PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Chesnut 27K-201**

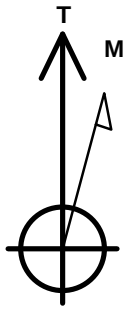
Surface Location: Chesnut 27GK-HZ Pad Sec.27-T5N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4617.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1379414.48	3267136.67	40.370930	-104.541230	

Original Well Elev WELL @ 4632.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2390'FNL & 1097'FWL, Sec.27	1.0	0.0	0.0	Point
BHL 500'FNL & 1450'FWL, Sec.22	6571.0	7209.7	273.0	Point



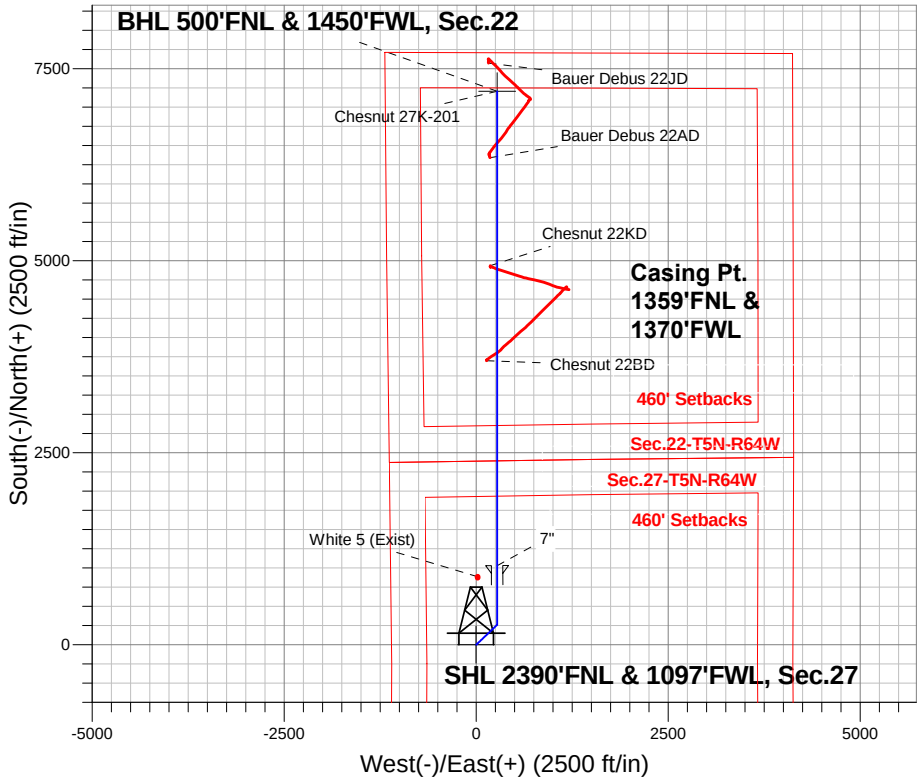
Azimuths to True North
Magnetic North: 8.34°

Magnetic Field
Strength: 52827.6snT
Dip Angle: 66.96°
Date: 6/6/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1600.0	1600.0	KOP #1
5864.3	5887.4	KOP #2
6628.2	7094.4	End of Build

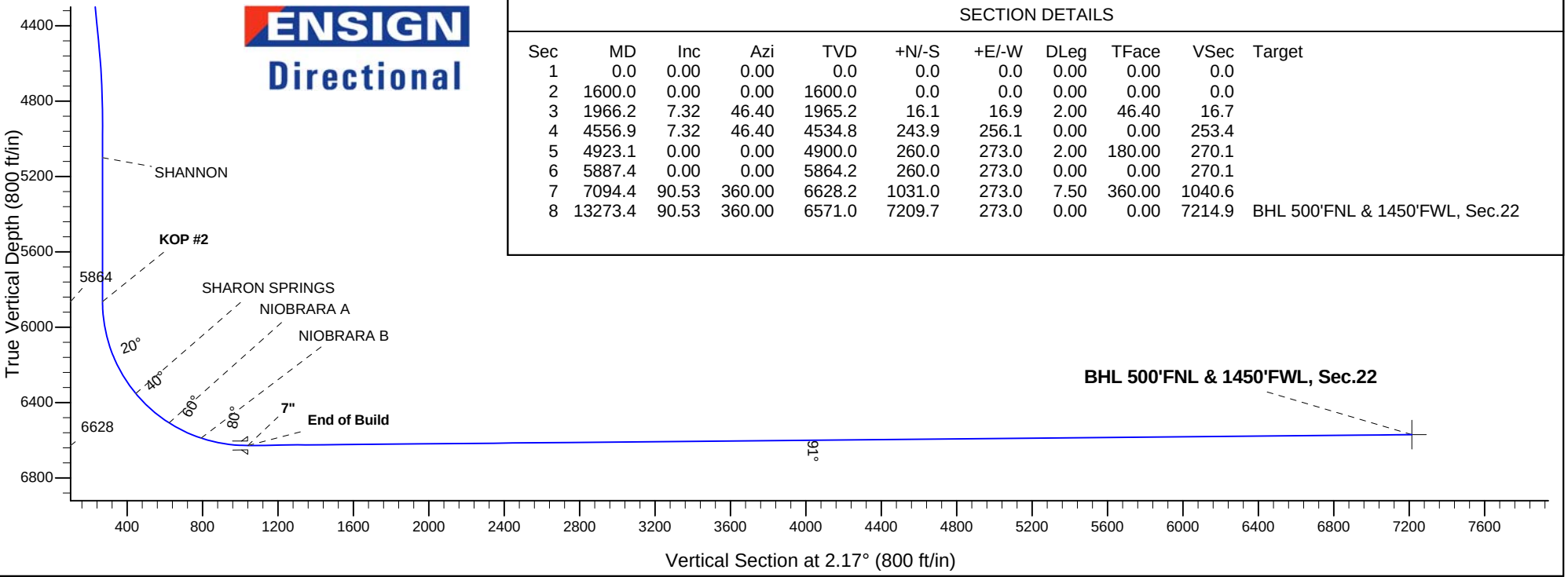
Chesnut 27GK-HZ Pad Sec.27-T5N-R64W
Chesnut 27K-201
Plan #1 (4-23-14)
9:01, June 06 2014



ENSIGN Directional

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1600.0	0.00	0.00	1600.0	0.0	0.0	0.00	0.00	0.0	
3	1966.2	7.32	46.40	1965.2	16.1	16.9	2.00	46.40	16.7	
4	4556.9	7.32	46.40	4534.8	243.9	256.1	0.00	0.00	253.4	
5	4923.1	0.00	0.00	4900.0	260.0	273.0	2.00	180.00	270.1	
6	5887.4	0.00	0.00	5864.2	260.0	273.0	0.00	0.00	270.1	
7	7094.4	90.53	360.00	6628.2	1031.0	273.0	7.50	360.00	1040.6	
8	13273.4	90.53	360.00	6571.0	7209.7	273.0	0.00	0.00	7214.9	BHL 500'FNL & 1450'FWL, Sec.22



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.27-T5N-R64W
Chesnut 27GK-HZ Pad Sec.27-T5N-R64W
Chesnut 27K-201

Wellbore #1

Plan: Plan #1 (4-23-14)

Standard Planning Report

06 June, 2014

Database:	Landmark	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Project:	SEC.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**North Reference:**	True
Well:	Chesnut 27K-201	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-23-14)		

Project SEC.27-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 27GK-HZ Pad Sec.27-T5N-R64W

Site Position:		**Northing:**	1,379,023.49 ft	**Latitude:**	40.369860
From:	Lat/Long	**Easting:**	3,267,026.65 ft	**Longitude:**	-104.541640
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.62 °

Well Chesnut 27K-201

Well Position	**+N/-S**	389.8 ft	**Northing:**	1,379,414.48 ft	**Latitude:**	40.370930
	+E/-W	114.2 ft	**Easting:**	3,267,136.67 ft	**Longitude:**	-104.541230
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,617.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/6/2014	8.34	66.96	52,828

Design Plan #1 (4-23-14)

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	2.17

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,966.2	7.32	46.40	1,965.2	16.1	16.9	2.00	2.00	0.00	46.40	
4,556.9	7.32	46.40	4,534.8	243.9	256.1	0.00	0.00	0.00	0.00	
4,923.1	0.00	0.00	4,900.0	260.0	273.0	2.00	-2.00	0.00	180.00	
5,887.4	0.00	0.00	5,864.2	260.0	273.0	0.00	0.00	0.00	0.00	
7,094.4	90.53	360.00	6,628.2	1,031.0	273.0	7.50	7.50	0.00	360.00	
13,273.4	90.53	360.00	6,571.0	7,209.7	273.0	0.00	0.00	0.00	0.00	BHL 500'FNL & 145

Database:	Landmark	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
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Project:	SEC.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**North Reference:**	True
Well:	Chesnut 27K-201	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-23-14)		

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 2390'FNL & 1097'FWL, Sec.27									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
1,700.0	2.00	46.40	1,700.0	1.2	1.3	1.3	2.00	2.00	0.00
1,800.0	4.00	46.40	1,799.8	4.8	5.1	5.0	2.00	2.00	0.00
1,900.0	6.00	46.40	1,899.5	10.8	11.4	11.2	2.00	2.00	0.00
1,966.2	7.32	46.40	1,965.2	16.1	16.9	16.7	2.00	2.00	0.00
2,000.0	7.32	46.40	1,998.7	19.1	20.0	19.8	0.00	0.00	0.00
2,100.0	7.32	46.40	2,097.9	27.9	29.3	29.0	0.00	0.00	0.00
2,200.0	7.32	46.40	2,197.1	36.7	38.5	38.1	0.00	0.00	0.00
2,300.0	7.32	46.40	2,296.3	45.5	47.7	47.2	0.00	0.00	0.00
2,400.0	7.32	46.40	2,395.5	54.3	57.0	56.4	0.00	0.00	0.00
2,500.0	7.32	46.40	2,494.6	63.0	66.2	65.5	0.00	0.00	0.00
2,600.0	7.32	46.40	2,593.8	71.8	75.4	74.6	0.00	0.00	0.00
2,700.0	7.32	46.40	2,693.0	80.6	84.7	83.8	0.00	0.00	0.00
2,800.0	7.32	46.40	2,792.2	89.4	93.9	92.9	0.00	0.00	0.00
2,900.0	7.32	46.40	2,891.4	98.2	103.1	102.0	0.00	0.00	0.00
3,000.0	7.32	46.40	2,990.6	107.0	112.4	111.2	0.00	0.00	0.00
3,100.0	7.32	46.40	3,089.8	115.8	121.6	120.3	0.00	0.00	0.00
3,200.0	7.32	46.40	3,188.9	124.6	130.8	129.4	0.00	0.00	0.00
3,300.0	7.32	46.40	3,288.1	133.4	140.0	138.6	0.00	0.00	0.00
3,400.0	7.32	46.40	3,387.3	142.2	149.3	147.7	0.00	0.00	0.00
3,443.0	7.32	46.40	3,430.0	146.0	153.3	151.6	0.00	0.00	0.00
PARKMAN									
3,500.0	7.32	46.40	3,486.5	151.0	158.5	156.9	0.00	0.00	0.00
3,600.0	7.32	46.40	3,585.7	159.8	167.7	166.0	0.00	0.00	0.00
3,700.0	7.32	46.40	3,684.9	168.5	177.0	175.1	0.00	0.00	0.00
3,800.0	7.32	46.40	3,784.0	177.3	186.2	184.3	0.00	0.00	0.00
3,900.0	7.32	46.40	3,883.2	186.1	195.4	193.4	0.00	0.00	0.00
4,000.0	7.32	46.40	3,982.4	194.9	204.7	202.5	0.00	0.00	0.00
4,100.0	7.32	46.40	4,081.6	203.7	213.9	211.7	0.00	0.00	0.00
4,169.0	7.32	46.40	4,150.0	209.8	220.3	218.0	0.00	0.00	0.00
SUSSEX									
4,200.0	7.32	46.40	4,180.8	212.5	223.1	220.8	0.00	0.00	0.00
4,300.0	7.32	46.40	4,280.0	221.3	232.4	229.9	0.00	0.00	0.00
4,400.0	7.32	46.40	4,379.1	230.1	241.6	239.1	0.00	0.00	0.00

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Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**North Reference:**	True
Well:	Chesnut 27K-201	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-23-14)		

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	7.32	46.40	4,478.3	238.9	250.8	248.2	0.00	0.00	0.00
4,556.9	7.32	46.40	4,534.8	243.9	256.1	253.4	0.00	0.00	0.00
4,600.0	6.46	46.40	4,577.6	247.4	259.8	257.1	2.00	-2.00	0.00
4,700.0	4.46	46.40	4,677.1	254.0	266.7	263.9	2.00	-2.00	0.00
4,800.0	2.46	46.40	4,776.9	258.2	271.1	268.2	2.00	-2.00	0.00
4,900.0	0.46	46.40	4,876.9	259.9	272.9	270.1	2.00	-2.00	0.00
4,923.1	0.00	0.00	4,900.0	260.0	273.0	270.1	2.00	-2.00	0.00
5,000.0	0.00	0.00	4,976.9	260.0	273.0	270.1	0.00	0.00	0.00
5,100.0	0.00	0.00	5,076.9	260.0	273.0	270.1	0.00	0.00	0.00
5,123.1	0.00	0.00	5,100.0	260.0	273.0	270.1	0.00	0.00	0.00
SHANNON									
5,200.0	0.00	0.00	5,176.9	260.0	273.0	270.1	0.00	0.00	0.00
5,300.0	0.00	0.00	5,276.9	260.0	273.0	270.1	0.00	0.00	0.00
5,400.0	0.00	0.00	5,376.9	260.0	273.0	270.1	0.00	0.00	0.00
5,500.0	0.00	0.00	5,476.9	260.0	273.0	270.1	0.00	0.00	0.00
5,600.0	0.00	0.00	5,576.9	260.0	273.0	270.1	0.00	0.00	0.00
5,700.0	0.00	0.00	5,676.9	260.0	273.0	270.1	0.00	0.00	0.00
5,800.0	0.00	0.00	5,776.9	260.0	273.0	270.1	0.00	0.00	0.00
5,887.4	0.00	0.00	5,864.3	260.0	273.0	270.1	0.00	0.00	0.00
KOP #2									
5,900.0	0.95	360.00	5,876.9	260.1	273.0	270.2	7.52	7.52	0.00
6,000.0	8.45	360.00	5,976.5	268.3	273.0	278.4	7.50	7.50	0.00
6,100.0	15.95	360.00	6,074.1	289.4	273.0	299.5	7.50	7.50	0.00
6,200.0	23.45	360.00	6,168.2	323.1	273.0	333.2	7.50	7.50	0.00
6,300.0	30.95	360.00	6,257.1	368.8	273.0	378.8	7.50	7.50	0.00
6,400.0	38.45	360.00	6,339.3	425.6	273.0	435.7	7.50	7.50	0.00
6,416.4	39.68	360.00	6,352.0	436.0	273.0	446.0	7.50	7.50	0.00
SHARON SPRINGS									
6,500.0	45.95	360.00	6,413.3	492.8	273.0	502.7	7.50	7.50	0.00
6,600.0	53.45	360.00	6,477.9	569.0	273.0	578.9	7.50	7.50	0.00
6,653.0	57.42	360.00	6,508.0	612.6	273.0	622.5	7.50	7.50	0.00
NIOBRARA A									
6,700.0	60.95	360.00	6,532.1	653.0	273.0	662.8	7.50	7.50	0.00
6,800.0	68.45	360.00	6,574.8	743.3	273.0	753.1	7.50	7.50	0.00
6,841.6	71.57	360.00	6,589.0	782.4	273.0	792.2	7.50	7.50	0.00
NIOBRARA B									
6,900.0	75.95	360.00	6,605.3	838.4	273.0	848.2	7.50	7.50	0.00
7,000.0	83.45	360.00	6,623.2	936.8	273.0	946.4	7.50	7.50	0.00
7,094.4	90.53	360.00	6,628.2	1,031.0	273.0	1,040.6	7.50	7.50	0.00
End of Build - 7"									
7,100.0	90.53	360.00	6,628.1	1,036.6	273.0	1,046.2	0.06	0.06	0.00
7,200.0	90.53	360.00	6,627.2	1,136.6	273.0	1,146.1	0.00	0.00	0.00
7,300.0	90.53	360.00	6,626.3	1,236.6	273.0	1,246.0	0.00	0.00	0.00
7,400.0	90.53	360.00	6,625.3	1,336.6	273.0	1,345.9	0.00	0.00	0.00
7,500.0	90.53	360.00	6,624.4	1,436.6	273.0	1,445.9	0.00	0.00	0.00
7,600.0	90.53	360.00	6,623.5	1,536.5	273.0	1,545.8	0.00	0.00	0.00
7,700.0	90.53	360.00	6,622.6	1,636.5	273.0	1,645.7	0.00	0.00	0.00
7,800.0	90.53	360.00	6,621.6	1,736.5	273.0	1,745.6	0.00	0.00	0.00
7,900.0	90.53	360.00	6,620.7	1,836.5	273.0	1,845.6	0.00	0.00	0.00
8,000.0	90.53	360.00	6,619.8	1,936.5	273.0	1,945.5	0.00	0.00	0.00
8,100.0	90.53	360.00	6,618.9	2,036.5	273.0	2,045.4	0.00	0.00	0.00
8,200.0	90.53	360.00	6,617.9	2,136.5	273.0	2,145.3	0.00	0.00	0.00

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Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**North Reference:**	True
Well:	Chesnut 27K-201	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-23-14)		

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)
8,300.0	90.53	360.00	6,617.0	2,236.5	273.0	2,245.2	0.00	0.00	0.00
8,400.0	90.53	360.00	6,616.1	2,336.5	273.0	2,345.2	0.00	0.00	0.00
8,500.0	90.53	360.00	6,615.2	2,436.5	273.0	2,445.1	0.00	0.00	0.00
8,600.0	90.53	360.00	6,614.2	2,536.5	273.0	2,545.0	0.00	0.00	0.00
8,700.0	90.53	360.00	6,613.3	2,636.5	273.0	2,644.9	0.00	0.00	0.00
8,800.0	90.53	360.00	6,612.4	2,736.5	273.0	2,744.9	0.00	0.00	0.00
8,900.0	90.53	360.00	6,611.5	2,836.5	273.0	2,844.8	0.00	0.00	0.00
9,000.0	90.53	360.00	6,610.5	2,936.5	273.0	2,944.7	0.00	0.00	0.00
9,100.0	90.53	360.00	6,609.6	3,036.5	273.0	3,044.6	0.00	0.00	0.00
9,200.0	90.53	360.00	6,608.7	3,136.5	273.0	3,144.6	0.00	0.00	0.00
9,300.0	90.53	360.00	6,607.8	3,236.5	273.0	3,244.5	0.00	0.00	0.00
9,400.0	90.53	360.00	6,606.8	3,336.5	273.0	3,344.4	0.00	0.00	0.00
9,500.0	90.53	360.00	6,605.9	3,436.5	273.0	3,444.3	0.00	0.00	0.00
9,600.0	90.53	360.00	6,605.0	3,536.5	273.0	3,544.3	0.00	0.00	0.00
9,700.0	90.53	360.00	6,604.1	3,636.5	273.0	3,644.2	0.00	0.00	0.00
9,800.0	90.53	360.00	6,603.1	3,736.5	273.0	3,744.1	0.00	0.00	0.00
9,900.0	90.53	360.00	6,602.2	3,836.5	273.0	3,844.0	0.00	0.00	0.00
10,000.0	90.53	360.00	6,601.3	3,936.4	273.0	3,944.0	0.00	0.00	0.00
10,100.0	90.53	360.00	6,600.4	4,036.4	273.0	4,043.9	0.00	0.00	0.00
10,200.0	90.53	360.00	6,599.4	4,136.4	273.0	4,143.8	0.00	0.00	0.00
10,300.0	90.53	360.00	6,598.5	4,236.4	273.0	4,243.7	0.00	0.00	0.00
10,400.0	90.53	360.00	6,597.6	4,336.4	273.0	4,343.7	0.00	0.00	0.00
10,500.0	90.53	360.00	6,596.7	4,436.4	273.0	4,443.6	0.00	0.00	0.00
10,600.0	90.53	360.00	6,595.7	4,536.4	273.0	4,543.5	0.00	0.00	0.00
10,700.0	90.53	360.00	6,594.8	4,636.4	273.0	4,643.4	0.00	0.00	0.00
10,800.0	90.53	360.00	6,593.9	4,736.4	273.0	4,743.3	0.00	0.00	0.00
10,900.0	90.53	360.00	6,593.0	4,836.4	273.0	4,843.3	0.00	0.00	0.00
11,000.0	90.53	360.00	6,592.0	4,936.4	273.0	4,943.2	0.00	0.00	0.00
11,100.0	90.53	360.00	6,591.1	5,036.4	273.0	5,043.1	0.00	0.00	0.00
11,200.0	90.53	360.00	6,590.2	5,136.4	273.0	5,143.0	0.00	0.00	0.00
11,300.0	90.53	360.00	6,589.3	5,236.4	273.0	5,243.0	0.00	0.00	0.00
11,400.0	90.53	360.00	6,588.3	5,336.4	273.0	5,342.9	0.00	0.00	0.00
11,500.0	90.53	360.00	6,587.4	5,436.4	273.0	5,442.8	0.00	0.00	0.00
11,600.0	90.53	360.00	6,586.5	5,536.4	273.0	5,542.7	0.00	0.00	0.00
11,700.0	90.53	360.00	6,585.6	5,636.4	273.0	5,642.7	0.00	0.00	0.00
11,800.0	90.53	360.00	6,584.6	5,736.4	273.0	5,742.6	0.00	0.00	0.00
11,900.0	90.53	360.00	6,583.7	5,836.4	273.0	5,842.5	0.00	0.00	0.00
12,000.0	90.53	360.00	6,582.8	5,936.4	273.0	5,942.4	0.00	0.00	0.00
12,100.0	90.53	360.00	6,581.9	6,036.4	273.0	6,042.4	0.00	0.00	0.00
12,200.0	90.53	360.00	6,580.9	6,136.4	273.0	6,142.3	0.00	0.00	0.00
12,300.0	90.53	360.00	6,580.0	6,236.3	273.0	6,242.2	0.00	0.00	0.00
12,400.0	90.53	360.00	6,579.1	6,336.3	273.0	6,342.1	0.00	0.00	0.00
12,500.0	90.53	360.00	6,578.2	6,436.3	273.0	6,442.1	0.00	0.00	0.00
12,600.0	90.53	360.00	6,577.2	6,536.3	273.0	6,542.0	0.00	0.00	0.00
12,700.0	90.53	360.00	6,576.3	6,636.3	273.0	6,641.9	0.00	0.00	0.00
12,800.0	90.53	360.00	6,575.4	6,736.3	273.0	6,741.8	0.00	0.00	0.00
12,900.0	90.53	360.00	6,574.5	6,836.3	273.0	6,841.8	0.00	0.00	0.00
13,000.0	90.53	360.00	6,573.5	6,936.3	273.0	6,941.7	0.00	0.00	0.00
13,100.0	90.53	360.00	6,572.6	7,036.3	273.0	7,041.6	0.00	0.00	0.00
13,200.0	90.53	360.00	6,571.7	7,136.3	273.0	7,141.5	0.00	0.00	0.00
13,273.4	90.53	360.00	6,571.0	7,209.7	273.0	7,214.9	0.00	0.00	0.00
BHL 500'FNL & 1450'FWL, Sec.22									

Database:	Landmark	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Project:	SEC.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**North Reference:**	True
Well:	Chesnut 27K-201	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-23-14)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,094.4	6,628.2	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,443.0	3,430.0	PARKMAN		0.00	
4,169.0	4,150.0	SUSSEX		0.00	
5,123.1	5,100.0	SHANNON		0.00	
6,416.4	6,352.0	SHARON SPRINGS		0.00	
6,653.0	6,508.0	NIOBRARA A		0.00	
6,841.6	6,589.0	NIOBRARA B		0.00	
	6,677.0	NIOBRARA C		0.00	
	6,764.0	FT HAYS		0.00	
	6,787.0	CODELL		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,600.0	1,600.0	0.0	0.0	KOP #1
5,887.4	5,864.3	260.0	273.0	KOP #2
7,094.4	6,628.2	1,031.0	273.0	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.27-T5N-R64W
Chesnut 27GK-HZ Pad Sec.27-T5N-R64W
Chesnut 27K-201

Wellbore #1
Plan #1 (4-23-14)

Anticollision Report

06 June, 2014

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Reference Plan #1 (4-23-14)

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	**Error Surface:**	Elliptical Conic

Warning Levels Evaluated at: 2.00 **Sigma**

Survey Tool Program **Date** 6/6/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,273.4	Plan #1 (4-23-14) (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
Bauer Debus 22AD Pad Sec.22-T5N-R64W						
Bauer Debus 22AD - Wellbore #1 - Wellbore #1	12,420.8	6,646.4	96.4	-44.4	0.685	Level 1, CC, ES, SF
Bauer Debus 22JD - Wellbore #1 - Wellbore #1	13,273.4	6,631.4	399.6	246.4	2.608	CC, ES, SF
Chesnut 22KD Pad Sec.22-T5N-R64W						
Chesnut 22BD - Wellbore #1 - Wellbore #1	9,764.6	6,796.4	139.0	44.6	1.472	Level 3, CC, ES, SF
Chesnut 22KD - Wellbore #1 - Wellbore #1	10,992.9	6,723.6	88.7	-22.1	0.801	Level 1, CC, ES, SF
Chesnut 27G-HZ Pad Sec.27-T5N-R64W						
Chesnut 27K-203 - Wellbore #1 - Plan #1 (4-22-14)	5,800.0	5,836.5	451.3	419.9	14.401	CC
Chesnut 27K-203 - Wellbore #1 - Plan #1 (4-22-14)	5,900.0	5,932.9	451.4	419.7	14.240	ES, SF
Chesnut 27GK-HZ Pad Sec.27-T5N-R64W						
Chesnut 27G-221 - Wellbore #1 - Plan #1 (4-23-14)	1,238.4	1,238.7	92.1	86.8	17.322	CC
Chesnut 27G-221 - Wellbore #1 - Plan #1 (4-23-14)	1,300.0	1,300.0	92.3	86.7	16.509	ES
Chesnut 27G-221 - Wellbore #1 - Plan #1 (4-23-14)	13,273.4	13,319.3	971.6	697.0	3.537	SF
Chesnut 27G-301 - Wellbore #1 - Plan #1 (4-23-14)	868.4	870.5	146.6	142.9	39.214	CC
Chesnut 27G-301 - Wellbore #1 - Plan #1 (4-23-14)	900.0	901.6	146.7	142.8	37.693	ES
Chesnut 27G-301 - Wellbore #1 - Plan #1 (4-23-14)	1,700.0	1,680.2	234.4	226.1	28.015	SF
Chesnut 27K-341 - Wellbore #1 - Plan #1 (4-23-14)	1,400.0	1,400.0	31.2	25.1	5.142	CC
Chesnut 27K-341 - Wellbore #1 - Plan #1 (4-23-14)	1,500.0	1,499.8	31.5	25.0	4.841	ES
Chesnut 27K-341 - Wellbore #1 - Plan #1 (4-23-14)	13,273.4	13,358.7	674.9	403.9	2.490	SF
Chesnut 27K-401 - Wellbore #1 - Plan #1 (4-23-14)	1,600.0	1,600.0	26.8	19.9	3.851	CC, ES
Chesnut 27K-401 - Wellbore #1 - Plan #1 (4-23-14)	13,273.4	13,410.2	402.9	168.8	1.721	SF
Chesnut 27K-421 - Wellbore #1 - Plan #1 (4-23-14)	1,200.0	1,200.0	62.4	57.2	12.072	CC, ES
Chesnut 27K-421 - Wellbore #1 - Plan #1 (4-23-14)	13,273.4	13,424.3	357.8	115.5	1.476	Level 3, SF
Chesnut 27O-201 - Wellbore #1 - Pan #1 (4-23-14)	200.0	199.0	181.9	181.2	270.617	CC, ES
Chesnut 27O-201 - Wellbore #1 - Pan #1 (4-23-14)	13,273.4	13,374.6	991.7	717.6	3.618	SF
Chesnut 27O-341 - Wellbore #1 - Plan #1 (4-23-14)	800.0	799.0	120.4	117.1	35.742	CC, ES
Chesnut 27O-341 - Wellbore #1 - Plan #1 (4-23-14)	13,273.4	13,394.3	663.5	390.2	2.427	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

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 27K-HZ Pad Sec.27-T5N-R64W						
Chesnut 27K-323 - Wellbore #1 - Plan #1 (4-22-14)	5,024.2	5,062.9	451.5	421.4	14.986	CC
Chesnut 27K-323 - Wellbore #1 - Plan #1 (4-22-14)	5,100.0	5,137.4	451.7	421.2	14.785	ES
Chesnut 27K-323 - Wellbore #1 - Plan #1 (4-22-14)	5,900.0	5,946.6	462.7	428.9	13.682	SF
Chesnut 27K-403 - Wellbore #1 - Plan #1 (4-22-14)	5,900.0	5,935.3	269.3	239.5	9.035	CC, ES, SF
Chesnut 27O-243 - Wellbore #1 - Plan #1 (4-22-14)	1,508.6	1,522.0	515.2	507.8	70.178	CC
Chesnut 27O-243 - Wellbore #1 - Plan #1 (4-22-14)	1,600.0	1,611.1	515.6	507.8	65.976	ES
Chesnut 27O-243 - Wellbore #1 - Plan #1 (4-22-14)	6,000.0	6,060.7	789.2	754.6	22.820	SF
Chesnut 27O-303 - Wellbore #1 - Plan #1 (4-22-14)	911.0	914.4	509.2	505.0	120.638	CC, ES
Chesnut 27O-303 - Wellbore #1 - Plan #1 (4-22-14)	4,700.0	4,635.1	929.4	899.1	30.724	SF
Chesnut Existing Pad Sec.27-T5N-R64W						
White 5 (Exist) - Wellbore #1 - Wellbore #1	6,947.9	6,589.5	253.5	99.9	1.651	CC, ES, SF

Offset Design Bauer Debus 22AD Pad Sec.22-T5N-R64W - Bauer Debus 22AD - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 733-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,500.0	6,587.4	6,686.0	6,574.9	104.7	20.6	-112.59	6,355.8	176.8	925.0	809.8	115.19	8.030	
11,600.0	6,586.5	6,681.5	6,570.4	106.6	20.6	-110.27	6,356.0	176.8	825.7	707.1	118.55	6.965	
11,700.0	6,585.6	6,677.0	6,566.0	108.5	20.6	-107.90	6,356.1	176.8	726.6	604.7	121.81	5.965	
11,800.0	6,584.6	6,672.6	6,561.6	110.4	20.6	-105.50	6,356.3	176.7	627.7	502.7	124.96	5.023	
11,900.0	6,583.7	6,668.3	6,557.2	112.3	20.5	-103.07	6,356.4	176.7	529.2	401.2	127.98	4.135	
12,000.0	6,582.8	6,664.0	6,552.9	114.2	20.5	-100.61	6,356.5	176.7	431.3	300.5	130.84	3.296	
12,100.0	6,581.9	6,659.7	6,548.7	116.1	20.5	-98.15	6,356.7	176.7	334.7	201.1	133.52	2.506	
12,200.0	6,580.9	6,655.5	6,544.5	118.0	20.5	-95.68	6,356.8	176.7	240.7	104.7	136.01	1.770	
12,300.0	6,580.0	6,651.3	6,540.3	119.9	20.5	-93.21	6,356.9	176.6	154.4	16.1	138.30	1.117	Level 2
12,400.0	6,579.1	6,647.2	6,536.2	121.8	20.5	-90.76	6,357.1	176.6	98.6	-41.8	140.38	0.702	Level 1
12,420.8	6,578.9	6,646.4	6,535.3	122.2	20.5	-90.25	6,357.1	176.6	96.4	-44.4	140.78	0.685	Level 1, CC, ES, SF
12,500.0	6,578.2	6,643.1	6,532.1	123.7	20.5	-88.33	6,357.2	176.6	124.7	-17.5	142.23	0.877	Level 1
12,600.0	6,577.2	6,639.1	6,528.0	125.6	20.5	-85.94	6,357.3	176.6	203.4	59.5	143.87	1.414	Level 3
12,700.0	6,576.3	6,635.0	6,524.0	127.5	20.5	-83.57	6,357.5	176.6	295.2	149.9	145.28	2.032	
12,800.0	6,575.4	6,631.0	6,520.0	129.4	20.5	-81.22	6,357.6	176.6	391.0	244.5	146.48	2.669	
12,900.0	6,574.5	6,627.0	6,516.0	131.3	20.5	-78.91	6,357.7	176.5	488.5	341.0	147.45	3.313	
13,000.0	6,573.5	6,623.0	6,512.0	133.2	20.5	-76.64	6,357.8	176.5	586.7	438.5	148.23	3.958	
13,100.0	6,572.6	6,619.0	6,508.0	135.1	20.5	-74.42	6,358.0	176.5	685.5	536.7	148.80	4.607	
13,200.0	6,571.7	6,615.0	6,504.0	137.0	20.5	-72.26	6,358.1	176.5	784.5	635.4	149.20	5.259	
13,273.4	6,571.0	6,612.1	6,501.1	138.4	20.5	-70.71	6,358.2	176.5	857.4	708.0	149.37	5.740	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Bauer Debus 22AD Pad Sec.22-T5N-R64W - Bauer Debus 22JD - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 732-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
12,700.0	6,576.3	6,656.8	6,564.9	127.5	18.7	-110.03	7,591.8	159.5	962.8	826.6	136.15	7.072	
12,800.0	6,575.4	6,652.3	6,560.4	129.4	18.7	-108.01	7,592.0	159.5	863.7	724.3	139.39	6.196	
12,900.0	6,574.5	6,647.8	6,555.9	131.3	18.7	-105.95	7,592.2	159.5	764.7	622.2	142.54	5.365	
13,000.0	6,573.5	6,643.4	6,551.5	133.2	18.7	-103.86	7,592.3	159.5	666.1	520.5	145.58	4.575	
13,100.0	6,572.6	6,639.0	6,547.1	135.1	18.7	-101.75	7,592.5	159.5	567.9	419.4	148.50	3.824	
13,200.0	6,571.7	6,634.6	6,542.7	137.0	18.7	-99.62	7,592.6	159.6	470.4	319.1	151.28	3.110	
13,273.4	6,571.0	6,631.4	6,539.5	138.4	18.7	-98.04	7,592.7	159.6	399.6	246.4	153.23	2.608	CC, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 22KD Pad Sec.22-T5N-R64W - Chesnut 22BD - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 797-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
8,800.0	6,612.4	6,814.3	6,601.4	53.9	28.8	-96.95	3,700.9	133.9	974.4	898.5	75.89	12.841	
8,900.0	6,611.5	6,812.5	6,599.6	55.7	28.8	-96.20	3,700.9	133.9	875.6	797.7	77.84	11.249	
9,000.0	6,610.5	6,810.6	6,597.7	57.6	28.8	-95.45	3,700.9	133.9	777.0	697.2	79.78	9.739	
9,100.0	6,609.6	6,808.8	6,595.9	59.4	28.8	-94.70	3,700.9	133.9	678.9	597.1	81.73	8.306	
9,200.0	6,608.7	6,806.9	6,594.0	61.3	28.8	-93.94	3,701.0	133.9	581.4	497.7	83.67	6.948	
9,300.0	6,607.8	6,805.1	6,592.2	63.2	28.8	-93.18	3,701.0	133.9	484.9	399.3	85.60	5.664	
9,400.0	6,606.8	6,803.2	6,590.3	65.0	28.8	-92.42	3,701.0	133.9	390.1	302.6	87.53	4.457	
9,500.0	6,605.9	6,801.4	6,588.5	66.9	28.8	-91.65	3,701.0	133.9	298.9	209.4	89.45	3.341	
9,600.0	6,605.0	6,799.5	6,586.6	68.8	28.7	-90.88	3,701.0	134.0	215.4	124.1	91.36	2.358	
9,700.0	6,604.1	6,797.6	6,584.7	70.6	28.7	-90.11	3,701.0	134.0	153.3	60.0	93.25	1.644	
9,764.6	6,603.5	6,796.4	6,583.5	71.9	28.7	-89.61	3,701.1	134.0	139.0	44.6	94.47	1.472	Level 3, CC, ES, SF
9,800.0	6,603.1	6,795.7	6,582.9	72.5	28.7	-89.34	3,701.1	134.0	143.5	48.3	95.14	1.508	
9,900.0	6,602.2	6,793.9	6,581.0	74.4	28.7	-88.57	3,701.1	134.0	194.0	97.0	97.01	2.000	
10,000.0	6,601.3	6,792.0	6,579.1	76.3	28.7	-87.79	3,701.1	134.0	273.3	174.5	98.86	2.765	
10,100.0	6,600.4	6,790.1	6,577.2	78.2	28.7	-87.02	3,701.1	134.0	363.0	262.3	100.70	3.605	
10,200.0	6,599.4	6,788.2	6,575.3	80.0	28.7	-86.24	3,701.1	134.0	457.0	354.5	102.52	4.457	
10,300.0	6,598.5	6,786.3	6,573.4	81.9	28.7	-85.47	3,701.1	134.0	553.1	448.7	104.33	5.301	
10,400.0	6,597.6	6,784.4	6,571.5	83.8	28.7	-84.69	3,701.2	134.1	650.3	544.2	106.12	6.128	
10,500.0	6,596.7	6,782.5	6,569.6	85.7	28.7	-83.91	3,701.2	134.1	748.3	640.4	107.88	6.936	
10,600.0	6,595.7	6,780.6	6,567.7	87.6	28.7	-83.14	3,701.2	134.1	846.7	737.1	109.63	7.724	
10,700.0	6,594.8	6,778.7	6,565.8	89.5	28.7	-82.36	3,701.2	134.1	945.5	834.2	111.35	8.491	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 22KD Pad Sec.22-T5N-R64W - Chesnut 22KD - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 701-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,601.3	6,716.3	6,565.8	76.3	23.9	-85.31	4,929.2	184.3	996.8	905.1	91.78	10.862	
10,100.0	6,600.4	6,717.1	6,566.5	78.2	23.9	-85.77	4,929.2	184.3	897.3	803.6	93.70	9.577	
10,200.0	6,599.4	6,717.8	6,567.3	80.0	23.9	-86.24	4,929.2	184.3	797.8	702.2	95.61	8.344	
10,300.0	6,598.5	6,718.5	6,568.0	81.9	23.9	-86.70	4,929.2	184.3	698.5	601.0	97.53	7.162	
10,400.0	6,597.6	6,719.2	6,568.7	83.8	23.9	-87.17	4,929.2	184.3	599.5	500.0	99.44	6.028	
10,500.0	6,596.7	6,719.9	6,569.4	85.7	23.9	-87.64	4,929.3	184.3	500.8	399.5	101.35	4.941	
10,600.0	6,595.7	6,720.7	6,570.2	87.6	23.9	-88.11	4,929.3	184.3	402.8	299.5	103.26	3.901	
10,700.0	6,594.8	6,721.4	6,570.9	89.5	23.9	-88.58	4,929.3	184.3	306.0	200.9	105.17	2.910	
10,800.0	6,593.9	6,722.1	6,571.6	91.4	23.9	-89.06	4,929.3	184.3	212.3	105.2	107.06	1.983	
10,900.0	6,593.0	6,722.9	6,572.4	93.3	23.9	-89.54	4,929.3	184.3	128.4	19.5	108.96	1.179	Level 2
10,992.9	6,592.1	6,723.6	6,573.1	95.0	23.9	-89.98	4,929.3	184.3	88.7	-22.1	110.71	0.801	Level 1, CC, ES, SF
11,000.0	6,592.0	6,723.6	6,573.1	95.2	23.9	-90.02	4,929.3	184.3	88.9	-21.9	110.85	0.802	Level 1
11,100.0	6,591.1	6,724.4	6,573.9	97.1	23.9	-90.50	4,929.3	184.3	139.0	26.3	112.73	1.233	Level 2
11,200.0	6,590.2	6,725.1	6,574.6	99.0	23.9	-90.98	4,929.3	184.3	225.3	110.7	114.61	1.966	
11,300.0	6,589.3	6,725.9	6,575.4	100.9	23.9	-91.46	4,929.4	184.3	319.6	203.1	116.48	2.744	
11,400.0	6,588.3	6,726.6	6,576.1	102.8	23.9	-91.95	4,929.4	184.3	416.6	298.3	118.34	3.520	
11,500.0	6,587.4	6,727.4	6,576.9	104.7	23.9	-92.44	4,929.4	184.3	514.8	394.6	120.20	4.283	
11,600.0	6,586.5	6,728.1	6,577.6	106.6	23.9	-92.93	4,929.4	184.3	613.5	491.5	122.04	5.027	
11,700.0	6,585.6	6,728.9	6,578.4	108.5	23.9	-93.42	4,929.4	184.3	712.6	588.7	123.88	5.752	
11,800.0	6,584.6	6,729.7	6,579.2	110.4	23.9	-93.91	4,929.4	184.3	811.9	686.2	125.71	6.459	
11,900.0	6,583.7	6,730.4	6,579.9	112.3	23.9	-94.40	4,929.4	184.3	911.4	783.9	127.53	7.146	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27G-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-203 - Wellbore #1 - Plan #1 (4-22-14)

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	-82.46	87.4	-660.4	666.1				
100.0	100.0	100.0	100.0	0.1	0.1	-82.46	87.4	-660.4	666.1	665.9	0.22	2,963.717	
200.0	200.0	200.0	200.0	0.3	0.3	-82.46	87.4	-660.4	666.1	665.5	0.67	987.906	
300.0	300.0	300.0	300.0	0.6	0.6	-82.46	87.4	-660.4	666.1	665.0	1.12	592.743	
400.0	400.0	400.0	400.0	0.8	0.8	-82.46	87.4	-660.4	666.1	664.6	1.57	423.388	
500.0	500.0	500.0	500.0	1.0	1.0	-82.46	87.4	-660.4	666.1	664.1	2.02	329.302	
600.0	600.0	600.0	600.0	1.2	1.2	-82.46	87.4	-660.4	666.1	663.7	2.47	269.429	
700.0	700.0	700.0	700.0	1.5	1.5	-82.46	87.4	-660.4	666.1	663.2	2.92	227.978	
800.0	800.0	800.0	800.0	1.7	1.7	-82.46	87.4	-660.4	666.1	662.8	3.37	197.581	
900.0	900.0	900.0	900.0	1.9	1.9	-82.46	87.4	-660.4	666.1	662.3	3.82	174.336	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-82.46	87.4	-660.4	666.1	661.9	4.27	155.985	
1,100.0	1,100.0	1,129.7	1,129.6	2.4	2.4	-82.50	86.6	-657.6	663.9	659.1	4.76	139.440	
1,200.0	1,200.0	1,258.9	1,258.5	2.6	2.7	-82.62	84.1	-649.2	657.2	652.0	5.25	125.220	
1,300.0	1,300.0	1,387.0	1,385.8	2.8	3.0	-82.83	79.9	-635.4	646.1	640.4	5.76	112.189	
1,400.0	1,400.0	1,508.1	1,505.5	3.0	3.3	-83.12	74.4	-617.4	630.8	624.5	6.29	100.257	
1,500.0	1,500.0	1,606.7	1,602.6	3.3	3.6	-83.40	69.6	-601.4	614.1	607.3	6.79	90.463	
1,600.0	1,600.0	1,705.2	1,699.7	3.5	3.9	-83.69	64.8	-585.4	597.4	590.1	7.30	81.835	
1,700.0	1,700.0	1,803.9	1,797.0	3.7	4.2	-130.76	59.9	-569.4	581.8	574.2	7.55	77.023	
1,800.0	1,799.8	1,902.8	1,894.4	3.9	4.6	-131.69	55.0	-553.3	568.5	560.5	8.00	71.084	
1,900.0	1,899.5	2,001.7	1,991.8	4.2	4.9	-132.88	50.2	-537.3	557.7	549.3	8.45	66.003	
2,000.0	1,998.7	2,100.5	2,089.3	4.4	5.3	-134.26	45.3	-521.2	549.4	540.5	8.92	61.622	
2,100.0	2,097.9	2,199.3	2,186.6	4.6	5.6	-135.66	40.5	-505.1	541.9	532.5	9.40	57.643	
2,200.0	2,197.1	2,298.1	2,284.0	4.9	6.0	-137.10	35.6	-489.1	534.7	524.8	9.90	54.025	
2,300.0	2,296.3	2,396.9	2,381.4	5.2	6.3	-138.57	30.8	-473.0	527.9	517.5	10.41	50.733	
2,400.0	2,395.5	2,495.7	2,478.8	5.4	6.7	-140.09	25.9	-457.0	521.4	510.5	10.92	47.736	
2,500.0	2,494.6	2,594.6	2,576.1	5.7	7.1	-141.63	21.0	-440.9	515.4	503.9	11.45	45.005	
2,600.0	2,593.8	2,693.4	2,673.5	6.0	7.5	-143.21	16.2	-424.9	509.7	497.7	11.99	42.514	
2,700.0	2,693.0	2,792.2	2,770.9	6.3	7.8	-144.83	11.3	-408.8	504.4	491.9	12.53	40.239	
2,800.0	2,792.2	2,891.0	2,868.3	6.6	8.2	-146.48	6.5	-392.8	499.5	486.4	13.09	38.158	
2,900.0	2,891.4	2,989.8	2,965.7	6.8	8.6	-148.16	1.6	-376.7	495.1	481.4	13.66	36.254	
3,000.0	2,990.6	3,088.6	3,063.0	7.1	9.0	-149.86	-3.2	-360.7	491.1	476.9	14.23	34.510	
3,100.0	3,089.8	3,187.4	3,160.4	7.4	9.3	-151.59	-8.1	-344.6	487.5	472.7	14.81	32.911	
3,200.0	3,188.9	3,286.2	3,257.8	7.7	9.7	-153.35	-13.0	-328.6	484.5	469.1	15.41	31.445	
3,300.0	3,288.1	3,385.1	3,355.2	8.0	10.1	-155.12	-17.8	-312.5	481.8	465.8	16.01	30.100	
3,400.0	3,387.3	3,483.9	3,452.6	8.4	10.5	-156.92	-22.7	-296.5	479.7	463.1	16.62	28.865	
3,500.0	3,486.5	3,582.7	3,549.9	8.7	10.9	-158.72	-27.5	-280.4	478.1	460.8	17.24	27.731	
3,600.0	3,585.7	3,681.5	3,647.3	9.0	11.3	-160.54	-32.4	-264.4	476.9	459.0	17.87	26.691	
3,700.0	3,684.9	3,780.3	3,744.7	9.3	11.6	-162.36	-37.2	-248.3	476.2	457.7	18.51	25.735	
3,784.8	3,768.9	3,864.1	3,827.2	9.5	12.0	-163.91	-41.4	-234.7	476.1	457.0	19.05	24.988	
3,800.0	3,784.0	3,879.1	3,842.1	9.6	12.0	-164.19	-42.1	-232.3	476.1	456.9	19.15	24.859	
3,900.0	3,883.2	3,977.9	3,939.5	9.9	12.4	-166.02	-47.0	-216.2	476.4	456.6	19.80	24.056	
4,000.0	3,982.4	4,076.7	4,036.8	10.2	12.8	-167.84	-51.8	-200.2	477.2	456.7	20.46	23.319	
4,100.0	4,081.6	4,175.6	4,134.2	10.5	13.2	-169.65	-56.7	-184.1	478.5	457.4	21.13	22.644	
4,200.0	4,180.8	4,274.4	4,231.6	10.8	13.6	-171.46	-61.5	-168.1	480.3	458.5	21.81	22.026	
4,300.0	4,280.0	4,373.2	4,329.0	11.1	14.0	-173.24	-66.4	-152.0	482.6	460.1	22.49	21.460	
4,400.0	4,379.1	4,472.0	4,426.4	11.5	14.4	-175.01	-71.2	-136.0	485.4	462.2	23.17	20.944	
4,500.0	4,478.3	4,570.8	4,523.7	11.8	14.7	-176.76	-76.1	-119.9	488.6	464.7	23.87	20.472	
4,600.0	4,577.6	4,669.6	4,621.1	12.1	15.1	-178.49	-81.0	-103.9	491.9	467.4	24.57	20.021	
4,700.0	4,677.1	4,768.5	4,718.6	12.3	15.5	179.81	-85.8	-87.8	492.8	467.6	25.25	19.518	
4,800.0	4,776.9	4,867.4	4,816.0	12.5	15.9	178.11	-90.7	-71.7	490.7	464.8	25.90	18.943	
4,900.0	4,876.9	4,966.1	4,913.3	12.7	16.3	176.36	-95.5	-55.7	485.5	458.9	26.53	18.298	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27G-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-203 - Wellbore #1 - Plan #1 (4-22-14)

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	4,976.9	5,064.7	5,010.4	12.8	16.7	-139.05	-100.4	-39.7	478.3	451.1	27.19	17.589	
5,100.0	5,076.9	5,163.2	5,107.6	13.0	17.1	-140.91	-105.2	-23.7	471.5	443.6	27.90	16.903	
5,200.0	5,176.9	5,261.8	5,204.7	13.2	17.5	-142.82	-110.1	-7.7	465.3	436.7	28.60	16.267	
5,300.0	5,276.9	5,356.0	5,297.7	13.4	17.8	-144.55	-114.3	6.4	460.0	430.8	29.19	15.757	
5,400.0	5,376.9	5,450.5	5,391.5	13.6	18.0	-145.94	-117.7	17.7	456.2	426.4	29.72	15.350	
5,500.0	5,476.9	5,545.7	5,486.3	13.8	18.2	-146.99	-120.2	26.0	453.5	423.3	30.19	15.023	
5,600.0	5,576.9	5,641.4	5,581.9	14.0	18.4	-147.67	-121.9	31.3	452.0	421.3	30.61	14.765	
5,700.0	5,676.9	5,737.4	5,677.8	14.2	18.5	-147.95	-122.5	33.5	451.3	420.3	30.98	14.566	
5,743.4	5,720.2	5,779.8	5,720.2	14.2	18.6	-147.96	-122.6	33.6	451.3	420.1	31.14	14.494	
5,800.0	5,776.9	5,836.5	5,776.9	14.4	18.6	-147.96	-122.6	33.6	451.3	419.9	31.34	14.401	CC
5,862.2	5,839.0	5,898.6	5,839.0	14.5	18.7	-147.98	-122.6	33.6	451.5	420.0	31.57	14.305	
5,900.0	5,876.9	5,932.9	5,873.3	14.5	18.8	-147.97	-122.6	33.6	451.4	419.7	31.70	14.240	ES, SF
6,000.0	5,976.5	6,000.0	5,940.3	14.8	18.9	-148.12	-126.2	33.6	462.8	430.9	31.93	14.495	
6,100.0	6,074.1	6,059.5	5,999.2	15.1	19.0	-148.24	-134.2	33.6	492.3	460.5	31.82	15.471	
6,200.0	6,168.2	6,112.7	6,051.3	15.5	19.1	-148.01	-145.3	33.6	538.9	507.5	31.39	17.167	
6,300.0	6,257.1	6,150.0	6,087.2	16.0	19.2	-146.52	-155.2	33.6	600.6	569.9	30.69	19.570	
6,400.0	6,339.3	6,200.0	6,134.5	16.6	19.3	-144.87	-171.2	33.6	674.9	644.9	29.96	22.523	
6,500.0	6,413.3	6,214.3	6,147.9	17.3	19.4	-138.91	-176.4	33.6	758.6	729.0	29.64	25.592	
6,600.0	6,477.9	6,229.8	6,162.2	18.1	19.4	-128.99	-182.2	33.6	849.3	818.8	30.50	27.843	
6,700.0	6,532.1	6,250.0	6,180.8	19.2	19.5	-113.16	-190.3	33.6	944.4	911.4	32.91	28.691	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27G-221 - Wellbore #1 - Plan #1 (4-23-14)

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	19.32	87.4	30.7	92.7				
100.0	100.0	100.0	100.0	0.1	0.1	19.32	87.4	30.7	92.7	92.4	0.22	412.212	
200.0	200.0	200.0	200.0	0.3	0.3	19.32	87.4	30.7	92.7	92.0	0.67	137.404	
300.0	300.0	300.0	300.0	0.6	0.6	19.32	87.4	30.7	92.7	91.5	1.12	82.442	
400.0	400.0	400.0	400.0	0.8	0.8	19.32	87.4	30.7	92.7	91.1	1.57	58.887	
500.0	500.0	500.0	500.0	1.0	1.0	19.32	87.4	30.7	92.7	90.6	2.02	45.801	
600.0	600.0	600.0	600.0	1.2	1.2	19.32	87.4	30.7	92.7	90.2	2.47	37.474	
700.0	700.0	700.0	700.0	1.5	1.5	19.32	87.4	30.7	92.7	89.7	2.92	31.709	
800.0	800.0	800.0	800.0	1.7	1.7	19.32	87.4	30.7	92.7	89.3	3.37	27.481	
900.0	900.0	900.0	900.0	1.9	1.9	19.32	87.4	30.7	92.7	88.8	3.82	24.248	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	19.32	87.4	30.7	92.7	88.4	4.27	21.695	
1,100.0	1,100.0	1,100.3	1,100.3	2.4	2.4	18.24	87.8	28.9	92.5	87.8	4.71	19.631	
1,200.0	1,200.0	1,200.4	1,200.2	2.6	2.6	14.98	89.0	23.8	92.2	87.0	5.15	17.906	
1,238.4	1,238.4	1,238.7	1,238.4	2.7	2.6	13.16	89.7	21.0	92.1	86.8	5.32	17.322	CC
1,300.0	1,300.0	1,300.0	1,299.5	2.8	2.8	9.59	91.0	15.4	92.3	86.7	5.59	16.509	ES
1,400.0	1,400.0	1,398.8	1,397.5	3.0	3.0	2.24	93.7	3.7	93.8	87.8	6.04	15.538	
1,500.0	1,500.0	1,496.7	1,494.2	3.3	3.3	-6.56	97.2	-11.2	98.0	91.5	6.49	15.105	
1,600.0	1,600.0	1,594.6	1,590.4	3.5	3.6	-15.76	101.3	-28.6	105.7	98.7	6.93	15.241	
1,700.0	1,700.0	1,692.6	1,686.8	3.7	3.9	-70.70	105.4	-46.3	115.3	107.7	7.55	15.279	
1,800.0	1,799.8	1,790.2	1,782.7	3.9	4.3	-79.23	109.5	-63.8	126.5	118.5	8.01	15.795	
1,900.0	1,899.5	1,887.2	1,878.1	4.2	4.6	-87.52	113.6	-81.3	140.0	131.6	8.45	16.573	
2,000.0	1,998.7	1,983.6	1,972.7	4.4	5.0	-95.41	117.7	-98.7	156.5	147.6	8.88	17.632	
2,100.0	2,097.9	2,079.8	2,067.3	4.6	5.3	-102.16	121.7	-116.0	175.7	166.4	9.30	18.889	
2,200.0	2,197.1	2,175.9	2,161.8	4.9	5.7	-107.57	125.8	-133.3	196.8	187.0	9.73	20.218	
2,300.0	2,296.3	2,272.1	2,256.3	5.2	6.1	-111.93	129.8	-150.7	219.3	209.1	10.18	21.549	
2,400.0	2,395.5	2,368.3	2,350.8	5.4	6.4	-115.48	133.9	-168.0	242.8	232.2	10.63	22.841	
2,500.0	2,494.6	2,464.5	2,445.3	5.7	6.8	-118.40	137.9	-185.3	267.0	255.9	11.09	24.073	
2,600.0	2,593.8	2,560.7	2,539.8	6.0	7.2	-120.84	142.0	-202.6	291.8	280.3	11.56	25.237	
2,700.0	2,693.0	2,656.8	2,634.4	6.3	7.6	-122.90	146.0	-220.0	317.1	305.0	12.04	26.329	
2,800.0	2,792.2	2,753.0	2,728.9	6.6	8.0	-124.66	150.1	-237.3	342.6	330.1	12.53	27.351	
2,900.0	2,891.4	2,849.2	2,823.4	6.8	8.4	-126.17	154.1	-254.6	368.4	355.4	13.02	28.306	
3,000.0	2,990.6	2,945.4	2,917.9	7.1	8.8	-127.49	158.2	-272.0	394.5	381.0	13.51	29.198	
3,100.0	3,089.8	3,041.6	3,012.4	7.4	9.2	-128.65	162.2	-289.3	420.7	406.7	14.01	30.030	
3,200.0	3,188.9	3,137.7	3,106.9	7.7	9.5	-129.66	166.3	-306.6	447.0	432.5	14.51	30.809	
3,300.0	3,288.1	3,233.9	3,201.5	8.0	9.9	-130.57	170.4	-324.0	473.5	458.5	15.01	31.536	
3,400.0	3,387.3	3,330.1	3,296.0	8.4	10.3	-131.38	174.4	-341.3	500.0	484.5	15.52	32.218	
3,500.0	3,486.5	3,426.3	3,390.5	8.7	10.7	-132.11	178.5	-358.6	526.7	510.6	16.03	32.857	
3,600.0	3,585.7	3,522.4	3,485.0	9.0	11.1	-132.77	182.5	-375.9	553.4	536.8	16.54	33.457	
3,700.0	3,684.9	3,618.6	3,579.5	9.3	11.5	-133.37	186.6	-393.3	580.2	563.1	17.05	34.021	
3,800.0	3,784.0	3,714.8	3,674.1	9.6	11.9	-133.91	190.6	-410.6	607.0	589.4	17.57	34.552	
3,900.0	3,883.2	3,811.0	3,768.6	9.9	12.3	-134.41	194.7	-427.9	633.9	615.8	18.08	35.052	
4,000.0	3,982.4	3,907.2	3,863.1	10.2	12.7	-134.87	198.7	-445.3	660.8	642.2	18.60	35.525	
4,100.0	4,081.6	4,003.3	3,957.6	10.5	13.1	-135.30	202.8	-462.6	687.7	668.6	19.12	35.971	
4,200.0	4,180.8	4,099.5	4,052.1	10.8	13.5	-135.69	206.8	-479.9	714.7	695.1	19.64	36.393	
4,300.0	4,280.0	4,195.7	4,146.6	11.1	13.9	-136.05	210.9	-497.2	741.8	721.6	20.16	36.793	
4,400.0	4,379.1	4,291.9	4,241.2	11.5	14.3	-136.39	214.9	-514.6	768.8	748.1	20.68	37.173	
4,500.0	4,478.3	4,388.1	4,335.7	11.8	14.7	-136.70	219.0	-531.9	795.9	774.7	21.20	37.533	
4,600.0	4,577.6	4,484.3	4,430.3	12.1	15.1	-137.14	223.0	-549.2	822.7	801.0	21.74	37.838	
4,700.0	4,677.1	4,581.2	4,525.5	12.3	15.5	-137.61	227.1	-566.7	847.5	825.3	22.26	38.071	
4,800.0	4,776.9	4,678.6	4,621.2	12.5	15.9	-137.88	231.2	-584.3	869.8	847.1	22.75	38.226	
4,900.0	4,876.9	4,776.6	4,717.5	12.7	16.3	-137.95	235.4	-601.9	889.6	866.4	23.22	38.312	

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 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27G-221 - Wellbore #1 - Plan #1 (4-23-14)

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	4,976.9	4,874.9	4,814.1	12.8	16.7	-91.32	239.5	-619.6	907.6	883.9	23.66	38.361	
5,100.0	5,076.9	4,973.1	4,910.7	13.0	17.2	-91.03	243.6	-637.3	925.5	901.4	24.11	38.384	
5,200.0	5,176.9	5,089.3	5,024.9	13.2	17.6	-90.71	248.4	-657.7	943.1	918.5	24.60	38.341	
5,300.0	5,276.9	5,235.4	5,169.6	13.4	18.0	-90.42	253.1	-677.7	956.8	931.7	25.10	38.124	
5,400.0	5,376.9	5,383.3	5,316.8	13.6	18.3	-90.23	256.1	-690.6	965.5	939.9	25.58	37.749	
5,500.0	5,476.9	5,532.1	5,465.5	13.8	18.5	-90.15	257.4	-696.1	969.2	943.2	26.04	37.222	
5,600.0	5,576.9	5,643.5	5,576.9	14.0	18.7	-90.15	257.4	-696.3	969.4	942.9	26.44	36.660	
5,700.0	5,676.9	5,743.5	5,676.9	14.2	18.8	-90.15	257.4	-696.3	969.4	942.5	26.83	36.124	
5,800.0	5,776.9	5,843.5	5,776.9	14.4	19.0	-90.15	257.4	-696.3	969.4	942.1	27.23	35.602	
5,854.4	5,831.3	5,897.9	5,831.3	14.5	19.0	-90.17	257.4	-696.3	969.4	941.9	27.44	35.322	
5,900.0	5,876.9	5,943.5	5,876.9	14.5	19.1	-90.15	257.5	-696.3	969.4	941.7	27.62	35.091	
6,000.0	5,976.5	6,043.8	5,976.8	14.8	19.3	-90.15	265.8	-696.3	969.4	941.3	28.10	34.497	
6,100.0	6,074.1	6,144.2	6,074.8	15.1	19.5	-90.15	287.0	-696.3	969.4	940.6	28.70	33.771	
6,200.0	6,168.2	6,244.5	6,169.2	15.5	19.7	-90.14	320.9	-696.3	969.4	939.9	29.46	32.907	
6,300.0	6,257.1	6,344.8	6,258.3	16.0	20.0	-90.13	366.8	-696.4	969.4	939.0	30.39	31.892	
6,400.0	6,339.3	6,445.1	6,340.6	16.6	20.4	-90.12	424.0	-696.4	969.4	937.8	31.56	30.719	
6,500.0	6,413.3	6,545.4	6,414.7	17.3	20.9	-90.11	491.4	-696.4	969.4	936.4	32.98	29.394	
6,600.0	6,477.9	6,645.6	6,479.3	18.1	21.4	-90.10	568.0	-696.4	969.4	934.7	34.69	27.945	
6,700.0	6,532.1	6,745.8	6,533.3	19.2	22.1	-90.08	652.3	-696.4	969.4	932.7	36.69	26.417	
6,704.1	6,534.1	6,749.9	6,535.3	19.2	22.1	-90.08	655.9	-696.4	969.4	932.6	36.79	26.351	
6,800.0	6,574.8	6,845.9	6,575.8	20.3	22.9	-90.06	742.9	-696.4	969.4	930.4	38.99	24.862	
6,900.0	6,605.3	6,946.1	6,606.1	21.6	23.9	-90.05	838.3	-696.4	969.4	927.8	41.54	23.336	
7,000.0	6,623.2	7,046.1	6,623.6	23.0	25.0	-90.03	936.7	-696.4	969.4	925.1	44.30	21.882	
7,100.0	6,628.1	7,146.2	6,628.4	24.4	26.2	-90.02	1,036.6	-696.4	969.4	922.1	47.21	20.531	
7,200.0	6,627.2	7,246.2	6,628.5	26.0	27.5	-90.08	1,136.6	-696.4	969.4	919.1	50.25	19.292	
7,300.0	6,626.3	7,346.2	6,628.7	27.5	28.9	-90.14	1,236.6	-696.4	969.4	916.0	53.38	18.160	
7,400.0	6,625.3	7,446.2	6,628.8	29.2	30.3	-90.20	1,336.5	-696.4	969.4	912.8	56.60	17.127	
7,500.0	6,624.4	7,546.2	6,628.9	30.8	31.8	-90.27	1,436.5	-696.4	969.4	909.5	59.89	16.185	
7,600.0	6,623.5	7,646.2	6,629.1	32.5	33.3	-90.33	1,536.5	-696.4	969.4	906.1	63.25	15.327	
7,700.0	6,622.6	7,746.1	6,629.2	34.2	34.9	-90.39	1,636.5	-696.4	969.4	902.7	66.65	14.543	
7,800.0	6,621.6	7,846.1	6,629.4	35.9	36.5	-90.46	1,736.5	-696.4	969.4	899.3	70.11	13.827	
7,900.0	6,620.7	7,946.1	6,629.5	37.7	38.2	-90.52	1,836.5	-696.4	969.4	895.8	73.60	13.172	
8,000.0	6,619.8	8,046.1	6,629.6	39.4	39.8	-90.58	1,936.5	-696.4	969.4	892.3	77.12	12.570	
8,100.0	6,618.9	8,146.1	6,629.8	41.2	41.5	-90.65	2,036.5	-696.4	969.4	888.7	80.67	12.017	
8,200.0	6,617.9	8,246.1	6,629.9	43.0	43.2	-90.71	2,136.5	-696.4	969.4	885.2	84.25	11.507	
8,300.0	6,617.0	8,346.1	6,630.1	44.8	45.0	-90.77	2,236.5	-696.4	969.4	881.6	87.85	11.036	
8,400.0	6,616.1	8,446.1	6,630.2	46.6	46.7	-90.83	2,336.5	-696.4	969.5	878.0	91.47	10.599	
8,500.0	6,615.2	8,546.1	6,630.3	48.4	48.4	-90.90	2,436.5	-696.4	969.5	874.4	95.10	10.194	
8,600.0	6,614.2	8,646.1	6,630.5	50.2	50.2	-90.96	2,536.5	-696.4	969.5	870.7	98.75	9.818	
8,700.0	6,613.3	8,746.1	6,630.6	52.1	52.0	-91.02	2,636.5	-696.4	969.5	867.1	102.42	9.466	
8,800.0	6,612.4	8,846.1	6,630.7	53.9	53.8	-91.09	2,736.5	-696.4	969.5	863.4	106.09	9.139	
8,900.0	6,611.5	8,946.1	6,630.9	55.7	55.6	-91.15	2,836.5	-696.4	969.6	859.8	109.78	8.832	
9,000.0	6,610.5	9,046.1	6,631.0	57.6	57.4	-91.21	2,936.5	-696.4	969.6	856.1	113.48	8.544	
9,100.0	6,609.6	9,146.1	6,631.2	59.4	59.2	-91.27	3,036.4	-696.4	969.6	852.4	117.18	8.274	
9,200.0	6,608.7	9,246.1	6,631.3	61.3	61.0	-91.34	3,136.4	-696.4	969.6	848.7	120.89	8.020	
9,300.0	6,607.8	9,346.1	6,631.4	63.2	62.8	-91.40	3,236.4	-696.4	969.7	845.0	124.61	7.781	
9,400.0	6,606.8	9,446.1	6,631.6	65.0	64.7	-91.46	3,336.4	-696.4	969.7	841.3	128.34	7.555	
9,500.0	6,605.9	9,546.0	6,631.7	66.9	66.5	-91.53	3,436.4	-696.4	969.7	837.6	132.07	7.342	
9,600.0	6,605.0	9,646.0	6,631.9	68.8	68.3	-91.59	3,536.4	-696.4	969.7	833.9	135.81	7.140	
9,700.0	6,604.1	9,746.0	6,632.0	70.6	70.2	-91.65	3,636.4	-696.4	969.8	830.2	139.56	6.949	
9,800.0	6,603.1	9,846.0	6,632.1	72.5	72.0	-91.71	3,736.4	-696.4	969.8	826.5	143.30	6.767	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27G-221 - Wellbore #1 - Plan #1 (4-23-14)

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
9,900.0	6,602.2	9,946.0	6,632.3	74.4	73.9	-91.78	3,836.4	-696.4	969.8	822.8	147.06	6.595	
10,000.0	6,601.3	10,046.0	6,632.4	76.3	75.7	-91.84	3,936.4	-696.4	969.9	819.1	150.81	6.431	
10,100.0	6,600.4	10,146.0	6,632.6	78.2	77.6	-91.90	4,036.4	-696.4	969.9	815.3	154.57	6.275	
10,200.0	6,599.4	10,246.0	6,632.7	80.0	79.5	-91.97	4,136.4	-696.4	969.9	811.6	158.33	6.126	
10,300.0	6,598.5	10,346.0	6,632.8	81.9	81.3	-92.03	4,236.4	-696.4	970.0	807.9	162.10	5.984	
10,400.0	6,597.6	10,446.0	6,633.0	83.8	83.2	-92.09	4,336.4	-696.4	970.0	804.1	165.87	5.848	
10,500.0	6,596.7	10,546.0	6,633.1	85.7	85.1	-92.15	4,436.4	-696.4	970.1	800.4	169.64	5.718	
10,600.0	6,595.7	10,646.0	6,633.3	87.6	86.9	-92.22	4,536.4	-696.4	970.1	796.7	173.41	5.594	
10,700.0	6,594.8	10,746.0	6,633.4	89.5	88.8	-92.28	4,636.4	-696.4	970.1	793.0	177.19	5.475	
10,800.0	6,593.9	10,846.0	6,633.5	91.4	90.7	-92.34	4,736.4	-696.4	970.2	789.2	180.96	5.361	
10,900.0	6,593.0	10,946.0	6,633.7	93.3	92.6	-92.41	4,836.3	-696.4	970.2	785.5	184.74	5.252	
11,000.0	6,592.0	11,046.0	6,633.8	95.2	94.4	-92.47	4,936.3	-696.4	970.3	781.8	188.52	5.147	
11,100.0	6,591.1	11,146.0	6,634.0	97.1	96.3	-92.53	5,036.3	-696.4	970.3	778.0	192.30	5.046	
11,200.0	6,590.2	11,246.0	6,634.1	99.0	98.2	-92.59	5,136.3	-696.4	970.4	774.3	196.09	4.949	
11,300.0	6,589.3	11,345.9	6,634.2	100.9	100.1	-92.66	5,236.3	-696.4	970.4	770.5	199.87	4.855	
11,400.0	6,588.3	11,445.9	6,634.4	102.8	102.0	-92.72	5,336.3	-696.4	970.5	766.8	203.65	4.765	
11,500.0	6,587.4	11,545.9	6,634.5	104.7	103.9	-92.78	5,436.3	-696.4	970.5	763.1	207.44	4.679	
11,600.0	6,586.5	11,645.9	6,634.7	106.6	105.7	-92.85	5,536.3	-696.4	970.6	759.3	211.23	4.595	
11,700.0	6,585.6	11,745.9	6,634.8	108.5	107.6	-92.91	5,636.3	-696.4	970.6	755.6	215.02	4.514	
11,800.0	6,584.6	11,845.9	6,634.9	110.4	109.5	-92.97	5,736.3	-696.4	970.7	751.9	218.80	4.436	
11,900.0	6,583.7	11,945.9	6,635.1	112.3	111.4	-93.03	5,836.3	-696.4	970.7	748.1	222.59	4.361	
12,000.0	6,582.8	12,045.9	6,635.2	114.2	113.3	-93.10	5,936.3	-696.4	970.8	744.4	226.38	4.288	
12,100.0	6,581.9	12,145.9	6,635.4	116.1	115.2	-93.16	6,036.3	-696.4	970.9	740.7	230.17	4.218	
12,200.0	6,580.9	12,245.9	6,635.5	118.0	117.1	-93.22	6,136.3	-696.4	970.9	736.9	233.96	4.150	
12,300.0	6,580.0	12,345.9	6,635.6	119.9	119.0	-93.28	6,236.3	-696.4	971.0	733.2	237.76	4.084	
12,400.0	6,579.1	12,445.9	6,635.8	121.8	120.9	-93.35	6,336.3	-696.4	971.0	729.5	241.55	4.020	
12,500.0	6,578.2	12,545.9	6,635.9	123.7	122.8	-93.41	6,436.3	-696.4	971.1	725.8	245.34	3.958	
12,600.0	6,577.2	12,645.9	6,636.1	125.6	124.7	-93.47	6,536.2	-696.4	971.2	722.0	249.13	3.898	
12,700.0	6,576.3	12,745.9	6,636.2	127.5	126.6	-93.54	6,636.2	-696.4	971.2	718.3	252.92	3.840	
12,800.0	6,575.4	12,845.9	6,636.3	129.4	128.5	-93.60	6,736.2	-696.4	971.3	714.6	256.72	3.784	
12,900.0	6,574.5	12,945.9	6,636.5	131.3	130.4	-93.66	6,836.2	-696.4	971.4	710.9	260.51	3.729	
13,000.0	6,573.5	13,045.8	6,636.6	133.2	132.3	-93.72	6,936.2	-696.4	971.4	707.1	264.30	3.675	
13,100.0	6,572.6	13,145.8	6,636.8	135.1	134.2	-93.79	7,036.2	-696.4	971.5	703.4	268.09	3.624	
13,200.0	6,571.7	13,245.8	6,636.9	137.0	136.1	-93.85	7,136.2	-696.4	971.6	699.7	271.89	3.573	
13,273.4	6,571.0	13,319.3	6,637.0	138.4	137.5	-93.89	7,209.6	-696.4	971.6	697.0	274.67	3.537	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27G-301 - Wellbore #1 - Plan #1 (4-23-14)

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	20.44	142.1	52.9	151.6				
100.0	100.0	100.0	100.0	0.1	0.1	20.44	142.1	52.9	151.6	151.4	0.22	674.586	
200.0	200.0	200.0	200.0	0.3	0.3	20.44	142.1	52.9	151.6	150.9	0.67	224.862	
300.0	300.0	300.0	300.0	0.6	0.6	20.44	142.1	52.9	151.6	150.5	1.12	134.917	
400.0	400.0	400.0	400.0	0.8	0.8	20.44	142.1	52.9	151.6	150.1	1.57	96.369	
500.0	500.0	501.3	501.3	1.0	1.0	19.78	142.3	51.2	151.2	149.2	2.02	75.011	
600.0	600.0	602.4	602.2	1.2	1.2	17.79	142.8	45.8	150.0	147.5	2.46	60.980	
700.0	700.0	703.0	702.4	1.5	1.5	14.45	143.7	37.0	148.4	145.5	2.92	50.795	
800.0	800.0	802.8	801.5	1.7	1.7	9.72	144.9	24.8	147.0	143.6	3.40	43.225	
868.4	868.4	870.5	868.4	1.8	1.9	5.71	145.9	14.6	146.6	142.9	3.74	39.214	CC
900.0	900.0	901.6	899.1	1.9	2.0	3.65	146.4	9.4	146.7	142.8	3.89	37.693	ES
1,000.0	1,000.0	999.3	994.9	2.1	2.4	-3.55	148.3	-9.2	148.7	144.3	4.38	33.906	
1,100.0	1,100.0	1,096.2	1,089.4	2.4	2.8	-11.48	150.4	-30.6	153.9	149.0	4.86	31.638	
1,200.0	1,200.0	1,193.6	1,184.3	2.6	3.2	-19.00	152.6	-52.6	162.2	156.9	5.31	30.553	
1,300.0	1,300.0	1,291.0	1,279.1	2.8	3.7	-25.72	154.8	-74.6	173.1	167.4	5.74	30.146	
1,400.0	1,400.0	1,388.3	1,373.9	3.0	4.1	-31.60	157.0	-96.6	186.2	180.0	6.18	30.126	
1,500.0	1,500.0	1,485.7	1,468.8	3.3	4.6	-36.68	159.2	-118.6	201.0	194.4	6.63	30.305	
1,600.0	1,600.0	1,583.1	1,563.6	3.5	5.1	-41.06	161.4	-140.6	217.2	210.1	7.10	30.572	
1,700.0	1,700.0	1,680.2	1,658.2	3.7	5.5	-91.28	163.6	-162.6	234.4	226.1	8.37	28.015	SF
1,800.0	1,799.8	1,776.7	1,752.1	3.9	6.0	-95.26	165.8	-184.4	253.1	244.3	8.81	28.731	
1,900.0	1,899.5	1,872.4	1,845.4	4.2	6.5	-99.28	168.0	-206.0	273.6	264.4	9.22	29.664	
2,000.0	1,998.7	1,967.3	1,937.8	4.4	6.9	-103.39	170.1	-227.5	296.3	286.7	9.62	30.814	
2,100.0	2,097.9	2,062.0	2,030.0	4.6	7.4	-107.31	172.3	-248.9	320.6	310.6	10.00	32.059	
2,200.0	2,197.1	2,156.7	2,122.2	4.9	7.9	-110.68	174.4	-270.3	346.3	335.9	10.40	33.289	
2,300.0	2,296.3	2,251.4	2,214.5	5.2	8.3	-113.59	176.5	-291.7	372.9	362.1	10.82	34.478	
2,400.0	2,395.5	2,346.1	2,306.7	5.4	8.8	-116.13	178.7	-313.1	400.4	389.1	11.24	35.609	
2,500.0	2,494.6	2,440.8	2,398.9	5.7	9.3	-118.34	180.8	-334.5	428.5	416.8	11.68	36.675	
2,600.0	2,593.8	2,535.5	2,491.1	6.0	9.7	-120.28	183.0	-355.9	457.1	445.0	12.13	37.674	
2,700.0	2,693.0	2,630.2	2,583.4	6.3	10.2	-122.00	185.1	-377.3	486.2	473.6	12.59	38.608	
2,800.0	2,792.2	2,724.9	2,675.6	6.6	10.7	-123.53	187.2	-398.7	515.6	502.5	13.06	39.478	
2,900.0	2,891.4	2,819.7	2,767.8	6.8	11.1	-124.89	189.4	-420.1	545.3	531.8	13.53	40.289	
3,000.0	2,990.6	2,914.4	2,860.1	7.1	11.6	-126.12	191.5	-441.5	575.3	561.3	14.02	41.044	
3,100.0	3,089.8	3,009.1	2,952.3	7.4	12.1	-127.22	193.7	-462.9	605.5	591.0	14.50	41.749	
3,200.0	3,188.9	3,103.8	3,044.5	7.7	12.5	-128.22	195.8	-484.3	635.9	620.9	14.99	42.406	
3,300.0	3,288.1	3,198.5	3,136.7	8.0	13.0	-129.13	197.9	-505.7	666.4	650.9	15.49	43.021	
3,400.0	3,387.3	3,293.2	3,229.0	8.4	13.5	-129.96	200.1	-527.1	697.1	681.1	15.99	43.595	
3,500.0	3,486.5	3,387.9	3,321.2	8.7	14.0	-130.72	202.2	-548.5	727.9	711.4	16.49	44.134	
3,600.0	3,585.7	3,482.6	3,413.4	9.0	14.4	-131.42	204.4	-570.0	758.9	741.9	17.00	44.639	
3,700.0	3,684.9	3,577.3	3,505.6	9.3	14.9	-132.07	206.5	-591.4	789.9	772.4	17.51	45.114	
3,800.0	3,784.0	3,672.0	3,597.9	9.6	15.4	-132.66	208.6	-612.8	821.0	802.9	18.02	45.560	
3,900.0	3,883.2	3,766.7	3,690.1	9.9	15.8	-133.22	210.8	-634.2	852.1	833.6	18.53	45.981	
4,000.0	3,982.4	3,861.4	3,782.3	10.2	16.3	-133.73	212.9	-655.6	883.4	864.3	19.05	46.378	
4,100.0	4,081.6	3,956.1	3,874.6	10.5	16.8	-134.21	215.1	-677.0	914.7	895.1	19.56	46.754	
4,200.0	4,180.8	4,050.8	3,966.8	10.8	17.3	-134.66	217.2	-698.4	946.0	926.0	20.08	47.109	
4,300.0	4,280.0	4,145.5	4,059.0	11.1	17.7	-135.08	219.3	-719.8	977.5	956.9	20.60	47.445	

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 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-341 - Wellbore #1 - Plan #1 (4-23-14)

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	20.93	29.1	11.1	31.2				
100.0	100.0	100.0	100.0	0.1	0.1	20.93	29.1	11.1	31.2	31.0	0.22	138.826	
200.0	200.0	200.0	200.0	0.3	0.3	20.93	29.1	11.1	31.2	30.5	0.67	46.275	
300.0	300.0	300.0	300.0	0.6	0.6	20.93	29.1	11.1	31.2	30.1	1.12	27.765	
400.0	400.0	400.0	400.0	0.8	0.8	20.93	29.1	11.1	31.2	29.6	1.57	19.832	
500.0	500.0	500.0	500.0	1.0	1.0	20.93	29.1	11.1	31.2	29.2	2.02	15.425	
600.0	600.0	600.0	600.0	1.2	1.2	20.93	29.1	11.1	31.2	28.7	2.47	12.621	
700.0	700.0	700.0	700.0	1.5	1.5	20.93	29.1	11.1	31.2	28.3	2.92	10.679	
800.0	800.0	800.0	800.0	1.7	1.7	20.93	29.1	11.1	31.2	27.8	3.37	9.255	
900.0	900.0	900.0	900.0	1.9	1.9	20.93	29.1	11.1	31.2	27.4	3.82	8.166	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	20.93	29.1	11.1	31.2	26.9	4.27	7.307	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	20.93	29.1	11.1	31.2	26.5	4.72	6.611	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	20.93	29.1	11.1	31.2	26.0	5.17	6.036	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	20.93	29.1	11.1	31.2	25.6	5.62	5.553	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	20.93	29.1	11.1	31.2	25.1	6.07	5.142	CC
1,500.0	1,500.0	1,499.8	1,499.8	3.3	3.3	17.81	30.0	9.6	31.5	25.0	6.51	4.841	ES
1,600.0	1,600.0	1,599.3	1,599.2	3.5	3.5	8.96	32.6	5.1	33.0	26.1	6.95	4.751	
1,700.0	1,700.0	1,698.3	1,697.8	3.7	3.7	-52.01	36.9	-2.3	35.9	28.6	7.39	4.862	
1,800.0	1,799.8	1,796.3	1,795.1	3.9	3.9	-70.86	42.8	-12.6	42.2	34.3	7.83	5.384	
1,900.0	1,899.5	1,894.4	1,892.1	4.2	4.2	-88.30	49.8	-24.7	53.6	45.3	8.27	6.478	
2,000.0	1,998.7	1,992.2	1,988.9	4.4	4.4	-101.68	56.8	-36.7	68.9	60.2	8.71	7.909	
2,100.0	2,097.9	2,089.8	2,085.6	4.6	4.7	-110.57	63.8	-48.8	86.8	77.7	9.15	9.487	
2,200.0	2,197.1	2,187.5	2,182.2	4.9	5.0	-116.36	70.7	-60.9	106.1	96.5	9.61	11.046	
2,300.0	2,296.3	2,285.1	2,278.9	5.2	5.3	-120.35	77.7	-73.0	126.1	116.1	10.07	12.522	
2,400.0	2,395.5	2,382.8	2,375.5	5.4	5.6	-123.25	84.7	-85.0	146.6	136.0	10.55	13.897	
2,500.0	2,494.6	2,480.5	2,472.2	5.7	5.9	-125.43	91.7	-97.1	167.3	156.3	11.03	15.169	
2,600.0	2,593.8	2,578.1	2,568.8	6.0	6.2	-127.13	98.6	-109.2	188.2	176.7	11.52	16.341	
2,700.0	2,693.0	2,675.8	2,665.5	6.3	6.5	-128.49	105.6	-121.2	209.2	197.2	12.01	17.420	
2,800.0	2,792.2	2,773.4	2,762.2	6.6	6.8	-129.61	112.6	-133.3	230.4	217.8	12.51	18.415	
2,900.0	2,891.4	2,871.1	2,858.8	6.8	7.1	-130.53	119.5	-145.4	251.5	238.5	13.01	19.333	
3,000.0	2,990.6	2,968.7	2,955.5	7.1	7.4	-131.31	126.5	-157.5	272.8	259.3	13.52	20.182	
3,100.0	3,089.8	3,066.4	3,052.1	7.4	7.8	-131.98	133.5	-169.5	294.1	280.0	14.03	20.968	
3,200.0	3,188.9	3,164.0	3,148.8	7.7	8.1	-132.56	140.5	-181.6	315.4	300.9	14.54	21.696	
3,300.0	3,288.1	3,261.7	3,245.4	8.0	8.4	-133.07	147.4	-193.7	336.7	321.7	15.05	22.374	
3,400.0	3,387.3	3,359.3	3,342.1	8.4	8.7	-133.51	154.4	-205.8	358.1	342.5	15.57	23.005	
3,500.0	3,486.5	3,457.0	3,438.7	8.7	9.1	-133.91	161.4	-217.8	379.5	363.4	16.08	23.593	
3,600.0	3,585.7	3,554.7	3,535.4	9.0	9.4	-134.26	168.3	-229.9	400.9	384.3	16.60	24.143	
3,700.0	3,684.9	3,652.3	3,632.0	9.3	9.7	-134.58	175.3	-242.0	422.3	405.2	17.13	24.658	
3,800.0	3,784.0	3,750.0	3,728.7	9.6	10.0	-134.87	182.3	-254.0	443.7	426.1	17.65	25.141	
3,900.0	3,883.2	3,847.6	3,825.4	9.9	10.4	-135.13	189.2	-266.1	465.2	447.0	18.17	25.595	
4,000.0	3,982.4	3,945.3	3,922.0	10.2	10.7	-135.36	196.2	-278.2	486.6	467.9	18.70	26.022	
4,100.0	4,081.6	4,042.9	4,018.7	10.5	11.0	-135.58	203.2	-290.3	508.1	488.8	19.23	26.425	
4,200.0	4,180.8	4,140.6	4,115.3	10.8	11.4	-135.78	210.2	-302.3	529.5	509.8	19.75	26.805	
4,300.0	4,280.0	4,238.2	4,212.0	11.1	11.7	-135.96	217.1	-314.4	551.0	530.7	20.28	27.164	
4,400.0	4,379.1	4,335.9	4,308.6	11.5	12.0	-136.14	224.1	-326.5	572.5	551.6	20.81	27.504	
4,500.0	4,478.3	4,433.6	4,405.3	11.8	12.4	-136.29	231.1	-338.5	593.9	572.6	21.34	27.826	
4,600.0	4,577.6	4,531.3	4,502.0	12.1	12.7	-136.55	238.0	-350.6	615.2	593.3	21.88	28.110	
4,700.0	4,677.1	4,631.3	4,601.0	12.3	13.0	-136.74	245.2	-363.0	634.3	611.9	22.40	28.324	
4,800.0	4,776.9	4,753.9	4,722.7	12.5	13.4	-136.74	252.4	-375.5	648.9	626.0	22.89	28.353	
4,900.0	4,876.9	4,877.9	4,846.4	12.7	13.6	-136.63	257.1	-383.6	657.2	633.9	23.32	28.189	
5,000.0	4,976.9	5,002.7	4,971.1	12.8	13.8	-90.08	259.1	-387.0	660.1	636.3	23.72	27.833	

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 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-341 - Wellbore #1 - Plan #1 (4-23-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,076.9	5,108.5	5,076.9	13.0	14.0	-90.07	259.1	-387.2	660.2	636.1	24.10	27.389	
5,200.0	5,176.9	5,208.5	5,176.9	13.2	14.2	-90.07	259.1	-387.2	660.2	635.7	24.50	26.945	
5,300.0	5,276.9	5,308.5	5,276.9	13.4	14.3	-90.07	259.1	-387.2	660.2	635.3	24.90	26.514	
5,400.0	5,376.9	5,408.5	5,376.9	13.6	14.5	-90.07	259.1	-387.2	660.2	634.9	25.30	26.094	
5,500.0	5,476.9	5,508.5	5,476.9	13.8	14.7	-90.07	259.1	-387.2	660.2	634.5	25.70	25.686	
5,600.0	5,576.9	5,608.5	5,576.9	14.0	14.9	-90.07	259.1	-387.2	660.2	634.1	26.10	25.289	
5,700.0	5,676.9	5,708.5	5,676.9	14.2	15.1	-90.07	259.1	-387.2	660.2	633.6	26.51	24.903	
5,800.0	5,776.9	5,808.5	5,776.9	14.4	15.2	-90.07	259.1	-387.2	660.2	633.2	26.92	24.527	
5,862.1	5,839.0	5,870.6	5,839.0	14.5	15.4	-90.10	259.1	-387.2	660.2	633.0	27.17	24.297	
5,900.0	5,876.9	5,908.5	5,876.9	14.5	15.4	-90.08	259.1	-387.2	660.2	632.8	27.32	24.160	
6,000.0	5,976.5	6,008.5	5,976.9	14.8	15.6	-90.72	260.0	-387.2	660.2	632.4	27.79	23.756	
6,100.0	6,074.1	6,109.7	6,077.4	15.1	15.9	-91.57	271.5	-387.2	660.4	632.0	28.39	23.260	
6,200.0	6,168.2	6,212.4	6,176.8	15.5	16.2	-92.40	296.6	-387.2	660.7	631.6	29.15	22.664	
6,300.0	6,257.1	6,316.4	6,273.2	16.0	16.6	-93.20	335.4	-387.2	661.2	631.1	30.10	21.964	
6,400.0	6,339.3	6,421.7	6,364.6	16.6	17.0	-93.94	387.6	-387.2	661.7	630.5	31.28	21.154	
6,500.0	6,413.3	6,528.3	6,448.9	17.3	17.6	-94.62	452.8	-387.2	662.3	629.6	32.73	20.238	
6,600.0	6,477.9	6,636.1	6,524.1	18.1	18.4	-95.22	530.0	-387.2	662.9	628.4	34.47	19.232	
6,700.0	6,532.1	6,745.0	6,588.2	19.2	19.3	-95.72	617.8	-387.2	663.5	626.9	36.53	18.164	
6,800.0	6,574.8	6,854.8	6,639.5	20.3	20.4	-96.11	714.7	-387.2	663.9	625.0	38.89	17.070	
6,900.0	6,605.3	6,965.2	6,676.6	21.6	21.7	-96.40	818.6	-387.2	664.3	622.7	41.55	15.988	
7,000.0	6,623.2	7,076.1	6,698.5	23.0	23.2	-96.56	927.2	-387.2	664.5	620.1	44.44	14.953	
7,100.0	6,628.1	7,185.6	6,704.5	24.4	24.7	-96.60	1,036.5	-387.2	664.6	617.1	47.48	13.996	
7,200.0	6,627.2	7,285.6	6,704.6	26.0	26.2	-96.69	1,136.5	-387.2	664.7	614.2	50.53	13.155	
7,300.0	6,626.3	7,385.6	6,704.7	27.5	27.7	-96.78	1,236.5	-387.2	664.8	611.1	53.67	12.388	
7,400.0	6,625.3	7,485.5	6,704.8	29.2	29.3	-96.87	1,336.5	-387.2	664.9	608.0	56.89	11.689	
7,500.0	6,624.4	7,585.5	6,705.0	30.8	30.9	-96.96	1,436.5	-387.2	665.1	604.9	60.17	11.052	
7,600.0	6,623.5	7,685.5	6,705.1	32.5	32.5	-97.04	1,536.5	-387.2	665.2	601.7	63.52	10.472	
7,700.0	6,622.6	7,785.5	6,705.2	34.2	34.2	-97.13	1,636.5	-387.2	665.3	598.4	66.91	9.943	
7,800.0	6,621.6	7,885.5	6,705.3	35.9	35.9	-97.22	1,736.4	-387.2	665.4	595.1	70.35	9.459	
7,900.0	6,620.7	7,985.5	6,705.4	37.7	37.6	-97.31	1,836.4	-387.2	665.6	591.8	73.82	9.016	
8,000.0	6,619.8	8,085.5	6,705.5	39.4	39.4	-97.40	1,936.4	-387.2	665.7	588.4	77.32	8.610	
8,100.0	6,618.9	8,185.5	6,705.6	41.2	41.1	-97.48	2,036.4	-387.2	665.8	585.0	80.84	8.236	
8,200.0	6,617.9	8,285.5	6,705.7	43.0	42.9	-97.57	2,136.4	-387.2	666.0	581.6	84.39	7.892	
8,300.0	6,617.0	8,385.5	6,705.8	44.8	44.7	-97.66	2,236.4	-387.2	666.1	578.1	87.96	7.573	
8,400.0	6,616.1	8,485.5	6,705.9	46.6	46.4	-97.75	2,336.4	-387.2	666.2	574.7	91.54	7.278	
8,500.0	6,615.2	8,585.5	6,706.0	48.4	48.3	-97.83	2,436.4	-387.2	666.4	571.2	95.14	7.004	
8,600.0	6,614.2	8,685.5	6,706.1	50.2	50.1	-97.92	2,536.4	-387.2	666.5	567.8	98.75	6.749	
8,700.0	6,613.3	8,785.5	6,706.2	52.1	51.9	-98.01	2,636.4	-387.2	666.7	564.3	102.38	6.512	
8,800.0	6,612.4	8,885.5	6,706.3	53.9	53.7	-98.10	2,736.4	-387.2	666.8	560.8	106.01	6.290	
8,900.0	6,611.5	8,985.5	6,706.4	55.7	55.5	-98.19	2,836.4	-387.2	667.0	557.3	109.66	6.082	
9,000.0	6,610.5	9,085.5	6,706.5	57.6	57.4	-98.27	2,936.4	-387.2	667.1	553.8	113.31	5.888	
9,100.0	6,609.6	9,185.5	6,706.6	59.4	59.2	-98.36	3,036.4	-387.2	667.3	550.3	116.96	5.705	
9,200.0	6,608.7	9,285.5	6,706.7	61.3	61.1	-98.45	3,136.4	-387.2	667.4	546.8	120.63	5.533	
9,300.0	6,607.8	9,385.4	6,706.8	63.2	62.9	-98.54	3,236.4	-387.2	667.6	543.3	124.30	5.371	
9,400.0	6,606.8	9,485.4	6,706.9	65.0	64.8	-98.62	3,336.4	-387.2	667.7	539.7	127.97	5.218	
9,500.0	6,605.9	9,585.4	6,707.0	66.9	66.6	-98.71	3,436.4	-387.2	667.9	536.2	131.65	5.073	
9,600.0	6,605.0	9,685.4	6,707.1	68.8	68.5	-98.80	3,536.4	-387.2	668.0	532.7	135.33	4.936	
9,700.0	6,604.1	9,785.4	6,707.3	70.6	70.4	-98.88	3,636.3	-387.2	668.2	529.2	139.02	4.806	
9,800.0	6,603.1	9,885.4	6,707.4	72.5	72.2	-98.97	3,736.3	-387.2	668.3	525.6	142.71	4.683	
9,900.0	6,602.2	9,985.4	6,707.5	74.4	74.1	-99.06	3,836.3	-387.2	668.5	522.1	146.40	4.566	
10,000.0	6,601.3	10,085.4	6,707.6	76.3	76.0	-99.15	3,936.3	-387.2	668.7	518.6	150.09	4.455	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-341 - Wellbore #1 - Plan #1 (4-23-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,600.4	10,185.4	6,707.7	78.2	77.9	-99.23	4,036.3	-387.2	668.8	515.0	153.79	4.349	
10,200.0	6,599.4	10,285.4	6,707.8	80.0	79.7	-99.32	4,136.3	-387.2	669.0	511.5	157.49	4.248	
10,300.0	6,598.5	10,385.4	6,707.9	81.9	81.6	-99.41	4,236.3	-387.2	669.2	508.0	161.18	4.152	
10,400.0	6,597.6	10,485.4	6,708.0	83.8	83.5	-99.49	4,336.3	-387.2	669.3	504.5	164.88	4.059	
10,500.0	6,596.7	10,585.4	6,708.1	85.7	85.4	-99.58	4,436.3	-387.2	669.5	500.9	168.58	3.971	
10,600.0	6,595.7	10,685.4	6,708.2	87.6	87.3	-99.67	4,536.3	-387.2	669.7	497.4	172.28	3.887	
10,700.0	6,594.8	10,785.4	6,708.3	89.5	89.2	-99.75	4,636.3	-387.2	669.9	493.9	175.98	3.806	
10,800.0	6,593.9	10,885.4	6,708.4	91.4	91.1	-99.84	4,736.3	-387.2	670.0	490.3	179.69	3.729	
10,900.0	6,593.0	10,985.4	6,708.5	93.3	92.9	-99.93	4,836.3	-387.2	670.2	486.8	183.39	3.655	
11,000.0	6,592.0	11,085.4	6,708.6	95.2	94.8	-100.01	4,936.3	-387.2	670.4	483.3	187.09	3.583	
11,100.0	6,591.1	11,185.3	6,708.7	97.1	96.7	-100.10	5,036.3	-387.2	670.6	479.8	190.79	3.515	
11,200.0	6,590.2	11,285.3	6,708.8	99.0	98.6	-100.19	5,136.3	-387.2	670.8	476.3	194.49	3.449	
11,300.0	6,589.3	11,385.3	6,708.9	100.9	100.5	-100.27	5,236.3	-387.2	670.9	472.7	198.19	3.385	
11,400.0	6,588.3	11,485.3	6,709.0	102.8	102.4	-100.36	5,336.3	-387.2	671.1	469.2	201.89	3.324	
11,500.0	6,587.4	11,585.3	6,709.1	104.7	104.3	-100.45	5,436.3	-387.2	671.3	465.7	205.59	3.265	
11,600.0	6,586.5	11,685.3	6,709.2	106.6	106.2	-100.53	5,536.2	-387.2	671.5	462.2	209.29	3.208	
11,700.0	6,585.6	11,785.3	6,709.3	108.5	108.1	-100.62	5,636.2	-387.2	671.7	458.7	212.99	3.154	
11,800.0	6,584.6	11,885.3	6,709.5	110.4	110.0	-100.71	5,736.2	-387.2	671.9	455.2	216.68	3.101	
11,900.0	6,583.7	11,985.3	6,709.6	112.3	111.9	-100.79	5,836.2	-387.2	672.1	451.7	220.38	3.050	
12,000.0	6,582.8	12,085.3	6,709.7	114.2	113.8	-100.88	5,936.2	-387.2	672.3	448.2	224.07	3.000	
12,100.0	6,581.9	12,185.3	6,709.8	116.1	115.7	-100.96	6,036.2	-387.2	672.5	444.7	227.77	2.952	
12,200.0	6,580.9	12,285.3	6,709.9	118.0	117.6	-101.05	6,136.2	-387.2	672.7	441.2	231.46	2.906	
12,300.0	6,580.0	12,385.3	6,710.0	119.9	119.5	-101.14	6,236.2	-387.2	672.9	437.7	235.15	2.861	
12,400.0	6,579.1	12,485.3	6,710.1	121.8	121.4	-101.22	6,336.2	-387.2	673.1	434.2	238.84	2.818	
12,500.0	6,578.2	12,585.3	6,710.2	123.7	123.3	-101.31	6,436.2	-387.2	673.3	430.7	242.53	2.776	
12,600.0	6,577.2	12,685.3	6,710.3	125.6	125.2	-101.39	6,536.2	-387.2	673.5	427.2	246.22	2.735	
12,700.0	6,576.3	12,785.3	6,710.4	127.5	127.1	-101.48	6,636.2	-387.2	673.7	423.8	249.90	2.696	
12,800.0	6,575.4	12,885.3	6,710.5	129.4	129.0	-101.57	6,736.2	-387.2	673.9	420.3	253.59	2.657	
12,900.0	6,574.5	12,985.3	6,710.6	131.3	130.9	-101.65	6,836.2	-387.2	674.1	416.8	257.27	2.620	
13,000.0	6,573.5	13,085.2	6,710.7	133.2	132.8	-101.74	6,936.2	-387.2	674.3	413.3	260.95	2.584	
13,100.0	6,572.6	13,185.2	6,710.8	135.1	134.7	-101.82	7,036.2	-387.2	674.5	409.9	264.63	2.549	
13,200.0	6,571.7	13,285.2	6,710.9	137.0	136.6	-101.91	7,136.2	-387.2	674.7	406.4	268.30	2.515	
13,273.4	6,571.0	13,358.7	6,711.0	138.4	138.0	-101.97	7,209.6	-387.2	674.9	403.9	271.00	2.490	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-401 - Wellbore #1 - Plan #1 (4-23-14)

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	-161.85	-25.5	-8.4	26.8				
100.0	100.0	100.0	100.0	0.1	0.1	-161.85	-25.5	-8.4	26.8	26.6	0.22	119.382	
200.0	200.0	200.0	200.0	0.3	0.3	-161.85	-25.5	-8.4	26.8	26.2	0.67	39.794	
300.0	300.0	300.0	300.0	0.6	0.6	-161.85	-25.5	-8.4	26.8	25.7	1.12	23.876	
400.0	400.0	400.0	400.0	0.8	0.8	-161.85	-25.5	-8.4	26.8	25.3	1.57	17.055	
500.0	500.0	500.0	500.0	1.0	1.0	-161.85	-25.5	-8.4	26.8	24.8	2.02	13.265	
600.0	600.0	600.0	600.0	1.2	1.2	-161.85	-25.5	-8.4	26.8	24.4	2.47	10.853	
700.0	700.0	700.0	700.0	1.5	1.5	-161.85	-25.5	-8.4	26.8	23.9	2.92	9.183	
800.0	800.0	800.0	800.0	1.7	1.7	-161.85	-25.5	-8.4	26.8	23.5	3.37	7.959	
900.0	900.0	900.0	900.0	1.9	1.9	-161.85	-25.5	-8.4	26.8	23.0	3.82	7.022	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-161.85	-25.5	-8.4	26.8	22.6	4.27	6.283	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-161.85	-25.5	-8.4	26.8	22.1	4.72	5.685	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-161.85	-25.5	-8.4	26.8	21.7	5.17	5.191	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-161.85	-25.5	-8.4	26.8	21.2	5.62	4.775	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-161.85	-25.5	-8.4	26.8	20.8	6.07	4.422	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-161.85	-25.5	-8.4	26.8	20.3	6.52	4.117	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-161.85	-25.5	-8.4	26.8	19.9	6.97	3.851	CC, ES
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	153.41	-25.5	-8.4	28.4	21.0	7.41	3.830	
1,800.0	1,799.8	1,799.8	1,799.8	3.9	3.9	157.42	-25.5	-8.4	33.1	25.3	7.84	4.225	
1,900.0	1,899.5	1,899.5	1,899.5	4.2	4.2	162.01	-25.5	-8.4	41.3	33.1	8.27	4.997	
2,000.0	1,998.7	1,998.7	1,998.7	4.4	4.4	165.99	-25.5	-8.4	52.9	44.2	8.70	6.079	
2,100.0	2,097.9	2,099.1	2,099.1	4.6	4.6	169.53	-24.2	-8.6	64.4	55.3	9.14	7.047	
2,200.0	2,197.1	2,199.7	2,199.6	4.9	4.8	173.50	-20.3	-9.2	74.4	64.8	9.58	7.762	
2,300.0	2,296.3	2,300.5	2,300.2	5.2	5.1	177.96	-13.8	-10.3	83.0	73.0	10.03	8.280	
2,400.0	2,395.5	2,401.2	2,400.4	5.4	5.3	-177.03	-4.7	-11.8	90.7	80.2	10.48	8.654	
2,500.0	2,494.6	2,501.0	2,499.6	5.7	5.5	-171.80	6.3	-13.6	98.0	87.1	10.94	8.956	
2,600.0	2,593.8	2,600.3	2,598.3	6.0	5.8	-167.26	17.5	-15.4	105.9	94.5	11.41	9.280	
2,700.0	2,693.0	2,699.7	2,697.0	6.3	6.0	-163.37	28.7	-17.2	114.4	102.5	11.90	9.617	
2,800.0	2,792.2	2,799.0	2,795.7	6.6	6.3	-160.03	39.8	-19.0	123.4	111.0	12.40	9.954	
2,900.0	2,891.4	2,898.4	2,894.4	6.8	6.5	-157.14	51.0	-20.9	132.7	119.8	12.90	10.286	
3,000.0	2,990.6	2,997.7	2,993.1	7.1	6.8	-154.64	62.2	-22.7	142.3	128.9	13.42	10.607	
3,100.0	3,089.8	3,097.1	3,091.9	7.4	7.0	-152.46	73.3	-24.5	152.2	138.2	13.94	10.915	
3,200.0	3,188.9	3,196.5	3,190.6	7.7	7.3	-150.54	84.5	-26.3	162.2	147.7	14.47	11.210	
3,300.0	3,288.1	3,295.8	3,289.3	8.0	7.6	-148.85	95.7	-28.2	172.4	157.4	15.00	11.489	
3,400.0	3,387.3	3,395.2	3,388.0	8.4	7.8	-147.35	106.8	-30.0	182.7	167.2	15.54	11.754	
3,500.0	3,486.5	3,494.5	3,486.7	8.7	8.1	-146.01	118.0	-31.8	193.2	177.1	16.09	12.005	
3,600.0	3,585.7	3,593.9	3,585.4	9.0	8.4	-144.81	129.2	-33.6	203.7	187.1	16.64	12.242	
3,700.0	3,684.9	3,693.2	3,684.1	9.3	8.7	-143.72	140.3	-35.5	214.3	197.1	17.19	12.466	
3,800.0	3,784.0	3,792.6	3,782.8	9.6	8.9	-142.74	151.5	-37.3	225.0	207.2	17.75	12.678	
3,900.0	3,883.2	3,892.0	3,881.5	9.9	9.2	-141.85	162.7	-39.1	235.7	217.4	18.30	12.878	
4,000.0	3,982.4	3,991.3	3,980.3	10.2	9.5	-141.04	173.8	-40.9	246.5	227.7	18.86	13.068	
4,100.0	4,081.6	4,090.7	4,079.0	10.5	9.8	-140.29	185.0	-42.8	257.4	237.9	19.43	13.247	
4,200.0	4,180.8	4,190.0	4,177.7	10.8	10.1	-139.60	196.2	-44.6	268.2	248.2	19.99	13.417	
4,300.0	4,280.0	4,289.4	4,276.4	11.1	10.4	-138.97	207.3	-46.4	279.1	258.6	20.56	13.578	
4,400.0	4,379.1	4,388.7	4,375.1	11.5	10.7	-138.39	218.5	-48.2	290.1	269.0	21.13	13.731	
4,500.0	4,478.3	4,488.1	4,473.8	11.8	10.9	-137.84	229.7	-50.1	301.1	279.4	21.70	13.876	
4,600.0	4,577.6	4,587.6	4,572.6	12.1	11.2	-137.36	240.8	-51.9	311.8	289.6	22.27	14.005	
4,700.0	4,677.1	4,688.4	4,672.9	12.3	11.5	-136.87	250.7	-53.5	320.3	297.5	22.73	14.087	
4,800.0	4,776.9	4,789.5	4,773.8	12.5	11.7	-136.41	257.9	-54.7	325.8	302.6	23.16	14.068	
4,900.0	4,876.9	4,890.9	4,875.1	12.7	11.9	-135.95	262.5	-55.4	328.4	304.8	23.53	13.953	
5,000.0	4,976.9	4,992.4	4,976.5	12.8	12.0	-89.23	264.4	-55.7	328.8	304.9	23.89	13.760	

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 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-401 - Wellbore #1 - Plan #1 (4-23-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,076.9	5,092.7	5,076.9	13.0	12.2	-89.22	264.5	-55.8	328.8	304.5	24.27	13.547	
5,200.0	5,176.9	5,192.7	5,176.9	13.2	12.4	-89.22	264.5	-55.8	328.8	304.1	24.67	13.329	
5,300.0	5,276.9	5,292.7	5,276.9	13.4	12.6	-89.22	264.5	-55.8	328.8	303.7	25.07	13.115	
5,400.0	5,376.9	5,392.7	5,376.9	13.6	12.8	-89.22	264.5	-55.8	328.8	303.3	25.47	12.908	
5,500.0	5,476.9	5,492.7	5,476.9	13.8	13.0	-89.22	264.5	-55.8	328.8	302.9	25.88	12.706	
5,600.0	5,576.9	5,592.7	5,576.9	14.0	13.2	-89.22	264.5	-55.8	328.8	302.5	26.28	12.509	
5,700.0	5,676.9	5,692.7	5,676.9	14.2	13.4	-89.22	264.5	-55.8	328.8	302.1	26.69	12.318	
5,800.0	5,776.9	5,792.7	5,776.9	14.4	13.6	-89.22	264.5	-55.8	328.8	301.7	27.10	12.133	
5,900.0	5,876.9	5,892.7	5,876.9	14.5	13.8	-89.23	264.5	-55.8	328.8	301.3	27.51	11.952	
5,970.4	5,947.1	5,962.9	5,947.1	14.7	14.0	-90.00	264.5	-55.8	328.8	300.9	27.82	11.819	
6,000.0	5,976.5	5,992.3	5,976.5	14.8	14.0	-90.65	264.5	-55.8	328.8	300.8	27.94	11.768	
6,100.0	6,074.1	6,091.9	6,076.0	15.1	14.3	-93.82	267.1	-55.8	329.5	301.1	28.43	11.592	
6,200.0	6,168.2	6,194.3	6,177.2	15.5	14.6	-97.11	282.3	-55.8	331.4	302.3	29.06	11.403	
6,300.0	6,257.1	6,299.6	6,278.1	16.0	15.0	-100.27	311.9	-55.8	334.3	304.4	29.85	11.198	
6,400.0	6,339.3	6,407.8	6,376.7	16.6	15.5	-103.25	356.5	-55.8	338.0	307.2	30.81	10.970	
6,500.0	6,413.3	6,519.1	6,470.4	17.3	16.2	-105.98	416.3	-55.8	342.3	310.3	31.97	10.709	
6,600.0	6,477.9	6,633.4	6,556.5	18.1	17.1	-108.40	491.3	-55.8	346.8	313.5	33.35	10.399	
6,700.0	6,532.1	6,750.5	6,632.1	19.2	18.2	-110.46	580.5	-55.8	351.2	316.2	35.01	10.030	
6,800.0	6,574.8	6,870.1	6,694.4	20.3	19.6	-112.12	682.5	-55.8	355.1	318.1	37.01	9.593	
6,900.0	6,605.3	6,991.9	6,740.7	21.6	21.1	-113.34	795.0	-55.8	358.2	318.8	39.37	9.098	
7,000.0	6,623.2	7,115.1	6,768.7	23.0	22.8	-114.10	914.9	-55.8	360.2	318.1	42.09	8.558	
7,100.0	6,628.1	7,221.5	6,780.6	24.4	24.4	-114.86	1,020.5	-55.8	362.7	318.0	44.75	8.106	
7,200.0	6,627.2	7,336.8	6,787.0	26.0	26.2	-115.93	1,135.7	-55.8	365.6	318.1	47.46	7.703	
7,300.0	6,626.3	7,437.3	6,787.3	27.5	27.8	-116.10	1,236.1	-55.8	366.1	315.8	50.31	7.276	
7,400.0	6,625.3	7,537.2	6,787.6	29.2	29.4	-116.27	1,336.1	-55.8	366.6	313.4	53.22	6.889	
7,500.0	6,624.4	7,637.2	6,787.9	30.8	31.1	-116.44	1,436.1	-55.8	367.1	311.0	56.18	6.535	
7,600.0	6,623.5	7,737.2	6,788.1	32.5	32.8	-116.60	1,536.1	-55.8	367.7	308.5	59.19	6.212	
7,700.0	6,622.6	7,837.2	6,788.4	34.2	34.5	-116.77	1,636.1	-55.8	368.2	306.0	62.24	5.917	
7,800.0	6,621.6	7,937.2	6,788.7	35.9	36.3	-116.94	1,736.1	-55.7	368.8	303.5	65.31	5.646	
7,900.0	6,620.7	8,037.2	6,789.0	37.7	38.0	-117.11	1,836.1	-55.7	369.3	300.9	68.41	5.399	
8,000.0	6,619.8	8,137.2	6,789.3	39.4	39.8	-117.27	1,936.1	-55.7	369.9	298.3	71.53	5.171	
8,100.0	6,618.9	8,237.2	6,789.5	41.2	41.6	-117.44	2,036.1	-55.7	370.4	295.8	74.66	4.961	
8,200.0	6,617.9	8,337.2	6,789.8	43.0	43.4	-117.60	2,136.0	-55.7	371.0	293.2	77.81	4.768	
8,300.0	6,617.0	8,437.2	6,790.1	44.8	45.2	-117.77	2,236.0	-55.7	371.5	290.6	80.97	4.589	
8,400.0	6,616.1	8,537.2	6,790.4	46.6	47.0	-117.93	2,336.0	-55.7	372.1	288.0	84.14	4.422	
8,500.0	6,615.2	8,637.2	6,790.7	48.4	48.8	-118.09	2,436.0	-55.7	372.7	285.3	87.31	4.268	
8,600.0	6,614.2	8,737.2	6,790.9	50.2	50.7	-118.26	2,536.0	-55.7	373.2	282.7	90.49	4.125	
8,700.0	6,613.3	8,837.2	6,791.2	52.1	52.5	-118.42	2,636.0	-55.7	373.8	280.1	93.67	3.991	
8,800.0	6,612.4	8,937.1	6,791.5	53.9	54.3	-118.58	2,736.0	-55.7	374.4	277.5	96.85	3.865	
8,900.0	6,611.5	9,037.1	6,791.8	55.7	56.2	-118.74	2,836.0	-55.7	374.9	274.9	100.04	3.748	
9,000.0	6,610.5	9,137.1	6,792.1	57.6	58.0	-118.91	2,936.0	-55.7	375.5	272.3	103.22	3.638	
9,100.0	6,609.6	9,237.1	6,792.3	59.4	59.9	-119.07	3,036.0	-55.7	376.1	269.7	106.41	3.535	
9,200.0	6,608.7	9,337.1	6,792.6	61.3	61.8	-119.23	3,136.0	-55.7	376.7	267.1	109.59	3.437	
9,300.0	6,607.8	9,437.1	6,792.9	63.2	63.6	-119.39	3,236.0	-55.7	377.3	264.5	112.77	3.346	
9,400.0	6,606.8	9,537.1	6,793.2	65.0	65.5	-119.54	3,336.0	-55.7	377.9	261.9	115.94	3.259	
9,500.0	6,605.9	9,637.1	6,793.5	66.9	67.4	-119.70	3,435.9	-55.7	378.5	259.4	119.12	3.177	
9,600.0	6,605.0	9,737.1	6,793.7	68.8	69.2	-119.86	3,535.9	-55.7	379.1	256.8	122.29	3.100	
9,700.0	6,604.1	9,837.1	6,794.0	70.6	71.1	-120.02	3,635.9	-55.7	379.7	254.2	125.45	3.026	
9,800.0	6,603.1	9,937.1	6,794.3	72.5	73.0	-120.18	3,735.9	-55.7	380.3	251.7	128.61	2.957	
9,900.0	6,602.2	10,037.1	6,794.6	74.4	74.9	-120.33	3,835.9	-55.7	380.9	249.1	131.77	2.891	
10,000.0	6,601.3	10,137.1	6,794.8	76.3	76.8	-120.49	3,935.9	-55.7	381.5	246.6	134.92	2.828	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-401 - Wellbore #1 - Plan #1 (4-23-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,600.4	10,237.1	6,795.1	78.2	78.6	-120.65	4,035.9	-55.7	382.1	244.0	138.06	2.768	
10,200.0	6,599.4	10,337.0	6,795.4	80.0	80.5	-120.80	4,135.9	-55.7	382.7	241.5	141.20	2.710	
10,300.0	6,598.5	10,437.0	6,795.7	81.9	82.4	-120.95	4,235.9	-55.7	383.3	239.0	144.33	2.656	
10,400.0	6,597.6	10,537.0	6,796.0	83.8	84.3	-121.11	4,335.9	-55.7	384.0	236.5	147.46	2.604	
10,500.0	6,596.7	10,637.0	6,796.2	85.7	86.2	-121.26	4,435.9	-55.7	384.6	234.0	150.58	2.554	
10,600.0	6,595.7	10,737.0	6,796.5	87.6	88.1	-121.42	4,535.9	-55.7	385.2	231.5	153.69	2.506	
10,700.0	6,594.8	10,837.0	6,796.8	89.5	90.0	-121.57	4,635.9	-55.7	385.8	229.0	156.80	2.461	
10,800.0	6,593.9	10,937.0	6,797.1	91.4	91.9	-121.72	4,735.8	-55.7	386.5	226.6	159.90	2.417	
10,900.0	6,593.0	11,037.0	6,797.4	93.3	93.8	-121.87	4,835.8	-55.7	387.1	224.1	162.99	2.375	
11,000.0	6,592.0	11,137.0	6,797.6	95.2	95.7	-122.02	4,935.8	-55.7	387.7	221.7	166.07	2.335	
11,100.0	6,591.1	11,237.0	6,797.9	97.1	97.6	-122.17	5,035.8	-55.7	388.4	219.2	169.15	2.296	
11,200.0	6,590.2	11,337.0	6,798.2	99.0	99.5	-122.32	5,135.8	-55.7	389.0	216.8	172.22	2.259	
11,300.0	6,589.3	11,437.0	6,798.5	100.9	101.4	-122.47	5,235.8	-55.7	389.7	214.4	175.29	2.223	
11,400.0	6,588.3	11,537.0	6,798.8	102.8	103.3	-122.62	5,335.8	-55.7	390.3	212.0	178.34	2.189	
11,500.0	6,587.4	11,636.9	6,799.0	104.7	105.2	-122.77	5,435.8	-55.7	391.0	209.6	181.39	2.155	
11,600.0	6,586.5	11,736.9	6,799.3	106.6	107.1	-122.92	5,535.8	-55.7	391.6	207.2	184.43	2.123	
11,700.0	6,585.6	11,836.9	6,799.6	108.5	109.0	-123.07	5,635.8	-55.7	392.3	204.8	187.46	2.092	
11,800.0	6,584.6	11,936.9	6,799.9	110.4	110.9	-123.22	5,735.8	-55.7	392.9	202.4	190.49	2.063	
11,900.0	6,583.7	12,036.9	6,800.2	112.3	112.8	-123.36	5,835.8	-55.7	393.6	200.1	193.50	2.034	
12,000.0	6,582.8	12,136.9	6,800.4	114.2	114.7	-123.51	5,935.8	-55.7	394.2	197.7	196.51	2.006	
12,100.0	6,581.9	12,236.9	6,800.7	116.1	116.6	-123.65	6,035.7	-55.7	394.9	195.4	199.51	1.979	
12,200.0	6,580.9	12,336.9	6,801.0	118.0	118.5	-123.80	6,135.7	-55.7	395.6	193.1	202.50	1.953	
12,300.0	6,580.0	12,436.9	6,801.3	119.9	120.4	-123.94	6,235.7	-55.7	396.2	190.8	205.49	1.928	
12,400.0	6,579.1	12,536.9	6,801.5	121.8	122.3	-124.09	6,335.7	-55.7	396.9	188.5	208.47	1.904	
12,500.0	6,578.2	12,636.9	6,801.8	123.7	124.2	-124.23	6,435.7	-55.7	397.6	186.2	211.43	1.880	
12,600.0	6,577.2	12,736.9	6,802.1	125.6	126.1	-124.38	6,535.7	-55.7	398.3	183.9	214.39	1.858	
12,700.0	6,576.3	12,836.9	6,802.4	127.5	128.0	-124.52	6,635.7	-55.7	399.0	181.6	217.35	1.836	
12,800.0	6,575.4	12,936.9	6,802.7	129.4	129.9	-124.66	6,735.7	-55.7	399.6	179.3	220.29	1.814	
12,900.0	6,574.5	13,036.8	6,802.9	131.3	131.8	-124.80	6,835.7	-55.7	400.3	177.1	223.23	1.793	
13,000.0	6,573.5	13,136.8	6,803.2	133.2	133.7	-124.94	6,935.7	-55.7	401.0	174.9	226.15	1.773	
13,100.0	6,572.6	13,236.8	6,803.5	135.1	135.6	-125.08	7,035.7	-55.7	401.7	172.6	229.07	1.754	
13,200.0	6,571.7	13,336.8	6,803.8	137.0	137.6	-125.22	7,135.7	-55.7	402.4	170.4	231.99	1.735	
13,273.4	6,571.0	13,410.2	6,804.0	138.4	139.0	-125.33	7,209.1	-55.7	402.9	168.8	234.12	1.721	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-421 - Wellbore #1 - Plan #1 (4-23-14)

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	20.93	58.3	22.3	62.4				
100.0	100.0	100.0	100.0	0.1	0.1	20.93	58.3	22.3	62.4	62.2	0.22	277.651	
200.0	200.0	200.0	200.0	0.3	0.3	20.93	58.3	22.3	62.4	61.7	0.67	92.550	
300.0	300.0	300.0	300.0	0.6	0.6	20.93	58.3	22.3	62.4	61.3	1.12	55.530	
400.0	400.0	400.0	400.0	0.8	0.8	20.93	58.3	22.3	62.4	60.8	1.57	39.664	
500.0	500.0	500.0	500.0	1.0	1.0	20.93	58.3	22.3	62.4	60.4	2.02	30.850	
600.0	600.0	600.0	600.0	1.2	1.2	20.93	58.3	22.3	62.4	59.9	2.47	25.241	
700.0	700.0	700.0	700.0	1.5	1.5	20.93	58.3	22.3	62.4	59.5	2.92	21.358	
800.0	800.0	800.0	800.0	1.7	1.7	20.93	58.3	22.3	62.4	59.0	3.37	18.510	
900.0	900.0	900.0	900.0	1.9	1.9	20.93	58.3	22.3	62.4	58.6	3.82	16.332	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	20.93	58.3	22.3	62.4	58.1	4.27	14.613	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	20.93	58.3	22.3	62.4	57.7	4.72	13.221	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	20.93	58.3	22.3	62.4	57.2	5.17	12.072	CC, ES
1,300.0	1,300.0	1,298.6	1,298.5	2.8	2.8	22.09	58.9	23.9	63.5	57.9	5.61	11.331	
1,400.0	1,400.0	1,396.9	1,396.7	3.0	3.0	25.32	60.6	28.7	67.1	61.0	6.04	11.105	
1,500.0	1,500.0	1,494.8	1,494.2	3.3	3.2	29.98	63.4	36.6	73.4	66.9	6.48	11.320	
1,600.0	1,600.0	1,591.9	1,590.7	3.5	3.5	35.22	67.3	47.5	82.9	75.9	6.94	11.940	
1,700.0	1,700.0	1,688.5	1,686.1	3.7	3.7	-6.12	72.3	61.4	94.1	86.8	7.37	12.775	
1,800.0	1,799.8	1,786.9	1,783.0	3.9	4.0	-1.60	78.1	77.8	104.7	96.9	7.80	13.412	
1,900.0	1,899.5	1,886.3	1,880.8	4.2	4.3	2.19	84.1	94.5	112.4	104.1	8.23	13.648	
2,000.0	1,998.7	1,986.0	1,978.9	4.4	4.6	5.63	90.0	111.2	117.2	108.5	8.67	13.527	
2,100.0	2,097.9	2,085.6	2,077.0	4.6	5.0	8.84	96.0	127.9	121.7	112.6	9.12	13.351	
2,200.0	2,197.1	2,185.3	2,175.0	4.9	5.3	11.82	102.0	144.6	126.5	117.0	9.57	13.224	
2,300.0	2,296.3	2,285.0	2,273.1	5.2	5.7	14.57	108.0	161.3	131.7	121.7	10.03	13.137	
2,400.0	2,395.5	2,384.7	2,371.2	5.4	6.0	17.11	113.9	178.1	137.2	126.7	10.49	13.079	
2,500.0	2,494.6	2,484.3	2,469.3	5.7	6.4	19.46	119.9	194.8	142.8	131.9	10.95	13.041	
2,600.0	2,593.8	2,584.0	2,567.4	6.0	6.8	21.62	125.9	211.5	148.8	137.3	11.43	13.017	
2,700.0	2,693.0	2,683.7	2,665.4	6.3	7.1	23.61	131.8	228.2	154.9	143.0	11.91	13.005	
2,800.0	2,792.2	2,783.4	2,763.5	6.6	7.5	25.45	137.8	244.9	161.1	148.8	12.40	12.999	
2,900.0	2,891.4	2,883.0	2,861.6	6.8	7.9	27.15	143.8	261.6	167.6	154.7	12.89	12.998	
3,000.0	2,990.6	2,982.7	2,959.7	7.1	8.3	28.72	149.7	278.3	174.2	160.8	13.40	12.999	
3,100.0	3,089.8	3,082.4	3,057.8	7.4	8.7	30.18	155.7	295.0	180.8	166.9	13.91	13.003	
3,200.0	3,188.9	3,182.1	3,155.8	7.7	9.0	31.54	161.7	311.8	187.6	173.2	14.43	13.007	
3,300.0	3,288.1	3,281.7	3,253.9	8.0	9.4	32.80	167.7	328.5	194.5	179.6	14.95	13.011	
3,400.0	3,387.3	3,381.4	3,352.0	8.4	9.8	33.97	173.6	345.2	201.5	186.0	15.48	13.015	
3,500.0	3,486.5	3,481.1	3,450.1	8.7	10.2	35.06	179.6	361.9	208.6	192.6	16.02	13.019	
3,600.0	3,585.7	3,580.8	3,548.2	9.0	10.6	36.08	185.6	378.6	215.7	199.2	16.57	13.023	
3,700.0	3,684.9	3,680.4	3,646.3	9.3	11.0	37.04	191.5	395.3	222.9	205.8	17.11	13.026	
3,800.0	3,784.0	3,780.1	3,744.3	9.6	11.4	37.94	197.5	412.0	230.2	212.5	17.67	13.028	
3,900.0	3,883.2	3,879.8	3,842.4	9.9	11.8	38.78	203.5	428.7	237.5	219.3	18.23	13.030	
4,000.0	3,982.4	3,979.4	3,940.5	10.2	12.2	39.57	209.4	445.5	244.8	226.1	18.79	13.031	
4,100.0	4,081.6	4,079.1	4,038.6	10.5	12.6	40.31	215.4	462.2	252.3	232.9	19.36	13.032	
4,200.0	4,180.8	4,178.8	4,136.7	10.8	13.0	41.02	221.4	478.9	259.7	239.8	19.93	13.032	
4,300.0	4,280.0	4,278.5	4,234.7	11.1	13.4	41.68	227.4	495.6	267.2	246.7	20.50	13.032	
4,400.0	4,379.1	4,378.1	4,332.8	11.5	13.8	42.31	233.3	512.3	274.7	253.6	21.08	13.032	
4,500.0	4,478.3	4,477.8	4,430.9	11.8	14.2	42.90	239.3	529.0	282.2	260.6	21.66	13.031	
4,600.0	4,577.6	4,581.7	4,533.1	12.1	14.5	43.50	245.4	546.1	289.7	267.5	22.23	13.034	
4,700.0	4,677.1	4,692.0	4,642.4	12.3	14.9	43.96	250.8	561.1	296.4	273.7	22.70	13.056	
4,800.0	4,776.9	4,802.7	4,752.4	12.5	15.1	44.15	254.7	572.1	302.0	278.9	23.12	13.066	
4,900.0	4,876.9	4,913.7	4,863.1	12.7	15.3	44.10	257.2	579.1	306.5	283.0	23.46	13.063	
5,000.0	4,976.9	5,024.9	4,974.3	12.8	15.5	90.32	258.3	582.1	309.1	285.3	23.81	12.980	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-421 - Wellbore #1 - Plan #1 (4-23-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,076.9	5,127.5	5,076.9	13.0	15.7	90.32	258.3	582.2	309.2	285.0	24.20	12.779	
5,200.0	5,176.9	5,227.5	5,176.9	13.2	15.8	90.32	258.3	582.2	309.2	284.6	24.59	12.576	
5,300.0	5,276.9	5,327.5	5,276.9	13.4	16.0	90.32	258.3	582.2	309.2	284.2	24.98	12.378	
5,400.0	5,376.9	5,427.5	5,376.9	13.6	16.1	90.32	258.3	582.2	309.2	283.8	25.37	12.185	
5,500.0	5,476.9	5,527.5	5,476.9	13.8	16.3	90.32	258.3	582.2	309.2	283.4	25.77	11.998	
5,600.0	5,576.9	5,627.5	5,576.9	14.0	16.4	90.32	258.3	582.2	309.2	283.0	26.17	11.815	
5,700.0	5,676.9	5,727.5	5,676.9	14.2	16.6	90.32	258.3	582.2	309.2	282.6	26.57	11.637	
5,800.0	5,776.9	5,827.5	5,776.9	14.4	16.8	90.32	258.3	582.2	309.2	282.2	26.97	11.464	
5,862.0	5,838.9	5,889.5	5,838.9	14.5	16.9	90.38	258.3	582.2	309.2	282.0	27.23	11.357	
5,900.0	5,876.9	5,927.5	5,876.9	14.5	16.9	90.34	258.3	582.2	309.2	281.8	27.38	11.294	
6,000.0	5,976.5	6,027.1	5,976.5	14.8	17.1	91.83	258.3	582.2	309.4	281.4	27.92	11.079	
6,100.0	6,074.1	6,128.1	6,077.2	15.1	17.3	94.71	263.8	582.2	310.3	281.6	28.65	10.828	
6,200.0	6,168.2	6,231.4	6,178.7	15.5	17.5	97.53	283.1	582.2	311.9	282.4	29.51	10.571	
6,300.0	6,257.1	6,337.0	6,278.7	16.0	17.8	100.22	316.7	582.2	314.3	283.8	30.48	10.310	
6,400.0	6,339.3	6,445.0	6,375.2	16.6	18.2	102.72	365.0	582.2	317.1	285.5	31.57	10.044	
6,500.0	6,413.3	6,555.3	6,465.7	17.3	18.7	104.98	427.9	582.2	320.2	287.5	32.78	9.768	
6,600.0	6,477.9	6,667.8	6,547.7	18.1	19.3	106.96	504.7	582.2	323.4	289.3	34.13	9.475	
6,700.0	6,532.1	6,782.3	6,618.6	19.2	20.1	108.61	594.4	582.2	326.4	290.7	35.64	9.158	
6,800.0	6,574.8	6,898.5	6,676.2	20.3	21.0	109.90	695.3	582.2	328.9	291.6	37.33	8.811	
6,900.0	6,605.3	7,016.0	6,718.1	21.6	22.2	110.81	805.0	582.2	330.8	291.6	39.24	8.430	
7,000.0	6,623.2	7,134.5	6,742.9	23.0	23.6	111.33	920.7	582.2	331.9	290.5	41.39	8.019	
7,100.0	6,628.1	7,238.6	6,754.0	24.4	25.0	112.14	1,024.3	582.2	334.1	290.7	43.41	7.696	
7,200.0	6,627.2	7,351.2	6,759.5	26.0	26.5	113.16	1,136.7	582.2	336.3	290.2	46.06	7.301	
7,300.0	6,626.3	7,451.3	6,759.3	27.5	28.0	113.29	1,236.7	582.2	336.6	287.7	48.92	6.880	
7,400.0	6,625.3	7,551.3	6,759.2	29.2	29.5	113.41	1,336.7	582.2	336.9	285.1	51.86	6.497	
7,500.0	6,624.4	7,651.3	6,759.1	30.8	31.1	113.53	1,436.7	582.2	337.2	282.4	54.86	6.147	
7,600.0	6,623.5	7,751.3	6,758.9	32.5	32.7	113.65	1,536.7	582.2	337.6	279.6	57.91	5.829	
7,700.0	6,622.6	7,851.3	6,758.8	34.2	34.3	113.78	1,636.7	582.2	337.9	276.9	61.01	5.538	
7,800.0	6,621.6	7,951.3	6,758.6	35.9	35.9	113.90	1,736.7	582.2	338.2	274.0	64.15	5.272	
7,900.0	6,620.7	8,051.3	6,758.5	37.7	37.6	114.02	1,836.7	582.2	338.5	271.2	67.32	5.028	
8,000.0	6,619.8	8,151.3	6,758.4	39.4	39.3	114.14	1,936.7	582.2	338.8	268.3	70.52	4.805	
8,100.0	6,618.9	8,251.3	6,758.2	41.2	41.1	114.26	2,036.7	582.2	339.2	265.4	73.74	4.600	
8,200.0	6,617.9	8,351.3	6,758.1	43.0	42.8	114.38	2,136.7	582.2	339.5	262.5	76.97	4.410	
8,300.0	6,617.0	8,451.3	6,757.9	44.8	44.6	114.50	2,236.7	582.2	339.8	259.6	80.23	4.236	
8,400.0	6,616.1	8,551.3	6,757.8	46.6	46.3	114.62	2,336.7	582.2	340.1	256.6	83.49	4.074	
8,500.0	6,615.2	8,651.3	6,757.7	48.4	48.1	114.74	2,436.7	582.2	340.5	253.7	86.77	3.924	
8,600.0	6,614.2	8,751.3	6,757.5	50.2	49.9	114.86	2,536.7	582.2	340.8	250.7	90.05	3.784	
8,700.0	6,613.3	8,851.3	6,757.4	52.1	51.7	114.98	2,636.7	582.2	341.1	247.8	93.34	3.654	
8,800.0	6,612.4	8,951.3	6,757.2	53.9	53.5	115.10	2,736.7	582.2	341.5	244.8	96.64	3.533	
8,900.0	6,611.5	9,051.3	6,757.1	55.7	55.3	115.22	2,836.7	582.2	341.8	241.8	99.95	3.420	
9,000.0	6,610.5	9,151.3	6,757.0	57.6	57.2	115.34	2,936.7	582.2	342.1	238.9	103.25	3.313	
9,100.0	6,609.6	9,251.3	6,756.8	59.4	59.0	115.46	3,036.7	582.2	342.5	235.9	106.56	3.214	
9,200.0	6,608.7	9,351.3	6,756.7	61.3	60.8	115.58	3,136.7	582.2	342.8	232.9	109.88	3.120	
9,300.0	6,607.8	9,451.2	6,756.5	63.2	62.7	115.70	3,236.7	582.2	343.1	229.9	113.19	3.032	
9,400.0	6,606.8	9,551.2	6,756.4	65.0	64.5	115.82	3,336.7	582.2	343.5	227.0	116.50	2.948	
9,500.0	6,605.9	9,651.2	6,756.3	66.9	66.4	115.93	3,436.7	582.2	343.8	224.0	119.81	2.870	
9,600.0	6,605.0	9,751.2	6,756.1	68.8	68.2	116.05	3,536.7	582.2	344.2	221.0	123.13	2.795	
9,700.0	6,604.1	9,851.2	6,756.0	70.6	70.1	116.17	3,636.7	582.2	344.5	218.1	126.44	2.725	
9,800.0	6,603.1	9,951.2	6,755.8	72.5	71.9	116.28	3,736.7	582.2	344.9	215.1	129.75	2.658	
9,900.0	6,602.2	10,051.2	6,755.7	74.4	73.8	116.40	3,836.7	582.2	345.2	212.1	133.06	2.594	
10,000.0	6,601.3	10,151.2	6,755.6	76.3	75.7	116.52	3,936.7	582.2	345.6	209.2	136.37	2.534	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-421 - Wellbore #1 - Plan #1 (4-23-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,600.4	10,251.2	6,755.4	78.2	77.5	116.63	4,036.7	582.2	345.9	206.2	139.67	2.477	
10,200.0	6,599.4	10,351.2	6,755.3	80.0	79.4	116.75	4,136.7	582.2	346.3	203.3	142.97	2.422	
10,300.0	6,598.5	10,451.2	6,755.2	81.9	81.3	116.87	4,236.7	582.2	346.6	200.3	146.27	2.370	
10,400.0	6,597.6	10,551.2	6,755.0	83.8	83.1	116.98	4,336.6	582.2	347.0	197.4	149.57	2.320	
10,500.0	6,596.7	10,651.2	6,754.9	85.7	85.0	117.10	4,436.6	582.2	347.3	194.5	152.86	2.272	
10,600.0	6,595.7	10,751.2	6,754.7	87.6	86.9	117.21	4,536.6	582.2	347.7	191.5	156.15	2.227	
10,700.0	6,594.8	10,851.2	6,754.6	89.5	88.8	117.33	4,636.6	582.2	348.0	188.6	159.43	2.183	
10,800.0	6,593.9	10,951.2	6,754.5	91.4	90.7	117.44	4,736.6	582.2	348.4	185.7	162.71	2.141	
10,900.0	6,593.0	11,051.2	6,754.3	93.3	92.6	117.56	4,836.6	582.2	348.8	182.8	165.99	2.101	
11,000.0	6,592.0	11,151.2	6,754.2	95.2	94.4	117.67	4,936.6	582.2	349.1	179.9	169.26	2.063	
11,100.0	6,591.1	11,251.2	6,754.0	97.1	96.3	117.79	5,036.6	582.2	349.5	177.0	172.53	2.026	
11,200.0	6,590.2	11,351.2	6,753.9	99.0	98.2	117.90	5,136.6	582.2	349.9	174.1	175.79	1.990	
11,300.0	6,589.3	11,451.2	6,753.8	100.9	100.1	118.01	5,236.6	582.2	350.2	171.2	179.05	1.956	
11,400.0	6,588.3	11,551.2	6,753.6	102.8	102.0	118.13	5,336.6	582.2	350.6	168.3	182.31	1.923	
11,500.0	6,587.4	11,651.2	6,753.5	104.7	103.9	118.24	5,436.6	582.2	351.0	165.4	185.56	1.891	
11,600.0	6,586.5	11,751.2	6,753.3	106.6	105.8	118.35	5,536.6	582.2	351.4	162.5	188.80	1.861	
11,700.0	6,585.6	11,851.2	6,753.2	108.5	107.7	118.46	5,636.6	582.2	351.7	159.7	192.04	1.831	
11,800.0	6,584.6	11,951.2	6,753.1	110.4	109.6	118.58	5,736.6	582.2	352.1	156.8	195.28	1.803	
11,900.0	6,583.7	12,051.2	6,752.9	112.3	111.5	118.69	5,836.6	582.2	352.5	154.0	198.51	1.776	
12,000.0	6,582.8	12,151.2	6,752.8	114.2	113.4	118.80	5,936.6	582.2	352.9	151.1	201.73	1.749	
12,100.0	6,581.9	12,251.2	6,752.6	116.1	115.3	118.91	6,036.6	582.2	353.2	148.3	204.95	1.723	
12,200.0	6,580.9	12,351.2	6,752.5	118.0	117.2	119.02	6,136.6	582.2	353.6	145.4	208.17	1.699	
12,300.0	6,580.0	12,451.2	6,752.4	119.9	119.1	119.13	6,236.6	582.2	354.0	142.6	211.38	1.675	
12,400.0	6,579.1	12,551.2	6,752.2	121.8	121.0	119.25	6,336.6	582.2	354.4	139.8	214.58	1.651	
12,500.0	6,578.2	12,651.1	6,752.1	123.7	122.9	119.36	6,436.6	582.2	354.8	137.0	217.78	1.629	
12,600.0	6,577.2	12,751.1	6,751.9	125.6	124.8	119.47	6,536.6	582.2	355.2	134.2	220.98	1.607	
12,700.0	6,576.3	12,851.1	6,751.8	127.5	126.7	119.58	6,636.6	582.2	355.5	131.4	224.16	1.586	
12,800.0	6,575.4	12,951.1	6,751.7	129.4	128.6	119.69	6,736.6	582.2	355.9	128.6	227.35	1.566	
12,900.0	6,574.5	13,051.1	6,751.5	131.3	130.5	119.80	6,836.6	582.2	356.3	125.8	230.52	1.546	
13,000.0	6,573.5	13,151.1	6,751.4	133.2	132.4	119.91	6,936.6	582.2	356.7	123.0	233.69	1.526	
13,100.0	6,572.6	13,251.1	6,751.2	135.1	134.3	120.02	7,036.6	582.2	357.1	120.2	236.86	1.508	
13,200.0	6,571.7	13,351.1	6,751.1	137.0	136.2	120.12	7,136.6	582.2	357.5	117.5	240.02	1.489	Level 3
13,273.4	6,571.0	13,424.3	6,751.0	138.4	137.6	120.20	7,209.7	582.2	357.8	115.5	242.33	1.476	Level 3, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27O-201 - Wellbore #1 - Pan #1 (4-23-14)

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	19.70	171.2	61.3	181.9				
100.0	100.0	99.0	99.0	0.1	0.1	19.70	171.2	61.3	181.9	181.6	0.22	813.204	
200.0	200.0	199.0	199.0	0.3	0.3	19.70	171.2	61.3	181.9	181.2	0.67	270.617	CC, ES
300.0	300.0	296.5	296.5	0.6	0.5	20.17	171.3	62.9	182.5	181.4	1.11	164.899	
400.0	400.0	393.8	393.6	0.8	0.8	21.56	171.7	67.8	184.7	183.1	1.55	119.277	
500.0	500.0	490.6	490.1	1.0	1.0	23.81	172.2	76.0	188.4	186.4	2.01	93.687	
600.0	600.0	586.8	585.6	1.2	1.3	26.79	173.0	87.3	194.2	191.7	2.51	77.522	
700.0	700.0	682.1	679.8	1.5	1.6	30.31	173.9	101.7	202.4	199.3	3.04	66.594	
800.0	800.0	776.3	772.4	1.7	1.9	34.19	175.1	118.9	213.3	209.7	3.62	58.950	
900.0	900.0	869.3	863.2	1.9	2.3	38.23	176.4	139.0	227.4	223.1	4.25	53.516	
1,000.0	1,000.0	964.3	955.4	2.1	2.8	42.29	177.9	161.9	244.4	239.5	4.93	49.619	
1,100.0	1,100.0	1,061.2	1,049.4	2.4	3.3	45.94	179.5	185.5	262.8	257.2	5.63	46.664	
1,200.0	1,200.0	1,158.2	1,143.4	2.6	3.8	49.11	181.1	209.1	282.1	275.8	6.34	44.499	
1,300.0	1,300.0	1,255.2	1,237.5	2.8	4.3	51.88	182.6	232.7	302.2	295.1	7.05	42.886	
1,400.0	1,400.0	1,352.1	1,331.5	3.0	4.8	54.30	184.2	256.4	322.8	315.1	7.75	41.665	
1,500.0	1,500.0	1,449.1	1,425.6	3.3	5.3	56.44	185.8	280.0	343.9	335.5	8.45	40.727	
1,600.0	1,600.0	1,546.1	1,519.6	3.5	5.8	58.32	187.3	303.6	365.5	356.4	9.14	39.996	
1,700.0	1,700.0	1,643.4	1,613.9	3.7	6.3	13.58	188.9	327.3	385.7	377.4	8.27	46.633	
1,800.0	1,799.8	1,741.2	1,708.8	3.9	6.8	15.18	190.5	351.1	403.0	394.2	8.75	46.033	
1,900.0	1,899.5	1,839.4	1,804.0	4.2	7.3	16.80	192.1	375.1	417.2	408.0	9.22	45.236	
2,000.0	1,998.7	1,937.9	1,899.6	4.4	7.8	18.47	193.7	399.1	428.7	419.0	9.68	44.273	
2,100.0	2,097.9	2,036.5	1,995.2	4.6	8.3	20.13	195.3	423.1	439.9	429.7	10.15	43.339	
2,200.0	2,197.1	2,135.1	2,090.8	4.9	8.8	21.71	196.9	447.1	451.4	440.7	10.62	42.519	
2,300.0	2,296.3	2,233.7	2,186.3	5.2	9.3	23.21	198.5	471.1	463.2	452.1	11.08	41.793	
2,400.0	2,395.5	2,332.2	2,281.9	5.4	9.9	24.63	200.1	495.2	475.3	463.8	11.55	41.143	
2,500.0	2,494.6	2,430.8	2,377.5	5.7	10.4	25.99	201.7	519.2	487.7	475.7	12.03	40.557	
2,600.0	2,593.8	2,529.4	2,473.1	6.0	10.9	27.27	203.3	543.2	500.4	487.9	12.50	40.023	
2,700.0	2,693.0	2,628.0	2,568.7	6.3	11.4	28.50	204.9	567.2	513.3	500.3	12.98	39.533	
2,800.0	2,792.2	2,726.5	2,664.3	6.6	11.9	29.66	206.5	591.2	526.4	513.0	13.47	39.080	
2,900.0	2,891.4	2,825.1	2,759.9	6.8	12.5	30.77	208.1	615.2	539.8	525.8	13.96	38.659	
3,000.0	2,990.6	2,923.7	2,855.5	7.1	13.0	31.82	209.6	639.3	553.3	538.8	14.46	38.265	
3,100.0	3,089.8	3,022.2	2,951.1	7.4	13.5	32.83	211.2	663.3	567.0	552.0	14.96	37.896	
3,200.0	3,188.9	3,120.8	3,046.7	7.7	14.0	33.79	212.8	687.3	580.9	565.4	15.47	37.547	
3,300.0	3,288.1	3,219.4	3,142.2	8.0	14.5	34.70	214.4	711.3	594.9	578.9	15.98	37.217	
3,400.0	3,387.3	3,318.0	3,237.8	8.4	15.0	35.57	216.0	735.3	609.0	592.5	16.50	36.903	
3,500.0	3,486.5	3,416.5	3,333.4	8.7	15.6	36.40	217.6	759.3	623.3	606.3	17.03	36.605	
3,600.0	3,585.7	3,515.1	3,429.0	9.0	16.1	37.20	219.2	783.4	637.8	620.2	17.56	36.321	
3,700.0	3,684.9	3,613.7	3,524.6	9.3	16.6	37.95	220.8	807.4	652.3	634.2	18.09	36.049	
3,800.0	3,784.0	3,712.3	3,620.2	9.6	17.1	38.68	222.4	831.4	666.9	648.3	18.64	35.789	
3,900.0	3,883.2	3,810.8	3,715.8	9.9	17.6	39.38	224.0	855.4	681.7	662.5	19.18	35.539	
4,000.0	3,982.4	3,909.4	3,811.4	10.2	18.2	40.04	225.6	879.4	696.5	676.8	19.73	35.300	
4,100.0	4,081.6	4,008.0	3,907.0	10.5	18.7	40.68	227.2	903.4	711.5	691.2	20.29	35.071	
4,200.0	4,180.8	4,106.6	4,002.5	10.8	19.2	41.29	228.8	927.4	726.5	705.6	20.85	34.850	
4,300.0	4,280.0	4,205.1	4,098.1	11.1	19.7	41.88	230.4	951.5	741.6	720.1	21.41	34.638	
4,400.0	4,379.1	4,303.7	4,193.7	11.5	20.2	42.44	232.0	975.5	756.7	734.7	21.98	34.434	
4,500.0	4,478.3	4,402.3	4,289.3	11.8	20.8	42.99	233.6	999.5	771.9	749.4	22.55	34.237	
4,600.0	4,577.6	4,500.8	4,384.9	12.1	21.3	43.59	235.2	1,023.5	787.5	764.4	23.10	34.091	
4,700.0	4,677.1	4,599.1	4,480.2	12.3	21.8	44.17	236.8	1,047.5	805.1	781.6	23.57	34.154	
4,800.0	4,776.9	4,697.1	4,575.2	12.5	22.3	44.61	238.4	1,071.3	825.3	801.3	24.01	34.369	
4,900.0	4,876.9	4,794.5	4,669.7	12.7	22.8	44.91	239.9	1,095.1	847.8	823.4	24.41	34.730	
5,000.0	4,976.9	4,891.5	4,763.7	12.8	23.3	91.25	241.5	1,118.7	872.1	847.3	24.84	35.112	

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 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27O-201 - Wellbore #1 - Pan #1 (4-23-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,076.9	4,988.4	4,857.7	13.0	23.8	91.11	243.1	1,142.3	896.4	871.1	25.30	35.437	
5,200.0	5,176.9	5,085.4	4,951.8	13.2	24.4	90.98	244.7	1,165.9	920.8	895.0	25.76	35.749	
5,300.0	5,276.9	5,205.3	5,068.2	13.4	24.9	90.84	246.5	1,194.3	944.5	918.3	26.26	35.968	
5,400.0	5,376.9	5,352.1	5,212.2	13.6	25.4	90.70	248.5	1,223.0	964.0	937.3	26.77	36.009	
5,500.0	5,476.9	5,501.6	5,360.1	13.8	25.8	90.60	249.9	1,244.5	978.4	951.2	27.27	35.882	
5,600.0	5,576.9	5,653.0	5,510.8	14.0	26.1	90.53	250.8	1,258.5	987.6	959.9	27.74	35.605	
5,700.0	5,676.9	5,805.5	5,663.2	14.2	26.3	90.51	251.2	1,264.5	991.6	963.4	28.19	35.180	
5,800.0	5,776.9	5,918.2	5,775.9	14.4	26.4	90.51	251.2	1,264.7	991.7	963.2	28.57	34.712	
5,900.0	5,876.9	6,018.6	5,876.3	14.5	26.5	90.46	252.2	1,264.7	991.7	962.8	28.94	34.267	
6,000.0	5,976.5	6,119.3	5,976.3	14.8	26.7	90.26	263.9	1,264.7	991.7	962.3	29.37	33.766	
6,100.0	6,074.1	6,219.6	6,073.4	15.1	26.8	90.05	288.5	1,264.7	991.7	961.8	29.91	33.159	
6,126.4	6,099.4	6,246.0	6,098.4	15.2	26.8	90.00	297.1	1,264.7	991.7	961.6	30.08	32.971	
6,200.0	6,168.2	6,319.5	6,166.1	15.5	26.9	89.85	325.4	1,264.7	991.7	961.1	30.58	32.435	
6,300.0	6,257.1	6,418.8	6,252.8	16.0	27.1	89.65	373.9	1,264.7	991.7	960.3	31.41	31.575	
6,400.0	6,339.3	6,517.8	6,332.1	16.6	27.3	89.45	432.9	1,264.7	991.7	959.3	32.45	30.563	
6,500.0	6,413.3	6,616.3	6,402.9	17.3	27.6	89.27	501.3	1,264.7	991.8	958.0	33.74	29.396	
6,600.0	6,477.9	6,714.4	6,464.1	18.1	27.9	89.10	577.9	1,264.7	991.8	956.5	35.31	28.090	
6,700.0	6,532.1	6,812.2	6,514.8	19.2	28.2	88.94	661.5	1,264.7	991.9	954.7	37.17	26.682	
6,800.0	6,574.8	6,909.7	6,554.3	20.3	28.7	88.80	750.5	1,264.7	991.9	952.6	39.33	25.221	
6,900.0	6,605.3	7,006.9	6,582.1	21.6	29.2	88.68	843.6	1,264.7	992.0	950.2	41.75	23.760	
7,000.0	6,623.2	7,103.8	6,597.8	23.0	29.9	88.58	939.2	1,264.7	992.0	947.6	44.39	22.346	
7,100.0	6,628.1	7,201.2	6,601.5	24.4	30.7	88.52	1,036.4	1,264.7	992.0	944.8	47.21	21.015	
7,200.0	6,627.2	7,301.2	6,600.9	26.0	31.6	88.54	1,136.4	1,264.7	992.0	941.9	50.14	19.786	
7,300.0	6,626.3	7,401.2	6,600.4	27.5	32.6	88.56	1,236.4	1,264.7	992.0	938.8	53.18	18.653	
7,400.0	6,625.3	7,501.2	6,599.8	29.2	33.7	88.58	1,336.4	1,264.7	992.0	935.7	56.33	17.612	
7,500.0	6,624.4	7,601.2	6,599.2	30.8	34.9	88.60	1,436.4	1,264.7	992.0	932.4	59.55	16.658	
7,600.0	6,623.5	7,701.2	6,598.7	32.5	36.2	88.63	1,536.4	1,264.7	992.0	929.1	62.84	15.785	
7,700.0	6,622.6	7,801.2	6,598.1	34.2	37.5	88.65	1,636.4	1,264.7	992.0	925.8	66.20	14.985	
7,800.0	6,621.6	7,901.2	6,597.6	35.9	38.9	88.67	1,736.4	1,264.7	992.0	922.4	69.60	14.252	
7,900.0	6,620.7	8,001.2	6,597.0	37.7	40.3	88.69	1,836.4	1,264.7	992.0	918.9	73.05	13.579	
8,000.0	6,619.8	8,101.2	6,596.5	39.4	41.8	88.71	1,936.4	1,264.7	992.0	915.4	76.53	12.961	
8,100.0	6,618.9	8,201.2	6,595.9	41.2	43.3	88.73	2,036.4	1,264.7	991.9	911.9	80.05	12.392	
8,200.0	6,617.9	8,301.2	6,595.3	43.0	44.9	88.75	2,136.4	1,264.7	991.9	908.3	83.60	11.866	
8,300.0	6,617.0	8,401.2	6,594.8	44.8	46.5	88.77	2,236.4	1,264.7	991.9	904.8	87.17	11.380	
8,400.0	6,616.1	8,501.2	6,594.2	46.6	48.1	88.79	2,336.4	1,264.7	991.9	901.2	90.76	10.929	
8,500.0	6,615.2	8,601.2	6,593.7	48.4	49.7	88.82	2,436.4	1,264.7	991.9	897.5	94.37	10.511	
8,600.0	6,614.2	8,701.2	6,593.1	50.2	51.4	88.84	2,536.4	1,264.7	991.9	893.9	98.00	10.121	
8,700.0	6,613.3	8,801.2	6,592.5	52.1	53.1	88.86	2,636.4	1,264.7	991.9	890.2	101.65	9.758	
8,800.0	6,612.4	8,901.2	6,592.0	53.9	54.8	88.88	2,736.4	1,264.7	991.9	886.6	105.30	9.419	
8,900.0	6,611.5	9,001.2	6,591.4	55.7	56.5	88.90	2,836.4	1,264.7	991.9	882.9	108.98	9.102	
9,000.0	6,610.5	9,101.2	6,590.9	57.6	58.2	88.92	2,936.4	1,264.7	991.9	879.2	112.66	8.804	
9,100.0	6,609.6	9,201.2	6,590.3	59.4	60.0	88.94	3,036.4	1,264.7	991.9	875.5	116.35	8.525	
9,200.0	6,608.7	9,301.2	6,589.8	61.3	61.7	88.96	3,136.4	1,264.7	991.9	871.8	120.05	8.262	
9,300.0	6,607.8	9,401.2	6,589.2	63.2	63.5	88.99	3,236.4	1,264.7	991.9	868.1	123.77	8.014	
9,400.0	6,606.8	9,501.2	6,588.6	65.0	65.2	89.01	3,336.4	1,264.7	991.8	864.4	127.48	7.780	
9,500.0	6,605.9	9,601.2	6,588.1	66.9	67.0	89.03	3,436.4	1,264.7	991.8	860.6	131.21	7.559	
9,600.0	6,605.0	9,701.2	6,587.5	68.8	68.8	89.05	3,536.4	1,264.7	991.8	856.9	134.94	7.350	
9,700.0	6,604.1	9,801.2	6,587.0	70.6	70.6	89.07	3,636.4	1,264.7	991.8	853.1	138.68	7.152	
9,800.0	6,603.1	9,901.2	6,586.4	72.5	72.4	89.09	3,736.4	1,264.7	991.8	849.4	142.42	6.964	
9,900.0	6,602.2	10,001.2	6,585.8	74.4	74.2	89.11	3,836.4	1,264.7	991.8	845.6	146.17	6.785	
10,000.0	6,601.3	10,101.2	6,585.3	76.3	76.0	89.13	3,936.4	1,264.7	991.8	841.9	149.92	6.615	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27O-201 - Wellbore #1 - Pan #1 (4-23-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,600.4	10,201.2	6,584.7	78.2	77.8	89.15	4,036.4	1,264.7	991.8	838.1	153.68	6.454	
10,200.0	6,599.4	10,301.2	6,584.2	80.0	79.6	89.18	4,136.4	1,264.7	991.8	834.4	157.44	6.299	
10,300.0	6,598.5	10,401.2	6,583.6	81.9	81.5	89.20	4,236.4	1,264.7	991.8	830.6	161.21	6.152	
10,400.0	6,597.6	10,501.2	6,583.0	83.8	83.3	89.22	4,336.4	1,264.7	991.8	826.8	164.98	6.012	
10,500.0	6,596.7	10,601.2	6,582.5	85.7	85.1	89.24	4,436.4	1,264.7	991.8	823.0	168.75	5.877	
10,600.0	6,595.7	10,701.2	6,581.9	87.6	87.0	89.26	4,536.4	1,264.7	991.8	819.3	172.52	5.749	
10,700.0	6,594.8	10,801.2	6,581.4	89.5	88.8	89.28	4,636.3	1,264.7	991.8	815.5	176.30	5.625	
10,800.0	6,593.9	10,901.2	6,580.8	91.4	90.7	89.30	4,736.3	1,264.7	991.8	811.7	180.08	5.507	
10,900.0	6,593.0	11,001.2	6,580.3	93.3	92.5	89.32	4,836.3	1,264.7	991.8	807.9	183.86	5.394	
11,000.0	6,592.0	11,101.2	6,579.7	95.2	94.4	89.35	4,936.3	1,264.7	991.8	804.1	187.65	5.285	
11,100.0	6,591.1	11,201.2	6,579.1	97.1	96.2	89.37	5,036.3	1,264.7	991.8	800.3	191.44	5.181	
11,200.0	6,590.2	11,301.2	6,578.6	99.0	98.1	89.39	5,136.3	1,264.7	991.8	796.5	195.23	5.080	
11,300.0	6,589.3	11,401.2	6,578.0	100.9	99.9	89.41	5,236.3	1,264.7	991.7	792.7	199.02	4.983	
11,400.0	6,588.3	11,501.2	6,577.5	102.8	101.8	89.43	5,336.3	1,264.7	991.7	788.9	202.81	4.890	
11,500.0	6,587.4	11,601.2	6,576.9	104.7	103.7	89.45	5,436.3	1,264.7	991.7	785.1	206.61	4.800	
11,600.0	6,586.5	11,701.2	6,576.3	106.6	105.5	89.47	5,536.3	1,264.7	991.7	781.3	210.40	4.714	
11,700.0	6,585.6	11,801.2	6,575.8	108.5	107.4	89.49	5,636.3	1,264.7	991.7	777.5	214.20	4.630	
11,800.0	6,584.6	11,901.2	6,575.2	110.4	109.3	89.51	5,736.3	1,264.7	991.7	773.7	218.00	4.549	
11,900.0	6,583.7	12,001.2	6,574.7	112.3	111.1	89.54	5,836.3	1,264.7	991.7	769.9	221.80	4.471	
12,000.0	6,582.8	12,101.2	6,574.1	114.2	113.0	89.56	5,936.3	1,264.7	991.7	766.1	225.60	4.396	
12,100.0	6,581.9	12,201.2	6,573.6	116.1	114.9	89.58	6,036.3	1,264.7	991.7	762.3	229.41	4.323	
12,200.0	6,580.9	12,301.2	6,573.0	118.0	116.8	89.60	6,136.3	1,264.7	991.7	758.5	233.21	4.252	
12,300.0	6,580.0	12,401.2	6,572.4	119.9	118.6	89.62	6,236.3	1,264.7	991.7	754.7	237.02	4.184	
12,400.0	6,579.1	12,501.2	6,571.9	121.8	120.5	89.64	6,336.3	1,264.7	991.7	750.9	240.83	4.118	
12,500.0	6,578.2	12,601.2	6,571.3	123.7	122.4	89.66	6,436.3	1,264.7	991.7	747.1	244.63	4.054	
12,600.0	6,577.2	12,701.2	6,570.8	125.6	124.3	89.68	6,536.3	1,264.7	991.7	743.3	248.44	3.992	
12,700.0	6,576.3	12,801.2	6,570.2	127.5	126.2	89.71	6,636.3	1,264.7	991.7	739.5	252.25	3.931	
12,800.0	6,575.4	12,901.2	6,569.6	129.4	128.1	89.73	6,736.3	1,264.7	991.7	735.6	256.06	3.873	
12,900.0	6,574.5	13,001.2	6,569.1	131.3	129.9	89.75	6,836.3	1,264.7	991.7	731.8	259.88	3.816	
13,000.0	6,573.5	13,101.2	6,568.5	133.2	131.8	89.77	6,936.3	1,264.7	991.7	728.0	263.69	3.761	
13,100.0	6,572.6	13,201.2	6,568.0	135.1	133.7	89.79	7,036.3	1,264.7	991.7	724.2	267.50	3.707	
13,200.0	6,571.7	13,301.2	6,567.4	137.0	135.6	89.81	7,136.3	1,264.7	991.7	720.4	271.31	3.655	
13,273.4	6,571.0	13,374.6	6,567.0	138.4	137.0	89.83	7,209.7	1,264.7	991.7	717.6	274.12	3.618	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27O-341 - Wellbore #1 - Plan #1 (4-23-14)

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	20.31	112.9	41.8	120.4				
100.0	100.0	99.0	99.0	0.1	0.1	20.31	112.9	41.8	120.4	120.2	0.22	538.454	
200.0	200.0	199.0	199.0	0.3	0.3	20.31	112.9	41.8	120.4	119.8	0.67	179.186	
300.0	300.0	299.0	299.0	0.6	0.6	20.31	112.9	41.8	120.4	119.3	1.12	107.368	
400.0	400.0	399.0	399.0	0.8	0.8	20.31	112.9	41.8	120.4	118.9	1.57	76.648	
500.0	500.0	499.0	499.0	1.0	1.0	20.31	112.9	41.8	120.4	118.4	2.02	59.596	
600.0	600.0	599.0	599.0	1.2	1.2	20.31	112.9	41.8	120.4	118.0	2.47	48.750	
700.0	700.0	699.0	699.0	1.5	1.5	20.31	112.9	41.8	120.4	117.5	2.92	41.245	
800.0	800.0	799.0	799.0	1.7	1.7	20.31	112.9	41.8	120.4	117.1	3.37	35.742	CC, ES
900.0	900.0	897.0	897.0	1.9	1.9	20.99	113.2	43.4	121.2	117.4	3.80	31.876	
1,000.0	1,000.0	994.7	994.5	2.1	2.1	22.98	114.0	48.3	123.9	119.6	4.23	29.254	
1,100.0	1,100.0	1,092.0	1,091.5	2.4	2.3	26.11	115.2	56.5	128.6	123.9	4.68	27.488	
1,200.0	1,200.0	1,188.6	1,187.4	2.6	2.6	30.08	117.0	67.8	135.7	130.6	5.14	26.405	
1,300.0	1,300.0	1,284.3	1,282.0	2.8	2.8	34.55	119.3	82.1	145.8	140.2	5.63	25.886	
1,400.0	1,400.0	1,378.9	1,375.0	3.0	3.1	39.17	122.0	99.4	159.2	153.0	6.16	25.826	
1,500.0	1,500.0	1,475.5	1,469.4	3.3	3.5	43.65	125.1	119.3	175.4	168.7	6.73	26.062	
1,600.0	1,600.0	1,573.3	1,565.0	3.5	3.8	47.43	128.3	139.7	192.7	185.4	7.32	26.312	
1,700.0	1,700.0	1,671.3	1,660.8	3.7	4.2	4.21	131.5	160.1	208.9	201.4	7.53	27.748	
1,800.0	1,799.8	1,769.8	1,757.2	3.9	4.6	7.01	134.7	180.5	222.3	214.3	7.99	27.817	
1,900.0	1,899.5	1,868.7	1,853.8	4.2	5.1	9.64	138.0	201.1	232.7	224.3	8.45	27.555	
2,000.0	1,998.7	1,967.8	1,950.7	4.4	5.5	12.20	141.2	221.7	240.4	231.5	8.90	27.019	
2,100.0	2,097.9	2,067.0	2,047.7	4.6	5.9	14.66	144.4	242.4	247.8	238.4	9.36	26.471	
2,200.0	2,197.1	2,166.2	2,144.6	4.9	6.3	16.98	147.7	263.0	255.6	245.8	9.82	26.021	
2,300.0	2,296.3	2,265.3	2,241.6	5.2	6.8	19.16	150.9	283.6	263.9	253.6	10.29	25.646	
2,400.0	2,395.5	2,364.5	2,338.5	5.4	7.2	21.21	154.2	304.2	272.5	261.7	10.76	25.332	
2,500.0	2,494.6	2,463.7	2,435.5	5.7	7.7	23.13	157.4	324.8	281.4	270.2	11.23	25.063	
2,600.0	2,593.8	2,562.9	2,532.4	6.0	8.1	24.93	160.6	345.5	290.6	278.9	11.70	24.832	
2,700.0	2,693.0	2,662.0	2,629.4	6.3	8.5	26.61	163.9	366.1	300.1	287.9	12.18	24.629	
2,800.0	2,792.2	2,761.2	2,726.3	6.6	9.0	28.20	167.1	386.7	309.8	297.2	12.67	24.449	
2,900.0	2,891.4	2,860.4	2,823.3	6.8	9.4	29.69	170.3	407.3	319.8	306.6	13.17	24.286	
3,000.0	2,990.6	2,959.5	2,920.2	7.1	9.9	31.08	173.6	428.0	329.9	316.3	13.67	24.139	
3,100.0	3,089.8	3,058.7	3,017.1	7.4	10.3	32.40	176.8	448.6	340.3	326.1	14.18	24.003	
3,200.0	3,188.9	3,157.9	3,114.1	7.7	10.8	33.64	180.1	469.2	350.8	336.1	14.69	23.876	
3,300.0	3,288.1	3,257.0	3,211.0	8.0	11.2	34.80	183.3	489.8	361.4	346.2	15.21	23.758	
3,400.0	3,387.3	3,356.2	3,308.0	8.4	11.7	35.90	186.5	510.5	372.2	356.5	15.74	23.647	
3,500.0	3,486.5	3,455.4	3,404.9	8.7	12.1	36.93	189.8	531.1	383.2	366.9	16.28	23.541	
3,600.0	3,585.7	3,554.5	3,501.9	9.0	12.6	37.91	193.0	551.7	394.2	377.4	16.82	23.441	
3,700.0	3,684.9	3,653.7	3,598.8	9.3	13.1	38.84	196.3	572.3	405.4	388.0	17.36	23.346	
3,800.0	3,784.0	3,752.9	3,695.8	9.6	13.5	39.71	199.5	593.0	416.6	398.7	17.92	23.255	
3,900.0	3,883.2	3,852.0	3,792.7	9.9	14.0	40.54	202.7	613.6	428.0	409.5	18.47	23.167	
4,000.0	3,982.4	3,951.2	3,889.7	10.2	14.4	41.33	206.0	634.2	439.4	420.3	19.03	23.084	
4,100.0	4,081.6	4,050.4	3,986.6	10.5	14.9	42.07	209.2	654.8	450.9	431.3	19.60	23.003	
4,200.0	4,180.8	4,149.5	4,083.6	10.8	15.3	42.78	212.5	675.5	462.5	442.3	20.17	22.926	
4,300.0	4,280.0	4,248.7	4,180.5	11.1	15.8	43.46	215.7	696.1	474.1	453.4	20.75	22.852	
4,400.0	4,379.1	4,347.9	4,277.4	11.5	16.2	44.10	218.9	716.7	485.8	464.5	21.33	22.780	
4,500.0	4,478.3	4,447.1	4,374.4	11.8	16.7	44.71	222.2	737.3	497.6	475.7	21.91	22.711	
4,600.0	4,577.6	4,546.2	4,471.3	12.1	17.2	45.35	225.4	758.0	509.6	487.1	22.48	22.671	
4,700.0	4,677.1	4,645.2	4,568.1	12.3	17.6	45.85	228.6	778.5	523.7	500.7	22.97	22.799	
4,800.0	4,776.9	4,743.8	4,664.5	12.5	18.1	46.11	231.9	799.0	540.2	516.8	23.42	23.069	
4,900.0	4,876.9	4,841.9	4,760.4	12.7	18.5	46.14	235.1	819.5	559.1	535.3	23.82	23.475	
5,000.0	4,976.9	4,939.7	4,856.0	12.8	19.0	92.20	238.3	839.8	579.7	555.5	24.22	23.935	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27O-341 - Wellbore #1 - Plan #1 (4-23-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,076.9	5,037.5	4,951.6	13.0	19.4	91.81	241.5	860.1	600.4	575.8	24.65	24.357	
5,200.0	5,176.9	5,149.2	5,060.9	13.2	19.9	91.41	245.0	882.6	620.6	595.5	25.09	24.731	
5,300.0	5,276.9	5,275.0	5,185.0	13.4	20.2	91.07	248.2	903.3	637.0	611.4	25.54	24.944	
5,400.0	5,376.9	5,402.4	5,311.4	13.6	20.6	90.83	250.7	918.8	649.1	623.1	25.97	24.990	
5,500.0	5,476.9	5,531.0	5,439.6	13.8	20.8	90.68	252.2	928.8	656.8	630.4	26.40	24.879	
5,600.0	5,576.9	5,660.3	5,568.8	14.0	21.0	90.62	252.9	933.0	660.1	633.3	26.82	24.612	
5,700.0	5,676.9	5,767.4	5,675.9	14.2	21.1	90.61	252.9	933.2	660.2	633.0	27.21	24.263	
5,800.0	5,776.9	5,867.4	5,775.9	14.4	21.3	90.61	252.9	933.2	660.2	632.6	27.60	23.924	
5,861.9	5,838.8	5,929.2	5,837.8	14.5	21.3	90.64	252.9	933.2	660.2	632.4	27.84	23.717	
5,900.0	5,876.9	5,967.4	5,875.9	14.5	21.4	90.62	252.9	933.2	660.2	632.2	27.99	23.592	
6,000.0	5,976.5	6,068.1	5,976.6	14.8	21.5	91.08	255.9	933.2	660.3	631.9	28.46	23.201	
6,100.0	6,074.1	6,170.0	6,077.2	15.1	21.7	91.59	271.5	933.2	660.5	631.4	29.06	22.730	
6,200.0	6,168.2	6,272.7	6,175.5	15.5	21.9	92.07	300.6	933.2	660.6	630.8	29.79	22.175	
6,300.0	6,257.1	6,376.2	6,269.8	16.0	22.1	92.52	343.1	933.2	660.8	630.1	30.69	21.530	
6,400.0	6,339.3	6,480.4	6,358.1	16.6	22.4	92.93	398.3	933.2	661.1	629.3	31.80	20.785	
6,500.0	6,413.3	6,585.2	6,438.5	17.3	22.7	93.28	465.4	933.2	661.3	628.1	33.16	19.943	
6,600.0	6,477.9	6,690.6	6,509.4	18.1	23.2	93.58	543.4	933.2	661.5	626.7	34.78	19.018	
6,700.0	6,532.1	6,796.5	6,569.0	19.2	23.7	93.81	630.7	933.2	661.7	625.0	36.69	18.033	
6,800.0	6,574.8	6,902.7	6,616.2	20.3	24.4	93.98	725.8	933.2	661.8	622.9	38.88	17.020	
6,900.0	6,605.3	7,009.2	6,649.8	21.6	25.3	94.07	826.8	933.2	661.9	620.5	41.33	16.013	
7,000.0	6,623.2	7,115.8	6,669.0	23.0	26.2	94.08	931.5	933.2	661.9	617.9	44.00	15.043	
7,096.3	6,628.5	7,217.7	6,673.7	24.4	27.3	94.01	1,033.2	933.2	661.8	615.1	46.73	14.164	
7,100.0	6,628.1	7,221.3	6,673.7	24.4	27.4	94.04	1,036.9	933.2	661.8	615.0	46.82	14.134	
7,200.0	6,627.2	7,321.3	6,673.1	26.0	28.5	94.07	1,136.9	933.2	661.9	612.1	49.81	13.289	
7,300.0	6,626.3	7,421.3	6,672.5	27.5	29.8	94.09	1,236.9	933.2	661.9	609.0	52.90	12.513	
7,400.0	6,625.3	7,521.3	6,671.9	29.2	31.1	94.12	1,336.8	933.2	661.9	605.8	56.08	11.803	
7,500.0	6,624.4	7,621.3	6,671.3	30.8	32.5	94.15	1,436.8	933.2	661.9	602.6	59.34	11.156	
7,600.0	6,623.5	7,721.3	6,670.7	32.5	34.0	94.17	1,536.8	933.2	662.0	599.3	62.66	10.565	
7,700.0	6,622.6	7,821.3	6,670.0	34.2	35.5	94.20	1,636.8	933.2	662.0	595.9	66.03	10.025	
7,800.0	6,621.6	7,921.3	6,669.4	35.9	37.0	94.23	1,736.8	933.2	662.0	592.5	69.46	9.531	
7,900.0	6,620.7	8,021.3	6,668.8	37.7	38.6	94.25	1,836.8	933.2	662.0	589.1	72.92	9.078	
8,000.0	6,619.8	8,121.3	6,668.2	39.4	40.2	94.28	1,936.8	933.2	662.0	585.6	76.42	8.663	
8,100.0	6,618.9	8,221.3	6,667.6	41.2	41.9	94.31	2,036.8	933.2	662.1	582.1	79.95	8.281	
8,200.0	6,617.9	8,321.3	6,667.0	43.0	43.6	94.34	2,136.8	933.2	662.1	578.6	83.51	7.929	
8,300.0	6,617.0	8,421.3	6,666.4	44.8	45.2	94.36	2,236.8	933.2	662.1	575.0	87.08	7.603	
8,400.0	6,616.1	8,521.3	6,665.8	46.6	47.0	94.39	2,336.8	933.2	662.1	571.5	90.68	7.302	
8,500.0	6,615.2	8,621.3	6,665.2	48.4	48.7	94.42	2,436.8	933.2	662.2	567.9	94.30	7.022	
8,600.0	6,614.2	8,721.3	6,664.5	50.2	50.4	94.44	2,536.8	933.2	662.2	564.3	97.93	6.762	
8,700.0	6,613.3	8,821.3	6,663.9	52.1	52.2	94.47	2,636.8	933.2	662.2	560.6	101.58	6.519	
8,800.0	6,612.4	8,921.3	6,663.3	53.9	53.9	94.50	2,736.8	933.2	662.2	557.0	105.23	6.293	
8,900.0	6,611.5	9,021.3	6,662.7	55.7	55.7	94.53	2,836.8	933.2	662.3	553.4	108.90	6.081	
9,000.0	6,610.5	9,121.3	6,662.1	57.6	57.5	94.55	2,936.8	933.2	662.3	549.7	112.58	5.883	
9,100.0	6,609.6	9,221.3	6,661.5	59.4	59.3	94.58	3,036.8	933.2	662.3	546.0	116.27	5.696	
9,200.0	6,608.7	9,321.3	6,660.9	61.3	61.1	94.61	3,136.8	933.2	662.3	542.4	119.97	5.521	
9,300.0	6,607.8	9,421.3	6,660.3	63.2	62.9	94.63	3,236.8	933.2	662.4	538.7	123.68	5.356	
9,400.0	6,606.8	9,521.3	6,659.7	65.0	64.7	94.66	3,336.8	933.2	662.4	535.0	127.39	5.200	
9,500.0	6,605.9	9,621.3	6,659.0	66.9	66.5	94.69	3,436.8	933.2	662.4	531.3	131.11	5.052	
9,600.0	6,605.0	9,721.3	6,658.4	68.8	68.3	94.72	3,536.8	933.2	662.4	527.6	134.83	4.913	
9,700.0	6,604.1	9,821.3	6,657.8	70.6	70.2	94.74	3,636.8	933.2	662.5	523.9	138.56	4.781	
9,800.0	6,603.1	9,921.3	6,657.2	72.5	72.0	94.77	3,736.8	933.2	662.5	520.2	142.29	4.656	
9,900.0	6,602.2	10,021.3	6,656.6	74.4	73.8	94.80	3,836.8	933.2	662.5	516.5	146.03	4.537	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27O-341 - Wellbore #1 - Plan #1 (4-23-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,601.3	10,121.3	6,656.0	76.3	75.7	94.82	3,936.8	933.2	662.5	512.8	149.77	4.424	
10,100.0	6,600.4	10,221.3	6,655.4	78.2	77.5	94.85	4,036.8	933.2	662.6	509.1	153.52	4.316	
10,200.0	6,599.4	10,321.3	6,654.8	80.0	79.4	94.88	4,136.8	933.2	662.6	505.3	157.27	4.213	
10,300.0	6,598.5	10,421.3	6,654.2	81.9	81.2	94.91	4,236.8	933.2	662.6	501.6	161.02	4.115	
10,400.0	6,597.6	10,521.3	6,653.6	83.8	83.1	94.93	4,336.8	933.2	662.7	497.9	164.78	4.022	
10,500.0	6,596.7	10,621.3	6,652.9	85.7	85.0	94.96	4,436.8	933.2	662.7	494.1	168.53	3.932	
10,600.0	6,595.7	10,721.3	6,652.3	87.6	86.8	94.99	4,536.8	933.2	662.7	490.4	172.29	3.846	
10,700.0	6,594.8	10,821.3	6,651.7	89.5	88.7	95.01	4,636.8	933.2	662.7	486.7	176.06	3.764	
10,800.0	6,593.9	10,921.3	6,651.1	91.4	90.6	95.04	4,736.8	933.2	662.8	482.9	179.82	3.686	
10,900.0	6,593.0	11,021.3	6,650.5	93.3	92.4	95.07	4,836.8	933.2	662.8	479.2	183.59	3.610	
11,000.0	6,592.0	11,121.3	6,649.9	95.2	94.3	95.09	4,936.8	933.2	662.8	475.5	187.36	3.538	
11,100.0	6,591.1	11,221.3	6,649.3	97.1	96.2	95.12	5,036.8	933.2	662.8	471.7	191.13	3.468	
11,200.0	6,590.2	11,321.3	6,648.7	99.0	98.0	95.15	5,136.8	933.2	662.9	468.0	194.90	3.401	
11,300.0	6,589.3	11,421.3	6,648.1	100.9	99.9	95.18	5,236.8	933.2	662.9	464.2	198.67	3.337	
11,400.0	6,588.3	11,521.3	6,647.4	102.8	101.8	95.20	5,336.8	933.2	662.9	460.5	202.45	3.275	
11,500.0	6,587.4	11,621.3	6,646.8	104.7	103.7	95.23	5,436.8	933.2	663.0	456.7	206.23	3.215	
11,600.0	6,586.5	11,721.3	6,646.2	106.6	105.6	95.26	5,536.7	933.2	663.0	453.0	210.00	3.157	
11,700.0	6,585.6	11,821.3	6,645.6	108.5	107.4	95.28	5,636.7	933.2	663.0	449.2	213.78	3.101	
11,800.0	6,584.6	11,921.3	6,645.0	110.4	109.3	95.31	5,736.7	933.2	663.0	445.5	217.56	3.048	
11,900.0	6,583.7	12,021.3	6,644.4	112.3	111.2	95.34	5,836.7	933.2	663.1	441.7	221.34	2.996	
12,000.0	6,582.8	12,121.3	6,643.8	114.2	113.1	95.36	5,936.7	933.2	663.1	438.0	225.12	2.946	
12,100.0	6,581.9	12,221.3	6,643.2	116.1	115.0	95.39	6,036.7	933.2	663.1	434.2	228.91	2.897	
12,200.0	6,580.9	12,321.3	6,642.6	118.0	116.9	95.42	6,136.7	933.2	663.2	430.5	232.69	2.850	
12,300.0	6,580.0	12,421.3	6,641.9	119.9	118.8	95.45	6,236.7	933.2	663.2	426.7	236.47	2.805	
12,400.0	6,579.1	12,521.3	6,641.3	121.8	120.7	95.47	6,336.7	933.2	663.2	423.0	240.26	2.760	
12,500.0	6,578.2	12,621.3	6,640.7	123.7	122.6	95.50	6,436.7	933.2	663.3	419.2	244.04	2.718	
12,600.0	6,577.2	12,721.3	6,640.1	125.6	124.4	95.53	6,536.7	933.2	663.3	415.5	247.83	2.676	
12,700.0	6,576.3	12,821.3	6,639.5	127.5	126.3	95.55	6,636.7	933.2	663.3	411.7	251.61	2.636	
12,800.0	6,575.4	12,921.3	6,638.9	129.4	128.2	95.58	6,736.7	933.2	663.3	407.9	255.40	2.597	
12,900.0	6,574.5	13,021.3	6,638.3	131.3	130.1	95.61	6,836.7	933.2	663.4	404.2	259.19	2.559	
13,000.0	6,573.5	13,121.3	6,637.7	133.2	132.0	95.63	6,936.7	933.2	663.4	400.4	262.98	2.523	
13,100.0	6,572.6	13,221.3	6,637.1	135.1	133.9	95.66	7,036.7	933.2	663.4	396.7	266.76	2.487	
13,200.0	6,571.7	13,321.3	6,636.4	137.0	135.8	95.69	7,136.7	933.2	663.5	392.9	270.55	2.452	
13,273.4	6,571.0	13,394.3	6,636.0	138.4	137.2	95.71	7,209.7	933.2	663.5	390.2	273.33	2.427 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-323 - Wellbore #1 - Plan #1 (4-22-14)

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	168.02	-564.7	119.8	577.3				
100.0	100.0	97.0	97.0	0.1	0.1	168.02	-564.7	119.8	577.3	577.0	0.22	2,607.278	
200.0	200.0	197.0	197.0	0.3	0.3	168.02	-564.7	119.8	577.3	576.6	0.67	864.727	
300.0	300.0	297.0	297.0	0.6	0.6	168.02	-564.7	119.8	577.3	576.1	1.12	516.748	
400.0	400.0	397.0	397.0	0.8	0.8	168.02	-564.7	119.8	577.3	575.7	1.57	368.470	
500.0	500.0	497.0	497.0	1.0	1.0	168.02	-564.7	119.8	577.3	575.2	2.02	286.314	
600.0	600.0	597.0	597.0	1.2	1.2	168.02	-564.7	119.8	577.3	574.8	2.47	234.115	
700.0	700.0	697.0	697.0	1.5	1.5	168.02	-564.7	119.8	577.3	574.3	2.92	198.014	
800.0	800.0	797.0	797.0	1.7	1.7	168.02	-564.7	119.8	577.3	573.9	3.36	171.559	
900.0	900.0	897.0	897.0	1.9	1.9	168.02	-564.7	119.8	577.3	573.4	3.81	151.340	
1,000.0	1,000.0	997.0	997.0	2.1	2.1	168.02	-564.7	119.8	577.3	573.0	4.26	135.384	
1,100.0	1,100.0	1,109.6	1,109.6	2.4	2.4	167.85	-563.1	121.3	576.2	571.5	4.74	121.636	
1,200.0	1,200.0	1,222.2	1,222.0	2.6	2.6	167.31	-558.4	125.7	572.9	567.7	5.21	109.946	
1,300.0	1,300.0	1,334.2	1,333.5	2.8	2.9	166.40	-550.5	133.1	567.5	561.8	5.69	99.661	
1,400.0	1,400.0	1,445.2	1,443.4	3.0	3.2	165.11	-539.5	143.4	560.1	553.9	6.20	90.357	
1,500.0	1,500.0	1,553.0	1,549.6	3.3	3.5	163.46	-525.9	156.1	551.1	544.3	6.72	81.949	
1,600.0	1,600.0	1,651.3	1,646.1	3.5	3.8	161.79	-512.5	168.6	541.8	534.5	7.25	74.745	
1,700.0	1,700.0	1,749.8	1,742.9	3.7	4.1	113.97	-499.1	181.2	533.6	525.9	7.79	68.536	
1,800.0	1,799.8	1,848.9	1,840.3	3.9	4.5	112.81	-485.6	193.8	527.3	518.9	8.33	63.271	
1,900.0	1,899.5	1,948.4	1,938.0	4.2	4.8	111.94	-472.1	206.4	522.5	513.6	8.90	58.710	
2,000.0	1,998.7	2,048.1	2,036.1	4.4	5.2	111.35	-458.5	219.1	519.0	509.5	9.49	54.718	
2,100.0	2,097.9	2,148.0	2,134.1	4.6	5.6	110.78	-444.9	231.8	515.9	505.8	10.09	51.122	
2,200.0	2,197.1	2,247.8	2,232.2	4.9	5.9	110.21	-431.4	244.5	512.8	502.1	10.71	47.870	
2,300.0	2,296.3	2,347.6	2,330.3	5.2	6.3	109.62	-417.8	257.2	509.8	498.4	11.35	44.928	
2,400.0	2,395.5	2,447.4	2,428.4	5.4	6.7	109.03	-404.2	269.9	506.8	494.8	11.99	42.260	
2,500.0	2,494.6	2,547.2	2,526.4	5.7	7.1	108.44	-390.6	282.6	503.9	491.2	12.65	39.838	
2,600.0	2,593.8	2,647.1	2,624.5	6.0	7.5	107.84	-377.0	295.3	501.0	487.7	13.31	37.633	
2,700.0	2,693.0	2,746.9	2,722.6	6.3	7.9	107.23	-363.5	308.0	498.2	484.2	13.99	35.621	
2,800.0	2,792.2	2,846.7	2,820.6	6.6	8.3	106.61	-349.9	320.7	495.4	480.8	14.67	33.781	
2,900.0	2,891.4	2,946.5	2,918.7	6.8	8.7	105.99	-336.3	333.4	492.7	477.4	15.35	32.094	
3,000.0	2,990.6	3,046.3	3,016.8	7.1	9.1	105.36	-322.7	346.1	490.1	474.0	16.05	30.544	
3,100.0	3,089.8	3,146.2	3,114.9	7.4	9.5	104.72	-309.2	358.8	487.5	470.8	16.74	29.117	
3,200.0	3,188.9	3,246.0	3,212.9	7.7	9.9	104.08	-295.6	371.5	485.0	467.5	17.45	27.799	
3,300.0	3,288.1	3,345.8	3,311.0	8.0	10.3	103.43	-282.0	384.2	482.5	464.4	18.15	26.581	
3,400.0	3,387.3	3,445.6	3,409.1	8.4	10.7	102.77	-268.4	396.9	480.1	461.3	18.87	25.452	
3,500.0	3,486.5	3,545.4	3,507.1	8.7	11.1	102.11	-254.8	409.6	477.8	458.2	19.58	24.403	
3,600.0	3,585.7	3,645.3	3,605.2	9.0	11.5	101.44	-241.3	422.3	475.6	455.3	20.30	23.428	
3,700.0	3,684.9	3,745.1	3,703.3	9.3	11.9	100.77	-227.7	435.0	473.4	452.3	21.02	22.520	
3,800.0	3,784.0	3,844.9	3,801.4	9.6	12.3	100.09	-214.1	447.7	471.2	449.5	21.74	21.672	
3,900.0	3,883.2	3,944.7	3,899.4	9.9	12.7	99.40	-200.5	460.4	469.2	446.7	22.47	20.879	
4,000.0	3,982.4	4,044.5	3,997.5	10.2	13.1	98.71	-187.0	473.1	467.2	444.0	23.20	20.138	
4,100.0	4,081.6	4,144.3	4,095.6	10.5	13.5	98.01	-173.4	485.8	465.2	441.3	23.93	19.443	
4,200.0	4,180.8	4,244.2	4,193.7	10.8	13.9	97.30	-159.8	498.5	463.4	438.7	24.66	18.791	
4,300.0	4,280.0	4,344.0	4,291.7	11.1	14.3	96.59	-146.2	511.2	461.6	436.2	25.39	18.179	
4,400.0	4,379.1	4,443.8	4,389.8	11.5	14.7	95.87	-132.7	523.9	459.9	433.8	26.13	17.603	
4,500.0	4,478.3	4,543.6	4,487.9	11.8	15.1	95.15	-119.1	536.7	458.2	431.4	26.86	17.061	
4,600.0	4,577.6	4,643.4	4,585.9	12.1	15.6	94.37	-105.5	549.3	456.6	429.1	27.58	16.559	
4,700.0	4,677.1	4,743.0	4,683.8	12.3	16.0	93.20	-92.0	562.0	455.0	426.7	28.22	16.120	
4,800.0	4,776.9	4,842.2	4,781.2	12.5	16.4	91.60	-78.5	574.6	453.3	424.5	28.84	15.717	
4,900.0	4,876.9	4,940.9	4,878.2	12.7	16.8	89.57	-65.0	587.2	452.1	422.7	29.43	15.362	
5,000.0	4,976.9	5,039.1	4,974.7	12.8	17.2	133.65	-51.7	599.7	451.5	421.5	29.99	15.056	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-323 - Wellbore #1 - Plan #1 (4-22-14)

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
5,024.2	5,001.1	5,062.9	4,998.1	12.9	17.3	133.09	-48.4	602.7	451.5	421.4	30.13	14.986	CC
5,100.0	5,076.9	5,137.4	5,071.2	13.0	17.6	131.33	-38.3	612.2	451.7	421.2	30.55	14.785	ES
5,200.0	5,176.9	5,235.6	5,167.8	13.2	18.0	129.01	-24.9	624.7	452.7	421.6	31.10	14.558	
5,300.0	5,276.9	5,333.9	5,264.3	13.4	18.4	126.71	-11.6	637.2	454.4	422.8	31.62	14.371	
5,400.0	5,376.9	5,434.5	5,363.5	13.6	18.7	124.58	0.9	648.9	456.6	424.6	32.06	14.243	
5,500.0	5,476.9	5,536.3	5,464.3	13.8	19.0	122.89	10.9	658.2	458.9	426.4	32.45	14.142	
5,600.0	5,576.9	5,638.9	5,566.4	14.0	19.2	121.64	18.4	665.2	460.7	427.9	32.81	14.042	
5,700.0	5,676.9	5,742.1	5,669.4	14.2	19.4	120.84	23.1	669.7	462.0	428.9	33.16	13.935	
5,800.0	5,776.9	5,845.7	5,772.9	14.4	19.6	120.50	25.2	671.6	462.6	429.1	33.49	13.815	
5,864.1	5,840.9	5,910.7	5,837.9	14.5	19.7	120.52	25.3	671.7	462.8	429.1	33.70	13.734	
5,900.0	5,876.9	5,946.6	5,873.9	14.5	19.7	120.49	25.3	671.7	462.7	428.9	33.82	13.682	SF
6,000.0	5,976.5	6,038.8	5,966.0	14.8	19.8	121.00	25.0	671.7	467.2	433.1	34.10	13.701	
6,100.0	6,074.1	6,110.4	6,037.4	15.1	19.9	122.12	19.4	671.7	482.7	448.5	34.23	14.102	
6,200.0	6,168.2	6,173.3	6,099.4	15.5	19.9	123.30	9.1	671.7	511.8	477.6	34.19	14.966	
6,300.0	6,257.1	6,224.9	6,149.5	16.0	19.8	123.63	-3.2	671.7	555.2	521.2	34.02	16.318	
6,400.0	6,339.3	6,264.5	6,187.3	16.6	19.8	122.34	-14.9	671.7	612.6	578.7	33.86	18.092	
6,500.0	6,413.3	6,300.0	6,220.7	17.3	19.7	119.46	-27.1	671.7	682.0	648.1	33.89	20.125	
6,600.0	6,477.9	6,300.0	6,220.7	18.1	19.7	110.71	-27.1	671.7	760.8	726.1	34.68	21.937	
6,700.0	6,532.1	6,320.1	6,239.4	19.2	19.7	101.43	-34.6	671.7	846.0	810.2	35.76	23.655	
6,800.0	6,574.8	6,322.1	6,241.2	20.3	19.7	86.93	-35.4	671.7	935.2	898.4	36.80	25.412	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-403 - Wellbore #1 - Plan #1 (4-22-14)

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	168.85	-593.8	117.0	605.2				
100.0	100.0	98.0	98.0	0.1	0.1	168.85	-593.8	117.0	605.2	605.0	0.22	2,719.924	
200.0	200.0	198.0	198.0	0.3	0.3	168.85	-593.8	117.0	605.2	604.6	0.67	903.615	
300.0	300.0	298.0	298.0	0.6	0.6	168.85	-593.8	117.0	605.2	604.1	1.12	540.718	
400.0	400.0	398.0	398.0	0.8	0.8	168.85	-593.8	117.0	605.2	603.7	1.57	385.784	
500.0	500.0	498.0	498.0	1.0	1.0	168.85	-593.8	117.0	605.2	603.2	2.02	299.863	
600.0	600.0	598.0	598.0	1.2	1.2	168.85	-593.8	117.0	605.2	602.8	2.47	245.243	
700.0	700.0	698.0	698.0	1.5	1.5	168.85	-593.8	117.0	605.2	602.3	2.92	207.456	
800.0	800.0	798.0	798.0	1.7	1.7	168.85	-593.8	117.0	605.2	601.9	3.37	179.758	
900.0	900.0	898.0	898.0	1.9	1.9	168.85	-593.8	117.0	605.2	601.4	3.82	158.585	
1,000.0	1,000.0	998.0	998.0	2.1	2.1	168.85	-593.8	117.0	605.2	601.0	4.27	141.874	
1,100.0	1,100.0	1,098.0	1,098.0	2.4	2.4	168.85	-593.8	117.0	605.2	600.5	4.72	128.350	
1,200.0	1,200.0	1,198.0	1,198.0	2.6	2.6	168.85	-593.8	117.0	605.2	600.1	5.17	117.179	
1,300.0	1,300.0	1,298.0	1,298.0	2.8	2.8	168.85	-593.8	117.0	605.2	599.6	5.61	107.797	
1,400.0	1,400.0	1,398.0	1,398.0	3.0	3.0	168.85	-593.8	117.0	605.2	599.2	6.06	99.806	
1,500.0	1,500.0	1,498.0	1,498.0	3.3	3.3	168.85	-593.8	117.0	605.2	598.7	6.51	92.918	
1,600.0	1,600.0	1,598.0	1,598.0	3.5	3.5	168.85	-593.8	117.0	605.2	598.3	6.96	86.920	
1,700.0	1,700.0	1,698.0	1,698.0	3.7	3.7	122.58	-593.8	117.0	606.2	598.8	7.41	81.829	
1,800.0	1,799.8	1,797.8	1,797.8	3.9	3.9	122.94	-593.8	117.0	609.0	601.2	7.85	77.597	
1,900.0	1,899.5	1,897.5	1,897.5	4.2	4.2	123.54	-593.8	117.0	613.8	605.5	8.29	74.031	
2,000.0	1,998.7	1,996.7	1,996.7	4.4	4.4	124.39	-593.8	117.0	620.5	611.8	8.74	70.982	
2,100.0	2,097.9	2,118.2	2,118.2	4.6	4.6	125.45	-591.6	118.0	626.2	616.9	9.25	67.667	
2,200.0	2,197.1	2,241.3	2,241.0	4.9	4.9	126.26	-584.4	120.9	628.2	618.4	9.78	64.266	
2,300.0	2,296.3	2,364.7	2,363.7	5.2	5.2	126.83	-572.4	125.8	626.6	616.3	10.31	60.790	
2,400.0	2,395.5	2,488.0	2,485.6	5.4	5.5	127.17	-555.4	132.7	621.3	610.4	10.85	57.248	
2,500.0	2,494.6	2,598.8	2,594.6	5.7	5.8	127.30	-536.5	140.5	612.7	601.3	11.38	53.834	
2,600.0	2,593.8	2,698.4	2,692.3	6.0	6.1	127.40	-519.0	147.6	603.7	591.8	11.89	50.768	
2,700.0	2,693.0	2,798.0	2,790.1	6.3	6.4	127.49	-501.5	154.8	594.7	582.2	12.41	47.925	
2,800.0	2,792.2	2,897.6	2,887.9	6.6	6.7	127.59	-484.0	161.9	585.6	572.7	12.93	45.285	
2,900.0	2,891.4	2,997.2	2,985.7	6.8	7.0	127.70	-466.5	169.1	576.6	563.2	13.46	42.831	
3,000.0	2,990.6	3,096.8	3,083.4	7.1	7.3	127.80	-449.0	176.2	567.6	553.6	14.00	40.549	
3,100.0	3,089.8	3,196.4	3,181.2	7.4	7.7	127.91	-431.5	183.4	558.6	544.1	14.54	38.424	
3,200.0	3,188.9	3,295.9	3,279.0	7.7	8.0	128.03	-414.0	190.6	549.6	534.5	15.08	36.442	
3,300.0	3,288.1	3,395.5	3,376.8	8.0	8.4	128.15	-396.5	197.7	540.6	525.0	15.63	34.590	
3,400.0	3,387.3	3,495.1	3,474.5	8.4	8.7	128.27	-379.0	204.9	531.6	515.4	16.18	32.858	
3,500.0	3,486.5	3,594.7	3,572.3	8.7	9.1	128.39	-361.4	212.0	522.6	505.9	16.73	31.236	
3,600.0	3,585.7	3,694.3	3,670.1	9.0	9.5	128.52	-343.9	219.2	513.6	496.3	17.29	29.714	
3,700.0	3,684.9	3,793.9	3,767.9	9.3	9.8	128.66	-326.4	226.3	504.6	486.8	17.84	28.284	
3,800.0	3,784.0	3,893.5	3,865.6	9.6	10.2	128.80	-308.9	233.5	495.7	477.3	18.40	26.938	
3,900.0	3,883.2	3,993.1	3,963.4	9.9	10.6	128.94	-291.4	240.7	486.7	467.7	18.96	25.671	
4,000.0	3,982.4	4,092.6	4,061.2	10.2	11.0	129.09	-273.9	247.8	477.7	458.2	19.52	24.475	
4,100.0	4,081.6	4,192.2	4,159.0	10.5	11.3	129.25	-256.4	255.0	468.7	448.6	20.08	23.345	
4,200.0	4,180.8	4,291.8	4,256.7	10.8	11.7	129.41	-238.9	262.1	459.7	439.1	20.64	22.277	
4,300.0	4,280.0	4,391.4	4,354.5	11.1	12.1	129.58	-221.4	269.3	450.8	429.6	21.20	21.265	
4,400.0	4,379.1	4,491.0	4,452.3	11.5	12.5	129.75	-203.9	276.4	441.8	420.0	21.76	20.305	
4,500.0	4,478.3	4,590.6	4,550.1	11.8	12.9	129.94	-186.4	283.6	432.8	410.5	22.32	19.394	
4,600.0	4,577.6	4,690.2	4,647.8	12.1	13.3	130.03	-168.9	290.8	423.7	400.8	22.87	18.528	
4,700.0	4,677.1	4,789.5	4,745.4	12.3	13.7	129.71	-151.4	297.9	412.6	389.3	23.37	17.658	
4,800.0	4,776.9	4,888.6	4,842.6	12.5	14.1	128.96	-134.0	305.0	399.4	375.5	23.88	16.729	
4,900.0	4,876.9	4,987.2	4,939.4	12.7	14.5	127.73	-116.7	312.1	384.1	359.7	24.40	15.744	
5,000.0	4,976.9	5,085.4	5,035.8	12.8	14.8	172.68	-99.4	319.2	367.4	342.5	24.96	14.724	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-403 - Wellbore #1 - Plan #1 (4-22-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,076.9	5,183.5	5,132.2	13.0	15.2	171.16	-82.1	326.2	351.0	325.4	25.56	13.731	
5,200.0	5,176.9	5,281.7	5,228.6	13.2	15.6	169.49	-64.9	333.3	334.8	308.6	26.18	12.785	
5,300.0	5,276.9	5,379.9	5,325.0	13.4	16.0	167.66	-47.6	340.3	318.9	292.0	26.83	11.884	
5,400.0	5,376.9	5,472.8	5,416.4	13.6	16.4	165.82	-31.9	346.8	303.9	276.5	27.44	11.074	
5,500.0	5,476.9	5,564.1	5,506.5	13.8	16.6	164.18	-19.0	352.0	291.7	263.7	28.00	10.418	
5,600.0	5,576.9	5,656.1	5,597.9	14.0	16.9	162.78	-8.6	356.3	282.2	253.7	28.51	9.898	
5,700.0	5,676.9	5,748.8	5,690.2	14.2	17.1	161.68	-0.9	359.4	275.3	246.3	28.98	9.499	
5,800.0	5,776.9	5,841.9	5,783.2	14.4	17.2	160.95	4.0	361.4	271.0	241.6	29.41	9.215	
5,887.5	5,864.4	5,923.6	5,864.8	14.5	17.4	160.69	6.0	362.2	269.8	240.1	29.75	9.070	
5,900.0	5,876.9	5,935.3	5,876.5	14.5	17.4	160.63	6.1	362.3	269.3	239.5	29.80	9.035	CC, ES, SF
6,000.0	5,976.5	6,033.2	5,974.5	14.8	17.5	160.99	6.2	362.3	276.9	246.8	30.08	9.205	
6,100.0	6,074.1	6,115.5	6,056.7	15.1	17.7	161.64	5.1	362.3	298.4	268.5	29.98	9.956	
6,200.0	6,168.2	6,180.1	6,121.0	15.5	17.7	162.28	-1.2	362.3	339.3	309.9	29.48	11.512	
6,300.0	6,257.1	6,234.3	6,174.4	16.0	17.7	162.53	-10.6	362.3	398.0	369.3	28.67	13.882	
6,400.0	6,339.3	6,277.0	6,215.9	16.6	17.6	161.95	-20.6	362.3	471.0	443.4	27.65	17.033	
6,500.0	6,413.3	6,300.0	6,237.9	17.3	17.6	159.34	-27.0	362.3	555.1	528.4	26.74	20.760	
6,600.0	6,477.9	6,329.4	6,265.9	18.1	17.6	155.01	-36.1	362.3	646.7	620.5	26.20	24.682	
6,700.0	6,532.1	6,350.0	6,285.3	19.2	17.5	144.24	-43.1	362.3	743.2	715.5	27.70	26.829	
6,800.0	6,574.8	6,350.0	6,285.3	20.3	17.5	103.53	-43.1	362.3	842.1	805.8	36.29	23.205	
6,900.0	6,605.3	6,350.0	6,285.3	21.6	17.5	43.39	-43.1	362.3	941.4	912.7	28.76	32.737	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27O-243 - Wellbore #1 - Plan #1 (4-22-14)

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	167.30	-531.9	119.8	545.2				
100.0	100.0	96.0	96.0	0.1	0.1	167.30	-531.9	119.8	545.2	545.0	0.22	2,475.125	
200.0	200.0	196.0	196.0	0.3	0.3	167.30	-531.9	119.8	545.2	544.6	0.67	819.497	
300.0	300.0	296.0	296.0	0.6	0.6	167.30	-531.9	119.8	545.2	544.1	1.11	489.055	
400.0	400.0	396.0	396.0	0.8	0.8	167.30	-531.9	119.8	545.2	543.7	1.56	348.522	
500.0	500.0	502.3	502.3	1.0	1.0	167.12	-530.9	121.4	544.7	542.6	2.02	269.331	
600.0	600.0	608.7	608.5	1.2	1.3	166.55	-527.9	126.3	542.9	540.4	2.48	218.606	
700.0	700.0	714.4	713.8	1.5	1.5	165.58	-522.8	134.5	540.1	537.2	2.96	182.479	
800.0	800.0	819.3	817.8	1.7	1.8	164.21	-515.7	145.8	536.4	533.0	3.46	155.011	
900.0	900.0	923.1	920.2	1.9	2.1	162.45	-506.8	160.3	532.1	528.1	3.99	133.376	
1,000.0	1,000.0	1,025.5	1,020.5	2.1	2.5	160.30	-496.0	177.6	527.5	522.9	4.55	116.032	
1,100.0	1,100.0	1,123.7	1,116.2	2.4	2.9	157.96	-484.6	196.1	523.1	518.0	5.11	102.393	
1,200.0	1,200.0	1,221.1	1,211.3	2.6	3.3	155.60	-473.1	214.6	519.7	514.1	5.67	91.700	
1,300.0	1,300.0	1,318.6	1,306.3	2.8	3.8	153.22	-461.7	233.0	517.3	511.0	6.22	83.152	
1,400.0	1,400.0	1,416.1	1,401.4	3.0	4.2	150.82	-450.3	251.5	515.7	509.0	6.76	76.246	
1,500.0	1,500.0	1,513.6	1,496.4	3.3	4.7	148.40	-438.8	269.9	515.2	507.9	7.30	70.612	
1,508.6	1,508.6	1,522.0	1,504.6	3.3	4.7	148.20	-437.8	271.5	515.2	507.8	7.34	70.178	CC
1,600.0	1,600.0	1,611.1	1,591.5	3.5	5.1	145.99	-427.4	288.4	515.6	507.8	7.81	65.976	ES
1,700.0	1,700.0	1,709.0	1,686.9	3.7	5.6	97.33	-415.9	306.9	517.2	507.9	9.24	55.947	
1,800.0	1,799.8	1,807.5	1,782.9	3.9	6.0	95.42	-404.3	325.5	519.9	510.0	9.91	52.476	
1,900.0	1,899.5	1,906.5	1,879.4	4.2	6.5	93.88	-392.7	344.2	523.4	512.8	10.58	49.477	
2,000.0	1,998.7	2,005.9	1,976.3	4.4	6.9	92.72	-381.1	363.0	527.4	516.1	11.26	46.820	
2,100.0	2,097.9	2,105.3	2,073.3	4.6	7.4	91.72	-369.4	381.9	531.6	519.6	11.96	44.443	
2,200.0	2,197.1	2,204.8	2,170.3	4.9	7.9	90.72	-357.7	400.7	535.9	523.3	12.66	42.318	
2,300.0	2,296.3	2,304.3	2,267.3	5.2	8.4	89.75	-346.1	419.5	540.5	527.1	13.37	40.413	
2,400.0	2,395.5	2,403.8	2,364.2	5.4	8.8	88.79	-334.4	438.3	545.2	531.1	14.09	38.700	
2,500.0	2,494.6	2,503.2	2,461.2	5.7	9.3	87.85	-322.7	457.1	550.0	535.2	14.80	37.157	
2,600.0	2,593.8	2,602.7	2,558.2	6.0	9.8	86.92	-311.1	475.9	555.0	539.5	15.52	35.762	
2,700.0	2,693.0	2,702.2	2,655.2	6.3	10.2	86.01	-299.4	494.8	560.1	543.9	16.24	34.498	
2,800.0	2,792.2	2,801.7	2,752.1	6.6	10.7	85.12	-287.7	513.6	565.4	548.4	16.95	33.349	
2,900.0	2,891.4	2,901.1	2,849.1	6.8	11.2	84.24	-276.1	532.4	570.8	553.1	17.67	32.303	
3,000.0	2,990.6	3,000.6	2,946.1	7.1	11.7	83.38	-264.4	551.2	576.3	558.0	18.39	31.348	
3,100.0	3,089.8	3,100.1	3,043.1	7.4	12.1	82.54	-252.7	570.0	582.0	562.9	19.10	30.473	
3,200.0	3,188.9	3,199.5	3,140.1	7.7	12.6	81.71	-241.1	588.8	587.8	568.0	19.81	29.672	
3,300.0	3,288.1	3,299.0	3,237.0	8.0	13.1	80.90	-229.4	607.7	593.7	573.2	20.52	28.935	
3,400.0	3,387.3	3,398.5	3,334.0	8.4	13.6	80.11	-217.7	626.5	599.7	578.5	21.22	28.256	
3,500.0	3,486.5	3,498.0	3,431.0	8.7	14.0	79.33	-206.0	645.3	605.9	583.9	21.93	27.630	
3,600.0	3,585.7	3,597.4	3,528.0	9.0	14.5	78.56	-194.4	664.1	612.1	589.5	22.63	27.051	
3,700.0	3,684.9	3,696.9	3,624.9	9.3	15.0	77.82	-182.7	682.9	618.5	595.1	23.32	26.515	
3,800.0	3,784.0	3,796.4	3,721.9	9.6	15.5	77.08	-171.0	701.7	624.9	600.9	24.02	26.019	
3,900.0	3,883.2	3,895.9	3,818.9	9.9	15.9	76.37	-159.4	720.6	631.5	606.8	24.71	25.557	
4,000.0	3,982.4	3,995.3	3,915.9	10.2	16.4	75.66	-147.7	739.4	638.1	612.7	25.40	25.128	
4,100.0	4,081.6	4,094.8	4,012.9	10.5	16.9	74.98	-136.0	758.2	644.9	618.8	26.08	24.729	
4,200.0	4,180.8	4,194.3	4,109.8	10.8	17.4	74.30	-124.4	777.0	651.7	625.0	26.76	24.357	
4,300.0	4,280.0	4,293.8	4,206.8	11.1	17.8	73.64	-112.7	795.8	658.7	631.2	27.43	24.009	
4,400.0	4,379.1	4,393.2	4,303.8	11.5	18.3	73.00	-101.0	814.7	665.7	637.6	28.11	23.684	
4,500.0	4,478.3	4,492.7	4,400.8	11.8	18.8	72.36	-89.4	833.5	672.8	644.0	28.78	23.380	
4,600.0	4,577.6	4,592.1	4,497.7	12.1	19.3	71.78	-77.7	852.3	680.1	650.6	29.43	23.109	
4,700.0	4,677.1	4,691.3	4,594.3	12.3	19.7	71.08	-66.1	871.0	688.4	658.4	29.99	22.956	
4,800.0	4,776.9	4,789.9	4,690.5	12.5	20.2	70.16	-54.5	889.7	698.0	667.5	30.48	22.900	
4,900.0	4,876.9	4,887.9	4,786.0	12.7	20.7	69.04	-43.0	908.2	709.2	678.3	30.91	22.943	

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 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27O-243 - Wellbore #1 - Plan #1 (4-22-14)

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	4,976.9	4,985.4	4,881.1	12.8	21.2	114.04	-31.6	926.7	721.6	690.3	31.28	23.066	
5,100.0	5,076.9	5,082.9	4,976.2	13.0	21.6	112.63	-20.1	945.1	734.6	702.9	31.67	23.196	
5,200.0	5,176.9	5,182.1	5,072.9	13.2	22.1	111.24	-8.5	963.9	747.9	715.9	32.04	23.341	
5,300.0	5,276.9	5,299.2	5,187.6	13.4	22.5	109.83	3.8	983.7	760.2	727.9	32.37	23.485	
5,400.0	5,376.9	5,418.0	5,305.0	13.6	22.8	108.72	13.7	999.7	770.3	737.6	32.69	23.561	
5,500.0	5,476.9	5,538.3	5,424.4	13.8	23.1	107.92	21.1	1,011.6	777.8	744.8	33.02	23.557	
5,600.0	5,576.9	5,659.5	5,545.2	14.0	23.4	107.41	25.9	1,019.4	782.7	749.4	33.35	23.471	
5,700.0	5,676.9	5,781.3	5,666.9	14.2	23.5	107.19	28.0	1,022.8	784.8	751.2	33.68	23.300	
5,800.0	5,776.9	5,887.2	5,772.9	14.4	23.6	107.18	28.1	1,022.9	785.0	750.9	34.01	23.079	
5,862.5	5,839.3	5,949.7	5,835.3	14.5	23.7	107.20	28.1	1,022.9	785.0	750.8	34.22	22.944	
5,900.0	5,876.9	5,985.3	5,870.9	14.5	23.8	107.19	28.1	1,022.9	785.0	750.7	34.33	22.866	
6,000.0	5,976.5	6,060.7	5,946.2	14.8	23.8	107.61	23.7	1,022.9	789.2	754.6	34.59	22.820 SF	
6,100.0	6,074.1	6,130.1	6,014.7	15.1	23.8	108.46	13.2	1,022.9	801.1	766.3	34.82	23.008	
6,200.0	6,168.2	6,189.6	6,072.6	15.5	23.8	109.16	-0.8	1,022.9	822.0	787.0	34.95	23.517	
6,300.0	6,257.1	6,237.3	6,118.0	16.0	23.7	109.11	-15.2	1,022.9	853.2	818.3	34.97	24.400	
6,400.0	6,339.3	6,273.0	6,151.5	16.6	23.7	107.81	-27.8	1,022.9	895.4	860.5	34.94	25.624	
6,500.0	6,413.3	6,300.0	6,176.3	17.3	23.6	105.07	-38.4	1,022.9	948.1	913.0	35.04	27.058	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27O-303 - Wellbore #1 - Plan #1 (4-22-14)

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	166.59	-502.7	119.8	516.8				
100.0	100.0	96.0	96.0	0.1	0.1	166.59	-502.7	119.8	516.8	516.6	0.22	2,346.231	
200.0	200.0	196.0	196.0	0.3	0.3	166.59	-502.7	119.8	516.8	516.2	0.67	776.821	
300.0	300.0	299.0	299.0	0.6	0.6	166.41	-502.1	121.4	516.5	515.4	1.12	462.882	
400.0	400.0	401.9	401.8	0.8	0.8	165.82	-499.9	126.4	515.7	514.1	1.57	327.707	
500.0	500.0	504.3	503.7	1.0	1.0	164.82	-496.4	134.7	514.4	512.3	2.05	251.162	
600.0	600.0	605.9	604.5	1.2	1.3	163.43	-491.4	146.2	512.8	510.2	2.54	201.597	
700.0	700.0	706.5	703.9	1.5	1.7	161.66	-485.1	160.8	511.1	508.1	3.06	166.939	
800.0	800.0	805.8	801.3	1.7	2.1	159.51	-477.5	178.4	509.8	506.2	3.60	141.557	
900.0	900.0	903.7	896.7	1.9	2.5	157.02	-468.8	198.8	509.2	505.0	4.16	122.475	
911.0	911.0	914.4	907.0	1.9	2.5	156.72	-467.7	201.2	509.2	505.0	4.22	120.638	CC, ES
1,000.0	1,000.0	1,000.1	989.8	2.1	3.0	154.21	-458.9	221.7	509.7	505.0	4.73	107.865	
1,100.0	1,100.0	1,096.5	1,082.6	2.4	3.5	151.32	-448.7	245.5	511.6	506.3	5.27	97.009	
1,200.0	1,200.0	1,192.8	1,175.4	2.6	4.0	148.45	-438.5	269.2	514.9	509.1	5.81	88.694	
1,300.0	1,300.0	1,289.1	1,268.2	2.8	4.5	145.63	-428.3	292.9	519.6	513.3	6.32	82.228	
1,400.0	1,400.0	1,385.5	1,361.0	3.0	5.1	142.86	-418.1	316.7	525.6	518.8	6.81	77.133	
1,500.0	1,500.0	1,481.8	1,453.8	3.3	5.6	140.15	-407.9	340.4	532.9	525.6	7.29	73.071	
1,600.0	1,600.0	1,578.1	1,546.6	3.5	6.1	137.52	-397.6	364.1	541.4	533.7	7.76	69.796	
1,700.0	1,700.0	1,674.9	1,639.8	3.7	6.7	88.54	-387.4	388.0	551.1	541.0	10.05	54.845	
1,800.0	1,799.8	1,772.4	1,733.8	3.9	7.2	86.35	-377.1	412.0	561.5	550.8	10.71	52.427	
1,900.0	1,899.5	1,870.6	1,828.3	4.2	7.8	84.55	-366.6	436.2	572.2	560.9	11.38	50.287	
2,000.0	1,998.7	1,969.2	1,923.4	4.4	8.3	83.19	-356.2	460.5	583.0	571.0	12.07	48.313	
2,100.0	2,097.9	2,068.0	2,018.5	4.6	8.9	82.09	-345.7	484.8	594.0	581.2	12.77	46.518	
2,200.0	2,197.1	2,166.7	2,113.7	4.9	9.4	81.03	-335.3	509.1	605.1	591.6	13.47	44.918	
2,300.0	2,296.3	2,265.5	2,208.8	5.2	10.0	80.01	-324.8	533.5	616.4	602.3	14.18	43.488	
2,400.0	2,395.5	2,364.2	2,303.9	5.4	10.5	79.02	-314.3	557.8	628.0	613.1	14.88	42.206	
2,500.0	2,494.6	2,463.0	2,399.1	5.7	11.1	78.07	-303.9	582.1	639.7	624.1	15.58	41.054	
2,600.0	2,593.8	2,561.8	2,494.2	6.0	11.7	77.16	-293.4	606.5	651.6	635.3	16.28	40.016	
2,700.0	2,693.0	2,660.5	2,589.3	6.3	12.2	76.28	-282.9	630.8	663.6	646.6	16.98	39.078	
2,800.0	2,792.2	2,759.3	2,684.5	6.6	12.8	75.42	-272.5	655.1	675.8	658.1	17.68	38.228	
2,900.0	2,891.4	2,858.0	2,779.6	6.8	13.3	74.60	-262.0	679.5	688.1	669.8	18.37	37.456	
3,000.0	2,990.6	2,956.8	2,874.8	7.1	13.9	73.81	-251.5	703.8	700.6	681.5	19.06	36.754	
3,100.0	3,089.8	3,055.5	2,969.9	7.4	14.5	73.05	-241.1	728.1	713.2	693.4	19.75	36.112	
3,200.0	3,188.9	3,154.3	3,065.0	7.7	15.0	72.31	-230.6	752.5	725.9	705.5	20.43	35.525	
3,300.0	3,288.1	3,253.1	3,160.2	8.0	15.6	71.59	-220.1	776.8	738.8	717.6	21.11	34.987	
3,400.0	3,387.3	3,351.8	3,255.3	8.4	16.1	70.90	-209.7	801.1	751.7	729.9	21.79	34.493	
3,500.0	3,486.5	3,450.6	3,350.4	8.7	16.7	70.24	-199.2	825.4	764.7	742.3	22.47	34.039	
3,600.0	3,585.7	3,549.3	3,445.6	9.0	17.2	69.60	-188.7	849.8	777.9	754.8	23.14	33.619	
3,700.0	3,684.9	3,648.1	3,540.7	9.3	17.8	68.97	-178.3	874.1	791.1	767.3	23.81	33.232	
3,800.0	3,784.0	3,746.8	3,635.9	9.6	18.4	68.37	-167.8	898.4	804.5	780.0	24.47	32.873	
3,900.0	3,883.2	3,845.6	3,731.0	9.9	18.9	67.79	-157.3	922.8	817.9	792.8	25.13	32.541	
4,000.0	3,982.4	3,944.3	3,826.1	10.2	19.5	67.23	-146.9	947.1	831.4	805.6	25.79	32.233	
4,100.0	4,081.6	4,043.1	3,921.3	10.5	20.0	66.68	-136.4	971.4	845.0	818.5	26.45	31.946	
4,200.0	4,180.8	4,141.9	4,016.4	10.8	20.6	66.15	-125.9	995.8	858.6	831.5	27.10	31.679	
4,300.0	4,280.0	4,240.6	4,111.6	11.1	21.2	65.64	-115.5	1,020.1	872.3	844.6	27.75	31.430	
4,400.0	4,379.1	4,339.4	4,206.7	11.5	21.7	65.14	-105.0	1,044.4	886.1	857.7	28.40	31.197	
4,500.0	4,478.3	4,438.1	4,301.8	11.8	22.3	64.66	-94.5	1,068.8	900.0	870.9	29.05	30.980	
4,600.0	4,577.6	4,536.8	4,396.9	12.1	22.8	64.29	-84.1	1,093.1	914.0	884.3	29.69	30.786	
4,700.0	4,677.1	4,635.1	4,491.6	12.3	23.4	63.94	-73.6	1,117.3	929.4	899.1	30.25	30.724	SF
4,800.0	4,776.9	4,732.8	4,585.7	12.5	23.9	63.45	-63.3	1,141.4	946.4	915.7	30.75	30.781	
4,900.0	4,876.9	4,829.7	4,679.1	12.7	24.5	62.85	-53.0	1,165.2	965.2	934.1	31.18	30.953	

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 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27O-303 - Wellbore #1 - Plan #1 (4-22-14)

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	4,976.9	4,926.1	4,771.9	12.8	25.0	108.29	-42.8	1,189.0	985.4	953.9	31.55	31.236	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut Existing Pad Sec.27-T5N-R64W - White 5 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7090-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	1.26	885.3	19.5	885.9				
100.0	100.0	74.0	74.0	0.1	1.5	1.26	885.3	19.5	885.5	883.9	1.59	556.009	
200.0	200.0	174.0	174.0	0.3	3.5	1.26	885.3	19.5	885.5	881.7	3.82	231.965	
300.0	300.0	274.0	274.0	0.6	5.5	1.26	885.3	19.5	885.5	879.4	6.04	146.553	
400.0	400.0	374.0	374.0	0.8	7.5	1.26	885.3	19.5	885.5	877.2	8.27	107.113	
500.0	500.0	474.0	474.0	1.0	9.5	1.26	885.3	19.5	885.5	875.0	10.49	84.400	
600.0	600.0	574.0	574.0	1.2	11.5	1.26	885.3	19.5	885.5	872.8	12.72	69.634	
700.0	700.0	674.0	674.0	1.5	13.5	1.26	885.3	19.5	885.5	870.5	14.94	59.265	
800.0	800.0	774.0	774.0	1.7	15.5	1.26	885.3	19.5	885.5	868.3	17.17	51.584	
900.0	900.0	874.0	874.0	1.9	17.5	1.26	885.3	19.5	885.5	866.1	19.39	45.666	
1,000.0	1,000.0	974.0	974.0	2.1	19.5	1.26	885.3	19.5	885.5	863.9	21.62	40.966	
1,100.0	1,100.0	1,074.0	1,074.0	2.4	21.5	1.26	885.3	19.5	885.5	861.6	23.84	37.143	
1,200.0	1,200.0	1,174.0	1,174.0	2.6	23.5	1.26	885.3	19.5	885.5	859.4	26.06	33.972	
1,300.0	1,300.0	1,274.0	1,274.0	2.8	25.5	1.26	885.3	19.5	885.5	857.2	28.29	31.301	
1,400.0	1,400.0	1,374.0	1,374.0	3.0	27.5	1.26	885.3	19.5	885.5	855.0	30.51	29.019	
1,500.0	1,500.0	1,474.0	1,474.0	3.3	29.5	1.26	885.3	19.5	885.5	852.7	32.74	27.047	
1,600.0	1,600.0	1,574.0	1,574.0	3.5	31.5	1.26	885.3	19.5	885.5	850.5	34.96	25.326	
1,700.0	1,700.0	1,674.0	1,674.0	3.7	33.5	-45.23	885.3	19.5	884.3	847.1	37.17	23.787	
1,800.0	1,799.8	1,773.8	1,773.8	3.9	35.5	-45.53	885.3	19.5	880.6	841.2	39.35	22.375	
1,900.0	1,899.5	1,873.5	1,873.5	4.2	37.5	-46.02	885.3	19.5	874.5	833.0	41.51	21.067	
2,000.0	1,998.7	1,972.7	1,972.7	4.4	39.5	-46.67	885.3	19.5	866.2	822.5	43.67	19.834	
2,100.0	2,097.9	2,071.9	2,071.9	4.6	41.4	-47.28	885.3	19.5	857.4	811.6	45.89	18.685	
2,200.0	2,197.1	2,171.1	2,171.1	4.9	43.4	-47.91	885.3	19.5	848.8	800.7	48.12	17.641	
2,300.0	2,296.3	2,270.3	2,270.3	5.2	45.4	-48.56	885.3	19.5	840.3	789.9	50.35	16.689	
2,400.0	2,395.5	2,369.5	2,369.5	5.4	47.4	-49.21	885.3	19.5	831.9	779.3	52.59	15.818	
2,500.0	2,494.6	2,468.6	2,468.6	5.7	49.4	-49.88	885.3	19.5	823.6	768.7	54.83	15.019	
2,600.0	2,593.8	2,567.8	2,567.8	6.0	51.4	-50.56	885.3	19.5	815.4	758.3	57.08	14.284	
2,700.0	2,693.0	2,667.0	2,667.0	6.3	53.3	-51.26	885.3	19.5	807.3	747.9	59.33	13.605	
2,800.0	2,792.2	2,766.2	2,766.2	6.6	55.3	-51.97	885.3	19.5	799.3	737.7	61.59	12.978	
2,900.0	2,891.4	2,865.4	2,865.4	6.8	57.3	-52.69	885.3	19.5	791.5	727.6	63.85	12.395	
3,000.0	2,990.6	2,964.6	2,964.6	7.1	59.3	-53.43	885.3	19.5	783.8	717.7	66.12	11.854	
3,100.0	3,089.8	3,063.8	3,063.8	7.4	61.3	-54.18	885.3	19.5	776.2	707.8	68.39	11.350	
3,200.0	3,188.9	3,162.9	3,162.9	7.7	63.3	-54.94	885.3	19.5	768.8	698.1	70.66	10.879	
3,300.0	3,288.1	3,262.1	3,262.1	8.0	65.2	-55.72	885.3	19.5	761.5	688.6	72.94	10.440	
3,400.0	3,387.3	3,361.3	3,361.3	8.4	67.2	-56.52	885.3	19.5	754.4	679.1	75.22	10.028	
3,500.0	3,486.5	3,460.5	3,460.5	8.7	69.2	-57.33	885.3	19.5	747.4	669.8	77.51	9.642	
3,600.0	3,585.7	3,559.7	3,559.7	9.0	71.2	-58.16	885.3	19.5	740.5	660.7	79.80	9.280	
3,700.0	3,684.9	3,658.9	3,658.9	9.3	73.2	-59.00	885.3	19.5	733.8	651.7	82.09	8.940	
3,800.0	3,784.0	3,758.0	3,758.0	9.6	75.2	-59.85	885.3	19.5	727.3	642.9	84.38	8.619	
3,900.0	3,883.2	3,857.2	3,857.2	9.9	77.1	-60.72	885.3	19.5	720.9	634.3	86.68	8.318	
4,000.0	3,982.4	3,956.4	3,956.4	10.2	79.1	-61.61	885.3	19.5	714.8	625.8	88.98	8.033	
4,100.0	4,081.6	4,055.6	4,055.6	10.5	81.1	-62.51	885.3	19.5	708.7	617.5	91.28	7.765	
4,200.0	4,180.8	4,154.8	4,154.8	10.8	83.1	-63.42	885.3	19.5	702.9	609.3	93.58	7.511	
4,300.0	4,280.0	4,254.0	4,254.0	11.1	85.1	-64.36	885.3	19.5	697.3	601.4	95.89	7.271	
4,400.0	4,379.1	4,353.1	4,353.1	11.5	87.1	-65.30	885.3	19.5	691.8	593.6	98.20	7.045	
4,500.0	4,478.3	4,452.3	4,452.3	11.8	89.0	-66.26	885.3	19.5	686.5	586.0	100.51	6.830	
4,600.0	4,577.6	4,551.6	4,551.6	12.1	91.0	-67.17	885.3	19.5	681.6	578.8	102.83	6.628	
4,700.0	4,677.1	4,651.1	4,651.1	12.3	93.0	-67.84	885.3	19.5	677.9	572.8	105.10	6.451	
4,800.0	4,776.9	4,750.9	4,750.9	12.5	95.0	-68.28	885.3	19.5	675.7	568.4	107.32	6.296	
4,900.0	4,876.9	4,850.9	4,850.9	12.7	97.0	-68.46	885.3	19.5	674.7	565.2	109.50	6.162	
4,948.4	4,925.2	4,899.2	4,899.2	12.7	98.0	-68.48	885.3	19.5	674.6	564.1	110.55	6.102	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Chesnut Existing Pad Sec.27-T5N-R64W - White 5 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

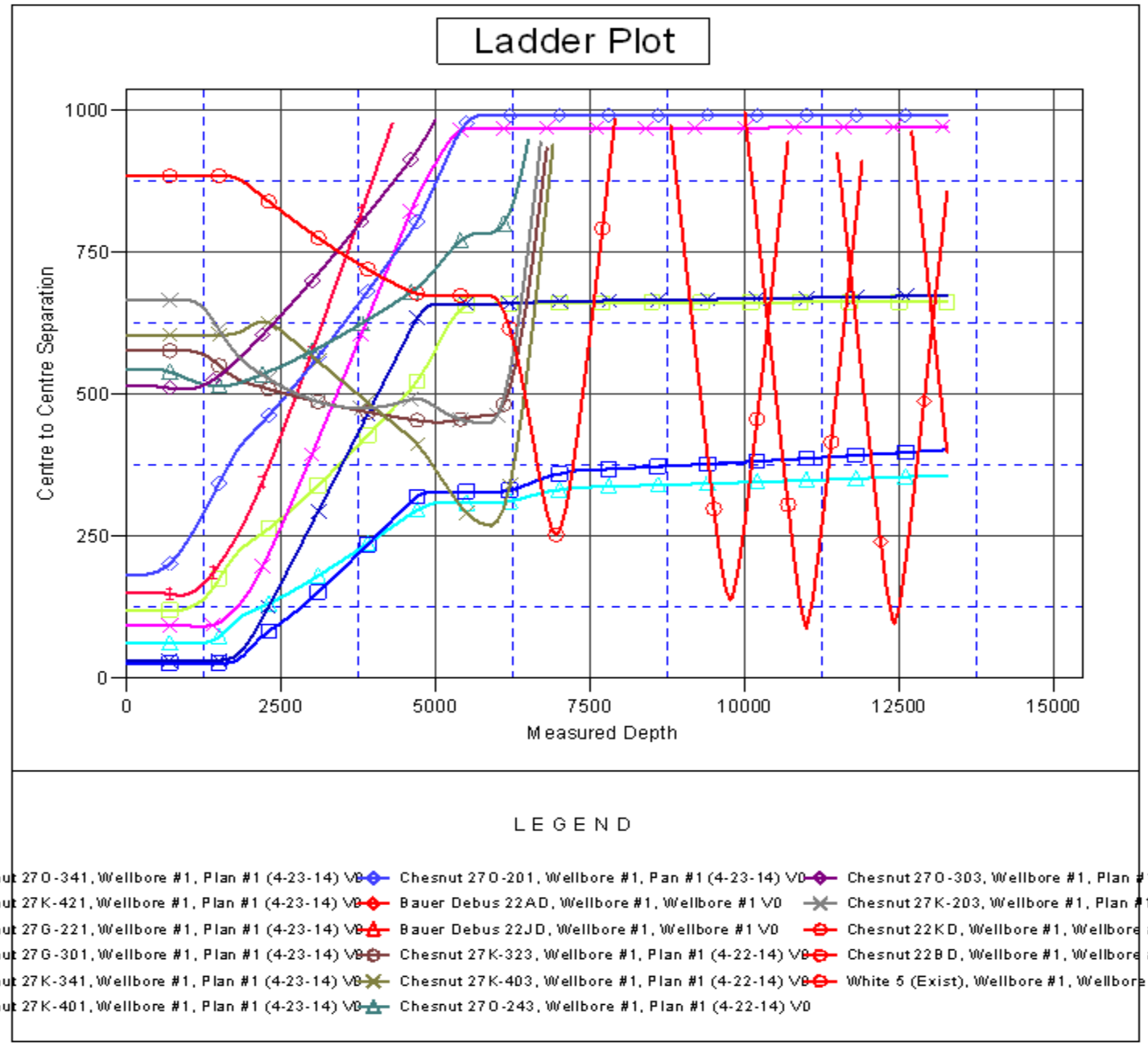
Survey Program: 7090-UNKNOWN

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	4,976.9	4,950.9	4,950.9	12.8	99.0	-22.07	885.3	19.5	674.7	563.0	111.67	6.042	
5,100.0	5,076.9	5,050.9	5,050.9	13.0	101.0	-22.07	885.3	19.5	674.7	560.8	113.86	5.926	
5,200.0	5,176.9	5,150.9	5,150.9	13.2	103.0	-22.07	885.3	19.5	674.7	558.7	116.05	5.814	
5,300.0	5,276.9	5,250.9	5,250.9	13.4	105.0	-22.07	885.3	19.5	674.7	556.5	118.24	5.706	
5,400.0	5,376.9	5,350.9	5,350.9	13.6	107.0	-22.07	885.3	19.5	674.7	554.3	120.44	5.602	
5,500.0	5,476.9	5,450.9	5,450.9	13.8	109.0	-22.07	885.3	19.5	674.7	552.1	122.63	5.502	
5,600.0	5,576.9	5,550.9	5,550.9	14.0	111.0	-22.07	885.3	19.5	674.7	549.9	124.83	5.405	
5,700.0	5,676.9	5,650.9	5,650.9	14.2	113.0	-22.07	885.3	19.5	674.7	547.7	127.02	5.312	
5,800.0	5,776.9	5,750.9	5,750.9	14.4	115.0	-22.07	885.3	19.5	674.7	545.5	129.22	5.221	
5,900.0	5,876.9	5,850.9	5,850.9	14.5	117.0	-22.07	885.3	19.5	674.6	543.2	131.41	5.134	
6,000.0	5,976.5	5,950.5	5,950.5	14.8	119.0	-22.56	885.3	19.5	667.0	534.6	132.47	5.035	
6,100.0	6,074.1	6,048.1	6,048.1	15.1	121.0	-23.87	885.3	19.5	647.6	515.9	131.68	4.917	
6,200.0	6,168.2	6,142.2	6,142.2	15.5	122.8	-26.17	885.3	19.5	616.7	487.4	129.31	4.769	
6,300.0	6,257.1	6,231.1	6,231.1	16.0	124.6	-29.78	885.3	19.5	575.4	449.3	126.04	4.565	
6,400.0	6,339.3	6,313.3	6,313.3	16.6	126.3	-35.15	885.3	19.5	524.9	401.6	123.34	4.256	
6,500.0	6,413.3	6,387.3	6,387.3	17.3	127.7	-42.89	885.3	19.5	467.3	343.6	123.69	3.778	
6,600.0	6,477.9	6,451.9	6,451.9	18.1	129.0	-53.38	885.3	19.5	405.4	275.9	129.44	3.132	
6,700.0	6,532.1	6,506.1	6,506.1	19.2	130.1	-66.01	885.3	19.5	343.8	204.4	139.46	2.465	
6,800.0	6,574.8	6,548.8	6,548.8	20.3	131.0	-78.37	885.3	19.5	290.5	142.3	148.24	1.960	
6,900.0	6,605.3	6,579.3	6,579.3	21.6	131.6	-87.43	885.3	19.5	257.8	105.2	152.57	1.690	
6,947.9	6,615.5	6,589.5	6,589.5	22.3	131.8	-90.00	885.3	19.5	253.5	99.9	153.59	1.651	CC, ES, SF
7,000.0	6,623.2	6,597.2	6,597.2	23.0	131.9	-91.33	885.3	19.5	258.7	104.2	154.45	1.675	
7,100.0	6,628.1	6,602.1	6,602.1	24.4	132.0	-89.68	885.3	19.5	295.2	139.1	156.06	1.892	
7,200.0	6,627.2	6,601.2	6,601.2	26.0	132.0	-89.47	885.3	19.5	356.9	199.4	157.59	2.265	
7,300.0	6,626.3	6,600.3	6,600.3	27.5	132.0	-89.27	885.3	19.5	433.2	274.0	159.15	2.722	
7,400.0	6,625.3	6,599.3	6,599.3	29.2	132.0	-89.06	885.3	19.5	517.6	356.8	160.76	3.220	
7,500.0	6,624.4	6,598.4	6,598.4	30.8	132.0	-88.85	885.3	19.5	606.8	444.4	162.39	3.736	
7,600.0	6,623.5	6,597.5	6,597.5	32.5	131.9	-88.64	885.3	19.5	698.9	534.8	164.05	4.260	
7,700.0	6,622.6	6,596.6	6,596.6	34.2	131.9	-88.43	885.3	19.5	792.9	627.1	165.74	4.784	
7,800.0	6,621.6	6,595.6	6,595.6	35.9	131.9	-88.22	885.3	19.5	888.2	720.8	167.44	5.305	
7,900.0	6,620.7	6,594.7	6,594.7	37.7	131.9	-88.01	885.3	19.5	984.5	815.3	169.15	5.820	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4632.0ft (Original Well Elev) Coordinates are relative to: Chesnut 27K-201
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: 0.62°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Chesnut 27K-201
Project:	SEC.27-T5N-R64W	**TVD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	**MD Reference:**	WELL @ 4632.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Chesnut 27K-201	**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 (4-23-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4632.0ft (Original Well Elev) Coordinates are relative to: Chesnut 27K-201
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: 0.62°