34.89	10.388	
7,245.7	6,792.2	7,275.2	6,792.2	18.2	20.3	-90.16	-427.6	705.1	362.5	326.7	35.78	10.131	
7,300.0	6,796.6	7,329.5	6,796.6	18.8	20.8	-90.16	-481.8	705.1	362.5	325.6	36.93	9.815	
7,369.5	6,798.5	7,399.1	6,798.5	19.6	21.5	-90.16	-551.3	705.1	362.5	324.0	38.49	9.418	
7,400.0	6,798.4	7,429.6	6,798.4	19.9	21.8	-90.16	-581.8	705.1	362.5	323.3	39.23	9.241	
7,500.0	6,798.0	7,529.6	6,798.0	21.2	22.9	-90.16	-681.8	705.1	362.5	320.8	41.74	8.684	
7,600.0	6,797.7	7,629.6	6,797.7	22.6	24.2	-90.16	-781.8	705.1	362.5	318.0	44.45	8.156	
7,700.0	6,797.4	7,729.6	6,797.4	24.0	25.5	-90.16	-881.8	705.1	362.5	315.2	47.31	7.662	
7,800.0	6,797.0	7,829.6	6,797.0	25.5	26.9	-90.16	-981.8	705.1	362.5	312.2	50.30	7.206	
7,900.0	6,796.7	7,929.6	6,796.7	27.0	28.4	-90.16	-1,081.8	705.1	362.5	309.1	53.41	6.787	
8,000.0	6,796.4	8,029.6	6,796.4	28.6	29.9	-90.16	-1,181.8	705.1	362.5	305.9	56.60	6.404	
8,100.0	6,796.1	8,129.6	6,796.0	30.3	31.4	-90.16	-1,281.8	705.1	362.5	302.6	59.87	6.055	
8,200.0	6,795.7	8,229.6	6,795.7	31.9	33.0	-90.16	-1,381.8	705.1	362.5	299.3	63.21	5.735	
8,300.0	6,795.4	8,329.6	6,795.4	33.6	34.7	-90.16	-1,481.8	705.1	362.5	295.9	66.59	5.443	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28U-403 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,400.0	6,795.1	8,429.6	6,795.0	35.3	36.3	-90.16	-1,581.8	705.1	362.5	292.5	70.03	5.176	
8,500.0	6,794.7	8,529.6	6,794.7	37.0	38.0	-90.16	-1,681.8	705.1	362.5	289.0	73.51	4.932	
8,600.0	6,794.4	8,629.6	6,794.4	38.8	39.7	-90.16	-1,781.8	705.1	362.5	285.5	77.02	4.707	
8,700.0	6,794.1	8,729.6	6,794.1	40.6	41.4	-90.16	-1,881.8	705.1	362.5	281.9	80.56	4.500	
8,800.0	6,793.7	8,829.6	6,793.7	42.3	43.2	-90.16	-1,981.8	705.1	362.5	278.4	84.13	4.309	
8,900.0	6,793.4	8,929.6	6,793.4	44.1	44.9	-90.16	-2,081.8	705.1	362.5	274.8	87.72	4.133	
9,000.0	6,793.1	9,029.6	6,793.1	45.9	46.7	-90.16	-2,181.8	705.1	362.5	271.2	91.33	3.969	
9,100.0	6,792.7	9,129.6	6,792.7	47.7	48.4	-90.16	-2,281.8	705.1	362.5	267.5	94.96	3.817	
9,200.0	6,792.4	9,229.6	6,792.4	49.5	50.2	-90.16	-2,381.8	705.1	362.5	263.9	98.60	3.676	
9,300.0	6,792.1	9,329.6	6,792.1	51.4	52.0	-90.16	-2,481.8	705.1	362.5	260.2	102.26	3.545	
9,400.0	6,791.7	9,429.6	6,791.7	53.2	53.8	-90.16	-2,581.8	705.1	362.5	256.6	105.93	3.422	
9,500.0	6,791.4	9,529.6	6,791.4	55.0	55.7	-90.16	-2,681.8	705.1	362.5	252.9	109.62	3.307	
9,600.0	6,791.1	9,629.6	6,791.1	56.9	57.5	-90.16	-2,781.8	705.1	362.5	249.2	113.31	3.199	
9,700.0	6,790.7	9,729.6	6,790.7	58.7	59.3	-90.16	-2,881.8	705.1	362.5	245.5	117.02	3.098	
9,800.0	6,790.4	9,829.6	6,790.4	60.6	61.1	-90.16	-2,981.8	705.1	362.5	241.8	120.73	3.003	
9,900.0	6,790.1	9,929.6	6,790.1	62.4	63.0	-90.16	-3,081.8	705.1	362.5	238.0	124.45	2.913	
10,000.0	6,789.8	10,029.6	6,789.7	64.3	64.8	-90.16	-3,181.8	705.1	362.5	234.3	128.18	2.828	
10,100.0	6,789.4	10,129.6	6,789.4	66.2	66.7	-90.16	-3,281.8	705.1	362.5	230.6	131.91	2.748	
10,200.0	6,789.1	10,229.6	6,789.1	68.0	68.5	-90.16	-3,381.8	705.1	362.5	226.8	135.65	2.672	
10,300.0	6,788.8	10,329.6	6,788.7	69.9	70.4	-90.16	-3,481.8	705.1	362.5	223.1	139.40	2.600	
10,400.0	6,788.4	10,429.6	6,788.4	71.8	72.2	-90.16	-3,581.8	705.1	362.5	219.3	143.15	2.532	
10,500.0	6,788.1	10,529.6	6,788.1	73.6	74.1	-90.16	-3,681.8	705.1	362.5	215.6	146.90	2.468	
10,600.0	6,787.8	10,629.6	6,787.8	75.5	75.9	-90.16	-3,781.8	705.1	362.5	211.8	150.66	2.406	
10,700.0	6,787.4	10,729.6	6,787.4	77.4	77.8	-90.16	-3,881.8	705.1	362.5	208.1	154.43	2.347	
10,800.0	6,787.1	10,829.6	6,787.1	79.3	79.7	-90.16	-3,981.8	705.1	362.5	204.3	158.20	2.291	
10,900.0	6,786.8	10,929.6	6,786.8	81.2	81.6	-90.16	-4,081.8	705.1	362.5	200.5	161.97	2.238	
11,000.0	6,786.4	11,029.6	6,786.4	83.1	83.4	-90.16	-4,181.8	705.1	362.5	196.8	165.74	2.187	
11,100.0	6,786.1	11,129.6	6,786.1	84.9	85.3	-90.16	-4,281.8	705.1	362.5	193.0	169.52	2.138	
11,200.0	6,785.8	11,229.6	6,785.8	86.8	87.2	-90.16	-4,381.8	705.1	362.5	189.2	173.30	2.092	
11,300.0	6,785.4	11,329.6	6,785.4	88.7	89.1	-90.16	-4,481.8	705.1	362.5	185.4	177.08	2.047	
11,400.0	6,785.1	11,429.6	6,785.1	90.6	90.9	-90.16	-4,581.8	705.1	362.5	181.6	180.87	2.004	
11,500.0	6,784.8	11,529.6	6,784.8	92.5	92.8	-90.16	-4,681.8	705.1	362.5	177.8	184.66	1.963	
11,600.0	6,784.4	11,629.6	6,784.4	94.4	94.7	-90.16	-4,781.8	705.1	362.5	174.0	188.45	1.924	
11,700.0	6,784.1	11,729.6	6,784.1	96.3	96.6	-90.16	-4,881.8	705.1	362.5	170.3	192.24	1.886	
11,800.0	6,783.8	11,829.6	6,783.8	98.2	98.5	-90.16	-4,981.8	705.1	362.5	166.5	196.03	1.849	
11,900.0	6,783.5	11,929.6	6,783.4	100.1	100.4	-90.16	-5,081.8	705.1	362.5	162.7	199.83	1.814	
12,000.0	6,783.1	12,029.6	6,783.1	102.0	102.3	-90.16	-5,181.8	705.1	362.5	158.9	203.63	1.780	
12,100.0	6,782.8	12,129.6	6,782.8	103.9	104.1	-90.16	-5,281.8	705.1	362.5	155.1	207.42	1.748	
12,200.0	6,782.5	12,229.6	6,782.4	105.8	106.0	-90.16	-5,381.8	705.1	362.5	151.3	211.22	1.716	
12,300.0	6,782.1	12,329.6	6,782.1	107.7	107.9	-90.16	-5,481.8	705.1	362.5	147.5	215.03	1.686	
12,400.0	6,781.8	12,429.6	6,781.8	109.6	109.8	-90.16	-5,581.8	705.1	362.5	143.7	218.83	1.656	
12,500.0	6,781.5	12,529.6	6,781.5	111.5	111.7	-90.16	-5,681.8	705.1	362.5	139.9	222.64	1.628	
12,600.0	6,781.1	12,629.6	6,781.1	113.4	113.6	-90.16	-5,781.8	705.1	362.5	136.0	226.44	1.601	
12,700.0	6,780.8	12,729.6	6,780.8	115.3	115.5	-90.16	-5,881.8	705.1	362.5	132.2	230.25	1.574	
12,800.0	6,780.5	12,829.6	6,780.5	117.2	117.4	-90.16	-5,981.8	705.1	362.5	128.4	234.06	1.549	
12,900.0	6,780.1	12,929.6	6,780.1	119.1	119.3	-90.16	-6,081.8	705.1	362.5	124.6	237.87	1.524	
13,000.0	6,779.8	13,029.6	6,779.8	121.0	121.2	-90.16	-6,181.8	705.1	362.5	120.8	241.68	1.500	Level 3
13,100.0	6,779.5	13,129.6	6,779.5	122.9	123.1	-90.16	-6,281.8	705.1	362.5	117.0	245.49	1.477	Level 3
13,200.0	6,779.1	13,229.6	6,779.1	124.8	125.0	-90.16	-6,381.8	705.1	362.5	113.2	249.30	1.454	Level 3
13,300.0	6,778.8	13,329.6	6,778.8	126.7	126.9	-90.16	-6,481.8	705.1	362.5	109.4	253.11	1.432	Level 3
13,400.0	6,778.5	13,429.6	6,778.5	128.6	128.8	-90.16	-6,581.7	705.1	362.5	105.6	256.93	1.411	Level 3

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 28U-HZ Pad Sec.28-T5N-R64W - Chesnut 28U-403 - Wellbore #1 - Plan #1 (2-13-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
13,500.0	6,778.1	13,529.6	6,778.1	130.5	130.7	-90.16	-6,681.7	705.1	362.5	101.7	260.74	1.390	Level 3
13,600.0	6,777.8	13,629.6	6,777.8	132.4	132.6	-90.16	-6,781.7	705.1	362.5	97.9	264.56	1.370	Level 3
13,700.0	6,777.5	13,729.6	6,777.5	134.3	134.5	-90.16	-6,881.7	705.1	362.5	94.1	268.38	1.351	Level 3
13,800.0	6,777.2	13,829.6	6,777.1	136.2	136.4	-90.16	-6,981.7	705.1	362.5	90.3	272.19	1.332	Level 3
13,834.2	6,777.0	13,863.8	6,777.0	136.9	137.1	-90.16	-7,015.9	705.1	362.5	89.0	273.50	1.325	Level 3
13,845.8	6,777.0	13,871.7	6,777.0	137.1	137.2	-90.16	-7,023.9	705.1	362.5	88.6	273.87	1.324	Level 3, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 7600-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,200.0	6,787.4	6,767.4	6,767.4	17.7	135.3	77.50	-1,286.0	-83.6	999.2	850.3	148.95	6.708	
7,245.7	6,792.2	6,772.2	6,772.2	18.2	135.4	78.11	-1,286.0	-83.6	958.3	808.5	149.84	6.396	
7,300.0	6,796.6	6,776.6	6,776.6	18.8	135.5	83.83	-1,286.0	-83.6	910.1	757.3	152.89	5.953	
7,369.5	6,798.5	6,778.5	6,778.5	19.6	135.6	90.33	-1,286.0	-83.6	849.4	694.7	154.70	5.491	
7,400.0	6,798.4	6,778.4	6,778.4	19.9	135.6	90.31	-1,286.0	-83.6	823.2	668.1	155.07	5.308	
7,500.0	6,798.0	6,778.0	6,778.0	21.2	135.6	90.27	-1,286.0	-83.6	739.4	583.1	156.33	4.730	
7,600.0	6,797.7	6,777.7	6,777.7	22.6	135.6	90.22	-1,286.0	-83.6	660.2	502.5	157.69	4.187	
7,700.0	6,797.4	6,777.4	6,777.4	24.0	135.5	90.18	-1,286.0	-83.6	587.4	428.3	159.13	3.691	
7,800.0	6,797.0	6,777.0	6,777.0	25.5	135.5	90.14	-1,286.0	-83.6	523.6	363.0	160.63	3.260	
7,900.0	6,796.7	6,776.7	6,776.7	27.0	135.5	90.09	-1,286.0	-83.6	472.6	310.4	162.18	2.914	
8,000.0	6,796.4	6,776.4	6,776.4	28.6	135.5	90.05	-1,286.0	-83.6	438.8	275.0	163.78	2.679	
8,100.0	6,796.1	6,776.1	6,776.1	30.3	135.5	90.00	-1,286.0	-83.6	426.2	260.8	165.41	2.577	
8,104.2	6,796.0	6,776.0	6,776.0	30.3	135.5	90.00	-1,286.0	-83.6	426.2	260.7	165.48	2.575	CC, ES, SF
8,200.0	6,795.7	6,775.7	6,775.7	31.9	135.5	89.96	-1,286.0	-83.6	436.8	269.7	167.08	2.614	
8,300.0	6,795.4	6,775.4	6,775.4	33.6	135.5	89.91	-1,286.0	-83.6	469.0	300.2	168.77	2.779	
8,400.0	6,795.1	6,775.1	6,775.1	35.3	135.5	89.87	-1,286.0	-83.6	518.8	348.3	170.49	3.043	
8,500.0	6,794.7	6,774.7	6,774.7	37.0	135.5	89.82	-1,286.0	-83.6	581.6	409.4	172.22	3.377	
8,600.0	6,794.4	6,774.4	6,774.4	38.8	135.5	89.78	-1,286.0	-83.6	653.8	479.8	173.98	3.758	
8,700.0	6,794.1	6,774.1	6,774.1	40.6	135.5	89.73	-1,286.0	-83.6	732.5	556.8	175.74	4.168	
8,800.0	6,793.7	6,773.7	6,773.7	42.3	135.5	89.69	-1,286.0	-83.6	815.9	638.4	177.52	4.596	
8,900.0	6,793.4	6,773.4	6,773.4	44.1	135.5	89.65	-1,286.0	-83.6	902.7	723.4	179.31	5.034	
9,000.0	6,793.1	6,773.1	6,773.1	45.9	135.5	89.60	-1,286.0	-83.6	992.0	810.9	181.11	5.477	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 7600-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	140.77	-269.6	220.1	348.6				
100.0	100.0	80.0	80.0	0.1	1.6	140.77	-269.6	220.1	348.0	346.3	1.71	203.220	
200.0	200.0	180.0	180.0	0.3	3.6	140.77	-269.6	220.1	348.0	344.1	3.94	88.392	
300.0	300.0	280.0	280.0	0.6	5.6	140.77	-269.6	220.1	348.0	341.9	6.16	56.479	
400.0	400.0	380.0	380.0	0.8	7.6	140.77	-269.6	220.1	348.0	339.6	8.39	41.497	
500.0	500.0	480.0	480.0	1.0	9.6	140.77	-269.6	220.1	348.0	337.4	10.61	32.797	
600.0	600.0	580.0	580.0	1.2	11.6	140.77	-269.6	220.1	348.0	335.2	12.84	27.113	
700.0	700.0	680.0	680.0	1.5	13.6	140.77	-269.6	220.1	348.0	333.0	15.06	23.108	
800.0	800.0	780.0	780.0	1.7	15.6	140.77	-269.6	220.1	348.0	330.7	17.29	20.134	
900.0	900.0	880.0	880.0	1.9	17.6	140.77	-269.6	220.1	348.0	328.5	19.51	17.838	
1,000.0	1,000.0	980.0	980.0	2.1	19.6	140.77	-269.6	220.1	348.0	326.3	21.74	16.012	
1,100.0	1,100.0	1,080.0	1,080.0	2.4	21.6	140.77	-269.6	220.1	348.0	324.1	23.96	14.525	
1,200.0	1,200.0	1,180.0	1,180.0	2.6	23.6	140.77	-269.6	220.1	348.0	321.8	26.18	13.291	
1,300.0	1,300.0	1,280.0	1,280.0	2.8	25.6	140.77	-269.6	220.1	348.0	319.6	28.41	12.250	
1,400.0	1,400.0	1,380.0	1,380.0	3.0	27.6	140.77	-269.6	220.1	348.0	317.4	30.63	11.361	
1,500.0	1,500.0	1,480.0	1,480.0	3.3	29.6	140.77	-269.6	220.1	348.0	315.2	32.86	10.592	
1,600.0	1,600.0	1,580.0	1,580.0	3.5	31.6	94.98	-269.6	220.1	348.2	313.1	35.08	9.925	
1,700.0	1,699.8	1,679.8	1,679.8	3.7	33.6	95.82	-269.6	220.1	348.7	311.4	37.29	9.349	
1,800.0	1,799.5	1,779.5	1,779.5	3.9	35.6	97.22	-269.6	220.1	349.7	310.2	39.51	8.850	
1,833.6	1,832.9	1,812.9	1,812.9	4.0	36.3	97.81	-269.6	220.1	350.2	309.9	40.25	8.699	
1,900.0	1,898.8	1,878.8	1,878.8	4.2	37.6	99.05	-269.6	220.1	351.3	309.6	41.73	8.418	
2,000.0	1,998.1	1,978.1	1,978.1	4.4	39.6	100.90	-269.6	220.1	353.3	309.4	43.96	8.038	
2,100.0	2,097.4	2,077.4	2,077.4	4.7	41.5	102.72	-269.6	220.1	355.7	309.5	46.19	7.701	
2,200.0	2,196.8	2,176.8	2,176.8	4.9	43.5	104.52	-269.6	220.1	358.5	310.0	48.43	7.401	
2,300.0	2,296.1	2,276.1	2,276.1	5.2	45.5	106.29	-269.6	220.1	361.6	310.9	50.68	7.135	
2,400.0	2,395.4	2,375.4	2,375.4	5.5	47.5	108.04	-269.6	220.1	365.0	312.1	52.92	6.897	
2,500.0	2,494.7	2,474.7	2,474.7	5.7	49.5	109.74	-269.6	220.1	368.8	313.6	55.17	6.685	
2,600.0	2,594.1	2,574.1	2,574.1	6.0	51.5	111.41	-269.6	220.1	372.9	315.5	57.42	6.495	
2,700.0	2,693.4	2,673.4	2,673.4	6.3	53.5	113.05	-269.6	220.1	377.3	317.7	59.67	6.324	
2,800.0	2,792.7	2,772.7	2,772.7	6.6	55.5	114.64	-269.6	220.1	382.1	320.2	61.91	6.171	
2,900.0	2,892.0	2,872.0	2,872.0	6.9	57.4	116.20	-269.6	220.1	387.1	322.9	64.16	6.033	
3,000.0	2,991.3	2,971.3	2,971.3	7.1	59.4	117.71	-269.6	220.1	392.4	326.0	66.40	5.909	
3,100.0	3,090.7	3,070.7	3,070.7	7.4	61.4	119.18	-269.6	220.1	397.9	329.3	68.65	5.797	
3,200.0	3,190.0	3,170.0	3,170.0	7.7	63.4	120.62	-269.6	220.1	403.8	332.9	70.89	5.696	
3,300.0	3,289.3	3,269.3	3,269.3	8.0	65.4	122.01	-269.6	220.1	409.8	336.7	73.13	5.604	
3,400.0	3,388.6	3,368.6	3,368.6	8.3	67.4	123.36	-269.6	220.1	416.1	340.8	75.37	5.521	
3,500.0	3,488.0	3,468.0	3,468.0	8.6	69.4	124.67	-269.6	220.1	422.7	345.1	77.61	5.446	
3,600.0	3,587.3	3,567.3	3,567.3	8.9	71.3	125.94	-269.6	220.1	429.4	349.6	79.84	5.378	
3,700.0	3,686.6	3,666.6	3,666.6	9.2	73.3	127.17	-269.6	220.1	436.4	354.3	82.07	5.317	
3,800.0	3,785.9	3,765.9	3,765.9	9.5	75.3	128.36	-269.6	220.1	443.5	359.2	84.30	5.261	
3,900.0	3,885.2	3,865.2	3,865.2	9.8	77.3	129.51	-269.6	220.1	450.8	364.3	86.53	5.210	
4,000.0	3,984.6	3,964.6	3,964.6	10.1	79.3	130.63	-269.6	220.1	458.4	369.6	88.76	5.164	
4,100.0	4,083.9	4,063.9	4,063.9	10.4	81.3	131.71	-269.6	220.1	466.0	375.0	90.99	5.122	
4,200.0	4,183.2	4,163.2	4,163.2	10.7	83.3	132.75	-269.6	220.1	473.9	380.7	93.21	5.084	
4,300.0	4,282.5	4,262.5	4,262.5	11.0	85.3	133.76	-269.6	220.1	481.9	386.4	95.43	5.049	
4,400.0	4,381.9	4,361.9	4,361.9	11.3	87.2	134.74	-269.6	220.1	490.0	392.3	97.65	5.018	
4,500.0	4,481.2	4,461.2	4,461.2	11.6	89.2	135.69	-269.6	220.1	498.3	398.4	99.87	4.989	
4,600.0	4,580.5	4,560.5	4,560.5	11.9	91.2	136.60	-269.6	220.1	506.7	404.6	102.09	4.963	
4,700.0	4,679.8	4,659.8	4,659.8	12.2	93.2	137.49	-269.6	220.1	515.2	410.9	104.31	4.939	
4,800.0	4,779.2	4,759.2	4,759.2	12.5	95.2	138.34	-269.6	220.1	523.9	417.3	106.52	4.918	
4,900.0	4,878.5	4,858.5	4,858.5	12.8	97.2	139.17	-269.6	220.1	532.6	423.9	108.74	4.898	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 7600-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,977.8	4,957.8	4,957.8	13.1	99.2	139.97	-269.6	220.1	541.5	430.5	110.95	4.880	
5,100.0	5,077.1	5,057.1	5,057.1	13.4	101.1	140.75	-269.6	220.1	550.5	437.3	113.17	4.864	
5,200.0	5,176.4	5,156.4	5,156.4	13.7	103.1	141.50	-269.6	220.1	559.5	444.2	115.38	4.850	
5,300.0	5,275.8	5,255.8	5,255.8	14.0	105.1	142.23	-269.6	220.1	568.7	451.1	117.59	4.836	
5,400.0	5,375.1	5,355.1	5,355.1	14.3	107.1	142.93	-269.6	220.1	578.0	458.2	119.80	4.824	
5,500.0	5,474.4	5,454.4	5,454.4	14.6	109.1	143.61	-269.6	220.1	587.3	465.3	122.01	4.813	
5,593.3	5,567.1	5,547.1	5,547.1	14.9	110.9	144.23	-269.6	220.1	596.1	472.0	124.08	4.804	
5,600.0	5,573.7	5,553.7	5,553.7	14.9	111.1	144.28	-269.6	220.1	596.7	472.5	124.24	4.803	
5,700.0	5,673.3	5,653.3	5,653.3	15.2	113.1	144.91	-269.6	220.1	604.6	477.9	126.64	4.774	
5,800.0	5,773.1	5,753.1	5,753.1	15.4	115.1	145.30	-269.6	220.1	609.7	480.7	128.96	4.727	
5,900.0	5,873.0	5,853.0	5,853.0	15.5	117.1	145.46	-269.6	220.1	611.9	480.7	131.18	4.664	
5,927.0	5,900.0	5,880.0	5,880.0	15.6	117.6	-168.45	-269.6	220.1	612.0	480.2	131.76	4.645	
6,000.0	5,973.0	5,953.0	5,953.0	15.7	119.1	-168.45	-269.6	220.1	612.0	478.6	133.35	4.589	
6,051.7	6,024.7	6,004.7	6,004.7	15.8	120.1	-168.45	-269.6	220.1	612.0	477.5	134.49	4.550	
6,100.0	6,073.0	6,053.0	6,053.0	15.9	121.1	11.60	-269.6	220.1	610.5	475.2	135.24	4.514	
6,150.0	6,122.8	6,102.8	6,102.8	15.9	122.1	11.76	-269.6	220.1	605.8	470.3	135.45	4.472	
6,200.0	6,172.1	6,152.1	6,152.1	15.9	123.0	12.04	-269.6	220.1	597.9	462.8	135.09	4.426	
6,250.0	6,220.8	6,200.8	6,200.8	16.0	124.0	12.45	-269.6	220.1	586.9	452.8	134.16	4.375	
6,300.0	6,268.7	6,248.7	6,248.7	16.0	125.0	13.01	-269.6	220.1	572.8	440.2	132.67	4.318	
6,350.0	6,315.5	6,295.5	6,295.5	15.9	125.9	13.73	-269.6	220.1	555.7	425.1	130.63	4.254	
6,400.0	6,361.1	6,341.1	6,341.1	15.9	126.8	14.66	-269.6	220.1	535.7	407.7	128.08	4.183	
6,450.0	6,405.2	6,385.2	6,385.2	15.9	127.7	15.83	-269.6	220.1	512.9	387.8	125.10	4.100	
6,500.0	6,447.7	6,427.7	6,427.7	15.9	128.6	17.32	-269.6	220.1	487.4	365.6	121.78	4.002	
6,550.0	6,488.4	6,468.4	6,468.4	15.8	129.4	19.19	-269.6	220.1	459.4	341.1	118.30	3.883	
6,600.0	6,527.1	6,507.1	6,507.1	15.8	130.1	21.58	-269.6	220.1	429.0	314.1	114.92	3.733	
6,650.0	6,563.7	6,543.7	6,543.7	15.7	130.9	24.63	-269.6	220.1	396.4	284.3	112.08	3.537	
6,700.0	6,598.0	6,578.0	6,578.0	15.7	131.6	28.55	-269.6	220.1	362.0	251.5	110.43	3.278	
6,750.0	6,629.8	6,609.8	6,609.8	15.7	132.2	33.59	-269.6	220.1	325.9	215.1	110.86	2.940	
6,800.0	6,659.0	6,639.0	6,639.0	15.7	132.8	40.05	-269.6	220.1	288.7	174.4	114.32	2.526	
6,850.0	6,685.5	6,665.5	6,665.5	15.7	133.3	48.09	-269.6	220.1	251.0	129.7	121.26	2.070	
6,900.0	6,709.1	6,689.1	6,689.1	15.8	133.8	57.59	-269.6	220.1	213.6	82.9	130.74	1.634	
6,950.0	6,729.9	6,709.9	6,709.9	15.9	134.2	67.86	-269.6	220.1	178.3	38.1	140.23	1.271	Level 3
7,000.0	6,747.6	6,727.6	6,727.6	16.1	134.6	77.66	-269.6	220.1	147.8	0.8	147.08	1.005	Level 2
7,050.0	6,762.2	6,742.2	6,742.2	16.5	134.8	85.74	-269.6	220.1	127.4	-23.1	150.45	0.847	Level 1
7,086.0	6,770.8	6,750.8	6,750.8	16.7	135.0	90.00	-269.6	220.1	122.5	-28.8	151.33	0.809	Level 1, CC, ES, SF
7,100.0	6,773.6	6,753.6	6,753.6	16.8	135.1	91.26	-269.6	220.1	123.2	-28.2	151.48	0.814	Level 1
7,150.0	6,781.9	6,761.9	6,761.9	17.3	135.2	93.90	-269.6	220.1	137.7	-14.1	151.80	0.907	Level 1
7,171.7	6,784.5	6,764.5	6,764.5	17.5	135.3	94.12	-269.6	220.1	148.8	-3.2	152.01	0.979	Level 1
7,200.0	6,787.4	6,767.4	6,767.4	17.7	135.3	95.49	-269.6	220.1	166.4	14.4	152.06	1.094	Level 2
7,245.7	6,792.2	6,772.2	6,772.2	18.2	135.4	97.68	-269.6	220.1	200.0	48.0	152.00	1.316	Level 3
7,300.0	6,796.6	6,776.6	6,776.6	18.8	135.5	95.67	-269.6	220.1	245.0	91.8	153.24	1.599	
7,369.5	6,798.5	6,778.5	6,778.5	19.6	135.6	89.56	-269.6	220.1	307.2	152.5	154.68	1.986	
7,400.0	6,798.4	6,778.4	6,778.4	19.9	135.6	89.52	-269.6	220.1	335.4	180.3	155.05	2.163	
7,500.0	6,798.0	6,778.0	6,778.0	21.2	135.6	89.36	-269.6	220.1	430.0	273.7	156.30	2.751	
7,600.0	6,797.7	6,777.7	6,777.7	22.6	135.6	89.21	-269.6	220.1	526.6	369.0	157.66	3.340	
7,700.0	6,797.4	6,777.4	6,777.4	24.0	135.5	89.05	-269.6	220.1	624.3	465.2	159.08	3.925	
7,800.0	6,797.0	6,777.0	6,777.0	25.5	135.5	88.90	-269.6	220.1	722.6	562.1	160.57	4.500	
7,900.0	6,796.7	6,776.7	6,776.7	27.0	135.5	88.74	-269.6	220.1	821.4	659.3	162.11	5.067	
8,000.0	6,796.4	6,776.4	6,776.4	28.6	135.5	88.59	-269.6	220.1	920.4	756.7	163.70	5.622	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 7600-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
12,800.0	6,780.5	6,803.5	6,803.5	117.2	136.1	91.73	-6,896.4	242.5	920.1	667.0	253.07	3.636	
12,900.0	6,780.1	6,803.1	6,803.1	119.1	136.1	91.55	-6,896.4	242.5	820.8	565.8	254.99	3.219	
13,000.0	6,779.8	6,802.8	6,802.8	121.0	136.1	91.36	-6,896.4	242.5	721.6	464.7	256.90	2.809	
13,100.0	6,779.5	6,802.5	6,802.5	122.9	136.0	91.17	-6,896.4	242.5	622.7	363.9	258.81	2.406	
13,200.0	6,779.1	6,802.1	6,802.1	124.8	136.0	90.98	-6,896.4	242.5	524.3	263.6	260.72	2.011	
13,300.0	6,778.8	6,801.8	6,801.8	126.7	136.0	90.79	-6,896.4	242.5	426.6	163.9	262.63	1.624	
13,400.0	6,778.5	6,801.5	6,801.5	128.6	136.0	90.60	-6,896.4	242.5	330.2	65.6	264.54	1.248	Level 2
13,500.0	6,778.1	6,801.1	6,801.1	130.5	136.0	90.41	-6,896.4	242.5	236.8	-29.6	266.44	0.889	Level 1
13,600.0	6,777.8	6,800.8	6,800.8	132.4	136.0	90.22	-6,896.4	242.5	152.2	-116.1	268.35	0.567	Level 1
13,700.0	6,777.5	6,800.5	6,800.5	134.3	136.0	90.03	-6,896.4	242.5	101.2	-169.0	270.25	0.374	Level 1
13,714.6	6,777.4	6,800.4	6,800.4	134.6	136.0	90.00	-6,896.4	242.5	100.1	-170.4	270.52	0.370	Level 1, CC, ES, SF
13,800.0	6,777.2	6,800.2	6,800.2	136.2	136.0	89.84	-6,896.4	242.5	131.6	-140.6	272.14	0.483	Level 1
13,845.8	6,777.0	6,800.0	6,800.0	137.1	136.0	89.75	-6,896.4	242.5	165.0	-108.0	273.01	0.604	Level 1

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chesnut Pads - Sec.28-T5N-R64W - Hendricks 33-3 (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
11,100.0	6,786.1	6,794.1	6,794.1	84.9	135.9	91.07	-5,242.4	172.8	975.6	754.9	220.66	4.421	
11,200.0	6,785.8	6,793.8	6,793.8	86.8	135.9	90.96	-5,242.4	172.8	877.3	654.7	222.55	3.942	
11,300.0	6,785.4	6,793.4	6,793.4	88.7	135.9	90.85	-5,242.4	172.8	779.4	554.9	224.44	3.473	
11,400.0	6,785.1	6,793.1	6,793.1	90.6	135.9	90.74	-5,242.4	172.8	682.1	455.8	226.33	3.014	
11,500.0	6,784.8	6,792.8	6,792.8	92.5	135.9	90.63	-5,242.4	172.8	585.8	357.6	228.22	2.567	
11,600.0	6,784.4	6,792.4	6,792.4	94.4	135.8	90.52	-5,242.4	172.8	491.0	260.9	230.11	2.134	
11,700.0	6,784.1	6,792.1	6,792.1	96.3	135.8	90.40	-5,242.4	172.8	398.6	166.6	232.00	1.718	
11,800.0	6,783.8	6,791.8	6,791.8	98.2	135.8	90.29	-5,242.4	172.8	311.1	77.2	233.89	1.330	Level 3
11,900.0	6,783.5	6,791.5	6,791.5	100.1	135.8	90.18	-5,242.4	172.8	233.8	-2.0	235.78	0.991	Level 1
12,000.0	6,783.1	6,791.1	6,791.1	102.0	135.8	90.07	-5,242.4	172.8	180.3	-57.3	237.68	0.759	Level 1
12,060.6	6,782.9	6,790.9	6,790.9	103.1	135.8	90.00	-5,242.4	172.8	169.8	-69.0	238.82	0.711	Level 1, CC, ES, SF
12,100.0	6,782.8	6,790.8	6,790.8	103.9	135.8	89.96	-5,242.4	172.8	174.3	-65.3	239.57	0.728	Level 1
12,200.0	6,782.5	6,790.5	6,790.5	105.8	135.8	89.84	-5,242.4	172.8	219.7	-21.8	241.46	0.910	Level 1
12,300.0	6,782.1	6,790.1	6,790.1	107.7	135.8	89.73	-5,242.4	172.8	293.5	50.1	243.35	1.206	Level 2
12,400.0	6,781.8	6,789.8	6,789.8	109.6	135.8	89.62	-5,242.4	172.8	379.5	134.2	245.24	1.547	
12,500.0	6,781.5	6,789.5	6,789.5	111.5	135.8	89.51	-5,242.4	172.8	471.0	223.9	247.13	1.906	
12,600.0	6,781.1	6,789.1	6,789.1	113.4	135.8	89.40	-5,242.4	172.8	565.4	316.4	249.02	2.271	
12,700.0	6,780.8	6,788.8	6,788.8	115.3	135.8	89.28	-5,242.4	172.8	661.5	410.6	250.91	2.636	
12,800.0	6,780.5	6,788.5	6,788.5	117.2	135.8	89.17	-5,242.4	172.8	758.6	505.8	252.80	3.001	
12,900.0	6,780.1	6,788.1	6,788.1	119.1	135.8	89.06	-5,242.4	172.8	856.3	601.6	254.69	3.362	
13,000.0	6,779.8	6,787.8	6,787.8	121.0	135.8	88.95	-5,242.4	172.8	954.6	698.0	256.58	3.720	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Chesnut Pads - Sec.28-T5N-R64W - P & A Farms 28-1 (Exist) - Wellbore #1 - Wellbore

Offset Site Error: 0.0 ft

Survey Program: 7600-UNKNOWN

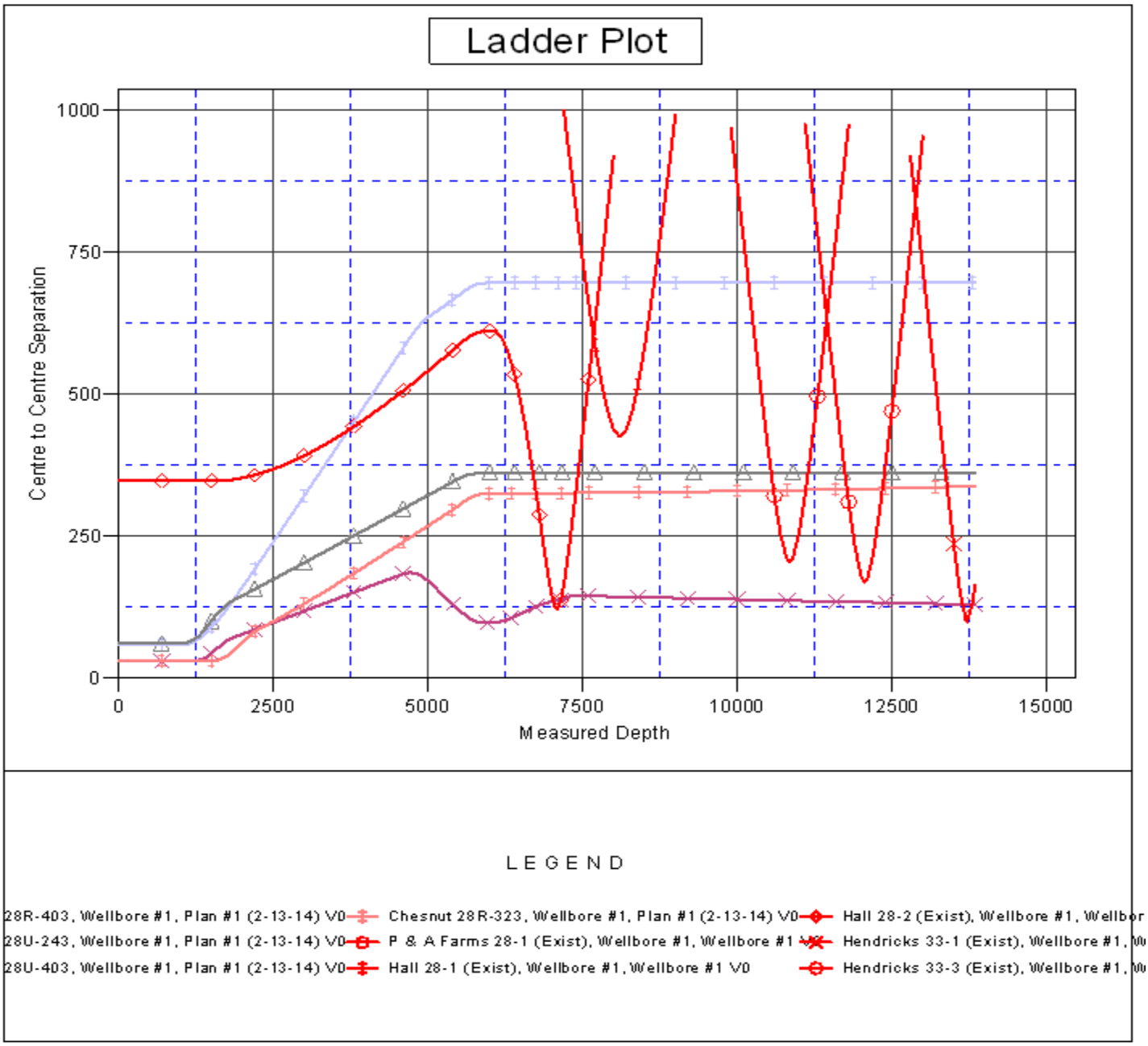
Offset Well Error: 0.0 ft

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
9,900.0	6,790.1	6,808.1	6,808.1	62.4	136.2	90.87	-4,029.3	136.5	969.6	771.2	198.40	4.887	
10,000.0	6,789.8	6,807.8	6,807.8	64.3	136.2	90.78	-4,029.3	136.5	872.2	671.9	200.26	4.355	
10,100.0	6,789.4	6,807.4	6,807.4	66.2	136.1	90.69	-4,029.3	136.5	775.4	573.3	202.13	3.836	
10,200.0	6,789.1	6,807.1	6,807.1	68.0	136.1	90.60	-4,029.3	136.5	679.5	475.5	203.99	3.331	
10,300.0	6,788.8	6,806.8	6,806.8	69.9	136.1	90.50	-4,029.3	136.5	585.0	379.1	205.86	2.842	
10,400.0	6,788.4	6,806.4	6,806.4	71.8	136.1	90.41	-4,029.3	136.5	492.7	284.9	207.73	2.372	
10,500.0	6,788.1	6,806.1	6,806.1	73.6	136.1	90.32	-4,029.3	136.5	404.0	194.4	209.61	1.927	
10,600.0	6,787.8	6,805.8	6,805.8	75.5	136.1	90.23	-4,029.3	136.5	322.1	110.6	211.48	1.523	
10,700.0	6,787.4	6,805.4	6,805.4	77.4	136.1	90.14	-4,029.3	136.5	253.4	40.1	213.36	1.188	Level 2
10,800.0	6,787.1	6,805.1	6,805.1	79.3	136.1	90.04	-4,029.3	136.5	211.5	-3.8	215.23	0.982	Level 1
10,847.5	6,786.9	6,804.9	6,804.9	80.2	136.1	90.00	-4,029.3	136.5	206.1	-10.1	216.12	0.953	Level 1, CC, ES, SF
10,900.0	6,786.8	6,804.8	6,804.8	81.2	136.1	89.95	-4,029.3	136.5	212.6	-4.5	217.11	0.979	Level 1
11,000.0	6,786.4	6,804.4	6,804.4	83.1	136.1	89.86	-4,029.3	136.5	256.3	37.4	218.99	1.171	Level 2
11,100.0	6,786.1	6,804.1	6,804.1	84.9	136.1	89.77	-4,029.3	136.5	325.9	105.0	220.87	1.476	Level 3
11,200.0	6,785.8	6,803.8	6,803.8	86.8	136.1	89.67	-4,029.3	136.5	408.3	185.5	222.75	1.833	
11,300.0	6,785.4	6,803.4	6,803.4	88.7	136.1	89.58	-4,029.3	136.5	497.2	272.6	224.63	2.213	
11,400.0	6,785.1	6,803.1	6,803.1	90.6	136.1	89.49	-4,029.3	136.5	589.7	363.2	226.51	2.603	
11,500.0	6,784.8	6,802.8	6,802.8	92.5	136.1	89.40	-4,029.3	136.5	684.3	455.9	228.40	2.996	
11,600.0	6,784.4	6,802.4	6,802.4	94.4	136.0	89.31	-4,029.3	136.5	780.2	549.9	230.28	3.388	
11,700.0	6,784.1	6,802.1	6,802.1	96.3	136.0	89.21	-4,029.3	136.5	877.0	644.9	232.16	3.778	
11,800.0	6,783.8	6,801.8	6,801.8	98.2	136.0	89.12	-4,029.3	136.5	974.5	740.5	234.05	4.164	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4635.0ft (RKB - 15')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Chesnut 28R-423
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.61°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 28R-423
Project:	SEC.28-T5N-R64W	**TVD Reference:**	WELL @ 4635.0ft (RKB - 15')
Reference Site:	Chesnut 28U-HZ Pad Sec.28-T5N-R64W	**MD Reference:**	WELL @ 4635.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 28R-423	**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 (2-13-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4635.0ft (RKB - 15')	Coordinates are relative to: Chesnut 28R-423
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°