

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Chesnut 270-341**

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

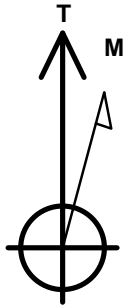
Ground Elevation: 4614.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1379527.86	3267177.24	40.371240	-104.541080	

Ensign 123 RKB - 15' WELL @ 4629.0ft (RKB 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2278'FNL & 1139'FWL, Sec.27	1.0	0.0	0.0	Point
BHL 500'FNL & 2110'FWL, Sec.22	6636.0	7096.8	891.4	Point



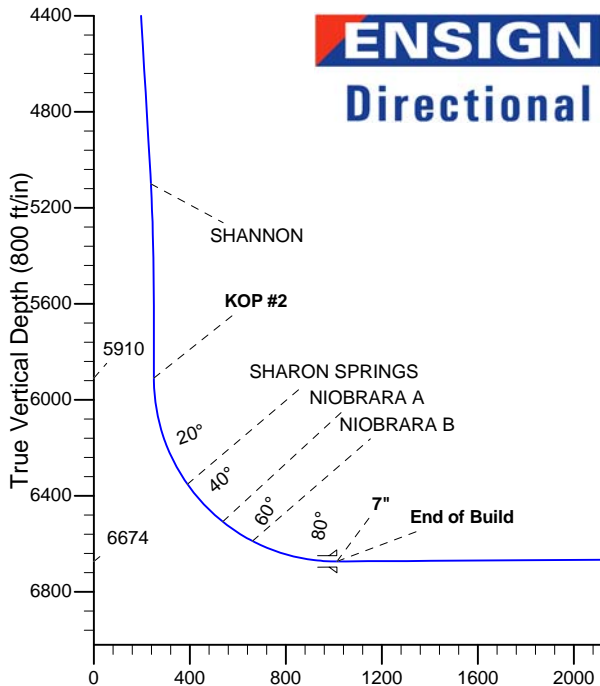
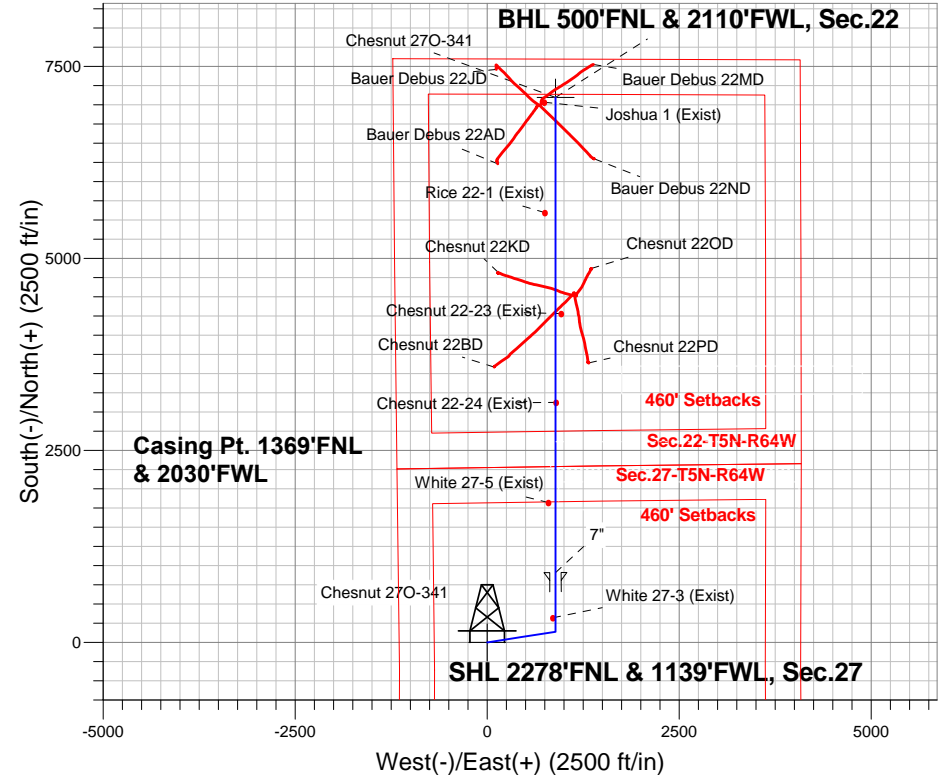
Azimuths to True North
Magnetic North: 8.34°

Magnetic Field
Strength: 52827.7snT
Dip Angle: 66.96°
Date: 6/6/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
800.0	800.0	KOP #1
5909.9	6001.4	KOP #2
6673.8	7206.0	End of Build

Chesnut 27GK-HZ Pad Sec.27-T5N-R64W
Chesnut 270-341
Plan #2 (7-09-14)
12:26, July 09 2014



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1407.7	12.15	81.07	1403.1	10.0	63.4	2.00	81.07	17.8	
4	5083.8	12.15	81.07	4996.9	130.0	828.0	0.00	0.00	232.2	
5	5691.5	0.00	0.00	5600.0	140.0	891.4	2.00	180.00	250.0	
6	6001.4	0.00	0.00	5909.9	140.0	891.4	0.00	0.00	250.0	
7	7206.0	90.35	360.00	6673.8	908.6	891.4	7.50	360.00	1012.6	
8	13394.3	90.35	360.00	6636.0	7096.8	891.4	0.00	0.00	7152.6	BHL 500'FNL & 2110'FWL, Sec.22

BHL 500'FNL & 2110'FWL, Sec.22

Vertical Section at 7.16° (800 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.27-T5N-R64W

Chesnut 27GK-HZ Pad Sec.27-T5N-R64W

Chesnut 27O-341

Wellbore #1

Plan: Plan #2 (7-09-14)

Standard Planning Report

09 July, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Chesnut 27O-341
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Project:	SEC.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	North Reference:	True
Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-09-14)		

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

Well	Chesnut 27O-341		
Well Position	+N/-S	502.7 ft	Northing:
	+E/-W	156.0 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/8/2014	8.33	66.96	52,819

Design	Plan #2 (7-09-14)			
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	7.16

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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,407.7	12.15	81.07	1,403.1	10.0	63.4	2.00	2.00	0.00	81.07	
5,083.8	12.15	81.07	4,996.9	130.0	828.0	0.00	0.00	0.00	0.00	
5,691.5	0.00	0.00	5,600.0	140.0	891.4	2.00	-2.00	0.00	180.00	
6,001.4	0.00	0.00	5,909.9	140.0	891.4	0.00	0.00	0.00	0.00	
7,206.0	90.35	360.00	6,673.8	908.6	891.4	7.50	7.50	0.00	360.00	
13,394.3	90.35	360.00	6,636.0	7,096.8	891.4	0.00	0.00	0.00	0.00	BHL 500'FNL & 211

Database:	landmark	Local Co-ordinate Reference:	Well Chesnut 27O-341
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Project:	SEC.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	North Reference:	True
Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-09-14)		

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
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
KOP #1									
900.0	2.00	81.07	900.0	0.3	1.7	0.5	2.00	2.00	0.00
1,000.0	4.00	81.07	999.8	1.1	6.9	1.9	2.00	2.00	0.00
1,100.0	6.00	81.07	1,099.5	2.4	15.5	4.3	2.00	2.00	0.00
1,200.0	8.00	81.07	1,198.7	4.3	27.5	7.7	2.00	2.00	0.00
1,300.0	10.00	81.07	1,297.5	6.8	43.0	12.1	2.00	2.00	0.00
1,400.0	12.00	81.07	1,395.6	9.7	61.8	17.3	2.00	2.00	0.00
1,407.7	12.15	81.07	1,403.1	10.0	63.4	17.8	2.00	2.00	0.00
1,500.0	12.15	81.07	1,493.4	13.0	82.6	23.2	0.00	0.00	0.00
1,600.0	12.15	81.07	1,591.1	16.2	103.4	29.0	0.00	0.00	0.00
1,700.0	12.15	81.07	1,688.9	19.5	124.2	34.8	0.00	0.00	0.00
1,800.0	12.15	81.07	1,786.7	22.8	145.0	40.7	0.00	0.00	0.00
1,900.0	12.15	81.07	1,884.4	26.0	165.8	46.5	0.00	0.00	0.00
2,000.0	12.15	81.07	1,982.2	29.3	186.6	52.3	0.00	0.00	0.00
2,100.0	12.15	81.07	2,079.9	32.6	207.4	58.2	0.00	0.00	0.00
2,200.0	12.15	81.07	2,177.7	35.8	228.2	64.0	0.00	0.00	0.00
2,300.0	12.15	81.07	2,275.5	39.1	249.0	69.8	0.00	0.00	0.00
2,400.0	12.15	81.07	2,373.2	42.4	269.8	75.7	0.00	0.00	0.00
2,500.0	12.15	81.07	2,471.0	45.6	290.6	81.5	0.00	0.00	0.00
2,600.0	12.15	81.07	2,568.7	48.9	311.4	87.3	0.00	0.00	0.00
2,700.0	12.15	81.07	2,666.5	52.2	332.2	93.2	0.00	0.00	0.00
2,800.0	12.15	81.07	2,764.2	55.4	353.0	99.0	0.00	0.00	0.00
2,900.0	12.15	81.07	2,862.0	58.7	373.8	104.8	0.00	0.00	0.00
3,000.0	12.15	81.07	2,959.8	62.0	394.6	110.7	0.00	0.00	0.00
3,100.0	12.15	81.07	3,057.5	65.2	415.4	116.5	0.00	0.00	0.00
3,200.0	12.15	81.07	3,155.3	68.5	436.2	122.3	0.00	0.00	0.00
3,300.0	12.15	81.07	3,253.0	71.8	457.0	128.2	0.00	0.00	0.00
3,400.0	12.15	81.07	3,350.8	75.0	477.8	134.0	0.00	0.00	0.00
3,481.0	12.15	81.07	3,430.0	77.7	494.6	138.7	0.00	0.00	0.00
PARKMAN									
3,500.0	12.15	81.07	3,448.6	78.3	498.6	139.8	0.00	0.00	0.00
3,600.0	12.15	81.07	3,546.3	81.6	519.4	145.7	0.00	0.00	0.00
3,700.0	12.15	81.07	3,644.1	84.8	540.2	151.5	0.00	0.00	0.00
3,800.0	12.15	81.07	3,741.8	88.1	561.0	157.3	0.00	0.00	0.00
3,900.0	12.15	81.07	3,839.6	91.4	581.8	163.2	0.00	0.00	0.00
4,000.0	12.15	81.07	3,937.4	94.6	602.6	169.0	0.00	0.00	0.00
4,100.0	12.15	81.07	4,035.1	97.9	623.4	174.8	0.00	0.00	0.00
4,200.0	12.15	81.07	4,132.9	101.2	644.2	180.7	0.00	0.00	0.00
4,217.5	12.15	81.07	4,150.0	101.7	647.8	181.7	0.00	0.00	0.00
SUSSEX									
4,300.0	12.15	81.07	4,230.6	104.4	665.0	186.5	0.00	0.00	0.00
4,400.0	12.15	81.07	4,328.4	107.7	685.8	192.3	0.00	0.00	0.00
4,500.0	12.15	81.07	4,426.2	111.0	706.6	198.2	0.00	0.00	0.00
4,600.0	12.15	81.07	4,523.9	114.2	727.4	204.0	0.00	0.00	0.00

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Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	North Reference:	True
Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-09-14)		

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)
4,700.0	12.15	81.07	4,621.7	117.5	748.1	209.8	0.00	0.00	0.00
4,800.0	12.15	81.07	4,719.4	120.8	768.9	215.7	0.00	0.00	0.00
4,900.0	12.15	81.07	4,817.2	124.0	789.7	221.5	0.00	0.00	0.00
5,000.0	12.15	81.07	4,914.9	127.3	810.5	227.3	0.00	0.00	0.00
5,083.8	12.15	81.07	4,996.9	130.0	828.0	232.2	0.00	0.00	0.00
5,100.0	11.83	81.07	5,012.7	130.6	831.3	233.1	2.00	-2.00	0.00
5,188.9	10.05	81.07	5,100.0	133.2	848.0	237.8	2.00	-2.00	0.00
SHANNON									
5,200.0	9.83	81.07	5,110.9	133.5	849.9	238.3	2.00	-2.00	0.00
5,300.0	7.83	81.07	5,209.7	135.9	865.0	242.6	2.00	-2.00	0.00
5,400.0	5.83	81.07	5,309.0	137.7	876.8	245.9	2.00	-2.00	0.00
5,500.0	3.83	81.07	5,408.7	139.0	885.1	248.2	2.00	-2.00	0.00
5,600.0	1.83	81.07	5,508.5	139.8	890.0	249.6	2.00	-2.00	0.00
5,691.5	0.00	0.00	5,600.0	140.0	891.4	250.0	2.00	-2.00	0.00
5,700.0	0.00	0.00	5,608.5	140.0	891.4	250.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,708.5	140.0	891.4	250.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,808.5	140.0	891.4	250.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,908.5	140.0	891.4	250.0	0.00	0.00	0.00
6,001.4	0.00	0.00	5,909.9	140.0	891.4	250.0	0.00	0.00	0.00
KOP #2									
6,100.0	7.40	360.00	6,008.2	146.4	891.4	256.3	7.50	7.50	0.00
6,200.0	14.90	360.00	6,106.3	165.7	891.4	275.5	7.50	7.50	0.00
6,300.0	22.40	360.00	6,201.0	197.6	891.4	307.2	7.50	7.50	0.00
6,400.0	29.90	360.00	6,290.7	241.7	891.4	350.9	7.50	7.50	0.00
6,472.8	35.36	360.00	6,352.0	280.9	891.4	389.8	7.50	7.50	0.00
SHARON SPRINGS									
6,500.0	37.40	360.00	6,373.9	297.0	891.4	405.8	7.50	7.50	0.00
6,600.0	44.90	360.00	6,449.1	362.8	891.4	471.1	7.50	7.50	0.00
6,688.4	51.53	360.00	6,508.0	428.7	891.4	536.5	7.50	7.50	0.00
NIOBRARA A									
6,700.0	52.40	360.00	6,515.1	437.8	891.4	545.5	7.50	7.50	0.00
6,800.0	59.90	360.00	6,570.8	520.8	891.4	627.8	7.50	7.50	0.00
6,838.0	62.74	360.00	6,589.0	554.1	891.4	660.9	7.50	7.50	0.00
NIOBRARA B									
6,900.0	67.40	360.00	6,615.1	610.3	891.4	716.7	7.50	7.50	0.00
7,000.0	74.90	360.00	6,647.4	704.9	891.4	810.5	7.50	7.50	0.00
7,100.0	82.40	360.00	6,667.1	802.9	891.4	907.7	7.50	7.50	0.00
7,200.0	89.90	360.00	6,673.8	902.6	891.4	1,006.6	7.50	7.50	0.00
7,206.0	90.35	360.00	6,673.8	908.6	891.4	1,012.6	7.50	7.50	0.00
End of Build - 7"									
7,300.0	90.35	360.00	6,673.2	1,002.6	891.4	1,105.9	0.00	0.00	0.00
7,400.0	90.35	360.00	6,672.6	1,102.6	891.4	1,205.1	0.00	0.00	0.00
7,500.0	90.35	360.00	6,672.0	1,202.6	891.4	1,304.3	0.00	0.00	0.00
7,600.0	90.35	360.00	6,671.4	1,302.6	891.4	1,403.5	0.00	0.00	0.00
7,700.0	90.35	360.00	6,670.8	1,402.6	891.4	1,502.7	0.00	0.00	0.00
7,800.0	90.35	360.00	6,670.2	1,502.6	891.4	1,602.0	0.00	0.00	0.00
7,900.0	90.35	360.00	6,669.6	1,602.6	891.4	1,701.2	0.00	0.00	0.00
8,000.0	90.35	360.00	6,669.0	1,702.6	891.4	1,800.4	0.00	0.00	0.00
8,100.0	90.35	360.00	6,668.3	1,802.6	891.4	1,899.6	0.00	0.00	0.00
8,200.0	90.35	360.00	6,667.7	1,902.6	891.4	1,998.8	0.00	0.00	0.00
8,300.0	90.35	360.00	6,667.1	2,002.6	891.4	2,098.1	0.00	0.00	0.00
8,400.0	90.35	360.00	6,666.5	2,102.6	891.4	2,197.3	0.00	0.00	0.00

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Project:	SEC.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	North Reference:	True
Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-09-14)		

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)
8,500.0	90.35	360.00	6,665.9	2,202.6	891.4	2,296.5	0.00	0.00	0.00
8,600.0	90.35	360.00	6,665.3	2,302.6	891.4	2,395.7	0.00	0.00	0.00
8,700.0	90.35	360.00	6,664.7	2,402.6	891.4	2,494.9	0.00	0.00	0.00
8,800.0	90.35	360.00	6,664.1	2,502.6	891.4	2,594.1	0.00	0.00	0.00
8,900.0	90.35	360.00	6,663.5	2,602.6	891.4	2,693.4	0.00	0.00	0.00
9,000.0	90.35	360.00	6,662.8	2,702.6	891.4	2,792.6	0.00	0.00	0.00
9,100.0	90.35	360.00	6,662.2	2,802.6	891.4	2,891.8	0.00	0.00	0.00
9,200.0	90.35	360.00	6,661.6	2,902.6	891.4	2,991.0	0.00	0.00	0.00
9,300.0	90.35	360.00	6,661.0	3,002.6	891.4	3,090.2	0.00	0.00	0.00
9,400.0	90.35	360.00	6,660.4	3,102.6	891.4	3,189.5	0.00	0.00	0.00
9,500.0	90.35	360.00	6,659.8	3,202.5	891.4	3,288.7	0.00	0.00	0.00
9,600.0	90.35	360.00	6,659.2	3,302.5	891.4	3,387.9	0.00	0.00	0.00
9,700.0	90.35	360.00	6,658.6	3,402.5	891.4	3,487.1	0.00	0.00	0.00
9,800.0	90.35	360.00	6,658.0	3,502.5	891.4	3,586.3	0.00	0.00	0.00
9,900.0	90.35	360.00	6,657.3	3,602.5	891.4	3,685.5	0.00	0.00	0.00
10,000.0	90.35	360.00	6,656.7	3,702.5	891.4	3,784.8	0.00	0.00	0.00
10,100.0	90.35	360.00	6,656.1	3,802.5	891.4	3,884.0	0.00	0.00	0.00
10,200.0	90.35	360.00	6,655.5	3,902.5	891.4	3,983.2	0.00	0.00	0.00
10,300.0	90.35	360.00	6,654.9	4,002.5	891.4	4,082.4	0.00	0.00	0.00
10,400.0	90.35	360.00	6,654.3	4,102.5	891.4	4,181.6	0.00	0.00	0.00
10,500.0	90.35	360.00	6,653.7	4,202.5	891.4	4,280.9	0.00	0.00	0.00
10,600.0	90.35	360.00	6,653.1	4,302.5	891.4	4,380.1	0.00	0.00	0.00
10,700.0	90.35	360.00	6,652.5	4,402.5	891.4	4,479.3	0.00	0.00	0.00
10,800.0	90.35	360.00	6,651.8	4,502.5	891.4	4,578.5	0.00	0.00	0.00
10,900.0	90.35	360.00	6,651.2	4,602.5	891.4	4,677.7	0.00	0.00	0.00
11,000.0	90.35	360.00	6,650.6	4,702.5	891.4	4,777.0	0.00	0.00	0.00
11,100.0	90.35	360.00	6,650.0	4,802.5	891.4	4,876.2	0.00	0.00	0.00
11,200.0	90.35	360.00	6,649.4	4,902.5	891.4	4,975.4	0.00	0.00	0.00
11,300.0	90.35	360.00	6,648.8	5,002.5	891.4	5,074.6	0.00	0.00	0.00
11,400.0	90.35	360.00	6,648.2	5,102.5	891.4	5,173.8	0.00	0.00	0.00
11,500.0	90.35	360.00	6,647.6	5,202.5	891.4	5,273.0	0.00	0.00	0.00
11,600.0	90.35	360.00	6,647.0	5,302.5	891.4	5,372.3	0.00	0.00	0.00
11,700.0	90.35	360.00	6,646.4	5,402.5	891.4	5,471.5	0.00	0.00	0.00
11,800.0	90.35	360.00	6,645.7	5,502.5	891.4	5,570.7	0.00	0.00	0.00
11,900.0	90.35	360.00	6,645.1	5,602.5	891.4	5,669.9	0.00	0.00	0.00
12,000.0	90.35	360.00	6,644.5	5,702.5	891.4	5,769.1	0.00	0.00	0.00
12,100.0	90.35	360.00	6,643.9	5,802.5	891.4	5,868.4	0.00	0.00	0.00
12,200.0	90.35	360.00	6,643.3	5,902.5	891.4	5,967.6	0.00	0.00	0.00
12,300.0	90.35	360.00	6,642.7	6,002.5	891.4	6,066.8	0.00	0.00	0.00
12,400.0	90.35	360.00	6,642.1	6,102.5	891.4	6,166.0	0.00	0.00	0.00
12,500.0	90.35	360.00	6,641.5	6,202.5	891.4	6,265.2	0.00	0.00	0.00
12,600.0	90.35	360.00	6,640.9	6,302.5	891.4	6,364.4	0.00	0.00	0.00
12,700.0	90.35	360.00	6,640.2	6,402.5	891.4	6,463.7	0.00	0.00	0.00
12,800.0	90.35	360.00	6,639.6	6,502.5	891.4	6,562.9	0.00	0.00	0.00
12,900.0	90.35	360.00	6,639.0	6,602.5	891.4	6,662.1	0.00	0.00	0.00
13,000.0	90.35	360.00	6,638.4	6,702.5	891.4	6,761.3	0.00	0.00	0.00
13,100.0	90.35	360.00	6,637.8	6,802.5	891.4	6,860.5	0.00	0.00	0.00
13,200.0	90.35	360.00	6,637.2	6,902.5	891.4	6,959.8	0.00	0.00	0.00
13,300.0	90.35	360.00	6,636.6	7,002.5	891.4	7,059.0	0.00	0.00	0.00
13,394.3	90.35	360.00	6,636.0	7,096.8	891.4	7,152.6	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Chesnut 27O-341
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Project:	SEC.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	North Reference:	True
Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-09-14)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,206.0	6,673.8	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,481.0	3,430.0	PARKMAN		0.00	
4,217.5	4,150.0	SUSSEX		0.00	
5,188.9	5,100.0	SHANNON		0.00	
6,472.8	6,352.0	SHARON SPRINGS		0.00	
6,688.4	6,508.0	NIOBRARA A		0.00	
6,838.0	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		Comment
		+N/-S (ft)	+E/-W (ft)	
800.0	800.0	0.0	0.0	KOP #1
6,001.4	5,909.9	140.0	891.4	KOP #2
7,206.0	6,673.8	908.6	891.4	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.27-T5N-R64W

Chesnut 27GK-HZ Pad Sec.27-T5N-R64W

Chesnut 27O-341

Wellbore #1

Plan #2 (7-09-14)

Anticollision Report

09 July, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (7-09-14)		
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	7/9/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,394.3	Plan #2 (7-09-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Bauer Debus 22AD Pad Sec.22-T5N-R64W						
Bauer Debus 22AD - Wellbore #1 - Wellbore #1	12,539.3	6,716.6	756.2	617.1	5.439	CC, ES
Bauer Debus 22AD - Wellbore #1 - Wellbore #1	12,600.0	6,714.1	758.6	618.4	5.412	SF
Bauer Debus 22JD - Wellbore #1 - Wellbore #1	13,394.3	6,695.5	862.6	709.8	5.646	CC, ES, SF
Bauer Debus 22MD - Wellbore #1 - Wellbore #1	13,394.3	6,684.2	652.9	499.3	4.251	CC, ES, SF
Bauer Debus 22ND Pad Sec.22-T5N-R64W						
Bauer Debus 22ND - Wellbore #1 - Wellbore #1	12,597.4	6,718.2	501.7	361.5	3.578	CC
Bauer Debus 22ND - Wellbore #1 - Wellbore #1	12,600.0	6,718.1	501.7	361.4	3.576	ES, SF
Chesnut 22KD Pad Sec.22-T5N-R64W						
Chesnut 22BD - Wellbore #1 - Wellbore #1	9,885.1	6,849.7	799.6	706.8	8.617	CC
Chesnut 22BD - Wellbore #1 - Wellbore #1	9,900.0	6,849.5	799.7	706.6	8.593	ES
Chesnut 22BD - Wellbore #1 - Wellbore #1	10,000.0	6,848.0	807.8	712.8	8.508	SF
Chesnut 22KD - Wellbore #1 - Wellbore #1	11,114.9	6,783.3	748.9	639.9	6.868	CC, ES
Chesnut 22KD - Wellbore #1 - Wellbore #1	11,200.0	6,784.2	753.7	643.1	6.812	SF
Chesnut 22OD - Wellbore #1 - Wellbore #1	11,163.0	6,670.3	460.4	351.8	4.239	CC, ES
Chesnut 22OD - Wellbore #1 - Wellbore #1	11,200.0	6,670.0	461.8	352.5	4.225	SF
Chesnut 22PD - Wellbore #1 - Wellbore #1	9,938.2	6,765.5	431.6	339.7	4.695	CC, ES
Chesnut 22PD - Wellbore #1 - Wellbore #1	10,000.0	6,765.3	436.0	342.9	4.684	SF
Chesnut 27GK-HZ Pad Sec.27-T5N-R64W						
Chesnut 27G-221 - Wellbore #1 - Plan #1 (4-23-14)	800.0	803.0	27.8	24.4	8.237	CC, ES
Chesnut 27G-221 - Wellbore #1 - Plan #1 (4-23-14)	900.0	903.0	28.8	25.0	7.546	SF
Chesnut 27G-301 - Wellbore #1 - Plan #1 (4-23-14)	613.5	616.7	30.1	27.6	11.946	CC, ES
Chesnut 27G-301 - Wellbore #1 - Plan #1 (4-23-14)	700.0	702.7	31.1	28.2	10.701	SF
Chesnut 27K-201 - Wellbore #1 - Plan #1 (4-23-14)	800.0	803.0	120.4	117.0	35.645	CC, ES
Chesnut 27K-201 - Wellbore #1 - Plan #1 (4-23-14)	13,394.3	13,272.8	663.7	390.5	2.429	SF
Chesnut 27K-341 - Wellbore #1 - Plan #1 (4-23-14)	800.0	803.0	89.2	85.8	26.410	CC, ES
Chesnut 27K-341 - Wellbore #1 - Plan #1 (4-23-14)	1,200.0	1,201.7	105.6	100.4	20.514	SF
Chesnut 27K-401 - Wellbore #1 - Plan #2 (7-09-14)	800.0	803.0	147.2	143.9	43.585	CC, ES
Chesnut 27K-401 - Wellbore #1 - Plan #2 (7-09-14)	11,900.0	11,910.9	1,000.0	783.2	4.612	SF
Chesnut 27K-421 - Wellbore #1 - Plan #2 (7-09-14)	800.0	802.0	58.0	54.6	17.187	CC, ES
Chesnut 27K-421 - Wellbore #1 - Plan #2 (7-09-14)	13,394.3	13,418.6	368.7	104.9	1.398	Level 3, SF
Chesnut 27O-201 - Wellbore #1 - Pan #1 (4-23-14)	166.0	168.0	61.5	60.9	116.888	CC
Chesnut 27O-201 - Wellbore #1 - Pan #1 (4-23-14)	200.0	202.0	61.5	60.8	90.586	ES
Chesnut 27O-201 - Wellbore #1 - Pan #1 (4-23-14)	13,394.3	13,374.2	339.0	70.6	1.263	Level 3, SF

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	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 #2 (7-09-14)	6,000.0	5,982.8	346.7	315.9	11.277	CC, ES, SF
Chesnut 27K-403 - Wellbore #1 - Plan #2 (7-09-14)	6,000.0	5,969.8	621.9	591.6	20.489	CC, ES
Chesnut 27K-403 - Wellbore #1 - Plan #2 (7-09-14)	6,100.0	6,069.5	624.5	593.7	20.277	SF
Chesnut 27O-243 - Wellbore #1 - Plan #2 (7-08-14)	5,938.8	5,963.2	242.1	197.5	5.436	CC, ES, SF
Chesnut 27O-303 - Wellbore #1 - Plan #2 (7-08-14)	5,124.3	5,136.3	453.7	413.9	11.417	CC, ES
Chesnut 27O-303 - Wellbore #1 - Plan #2 (7-08-14)	5,300.0	5,321.9	456.5	416.2	11.325	SF
Chesnut Existing Pad Sec.27-T5N-R64W						
Chesnut 22-23 (Exist) - Wellbore #1 - Wellbore #1	10,578.1	6,626.2	75.3	-140.2	0.349	Level 1, CC, ES, SF
Chesnut 22-24 (Exist) - Wellbore #1 - Wellbore #1	9,423.3	6,632.3	8.5	-185.5	0.044	Level 1, CC, ES, SF
Joshua 1 (Exist) - Wellbore #1 - Wellbore #1	13,332.4	6,583.4	147.6	-119.3	0.553	Level 1, CC, ES, SF
Rice 22-1 (Exist) - Wellbore #1 - Wellbore #1	11,893.3	6,622.2	136.5	-103.9	0.568	Level 1, CC, ES, SF
White 27-3 (Exist) - Wellbore #1 - Wellbore #1	6,537.6	6,375.2	36.0	-107.6	0.251	Level 1, CC, ES, SF
White 27-5 (Exist) - Wellbore #1 - Wellbore #1	8,119.0	6,639.2	91.8	-78.7	0.538	Level 1, 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)	Vertical Depth (ft)	Offset Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
				Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
11,900.0	6,645.1	6,746.1	6,635.0	108.9	20.7	-92.64	6,240.8	135.5	989.8	862.9	126.88	7.801	
12,000.0	6,644.5	6,741.1	6,630.0	110.8	20.7	-92.25	6,240.9	135.4	928.5	799.7	128.79	7.209	
12,100.0	6,643.9	6,736.2	6,625.1	112.7	20.7	-91.88	6,241.1	135.4	874.3	743.6	130.70	6.690	
12,200.0	6,643.3	6,731.4	6,620.3	114.6	20.6	-91.52	6,241.3	135.3	828.7	696.1	132.60	6.250	
12,300.0	6,642.7	6,726.9	6,615.9	116.5	20.6	-91.18	6,241.5	135.3	793.1	658.6	134.50	5.897	
12,400.0	6,642.1	6,722.6	6,611.5	118.4	20.6	-90.86	6,241.6	135.3	768.9	632.5	136.39	5.637	
12,500.0	6,641.5	6,718.3	6,607.2	120.3	20.6	-90.53	6,241.8	135.2	757.2	618.9	138.29	5.476	
12,539.3	6,641.2	6,716.6	6,605.6	121.0	20.6	-90.40	6,241.8	135.2	756.2	617.1	139.03	5.439	CC, ES
12,600.0	6,640.9	6,714.1	6,603.0	122.1	20.6	-90.21	6,241.9	135.2	758.6	618.4	140.18	5.412	SF
12,700.0	6,640.2	6,709.9	6,598.8	124.0	20.6	-89.89	6,242.1	135.2	773.0	631.0	142.06	5.442	
12,800.0	6,639.6	6,705.7	6,594.6	125.9	20.6	-89.58	6,242.2	135.2	799.8	655.8	143.95	5.556	
12,900.0	6,639.0	6,701.6	6,590.5	127.8	20.6	-89.27	6,242.3	135.1	837.7	691.8	145.83	5.744	
13,000.0	6,638.4	6,697.5	6,586.5	129.7	20.6	-88.96	6,242.5	135.1	885.3	737.6	147.71	5.993	
13,100.0	6,637.8	6,693.5	6,582.4	131.6	20.6	-88.65	6,242.6	135.1	941.1	791.5	149.58	6.292	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	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	Offset	Semi Major Axis		Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
13,200.0	6,637.2	6,704.3	6,612.4	133.5	18.8	-91.46	7,477.2	117.4	964.2	815.1	149.08	6.467		
13,300.0	6,636.6	6,699.5	6,607.5	135.4	18.8	-91.10	7,477.4	117.4	908.2	757.2	150.99	6.015		
13,394.3	6,636.0	6,695.5	6,603.6	137.2	18.8	-90.81	7,477.5	117.4	862.6	709.8	152.79	5.646	CC, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Bauer Debus 22AD Pad Sec.22-T5N-R64W - Bauer Debus 22MD - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 148-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation		
Depth	Depth	Depth	Depth			Toolface	+N/-S	+E/-W	Centres	Ellipses	Separation	Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)			
13,000.0	6,638.4	6,684.7	6,595.5	129.7	20.6	90.36	7,525.8	1,383.6	959.2	813.2	146.08	6.566		
13,100.0	6,637.8	6,684.6	6,595.3	131.6	20.6	90.34	7,525.8	1,383.6	874.9	726.9	147.99	5.912		
13,200.0	6,637.2	6,684.5	6,595.2	133.5	20.6	90.33	7,525.8	1,383.6	794.2	644.3	149.90	5.298		
13,300.0	6,636.6	6,684.3	6,595.1	135.4	20.6	90.31	7,525.8	1,383.6	718.4	566.6	151.81	4.732		
13,394.3	6,636.0	6,684.2	6,594.9	137.2	20.6	90.30	7,525.8	1,383.6	652.9	499.3	153.61	4.251 CC, ES, SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 732-MWD												Offset Well Error:	0.0 ft
Bauer Debus 22ND Pad Sec.22-T5N-R64W - Bauer Debus 22ND - Wellbore #1 - Wellbore #1													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,800.0	6,645.7	6,728.3	6,604.7	107.0	22.4	90.55	6,299.8	1,393.2	942.1	817.0	125.01	7.536	
11,900.0	6,645.1	6,727.1	6,603.5	108.9	22.4	90.41	6,299.8	1,393.2	859.1	732.2	126.92	6.769	
12,000.0	6,644.5	6,725.8	6,602.2	110.8	22.4	90.26	6,299.8	1,393.2	780.1	651.3	128.83	6.055	
12,100.0	6,643.9	6,724.5	6,600.9	112.7	22.4	90.12	6,299.8	1,393.2	706.5	575.7	130.74	5.404	
12,200.0	6,643.3	6,723.2	6,599.6	114.6	22.4	89.97	6,299.8	1,393.1	640.0	507.4	132.65	4.825	
12,300.0	6,642.7	6,722.0	6,598.4	116.5	22.4	89.83	6,299.8	1,393.1	583.2	448.7	134.56	4.334	
12,400.0	6,642.1	6,720.7	6,597.1	118.4	22.4	89.68	6,299.8	1,393.1	539.2	402.7	136.47	3.951	
12,500.0	6,641.5	6,719.4	6,595.8	120.3	22.4	89.54	6,299.8	1,393.1	511.1	372.7	138.38	3.693	
12,597.4	6,640.9	6,718.2	6,594.6	122.1	22.4	89.39	6,299.9	1,393.1	501.7	361.5	140.24	3.578 CC	
12,600.0	6,640.9	6,718.1	6,594.5	122.1	22.4	89.39	6,299.9	1,393.1	501.7	361.4	140.29	3.576 ES, SF	
12,700.0	6,640.2	6,716.9	6,593.3	124.0	22.4	89.25	6,299.9	1,393.1	512.1	369.9	142.20	3.601	
12,800.0	6,639.6	6,715.6	6,592.0	125.9	22.4	89.10	6,299.9	1,393.1	541.1	397.0	144.11	3.755	
12,900.0	6,639.0	6,714.3	6,590.7	127.8	22.4	88.95	6,299.9	1,393.1	585.9	439.9	146.01	4.013	
13,000.0	6,638.4	6,713.0	6,589.4	129.7	22.4	88.81	6,299.9	1,393.0	643.3	495.3	147.92	4.349	
13,100.0	6,637.8	6,711.7	6,588.1	131.6	22.4	88.66	6,299.9	1,393.0	710.1	560.3	149.83	4.740	
13,200.0	6,637.2	6,710.5	6,586.9	133.5	22.4	88.52	6,299.9	1,393.0	784.1	632.4	151.74	5.168	
13,300.0	6,636.6	6,709.2	6,585.6	135.4	22.4	88.37	6,299.9	1,393.0	863.3	709.7	153.64	5.619	
13,394.3	6,636.0	6,708.0	6,584.4	137.2	22.4	88.23	6,299.9	1,393.0	941.7	786.2	155.44	6.058	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	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		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
9,300.0	6,661.0	6,858.0	6,645.1	60.7	28.8	-90.26	3,587.6	91.8	990.7	908.8	81.91	12.095	
9,400.0	6,660.4	6,857.1	6,644.2	62.5	28.8	-90.20	3,587.6	91.8	935.2	851.4	83.76	11.164	
9,500.0	6,659.8	6,855.6	6,642.7	64.3	28.8	-90.09	3,587.6	91.8	887.5	801.8	85.62	10.365	
9,600.0	6,659.2	6,854.0	6,641.2	66.1	28.8	-89.98	3,587.6	91.8	848.9	761.4	87.48	9.704	
9,700.0	6,658.6	6,852.5	6,639.6	67.9	28.8	-89.87	3,587.6	91.8	820.7	731.4	89.34	9.186	
9,800.0	6,658.0	6,851.0	6,638.1	69.8	28.8	-89.76	3,587.6	91.8	804.1	712.9	91.20	8.816	
9,885.1	6,657.4	6,849.7	6,636.8	71.3	28.8	-89.67	3,587.6	91.9	799.6	706.8	92.79	8.617 CC	
9,900.0	6,657.3	6,849.5	6,636.6	71.6	28.8	-89.65	3,587.6	91.9	799.7	706.6	93.07	8.593 ES	
10,000.0	6,656.7	6,848.0	6,635.1	73.5	28.8	-89.54	3,587.6	91.9	807.8	712.8	94.94	8.508 SF	
10,100.0	6,656.1	6,846.4	6,633.5	75.3	28.8	-89.43	3,587.7	91.9	827.9	731.1	96.81	8.552	
10,200.0	6,655.5	6,844.9	6,632.0	77.1	28.8	-89.32	3,587.7	91.9	859.3	760.6	98.68	8.708	
10,300.0	6,654.9	6,843.4	6,630.5	79.0	28.8	-89.21	3,587.7	91.9	900.8	800.2	100.55	8.958	
10,400.0	6,654.3	6,841.8	6,628.9	80.8	28.8	-89.10	3,587.7	91.9	951.0	848.5	102.43	9.284	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	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		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,500.0	6,653.7	6,776.6	6,626.1	82.7	24.0	-89.40	4,817.3	142.5	969.0	871.6	97.40	9.948	
10,600.0	6,653.1	6,777.7	6,627.2	84.6	24.0	-89.48	4,817.3	142.5	908.8	809.5	99.29	9.153	
10,700.0	6,652.5	6,778.8	6,628.3	86.4	24.0	-89.57	4,817.3	142.5	856.1	755.0	101.18	8.461	
10,800.0	6,651.8	6,779.9	6,629.4	88.3	24.0	-89.65	4,817.3	142.5	812.4	709.3	103.07	7.882	
10,900.0	6,651.2	6,781.0	6,630.5	90.2	24.0	-89.73	4,817.4	142.5	779.1	674.2	104.97	7.423	
11,000.0	6,650.6	6,782.1	6,631.5	92.0	24.0	-89.82	4,817.4	142.5	757.7	650.8	106.86	7.090	
11,100.0	6,650.0	6,783.1	6,632.6	93.9	24.0	-89.90	4,817.4	142.5	749.1	640.3	108.76	6.887	
11,114.9	6,649.9	6,783.3	6,632.8	94.2	24.0	-89.91	4,817.4	142.5	748.9	639.9	109.04	6.868 CC, ES	
11,200.0	6,649.4	6,784.2	6,633.7	95.8	24.0	-89.98	4,817.4	142.5	753.7	643.1	110.65	6.812 SF	
11,300.0	6,648.8	6,785.3	6,634.8	97.6	24.0	-90.06	4,817.4	142.5	771.4	658.9	112.55	6.854	
11,400.0	6,648.2	6,786.3	6,635.8	99.5	24.0	-90.14	4,817.5	142.5	801.3	686.9	114.45	7.002	
11,500.0	6,647.6	6,787.4	6,636.9	101.4	24.0	-90.23	4,817.5	142.5	842.1	725.8	116.35	7.238	
11,600.0	6,647.0	6,788.5	6,637.9	103.3	24.0	-90.31	4,817.5	142.5	892.3	774.0	118.25	7.546	
11,700.0	6,646.4	6,789.5	6,639.0	105.2	24.0	-90.39	4,817.5	142.5	950.4	830.2	120.15	7.910	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 22KD Pad Sec.22-T5N-R64W - Chesnut 22OD - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 701-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
10,300.0	6,654.9	6,676.2	6,633.2	79.0	14.9	89.94	4,865.5	1,351.8	978.1	885.8	92.29	10.598	
10,400.0	6,654.3	6,675.6	6,632.5	80.8	14.9	89.86	4,865.5	1,351.8	891.1	797.0	94.17	9.463	
10,500.0	6,653.7	6,674.9	6,631.9	82.7	14.9	89.78	4,865.5	1,351.8	807.2	711.1	96.06	8.403	
10,600.0	6,653.1	6,674.2	6,631.2	84.6	14.9	89.70	4,865.5	1,351.8	727.3	629.3	97.95	7.425	
10,700.0	6,652.5	6,673.6	6,630.5	86.4	14.9	89.61	4,865.5	1,351.8	652.9	553.1	99.84	6.540	
10,800.0	6,651.8	6,672.9	6,629.8	88.3	14.9	89.53	4,865.5	1,351.7	586.3	484.5	101.73	5.763	
10,900.0	6,651.2	6,672.2	6,629.1	90.2	14.9	89.44	4,865.5	1,351.7	530.2	426.6	103.62	5.117	
11,000.0	6,650.6	6,671.5	6,628.4	92.0	14.9	89.35	4,865.5	1,351.7	488.4	382.9	105.52	4.628	
11,100.0	6,650.0	6,670.7	6,627.7	93.9	14.9	89.26	4,865.5	1,351.7	464.7	357.2	107.41	4.326	
11,163.0	6,649.6	6,670.3	6,627.2	95.1	14.9	89.20	4,865.5	1,351.7	460.4	351.8	108.60	4.239 CC, ES	
11,200.0	6,649.4	6,670.0	6,627.0	95.8	14.9	89.17	4,865.5	1,351.7	461.8	352.5	109.30	4.225 SF	
11,300.0	6,648.8	6,669.3	6,626.2	97.6	14.9	89.08	4,865.5	1,351.7	480.3	369.1	111.20	4.319	
11,400.0	6,648.2	6,669.0	6,626.0	99.5	14.9	89.04	4,865.5	1,351.7	517.8	404.7	113.10	4.578	
11,500.0	6,647.6	6,669.0	6,626.0	101.4	14.9	89.04	4,865.5	1,351.7	570.5	455.5	114.99	4.961	
11,600.0	6,647.0	6,669.0	6,626.0	103.3	14.9	89.04	4,865.5	1,351.7	634.7	517.8	116.89	5.430	
11,700.0	6,646.4	6,669.0	6,626.0	105.2	14.9	89.04	4,865.5	1,351.7	707.3	588.5	118.79	5.954	
11,800.0	6,645.7	6,669.0	6,626.0	107.0	14.9	89.04	4,865.5	1,351.7	785.9	665.2	120.69	6.512	
11,900.0	6,645.1	6,665.1	6,622.1	108.9	14.9	88.56	4,865.5	1,351.6	868.9	746.3	122.59	7.088	
12,000.0	6,644.5	6,664.4	6,621.4	110.8	14.9	88.47	4,865.5	1,351.6	955.2	830.7	124.49	7.673	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 22KD Pad Sec.22-T5N-R64W - Chesnut 22PD - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 733-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
9,100.0	6,662.2	6,769.1	6,641.0	57.1	21.2	89.99	3,640.7	1,323.0	942.8	866.5	76.31	12.355	
9,200.0	6,661.6	6,768.7	6,640.6	58.9	21.2	89.93	3,640.7	1,323.0	855.1	777.0	78.16	10.941	
9,300.0	6,661.0	6,768.2	6,640.2	60.7	21.2	89.87	3,640.7	1,323.0	770.4	690.4	80.01	9.630	
9,400.0	6,660.4	6,767.8	6,639.7	62.5	21.2	89.82	3,640.7	1,323.0	689.9	608.0	81.86	8.427	
9,500.0	6,659.8	6,767.4	6,639.3	64.3	21.2	89.76	3,640.7	1,323.0	615.1	531.3	83.72	7.346	
9,600.0	6,659.2	6,767.0	6,638.9	66.1	21.2	89.70	3,640.7	1,323.0	548.3	462.7	85.59	6.406	
9,700.0	6,658.6	6,766.5	6,638.5	67.9	21.2	89.65	3,640.7	1,323.0	493.0	405.5	87.46	5.637	
9,800.0	6,658.0	6,766.1	6,638.0	69.8	21.2	89.59	3,640.7	1,323.0	453.2	363.8	89.33	5.073	
9,900.0	6,657.3	6,765.7	6,637.6	71.6	21.2	89.53	3,640.7	1,323.0	433.3	342.1	91.20	4.751	
9,938.2	6,657.1	6,765.5	6,637.4	72.3	21.2	89.51	3,640.7	1,323.0	431.6	339.7	91.91	4.695 CC, ES	
10,000.0	6,656.7	6,765.3	6,637.2	73.5	21.2	89.48	3,640.7	1,323.0	436.0	342.9	93.07	4.684 SF	
10,100.0	6,656.1	6,764.9	6,636.8	75.3	21.2	89.42	3,640.7	1,323.0	460.9	366.0	94.95	4.854	
10,200.0	6,655.5	6,764.4	6,636.4	77.1	21.2	89.37	3,640.7	1,323.0	504.8	407.9	96.83	5.213	
10,300.0	6,654.9	6,764.0	6,635.9	79.0	21.2	89.31	3,640.7	1,323.0	563.2	464.5	98.71	5.705	
10,400.0	6,654.3	6,763.6	6,635.5	80.8	21.2	89.26	3,640.7	1,322.9	632.1	531.5	100.60	6.283	
10,500.0	6,653.7	6,763.2	6,635.1	82.7	21.2	89.20	3,640.7	1,322.9	708.4	605.9	102.48	6.913	
10,600.0	6,653.1	6,762.8	6,634.7	84.6	21.2	89.15	3,640.7	1,322.9	790.1	685.7	104.37	7.570	
10,700.0	6,652.5	6,762.4	6,634.3	86.4	21.2	89.09	3,640.7	1,322.9	875.5	769.3	106.26	8.240	
10,800.0	6,651.8	6,762.0	6,633.9	88.3	21.2	89.04	3,640.7	1,322.9	963.8	855.7	108.15	8.912	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	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
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	3.0	3.0	0.0	0.0	-156.39	-25.5	-11.1	27.8	27.8	0.00	7,804.597		
100.0	100.0	103.0	103.0	0.1	0.1	-156.39	-25.5	-11.1	27.8	27.6	0.23	120.199		
200.0	200.0	203.0	203.0	0.3	0.3	-156.39	-25.5	-11.1	27.8	27.1	0.68	40.860		
300.0	300.0	303.0	303.0	0.6	0.6	-156.39	-25.5	-11.1	27.8	26.7	1.13	24.613		
400.0	400.0	403.0	403.0	0.8	0.8	-156.39	-25.5	-11.1	27.8	26.2	1.58	17.611		
500.0	500.0	503.0	503.0	1.0	1.0	-156.39	-25.5	-11.1	27.8	25.8	2.03	13.710		
600.0	600.0	603.0	603.0	1.2	1.2	-156.39	-25.5	-11.1	27.8	25.3	2.48	11.224		
700.0	700.0	703.0	703.0	1.5	1.5	-156.39	-25.5	-11.1	27.8	24.9	2.93	9.502		
800.0	800.0	803.0	803.0	1.7	1.7	-156.39	-25.5	-11.1	27.8	24.4	3.38	8.237 CC, ES		
900.0	900.0	903.0	903.0	1.9	1.9	125.45	-25.5	-11.1	28.8	25.0	3.82	7.546 SF		
1,000.0	999.8	1,002.8	1,002.8	2.1	2.1	133.02	-25.5	-11.1	32.1	27.9	4.25	7.559		
1,100.0	1,099.5	1,101.7	1,101.7	2.3	2.4	144.62	-25.1	-12.9	39.6	34.9	4.68	8.461		
1,200.0	1,198.7	1,199.2	1,199.1	2.6	2.6	156.70	-23.9	-17.9	53.6	48.5	5.09	10.514		
1,300.0	1,297.5	1,294.7	1,294.2	2.9	2.8	165.83	-22.0	-25.9	74.9	69.4	5.51	13.594		
1,400.0	1,395.6	1,387.7	1,386.5	3.2	3.0	172.02	-19.5	-36.6	103.5	97.5	5.93	17.453		
1,500.0	1,493.4	1,478.0	1,475.8	3.6	3.2	176.20	-16.4	-49.9	137.3	130.9	6.36	21.592		
1,600.0	1,591.1	1,568.1	1,564.4	3.9	3.5	179.14	-12.8	-65.6	174.1	167.3	6.80	25.594		
1,700.0	1,688.9	1,660.5	1,655.3	4.4	3.8	-178.83	-8.9	-82.3	211.6	204.4	7.24	29.223		
1,800.0	1,786.7	1,753.0	1,746.1	4.8	4.1	-177.41	-5.0	-98.9	249.4	241.7	7.69	32.431		
1,900.0	1,884.4	1,845.5	1,837.0	5.2	4.5	-176.36	-1.1	-115.6	287.2	279.0	8.14	35.273		
2,000.0	1,982.2	1,937.9	1,927.9	5.6	4.8	-175.56	2.8	-132.2	325.1	316.5	8.60	37.780		
2,100.0	2,079.9	2,030.4	2,018.7	6.0	5.1	-174.92	6.7	-148.9	363.0	353.9	9.07	40.029		
2,200.0	2,177.7	2,122.8	2,109.6	6.5	5.5	-174.40	10.6	-165.6	400.9	391.4	9.54	42.042		
2,300.0	2,275.5	2,215.3	2,200.4	6.9	5.8	-173.98	14.5	-182.2	438.9	428.9	10.01	43.853		
2,400.0	2,373.2	2,307.8	2,291.3	7.4	6.2	-173.62	18.4	-198.9	476.9	466.4	10.48	45.489		
2,500.0	2,471.0	2,400.2	2,382.2	7.8	6.6	-173.31	22.3	-215.5	514.9	504.0	10.96	46.971		
2,600.0	2,568.7	2,492.7	2,473.0	8.3	6.9	-173.05	26.2	-232.2	553.0	541.5	11.44	48.320		
2,700.0	2,666.5	2,585.1	2,563.9	8.7	7.3	-172.82	30.1	-248.9	591.0	579.1	11.93	49.552		
2,800.0	2,764.2	2,677.6	2,654.8	9.2	7.7	-172.62	34.0	-265.5	629.0	616.6	12.41	50.681		
2,900.0	2,862.0	2,770.1	2,745.6	9.6	8.0	-172.44	37.9	-282.2	667.1	654.2	12.90	51.719		
3,000.0	2,959.8	2,862.5	2,836.5	10.1	8.4	-172.28	41.8	-298.8	705.1	691.7	13.39	52.675		
3,100.0	3,057.5	2,955.0	2,927.4	10.5	8.8	-172.13	45.7	-315.5	743.2	729.3	13.88	53.559		
3,200.0	3,155.3	3,047.5	3,018.2	11.0	9.2	-172.00	49.6	-332.2	781.2	766.9	14.37	54.379		
3,300.0	3,253.0	3,139.9	3,109.1	11.4	9.6	-171.89	53.5	-348.8	819.3	804.4	14.86	55.140		
3,400.0	3,350.8	3,232.4	3,200.0	11.9	9.9	-171.78	57.4	-365.5	857.4	842.0	15.35	55.849		
3,500.0	3,448.6	3,324.8	3,290.8	12.4	10.3	-171.68	61.3	-382.1	895.4	879.6	15.85	56.511		
3,600.0	3,546.3	3,417.3	3,381.7	12.8	10.7	-171.59	65.1	-398.8	933.5	917.1	16.34	57.129		
3,700.0	3,644.1	3,509.8	3,472.6	13.3	11.1	-171.51	69.0	-415.4	971.6	954.7	16.84	57.709		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	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
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	3.0	3.0	0.0	0.0	20.93	20.93	29.1	11.1	31.2	31.2	0.00	8,752.546	
100.0	100.0	103.0	103.0	0.1	0.1	20.93	20.93	29.1	11.1	31.2	31.0	0.23	134.799	
200.0	200.0	203.0	203.0	0.3	0.3	20.93	20.93	29.1	11.1	31.2	30.5	0.68	45.823	
300.0	300.0	303.0	303.0	0.6	0.6	20.93	20.93	29.1	11.1	31.2	30.1	1.13	27.603	
400.0	400.0	403.0	403.0	0.8	0.8	20.92	20.92	29.1	11.1	31.2	29.6	1.58	19.753	
500.0	500.0	503.3	503.2	1.0	1.0	17.58	17.58	29.3	9.3	30.8	28.8	2.02	15.237	
600.0	600.0	603.2	603.1	1.2	1.2	7.58	7.58	29.9	4.0	30.1	27.7	2.46	12.247	
613.5	613.5	616.7	616.5	1.3	1.3	5.71	5.71	30.0	3.0	30.1	27.6	2.52	11.946 CC, ES	
700.0	700.0	702.7	702.2	1.5	1.5	-8.80	-8.80	30.7	-4.8	31.1	28.2	2.91	10.701 SF	
800.0	800.0	801.5	800.2	1.7	1.7	-27.75	-27.75	31.9	-16.8	36.2	32.8	3.37	10.749	
900.0	900.0	899.0	896.5	1.9	2.0	-126.29	-126.29	33.5	-32.0	47.8	43.9	3.87	12.328	
1,000.0	999.8	994.5	990.2	2.1	2.4	-139.52	-139.52	35.3	-50.0	67.6	63.2	4.32	15.636	
1,100.0	1,099.5	1,088.2	1,081.7	2.3	2.8	-148.16	-148.16	37.3	-70.5	95.2	90.4	4.77	19.961	
1,200.0	1,198.7	1,182.2	1,173.2	2.6	3.2	-153.64	-153.64	39.4	-91.8	127.6	122.4	5.19	24.576	
1,300.0	1,297.5	1,275.0	1,263.5	2.9	3.6	-157.28	-157.28	41.5	-112.8	163.8	158.2	5.61	29.180	
1,400.0	1,395.6	1,366.3	1,352.5	3.2	4.0	-159.87	-159.87	43.6	-133.4	203.5	197.4	6.03	33.737	
1,500.0	1,493.4	1,456.9	1,440.7	3.6	4.5	-161.96	-161.96	45.6	-153.9	245.2	238.7	6.48	37.859	
1,600.0	1,591.1	1,547.5	1,528.9	3.9	4.9	-163.46	-163.46	47.7	-174.4	287.1	280.1	6.92	41.481	
1,700.0	1,688.9	1,638.1	1,617.1	4.4	5.3	-164.58	-164.58	49.7	-194.8	329.1	321.7	7.38	44.610	
1,800.0	1,786.7	1,728.7	1,705.4	4.8	5.8	-165.45	-165.45	51.8	-215.3	371.2	363.4	7.84	47.347	
1,900.0	1,884.4	1,819.2	1,793.6	5.2	6.2	-166.14	-166.14	53.8	-235.8	413.4	405.0	8.31	49.755	
2,000.0	1,982.2	1,909.8	1,881.8	5.6	6.7	-166.71	-166.71	55.9	-256.3	455.6	446.8	8.78	51.885	
2,100.0	2,079.9	2,000.4	1,970.0	6.0	7.1	-167.17	-167.17	57.9	-276.7	497.8	488.5	9.26	53.781	
2,200.0	2,177.7	2,091.0	2,058.2	6.5	7.5	-167.57	-167.57	60.0	-297.2	540.0	530.3	9.73	55.475	
2,300.0	2,275.5	2,181.5	2,146.4	6.9	8.0	-167.91	-167.91	62.0	-317.7	582.3	572.1	10.22	56.999	
2,400.0	2,373.2	2,272.1	2,234.6	7.4	8.4	-168.20	-168.20	64.1	-338.1	624.6	613.9	10.70	58.374	
2,500.0	2,471.0	2,362.7	2,322.8	7.8	8.9	-168.45	-168.45	66.1	-358.6	666.9	655.7	11.19	59.622	
2,600.0	2,568.7	2,453.3	2,411.0	8.3	9.3	-168.68	-168.68	68.2	-379.1	709.2	697.5	11.67	60.757	
2,700.0	2,666.5	2,543.8	2,499.2	8.7	9.8	-168.88	-168.88	70.2	-399.6	751.5	739.4	12.16	61.795	
2,800.0	2,764.2	2,634.4	2,587.4	9.2	10.2	-169.06	-169.06	72.3	-420.0	793.9	781.2	12.65	62.747	
2,900.0	2,862.0	2,725.0	2,675.6	9.6	10.7	-169.22	-169.22	74.3	-440.5	836.2	823.0	13.14	63.622	
3,000.0	2,959.8	2,815.6	2,763.9	10.1	11.1	-169.36	-169.36	76.3	-461.0	878.5	864.9	13.64	64.429	
3,100.0	3,057.5	2,906.1	2,852.1	10.5	11.6	-169.49	-169.49	78.4	-481.5	920.9	906.7	14.13	65.176	
3,200.0	3,155.3	2,996.7	2,940.3	11.0	12.0	-169.61	-169.61	80.4	-501.9	963.2	948.6	14.62	65.869	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-201 - Wellbore #1 - Plan #1 (4-23-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	3.0	3.0	0.0	0.0	-159.69	-112.9	-41.8	120.4	120.4	0.00	N/A		
100.0	100.0	103.0	103.0	0.1	0.1	-159.69	-112.9	-41.8	120.4	120.2	0.23	520.145		
200.0	200.0	203.0	203.0	0.3	0.3	-159.69	-112.9	-41.8	120.4	119.7	0.68	176.815		
300.0	300.0	303.0	303.0	0.6	0.6	-159.69	-112.9	-41.8	120.4	119.3	1.13	106.511		
400.0	400.0	403.0	403.0	0.8	0.8	-159.69	-112.9	-41.8	120.4	118.8	1.58	76.209		
500.0	500.0	503.0	503.0	1.0	1.0	-159.69	-112.9	-41.8	120.4	118.4	2.03	59.330		
600.0	600.0	603.0	603.0	1.2	1.2	-159.69	-112.9	-41.8	120.4	117.9	2.48	48.572		
700.0	700.0	703.0	703.0	1.5	1.5	-159.69	-112.9	-41.8	120.4	117.5	2.93	41.117		
800.0	800.0	803.0	803.0	1.7	1.7	-159.69	-112.9	-41.8	120.4	117.0	3.38	35.645 CC, ES		
900.0	900.0	903.0	903.0	1.9	1.9	119.94	-112.9	-41.8	121.3	117.5	3.82	31.772		
1,000.0	999.8	1,002.8	1,002.8	2.1	2.1	121.99	-112.9	-41.8	124.0	119.7	4.25	29.162		
1,100.0	1,099.5	1,102.5	1,102.5	2.3	2.4	125.19	-112.9	-41.8	128.8	124.1	4.70	27.433		
1,200.0	1,198.7	1,201.7	1,201.7	2.6	2.6	129.25	-112.9	-41.8	136.2	131.1	5.15	26.446		
1,300.0	1,297.5	1,300.5	1,300.5	2.9	2.8	133.80	-112.9	-41.8	146.7	141.1	5.62	26.115		
1,400.0	1,395.6	1,398.6	1,398.6	3.2	3.0	138.50	-112.9	-41.8	160.6	154.5	6.09	26.369		
1,500.0	1,493.4	1,496.4	1,496.4	3.6	3.3	142.96	-112.9	-41.8	177.0	170.4	6.57	26.939		
1,600.0	1,591.1	1,594.1	1,594.1	3.9	3.5	146.68	-112.9	-41.8	194.4	187.3	7.05	27.558		
1,700.0	1,688.9	1,699.2	1,699.2	4.4	3.7	150.04	-111.7	-40.6	210.8	203.3	7.54	27.969		
1,800.0	1,786.7	1,805.8	1,805.6	4.8	3.9	153.05	-107.8	-36.4	224.2	216.1	8.01	27.975		
1,900.0	1,884.4	1,913.2	1,912.6	5.2	4.2	155.90	-101.1	-29.4	234.4	225.9	8.49	27.611		
2,000.0	1,982.2	2,016.6	2,015.2	5.6	4.4	158.57	-92.4	-20.2	241.8	232.9	8.95	27.012		
2,100.0	2,079.9	2,115.8	2,113.6	6.0	4.7	161.00	-83.7	-11.1	249.4	240.0	9.41	26.492		
2,200.0	2,177.7	2,215.0	2,211.9	6.5	4.9	163.29	-74.9	-1.9	257.3	247.4	9.87	26.061		
2,300.0	2,275.5	2,314.1	2,310.3	6.9	5.2	165.44	-66.2	7.2	265.6	255.3	10.33	25.704		
2,400.0	2,373.2	2,413.3	2,408.7	7.4	5.5	167.45	-57.5	16.4	274.3	263.5	10.80	25.401		
2,500.0	2,471.0	2,512.5	2,507.0	7.8	5.7	169.34	-48.8	25.6	283.3	272.0	11.27	25.140		
2,600.0	2,568.7	2,611.6	2,605.4	8.3	6.0	171.12	-40.1	34.7	292.6	280.8	11.74	24.914		
2,700.0	2,666.5	2,710.8	2,703.7	8.7	6.3	172.78	-31.4	43.9	302.1	289.9	12.23	24.714		
2,800.0	2,764.2	2,810.0	2,802.1	9.2	6.6	174.35	-22.6	53.0	311.9	299.2	12.71	24.535		
2,900.0	2,862.0	2,909.1	2,900.4	9.6	6.9	175.81	-13.9	62.2	321.9	308.7	13.21	24.373		
3,000.0	2,959.8	3,008.3	2,998.8	10.1	7.2	177.19	-5.2	71.3	332.1	318.4	13.71	24.225		
3,100.0	3,057.5	3,107.5	3,097.2	10.5	7.5	178.48	3.5	80.5	342.5	328.3	14.22	24.087		
3,200.0	3,155.3	3,206.6	3,195.5	11.0	7.8	179.70	12.2	89.6	353.1	338.3	14.74	23.959		
3,300.0	3,253.0	3,305.8	3,293.9	11.4	8.1	-179.15	21.0	98.8	363.8	348.5	15.26	23.839		
3,400.0	3,350.8	3,405.0	3,392.2	11.9	8.4	-178.07	29.7	107.9	374.6	358.8	15.79	23.725		
3,500.0	3,448.6	3,504.1	3,490.6	12.4	8.7	-177.04	38.4	117.1	385.5	369.2	16.33	23.617		
3,600.0	3,546.3	3,603.3	3,589.0	12.8	9.0	-176.08	47.1	126.3	396.6	379.8	16.87	23.514		
3,700.0	3,644.1	3,702.5	3,687.3	13.3	9.3	-175.17	55.8	135.4	407.8	390.4	17.42	23.416		
3,800.0	3,741.8	3,801.7	3,785.7	13.7	9.6	-174.30	64.5	144.6	419.1	401.1	17.97	23.322		
3,900.0	3,839.6	3,900.8	3,884.0	14.2	9.9	-173.48	73.3	153.7	430.4	411.9	18.53	23.231		
4,000.0	3,937.4	4,000.0	3,982.4	14.6	10.2	-172.71	82.0	162.9	441.9	422.8	19.09	23.145		
4,100.0	4,035.1	4,099.2	4,080.8	15.1	10.5	-171.97	90.7	172.0	453.4	433.7	19.66	23.062		
4,200.0	4,132.9	4,198.3	4,179.1	15.6	10.8	-171.27	99.4	181.2	465.0	444.8	20.23	22.982		
4,300.0	4,230.6	4,297.5	4,277.5	16.0	11.1	-170.60	108.1	190.3	476.7	455.9	20.81	22.905		
4,400.0	4,328.4	4,396.7	4,375.8	16.5	11.4	-169.97	116.9	199.5	488.4	467.0	21.39	22.831		
4,500.0	4,426.2	4,495.8	4,474.2	16.9	11.8	-169.36	125.6	208.6	500.2	478.2	21.98	22.760		
4,600.0	4,523.9	4,590.8	4,568.4	17.4	12.0	-168.82	133.8	217.3	512.1	489.6	22.54	22.723		
4,700.0	4,621.7	4,678.7	4,655.8	17.9	12.2	-168.52	139.9	223.7	525.9	502.9	23.02	22.840		
4,800.0	4,719.4	4,766.1	4,743.0	18.3	12.4	-168.44	144.1	228.1	541.8	518.3	23.48	23.074		
4,900.0	4,817.2	4,852.9	4,829.7	18.8	12.6	-168.57	146.5	230.6	559.7	535.8	23.90	23.415		
5,000.0	4,914.9	4,941.1	4,917.9	19.2	12.7	-168.88	147.1	231.2	579.7	555.4	24.31	23.847		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 270-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 270-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design		Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-201 - Wellbore #1 - Plan #1 (4-23-14)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD														Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
5,100.0	5,012.7	5,038.8	5,015.7	19.7	12.9	-169.28	147.1	231.2	600.3	575.6	24.74	24.266			
5,200.0	5,110.9	5,137.1	5,113.9	20.0	13.1	-169.67	147.1	231.2	618.8	593.6	25.18	24.577			
5,300.0	5,209.7	5,235.9	5,212.7	20.3	13.3	-169.97	147.1	231.2	633.9	608.3	25.59	24.771			
5,400.0	5,309.0	5,335.2	5,312.0	20.6	13.5	-170.19	147.1	231.2	645.6	619.7	25.98	24.855			
5,500.0	5,408.7	5,434.8	5,411.7	20.8	13.6	-170.35	147.1	231.2	653.9	627.6	26.33	24.836			
5,600.0	5,508.5	5,534.7	5,511.5	20.9	13.8	-170.44	147.1	231.2	658.8	632.1	26.65	24.717			
5,700.0	5,608.5	5,634.6	5,611.5	21.0	14.0	-89.39	147.1	231.2	660.2	633.3	26.96	24.491			
5,800.0	5,708.5	5,734.6	5,711.5	21.2	14.2	-89.39	147.1	231.2	660.2	632.9	27.34	24.148			
5,900.0	5,808.5	5,834.6	5,811.5	21.3	14.4	-89.39	147.1	231.2	660.2	632.5	27.73	23.812			
5,941.2	5,849.7	5,875.9	5,852.7	21.3	14.5	-89.39	147.1	231.2	660.2	632.3	27.89	23.675			
6,000.0	5,908.5	5,934.2	5,911.0	21.4	14.6	-89.26	148.5	231.2	660.3	632.1	28.13	23.469			
6,100.0	6,008.2	6,032.5	6,008.5	21.6	14.9	-88.73	160.8	231.2	660.4	631.7	28.64	23.054			
6,200.0	6,106.3	6,130.0	6,102.8	21.7	15.2	-88.21	185.3	231.2	660.5	631.2	29.27	22.566			
6,300.0	6,201.0	6,226.9	6,192.7	21.9	15.6	-87.73	221.3	231.2	660.7	630.7	30.03	22.002			
6,400.0	6,290.7	6,323.1	6,276.8	22.2	16.1	-87.29	268.0	231.2	660.9	630.0	30.95	21.355			
6,500.0	6,373.9	6,418.8	6,353.9	22.5	16.7	-86.89	324.6	231.2	661.2	629.1	32.06	20.621			
6,600.0	6,449.1	6,514.0	6,422.9	22.8	17.4	-86.55	390.0	231.2	661.4	628.0	33.39	19.806			
6,700.0	6,515.1	6,608.8	6,483.1	23.2	18.2	-86.26	463.1	231.2	661.6	626.6	34.96	18.923			
6,800.0	6,570.8	6,703.3	6,533.6	23.8	19.2	-86.03	542.9	231.2	661.8	625.0	36.78	17.995			
6,900.0	6,615.1	6,797.5	6,573.8	24.4	20.3	-85.87	628.0	231.2	661.9	623.1	38.83	17.045			
7,000.0	6,647.4	6,891.5	6,603.2	25.2	21.5	-85.77	717.3	231.2	662.0	620.9	41.11	16.102			
7,100.0	6,667.1	6,985.5	6,621.4	26.1	22.8	-85.74	809.4	231.2	662.0	618.4	43.58	15.190			
7,200.0	6,673.8	7,079.5	6,628.1	27.1	24.1	-85.78	903.1	231.2	662.0	615.8	46.20	14.328			
7,221.6	6,673.8	7,100.1	6,628.1	27.4	24.4	-85.78	923.8	231.2	662.0	615.2	46.82	14.139			
7,300.0	6,673.2	7,178.5	6,627.4	28.3	25.6	-85.77	1,002.1	231.2	662.0	612.9	49.14	13.472			
7,400.0	6,672.6	7,278.5	6,626.5	29.5	27.2	-85.74	1,102.1	231.2	662.0	609.8	52.21	12.681			
7,500.0	6,672.0	7,378.5	6,625.5	30.8	28.8	-85.71	1,202.1	231.2	662.0	606.7	55.37	11.957			
7,600.0	6,671.4	7,478.5	6,624.6	32.2	30.4	-85.69	1,302.1	231.2	662.1	603.5	58.61	11.296			
7,700.0	6,670.8	7,578.5	6,623.7	33.7	32.1	-85.66	1,402.1	231.2	662.1	600.2	61.92	10.693			
7,800.0	6,670.2	7,678.5	6,622.8	35.2	33.8	-85.63	1,502.1	231.2	662.1	596.8	65.29	10.142			
7,900.0	6,669.6	7,778.5	6,621.8	36.7	35.5	-85.61	1,602.1	231.2	662.1	593.4	68.70	9.638			
8,000.0	6,669.0	7,878.5	6,620.9	38.3	37.3	-85.58	1,702.1	231.2	662.2	590.0	72.16	9.177			
8,100.0	6,668.3	7,978.5	6,620.0	39.9	39.0	-85.55	1,802.1	231.2	662.2	586.5	75.65	8.754			
8,200.0	6,667.7	8,078.5	6,619.1	41.5	40.8	-85.52	1,902.1	231.2	662.2	583.0	79.17	8.365			
8,300.0	6,667.1	8,178.5	6,618.1	43.2	42.6	-85.50	2,002.1	231.2	662.2	579.5	82.72	8.006			
8,400.0	6,666.5	8,278.5	6,617.2	44.9	44.4	-85.47	2,102.1	231.2	662.3	576.0	86.29	7.675			
8,500.0	6,665.9	8,378.5	6,616.3	46.6	46.2	-85.44	2,202.1	231.2	662.3	572.4	89.88	7.368			
8,600.0	6,665.3	8,478.5	6,615.4	48.3	48.0	-85.42	2,302.1	231.2	662.3	568.8	93.50	7.084			
8,700.0	6,664.7	8,578.5	6,614.4	50.0	49.8	-85.39	2,402.1	231.2	662.3	565.2	97.12	6.820			
8,800.0	6,664.1	8,678.5	6,613.5	51.8	51.7	-85.36	2,502.1	231.2	662.4	561.6	100.77	6.573			
8,900.0	6,663.5	8,778.5	6,612.6	53.5	53.5	-85.33	2,602.1	231.2	662.4	558.0	104.42	6.343			
9,000.0	6,662.8	8,878.5	6,611.7	55.3	55.4	-85.31	2,702.1	231.2	662.4	554.3	108.09	6.129			
9,100.0	6,662.2	8,978.5	6,610.7	57.1	57.2	-85.28	2,802.1	231.2	662.4	550.7	111.77	5.927			
9,200.0	6,661.6	9,078.5	6,609.8	58.9	59.1	-85.25	2,902.0	231.2	662.5	547.0	115.45	5.738			
9,300.0	6,661.0	9,178.5	6,608.9	60.7	60.9	-85.23	3,002.0	231.2	662.5	543.3	119.15	5.560			
9,400.0	6,660.4	9,278.5	6,608.0	62.5	62.8	-85.20	3,102.0	231.2	662.5	539.7	122.85	5.393			
9,500.0	6,659.8	9,378.5	6,607.0	64.3	64.6	-85.17	3,202.0	231.2	662.5	536.0	126.56	5.235			
9,600.0	6,659.2	9,478.5	6,606.1	66.1	66.5	-85.14	3,302.0	231.2	662.6	532.3	130.27	5.086			
9,700.0	6,658.6	9,578.5	6,605.2	67.9	68.4	-85.12	3,402.0	231.2	662.6	528.6	134.00	4.945			
9,800.0	6,658.0	9,678.5	6,604.3	69.8	70.2	-85.09	3,502.0	231.2	662.6	524.9	137.72	4.811			
9,900.0	6,657.3	9,778.5	6,603.3	71.6	72.1	-85.06	3,602.0	231.2	662.7	521.2	141.45	4.685			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-201 - Wellbore #1 - Plan #1 (4-23-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,000.0	6,656.7	9,878.5	6,602.4	73.5	74.0	-85.04	3,702.0	231.2	662.7	517.5	145.19	4.564		
10,100.0	6,656.1	9,978.5	6,601.5	75.3	75.9	-85.01	3,802.0	231.2	662.7	513.8	148.93	4.450		
10,200.0	6,655.5	10,078.5	6,600.6	77.1	77.8	-84.98	3,902.0	231.2	662.7	510.1	152.67	4.341		
10,300.0	6,654.9	10,178.5	6,599.6	79.0	79.6	-84.96	4,002.0	231.2	662.8	506.3	156.42	4.237		
10,400.0	6,654.3	10,278.5	6,598.7	80.8	81.5	-84.93	4,102.0	231.2	662.8	502.6	160.17	4.138		
10,500.0	6,653.7	10,378.5	6,597.8	82.7	83.4	-84.90	4,202.0	231.2	662.8	498.9	163.93	4.043		
10,600.0	6,653.1	10,478.5	6,596.9	84.6	85.3	-84.87	4,302.0	231.2	662.8	495.2	167.68	3.953		
10,700.0	6,652.5	10,578.5	6,595.9	86.4	87.2	-84.85	4,402.0	231.2	662.9	491.4	171.44	3.866		
10,800.0	6,651.8	10,678.5	6,595.0	88.3	89.1	-84.82	4,502.0	231.2	662.9	487.7	175.20	3.784		
10,900.0	6,651.2	10,778.5	6,594.1	90.2	91.0	-84.79	4,602.0	231.2	662.9	484.0	178.97	3.704		
11,000.0	6,650.6	10,878.5	6,593.2	92.0	92.9	-84.77	4,702.0	231.2	663.0	480.2	182.73	3.628		
11,100.0	6,650.0	10,978.5	6,592.2	93.9	94.8	-84.74	4,802.0	231.2	663.0	476.5	186.50	3.555		
11,200.0	6,649.4	11,078.5	6,591.3	95.8	96.7	-84.71	4,902.0	231.2	663.0	472.8	190.27	3.485		
11,300.0	6,648.8	11,178.5	6,590.4	97.6	98.6	-84.69	5,001.9	231.2	663.0	469.0	194.04	3.417		
11,400.0	6,648.2	11,278.5	6,589.5	99.5	100.5	-84.66	5,101.9	231.2	663.1	465.3	197.81	3.352		
11,500.0	6,647.6	11,378.5	6,588.5	101.4	102.4	-84.63	5,201.9	231.2	663.1	461.5	201.58	3.289		
11,600.0	6,647.0	11,478.5	6,587.6	103.3	104.3	-84.60	5,301.9	231.2	663.1	457.8	205.36	3.229		
11,700.0	6,646.4	11,578.5	6,586.7	105.2	106.2	-84.58	5,401.9	231.2	663.2	454.0	209.14	3.171		
11,800.0	6,645.7	11,678.5	6,585.8	107.0	108.1	-84.55	5,501.9	231.2	663.2	450.3	212.91	3.115		
11,900.0	6,645.1	11,778.5	6,584.8	108.9	110.0	-84.52	5,601.9	231.2	663.2	446.5	216.69	3.061		
12,000.0	6,644.5	11,878.5	6,583.9	110.8	111.9	-84.50	5,701.9	231.2	663.3	442.8	220.47	3.008		
12,100.0	6,643.9	11,978.5	6,583.0	112.7	113.8	-84.47	5,801.9	231.2	663.3	439.0	224.25	2.958		
12,200.0	6,643.3	12,078.5	6,582.1	114.6	115.7	-84.44	5,901.9	231.2	663.3	435.3	228.03	2.909		
12,300.0	6,642.7	12,178.5	6,581.1	116.5	117.6	-84.41	6,001.9	231.2	663.3	431.5	231.81	2.862		
12,400.0	6,642.1	12,278.5	6,580.2	118.4	119.5	-84.39	6,101.9	231.2	663.4	427.8	235.60	2.816		
12,500.0	6,641.5	12,378.5	6,579.3	120.3	121.4	-84.36	6,201.9	231.2	663.4	424.0	239.38	2.771		
12,600.0	6,640.9	12,478.5	6,578.4	122.1	123.3	-84.33	6,301.9	231.2	663.4	420.3	243.16	2.728		
12,700.0	6,640.2	12,578.5	6,577.4	124.0	125.2	-84.31	6,401.9	231.2	663.5	416.5	246.95	2.687		
12,800.0	6,639.6	12,678.5	6,576.5	125.9	127.1	-84.28	6,501.9	231.2	663.5	412.8	250.73	2.646		
12,900.0	6,639.0	12,778.5	6,575.6	127.8	129.0	-84.25	6,601.9	231.2	663.5	409.0	254.52	2.607		
13,000.0	6,638.4	12,878.5	6,574.7	129.7	130.9	-84.23	6,701.9	231.2	663.6	405.3	258.30	2.569		
13,100.0	6,637.8	12,978.5	6,573.7	131.6	132.8	-84.20	6,801.9	231.2	663.6	401.5	262.09	2.532		
13,200.0	6,637.2	13,078.5	6,572.8	133.5	134.7	-84.17	6,901.9	231.2	663.6	397.8	265.88	2.496		
13,300.0	6,636.6	13,178.5	6,571.9	135.4	136.6	-84.15	7,001.9	231.2	663.7	394.0	269.66	2.461		
13,394.3	6,636.0	13,272.8	6,571.0	137.2	138.4	-84.12	7,096.2	231.2	663.7	390.5	273.24	2.429 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	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
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	3.0	3.0	0.0	0.0	-159.91	-83.8	-30.7	89.2	89.2	0.00	N/A		
100.0	100.0	103.0	103.0	0.1	0.1	-159.91	-83.8	-30.7	89.2	89.0	0.23	385.374		
200.0	200.0	203.0	203.0	0.3	0.3	-159.91	-83.8	-30.7	89.2	88.5	0.68	131.002		
300.0	300.0	303.0	303.0	0.6	0.6	-159.91	-83.8	-30.7	89.2	88.1	1.13	78.914		
400.0	400.0	403.0	403.0	0.8	0.8	-159.91	-83.8	-30.7	89.2	87.6	1.58	56.463		
500.0	500.0	503.0	503.0	1.0	1.0	-159.91	-83.8	-30.7	89.2	87.2	2.03	43.957		
600.0	600.0	603.0	603.0	1.2	1.2	-159.91	-83.8	-30.7	89.2	86.7	2.48	35.987		
700.0	700.0	703.0	703.0	1.5	1.5	-159.91	-83.8	-30.7	89.2	86.3	2.93	30.463		
800.0	800.0	803.0	803.0	1.7	1.7	-159.91	-83.8	-30.7	89.2	85.8	3.38	26.410 CC, ES		
900.0	900.0	903.0	903.0	1.9	1.9	119.97	-83.8	-30.7	90.1	86.3	3.82	23.598		
1,000.0	999.8	1,002.8	1,002.8	2.1	2.1	122.73	-83.8	-30.7	92.8	88.6	4.25	21.830		
1,100.0	1,099.5	1,102.5	1,102.5	2.3	2.4	126.93	-83.8	-30.7	97.8	93.1	4.69	20.831		
1,200.0	1,198.7	1,201.7	1,201.7	2.6	2.6	132.09	-83.8	-30.7	105.6	100.4	5.15	20.514 SF		
1,300.0	1,297.5	1,300.5	1,300.5	2.9	2.8	137.61	-83.8	-30.7	116.7	111.1	5.61	20.817		
1,400.0	1,395.6	1,398.6	1,398.6	3.2	3.0	143.01	-83.8	-30.7	131.5	125.5	6.07	21.677		
1,500.0	1,493.4	1,494.7	1,494.7	3.6	3.2	148.34	-83.0	-32.0	149.5	143.0	6.52	22.918		
1,600.0	1,591.1	1,589.5	1,589.4	3.9	3.4	153.47	-80.7	-36.1	169.9	163.0	6.97	24.383		
1,700.0	1,688.9	1,682.8	1,682.4	4.4	3.7	158.28	-76.8	-42.7	193.0	185.6	7.41	26.061		
1,800.0	1,786.7	1,774.5	1,773.5	4.8	3.9	162.69	-71.6	-51.8	218.9	211.0	7.84	27.923		
1,900.0	1,884.4	1,867.4	1,865.4	5.2	4.1	166.69	-65.0	-63.1	247.4	239.1	8.28	29.879		
2,000.0	1,982.2	1,961.8	1,958.8	5.6	4.4	169.98	-58.3	-74.8	276.9	268.2	8.73	31.740		
2,100.0	2,079.9	2,056.2	2,052.3	6.0	4.6	172.63	-51.6	-86.5	307.2	298.0	9.18	33.465		
2,200.0	2,177.7	2,150.6	2,145.8	6.5	4.9	174.81	-44.8	-98.1	338.0	328.3	9.64	35.057		
2,300.0	2,275.5	2,245.1	2,239.2	6.9	5.2	176.63	-38.1	-109.8	369.1	359.0	10.11	36.510		
2,400.0	2,373.2	2,339.5	2,332.7	7.4	5.5	178.17	-31.3	-121.5	400.5	390.0	10.58	37.848		
2,500.0	2,471.0	2,433.9	2,426.1	7.8	5.7	179.49	-24.6	-133.1	432.2	421.1	11.06	39.075		
2,600.0	2,568.7	2,528.3	2,519.6	8.3	6.0	-179.37	-17.9	-144.8	464.0	452.5	11.54	40.201		
2,700.0	2,666.5	2,622.7	2,613.0	8.7	6.3	-178.38	-11.1	-156.5	496.0	484.0	12.03	41.237		
2,800.0	2,764.2	2,717.2	2,706.5	9.2	6.6	-177.51	-4.4	-168.2	528.1	515.6	12.52	42.192		
2,900.0	2,862.0	2,811.6	2,799.9	9.6	6.9	-176.73	2.4	-179.8	560.3	547.3	13.01	43.073		
3,000.0	2,959.8	2,906.0	2,893.4	10.1	7.2	-176.04	9.1	-191.5	592.6	579.1	13.50	43.887		
3,100.0	3,057.5	3,000.4	2,986.8	10.5	7.5	-175.42	15.8	-203.2	624.9	610.9	14.00	44.643		
3,200.0	3,155.3	3,094.8	3,080.3	11.0	7.9	-174.87	22.6	-214.8	657.3	642.8	14.50	45.344		
3,300.0	3,253.0	3,189.3	3,173.7	11.4	8.2	-174.36	29.3	-226.5	689.8	674.8	15.00	45.997		
3,400.0	3,350.8	3,283.7	3,267.2	11.9	8.5	-173.90	36.1	-238.2	722.2	706.8	15.50	46.605		
3,500.0	3,448.6	3,378.1	3,360.6	12.4	8.8	-173.48	42.8	-249.9	754.8	738.8	16.00	47.174		
3,600.0	3,546.3	3,472.5	3,454.1	12.8	9.1	-173.09	49.5	-261.5	787.4	770.8	16.50	47.706		
3,700.0	3,644.1	3,566.9	3,547.5	13.3	9.4	-172.74	56.3	-273.2	819.9	802.9	17.01	48.205		
3,800.0	3,741.8	3,661.4	3,641.0	13.7	9.7	-172.41	63.0	-284.9	852.6	835.1	17.52	48.674		
3,900.0	3,839.6	3,755.8	3,734.5	14.2	10.1	-172.10	69.8	-296.6	885.2	867.2	18.02	49.115		
4,000.0	3,937.4	3,850.2	3,827.9	14.6	10.4	-171.82	76.5	-308.2	917.9	899.4	18.53	49.530		
4,100.0	4,035.1	3,944.6	3,921.4	15.1	10.7	-171.56	83.2	-319.9	950.6	931.5	19.04	49.922		
4,200.0	4,132.9	4,039.0	4,014.8	15.6	11.0	-171.31	90.0	-331.6	983.3	963.7	19.55	50.292		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-401 - Wellbore #1 - Plan #2 (7-09-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	3.0	3.0	0.0	0.0	-160.08	-138.4	-50.2	147.2	147.2	0.00	N/A		
100.0	100.0	103.0	103.0	0.1	0.1	-160.08	-138.4	-50.2	147.2	147.0	0.23	635.999		
200.0	200.0	203.0	203.0	0.3	0.3	-160.08	-138.4	-50.2	147.2	146.6	0.68	216.198		
300.0	300.0	303.0	303.0	0.6	0.6	-160.08	-138.4	-50.2	147.2	146.1	1.13	130.234		
400.0	400.0	403.0	403.0	0.8	0.8	-160.08	-138.4	-50.2	147.2	145.7	1.58	93.183		
500.0	500.0	503.0	503.0	1.0	1.0	-160.08	-138.4	-50.2	147.2	145.2	2.03	72.545		
600.0	600.0	603.0	603.0	1.2	1.2	-160.08	-138.4	-50.2	147.2	144.8	2.48	59.391		
700.0	700.0	703.0	703.0	1.5	1.5	-160.08	-138.4	-50.2	147.2	144.3	2.93	50.275		
800.0	800.0	803.0	803.0	1.7	1.7	-160.08	-138.4	-50.2	147.2	143.9	3.38	43.585 CC, ES		
900.0	900.0	903.0	903.0	1.9	1.9	119.42	-138.4	-50.2	148.1	144.3	3.82	38.795		
1,000.0	999.8	1,002.8	1,002.8	2.1	2.1	121.10	-138.4	-50.2	150.7	146.5	4.25	35.454		
1,100.0	1,099.5	1,102.5	1,102.5	2.3	2.4	123.77	-138.4	-50.2	155.4	150.7	4.70	33.095		
1,200.0	1,198.7	1,201.7	1,201.7	2.6	2.6	127.21	-138.4	-50.2	162.5	157.4	5.15	31.538		
1,300.0	1,297.5	1,300.5	1,300.5	2.9	2.8	131.17	-138.4	-50.2	172.5	166.9	5.62	30.674		
1,400.0	1,395.6	1,398.6	1,398.6	3.2	3.0	135.38	-138.4	-50.2	185.7	179.6	6.10	30.423		
1,500.0	1,493.4	1,496.4	1,496.4	3.6	3.3	139.54	-138.4	-50.2	201.4	194.8	6.60	30.532		
1,600.0	1,591.1	1,594.1	1,594.1	3.9	3.5	143.10	-138.4	-50.2	218.0	210.9	7.09	30.754		
1,700.0	1,688.9	1,691.9	1,691.9	4.4	3.7	146.16	-138.4	-50.2	235.3	227.7	7.58	31.055		
1,800.0	1,786.7	1,789.7	1,789.7	4.8	3.9	148.80	-138.4	-50.2	253.1	245.1	8.06	31.403		
1,900.0	1,884.4	1,887.4	1,887.4	5.2	4.1	151.09	-138.4	-50.2	271.5	262.9	8.54	31.776		
2,000.0	1,982.2	1,985.2	1,985.2	5.6	4.3	153.09	-138.4	-50.2	290.2	281.1	9.02	32.159		
2,100.0	2,079.9	2,085.8	2,085.8	6.0	4.6	155.06	-137.5	-50.3	308.8	299.3	9.50	32.500		
2,200.0	2,177.7	2,186.8	2,186.7	6.5	4.8	157.24	-133.9	-50.9	326.7	316.8	9.97	32.781		
2,300.0	2,275.5	2,287.5	2,287.2	6.9	5.0	159.60	-127.8	-51.9	344.2	333.8	10.42	33.024		
2,400.0	2,373.2	2,387.8	2,387.1	7.4	5.3	162.12	-119.0	-53.3	361.4	350.5	10.87	33.244		
2,500.0	2,471.0	2,486.3	2,485.0	7.8	5.5	164.69	-108.3	-55.1	378.6	367.2	11.31	33.460		
2,600.0	2,568.7	2,583.4	2,581.5	8.3	5.7	167.05	-97.3	-56.9	396.4	384.6	11.76	33.692		
2,700.0	2,666.5	2,680.5	2,677.9	8.7	6.0	169.21	-86.4	-58.7	414.8	402.6	12.22	33.934		
2,800.0	2,764.2	2,777.6	2,774.4	9.2	6.2	171.19	-75.5	-60.4	433.7	421.0	12.69	34.174		
2,900.0	2,862.0	2,874.7	2,870.9	9.6	6.5	173.00	-64.6	-62.2	453.2	440.0	13.17	34.410		
3,000.0	2,959.8	2,971.8	2,967.4	10.1	6.7	174.66	-53.7	-64.0	473.0	459.3	13.65	34.638		
3,100.0	3,057.5	3,068.9	3,063.8	10.5	7.0	176.19	-42.8	-65.8	493.2	479.0	14.15	34.856		
3,200.0	3,155.3	3,166.0	3,160.3	11.0	7.2	177.61	-31.9	-67.6	513.7	499.0	14.65	35.062		
3,300.0	3,253.0	3,263.1	3,256.8	11.4	7.5	178.91	-20.9	-69.4	534.4	519.3	15.16	35.256		
3,400.0	3,350.8	3,360.2	3,353.3	11.9	7.7	179.88	-10.0	-71.1	555.5	539.8	15.67	35.439		
3,500.0	3,448.6	3,457.3	3,449.8	12.4	8.0	178.76	0.9	-72.9	576.7	560.5	16.20	35.611		
3,600.0	3,546.3	3,554.5	3,546.2	12.8	8.3	177.72	11.8	-74.7	598.2	581.5	16.72	35.771		
3,700.0	3,644.1	3,651.6	3,642.7	13.3	8.6	176.75	22.7	-76.5	619.8	602.6	17.25	35.922		
3,800.0	3,741.8	3,748.7	3,739.2	13.7	8.8	175.85	33.6	-78.3	641.6	623.8	17.79	36.063		
3,900.0	3,839.6	3,845.8	3,835.7	14.2	9.1	175.00	44.5	-80.1	663.5	645.2	18.33	36.196		
4,000.0	3,937.4	3,942.9	3,932.1	14.6	9.4	174.21	55.5	-81.8	685.6	666.7	18.88	36.320		
4,100.0	4,035.1	4,040.0	4,028.6	15.1	9.6	173.46	66.4	-83.6	707.8	688.3	19.42	36.436		
4,200.0	4,132.9	4,137.1	4,125.1	15.6	9.9	172.77	77.3	-85.4	730.0	710.1	19.98	36.546		
4,300.0	4,230.6	4,234.2	4,221.6	16.0	10.2	172.11	88.2	-87.2	752.4	731.9	20.53	36.649		
4,400.0	4,328.4	4,331.3	4,318.0	16.5	10.5	171.49	99.1	-89.0	774.9	753.8	21.09	36.746		
4,500.0	4,426.2	4,428.4	4,414.5	16.9	10.8	170.91	110.0	-90.8	797.5	775.8	21.65	36.838		
4,600.0	4,523.9	4,525.5	4,511.0	17.4	11.0	170.35	120.9	-92.5	820.1	797.9	22.21	36.924		
4,700.0	4,621.7	4,624.4	4,609.2	17.9	11.3	169.84	131.8	-94.3	842.7	820.0	22.76	37.033		
4,800.0	4,719.4	4,725.9	4,710.3	18.3	11.5	169.49	140.7	-95.8	865.0	841.8	23.26	37.195		
4,900.0	4,817.2	4,827.8	4,812.0	18.8	11.7	169.34	147.0	-96.8	886.9	863.1	23.74	37.363		
5,000.0	4,914.9	4,930.0	4,914.1	19.2	11.9	169.36	150.6	-97.4	908.2	884.1	24.19	37.539		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-401 - Wellbore #1 - Plan #2 (7-09-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,012.7	5,031.6	5,015.7	19.7	12.1	-169.56		151.6	-97.6	929.1	904.4	24.64	37.701	
5,200.0	5,110.9	5,129.8	5,113.9	20.0	12.3	-169.83		151.6	-97.6	947.6	922.5	25.11	37.733	
5,300.0	5,209.7	5,228.6	5,212.7	20.3	12.5	-170.05		151.6	-97.6	962.7	937.1	25.56	37.659	
5,400.0	5,309.0	5,327.9	5,312.0	20.6	12.7	-170.21		151.6	-97.6	974.4	948.4	25.98	37.504	
5,500.0	5,408.7	5,427.5	5,411.7	20.8	12.9	-170.32		151.6	-97.6	982.7	956.4	26.37	37.273	
5,600.0	5,508.5	5,527.4	5,511.5	20.9	13.1	-170.39		151.6	-97.6	987.6	960.9	26.71	36.969	
5,700.0	5,608.5	5,627.4	5,611.5	21.0	13.3	-89.33		151.6	-97.6	989.0	962.0	27.04	36.578	
5,800.0	5,708.5	5,727.4	5,711.5	21.2	13.5	-89.33		151.6	-97.6	989.0	961.6	27.42	36.064	
5,900.0	5,808.5	5,827.4	5,811.5	21.3	13.7	-89.33		151.6	-97.6	989.0	961.2	27.81	35.562	
6,000.0	5,908.5	5,927.4	5,911.5	21.4	13.9	-89.33		151.6	-97.6	989.0	960.8	28.20	35.071	
6,100.0	6,008.2	6,027.1	6,011.2	21.6	14.1	-89.70		151.6	-97.6	989.0	960.4	28.59	34.586	
6,141.4	6,049.2	6,068.0	6,052.2	21.6	14.2	-90.00		152.8	-97.6	989.0	960.2	28.78	34.362	
6,200.0	6,106.3	6,126.4	6,110.3	21.7	14.4	-90.43		158.3	-97.6	989.0	959.9	29.07	34.023	
6,300.0	6,201.0	6,227.4	6,209.2	21.9	14.7	-91.15		178.3	-97.6	989.2	959.5	29.68	33.324	
6,400.0	6,290.7	6,330.2	6,306.3	22.2	15.1	-91.86		211.9	-97.6	989.5	959.0	30.47	32.475	
6,500.0	6,373.9	6,434.7	6,399.5	22.5	15.7	-92.54		259.1	-97.6	989.9	958.5	31.47	31.460	
6,600.0	6,449.1	6,541.1	6,486.8	22.8	16.4	-93.19		319.6	-97.6	990.5	957.8	32.73	30.266	
6,700.0	6,515.1	6,649.1	6,566.0	23.2	17.3	-93.78		392.9	-97.6	991.1	956.8	34.30	28.899	
6,800.0	6,570.8	6,758.8	6,635.0	23.8	18.4	-94.30		478.0	-97.6	991.8	955.6	36.22	27.385	
6,900.0	6,615.1	6,869.9	6,691.8	24.4	19.6	-94.75		573.5	-97.6	992.4	953.9	38.49	25.780	
7,000.0	6,647.4	6,982.3	6,734.6	25.2	21.0	-95.11		677.3	-97.6	992.9	951.8	41.11	24.151	
7,100.0	6,667.1	7,095.7	6,761.8	26.1	22.6	-95.37		787.3	-97.6	993.3	949.3	44.03	22.562	
7,200.0	6,673.8	7,209.8	6,772.5	27.1	24.3	-95.53		900.7	-97.6	993.6	946.4	47.17	21.064	
7,300.0	6,673.2	7,311.2	6,773.1	28.3	25.9	-95.60		1,002.1	-97.6	993.7	943.5	50.16	19.809	
7,400.0	6,672.6	7,411.2	6,773.6	29.5	27.5	-95.66		1,102.1	-97.5	993.8	940.6	53.24	18.667	
7,500.0	6,672.0	7,511.2	6,774.1	30.8	29.1	-95.72		1,202.1	-97.5	993.9	937.5	56.41	17.621	
7,600.0	6,671.4	7,611.2	6,774.7	32.2	30.7	-95.79		1,302.1	-97.5	994.0	934.4	59.65	16.665	
7,700.0	6,670.8	7,711.2	6,775.2	33.7	32.4	-95.85		1,402.1	-97.5	994.1	931.2	62.96	15.791	
7,800.0	6,670.2	7,811.1	6,775.7	35.2	34.2	-95.92		1,502.1	-97.5	994.2	927.9	66.32	14.992	
7,900.0	6,669.6	7,911.1	6,776.2	36.7	35.9	-95.98		1,602.1	-97.5	994.4	924.6	69.73	14.261	
8,000.0	6,669.0	8,011.1	6,776.7	38.3	37.6	-96.04		1,702.1	-97.5	994.5	921.3	73.18	13.590	
8,100.0	6,668.3	8,111.1	6,777.2	39.9	39.4	-96.11		1,802.0	-97.5	994.6	917.9	76.66	12.974	
8,200.0	6,667.7	8,211.1	6,777.7	41.5	41.2	-96.17		1,902.0	-97.5	994.7	914.5	80.17	12.407	
8,300.0	6,667.1	8,311.1	6,778.2	43.2	43.0	-96.24		2,002.0	-97.5	994.8	911.1	83.71	11.884	
8,400.0	6,666.5	8,411.1	6,778.7	44.9	44.8	-96.30		2,102.0	-97.5	995.0	907.7	87.27	11.401	
8,500.0	6,665.9	8,511.1	6,779.2	46.6	46.6	-96.36		2,202.0	-97.5	995.1	904.2	90.85	10.952	
8,600.0	6,665.3	8,611.1	6,779.7	48.3	48.4	-96.43		2,302.0	-97.5	995.2	900.7	94.45	10.536	
8,700.0	6,664.7	8,711.1	6,780.2	50.0	50.3	-96.49		2,402.0	-97.5	995.3	897.3	98.07	10.149	
8,800.0	6,664.1	8,811.1	6,780.7	51.8	52.1	-96.56		2,502.0	-97.5	995.4	893.8	101.70	9.789	
8,900.0	6,663.5	8,911.1	6,781.2	53.5	53.9	-96.62		2,602.0	-97.5	995.6	890.2	105.34	9.452	
9,000.0	6,662.8	9,011.1	6,781.7	55.3	55.8	-96.68		2,702.0	-97.5	995.7	886.7	108.99	9.136	
9,100.0	6,662.2	9,111.1	6,782.2	57.1	57.6	-96.75		2,802.0	-97.5	995.8	883.2	112.65	8.840	
9,200.0	6,661.6	9,211.1	6,782.7	58.9	59.5	-96.81		2,902.0	-97.5	996.0	879.6	116.32	8.563	
9,300.0	6,661.0	9,311.1	6,783.3	60.7	61.4	-96.88		3,002.0	-97.5	996.1	876.1	119.99	8.301	
9,400.0	6,660.4	9,411.0	6,783.8	62.5	63.2	-96.94		3,101.9	-97.5	996.2	872.6	123.68	8.055	
9,500.0	6,659.8	9,511.0	6,784.3	64.3	65.1	-97.00		3,201.9	-97.5	996.4	869.0	127.37	7.823	
9,600.0	6,659.2	9,611.0	6,784.8	66.1	67.0	-97.07		3,301.9	-97.5	996.5	865.4	131.06	7.603	
9,700.0	6,658.6	9,711.0	6,785.3	67.9	68.8	-97.13		3,401.9	-97.5	996.6	861.9	134.76	7.395	
9,800.0	6,658.0	9,811.0	6,785.8	69.8	70.7	-97.19		3,501.9	-97.5	996.8	858.3	138.47	7.199	
9,900.0	6,657.3	9,911.0	6,786.3	71.6	72.6	-97.26		3,601.9	-97.5	996.9	854.7	142.18	7.012	
10,000.0	6,656.7	10,011.0	6,786.8	73.5	74.5	-97.32		3,701.9	-97.5	997.1	851.2	145.89	6.834	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-401 - Wellbore #1 - Plan #2 (7-09-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
10,100.0	6,656.1	10,111.0	6,787.3	75.3	76.4	-97.38	3,801.9	-97.5	997.2	847.6	149.61	6.665		
10,200.0	6,655.5	10,211.0	6,787.8	77.1	78.2	-97.45	3,901.9	-97.5	997.3	844.0	153.33	6.505		
10,300.0	6,654.9	10,311.0	6,788.3	79.0	80.1	-97.51	4,001.9	-97.5	997.5	840.4	157.05	6.351		
10,400.0	6,654.3	10,411.0	6,788.8	80.8	82.0	-97.58	4,101.9	-97.5	997.6	836.9	160.77	6.205		
10,500.0	6,653.7	10,511.0	6,789.3	82.7	83.9	-97.64	4,201.9	-97.5	997.8	833.3	164.50	6.066		
10,600.0	6,653.1	10,611.0	6,789.8	84.6	85.8	-97.70	4,301.9	-97.5	997.9	829.7	168.23	5.932		
10,700.0	6,652.5	10,711.0	6,790.3	86.4	87.7	-97.77	4,401.9	-97.5	998.1	826.1	171.96	5.804		
10,800.0	6,651.8	10,811.0	6,790.8	88.3	89.6	-97.83	4,501.8	-97.5	998.2	822.5	175.69	5.682		
10,900.0	6,651.2	10,911.0	6,791.4	90.2	91.5	-97.89	4,601.8	-97.5	998.4	819.0	179.42	5.564		
11,000.0	6,650.6	11,010.9	6,791.9	92.0	93.4	-97.96	4,701.8	-97.5	998.5	815.4	183.16	5.452		
11,100.0	6,650.0	11,110.9	6,792.4	93.9	95.3	-98.02	4,801.8	-97.5	998.7	811.8	186.89	5.344		
11,200.0	6,649.4	11,210.9	6,792.9	95.8	97.2	-98.08	4,901.8	-97.5	998.8	808.2	190.63	5.240		
11,300.0	6,648.8	11,310.9	6,793.4	97.6	99.1	-98.15	5,001.8	-97.5	999.0	804.6	194.37	5.140		
11,400.0	6,648.2	11,410.9	6,793.9	99.5	101.0	-98.21	5,101.8	-97.5	999.2	801.1	198.11	5.044		
11,500.0	6,647.6	11,510.9	6,794.4	101.4	102.9	-98.27	5,201.8	-97.5	999.3	797.5	201.84	4.951		
11,600.0	6,647.0	11,610.9	6,794.9	103.3	104.8	-98.34	5,301.8	-97.5	999.5	793.9	205.58	4.862		
11,700.0	6,646.4	11,710.9	6,795.4	105.2	106.7	-98.40	5,401.8	-97.5	999.6	790.3	209.32	4.776		
11,800.0	6,645.7	11,810.9	6,795.9	107.0	108.6	-98.46	5,501.8	-97.5	999.8	786.7	213.06	4.693		
11,900.0	6,645.1	11,910.9	6,796.4	108.9	110.5	-98.53	5,601.8	-97.5	1,000.0	783.2	216.80	4.612 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-421 - Wellbore #1 - Plan #2 (7-09-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	2.0	2.0	0.0	0.0	-160.36		-54.6	-19.5	58.0	58.0	0.00	N/A	
100.0	100.0	102.0	102.0	0.1	0.1	-160.36		-54.6	-19.5	58.0	57.8	0.23	253.087	
200.0	200.0	202.0	202.0	0.3	0.3	-160.36		-54.6	-19.5	58.0	57.3	0.68	85.480	
300.0	300.0	302.0	302.0	0.6	0.6	-160.36		-54.6	-19.5	58.0	56.9	1.13	51.424	
400.0	400.0	402.0	402.0	0.8	0.8	-160.36		-54.6	-19.5	58.0	56.4	1.58	36.773	
500.0	500.0	502.0	502.0	1.0	1.0	-160.36		-54.6	-19.5	58.0	56.0	2.03	28.620	
600.0	600.0	602.0	602.0	1.2	1.2	-160.36		-54.6	-19.5	58.0	55.5	2.48	23.426	
700.0	700.0	702.0	702.0	1.5	1.5	-160.36		-54.6	-19.5	58.0	55.1	2.93	19.827	
800.0	800.0	802.0	802.0	1.7	1.7	-160.36		-54.6	-19.5	58.0	54.6	3.38	17.187 CC, ES	
900.0	900.0	902.0	902.0	1.9	1.9	120.05		-54.6	-19.5	58.9	55.1	3.81	15.433	
1,000.0	999.8	1,001.8	1,001.8	2.1	2.1	124.21		-54.6	-19.5	61.7	57.4	4.25	14.513	
1,100.0	1,099.5	1,101.5	1,101.5	2.3	2.4	130.29		-54.6	-19.5	67.0	62.3	4.69	14.275	
1,200.0	1,198.7	1,200.7	1,200.7	2.6	2.6	137.23		-54.6	-19.5	75.4	70.3	5.14	14.681	
1,300.0	1,297.5	1,302.3	1,302.2	2.9	2.8	143.70		-54.0	-17.8	86.0	80.4	5.58	15.409	
1,400.0	1,395.6	1,404.3	1,404.1	3.2	3.0	149.05		-52.2	-12.6	97.1	91.1	6.02	16.134	
1,500.0	1,493.4	1,507.0	1,506.4	3.6	3.3	153.35		-49.1	-4.0	107.2	100.7	6.47	16.556	
1,600.0	1,591.1	1,610.5	1,609.0	3.9	3.5	156.50		-44.8	8.1	114.3	107.3	6.94	16.457	
1,700.0	1,688.9	1,714.3	1,711.6	4.4	3.8	158.96		-39.2	23.9	118.1	110.7	7.42	15.911	
1,800.0	1,786.7	1,814.2	1,809.9	4.8	4.1	161.05		-33.2	40.6	120.3	112.4	7.90	15.236	
1,900.0	1,884.4	1,914.1	1,908.1	5.2	4.4	163.06		-27.2	57.4	122.8	114.4	8.38	14.658	
2,000.0	1,982.2	2,014.0	2,006.4	5.6	4.7	164.99		-21.2	74.1	125.3	116.5	8.85	14.160	
2,100.0	2,079.9	2,113.9	2,104.7	6.0	5.1	166.84		-15.2	90.8	128.0	118.7	9.33	13.727	
2,200.0	2,177.7	2,213.7	2,203.0	6.5	5.4	168.61		-9.2	107.6	130.9	121.1	9.80	13.347	
2,300.0	2,275.5	2,313.6	2,301.3	6.9	5.8	170.31		-3.3	124.3	133.8	123.5	10.28	13.011	
2,400.0	2,373.2	2,413.5	2,399.6	7.4	6.1	171.93		2.7	141.1	136.9	126.1	10.77	12.712	
2,500.0	2,471.0	2,513.4	2,497.8	7.8	6.5	173.48		8.7	157.8	140.0	128.8	11.25	12.444	
2,600.0	2,568.7	2,613.3	2,596.1	8.3	6.9	174.96		14.7	174.6	143.3	131.6	11.75	12.201	
2,700.0	2,666.5	2,713.1	2,694.4	8.7	7.2	176.37		20.7	191.3	146.7	134.4	12.24	11.979	
2,800.0	2,764.2	2,813.0	2,792.7	9.2	7.6	177.72		26.6	208.1	150.1	137.4	12.75	11.776	
2,900.0	2,862.0	2,912.9	2,891.0	9.6	8.0	179.01		32.6	224.8	153.6	140.4	13.26	11.588	
3,000.0	2,959.8	3,012.8	2,989.3	10.1	8.4	-179.76		38.6	241.6	157.2	143.4	13.77	11.413	
3,100.0	3,057.5	3,112.6	3,087.5	10.5	8.8	-178.58		44.6	258.3	160.9	146.6	14.30	11.250	
3,200.0	3,155.3	3,212.5	3,185.8	11.0	9.2	-177.46		50.6	275.1	164.6	149.8	14.83	11.097	
3,300.0	3,253.0	3,312.4	3,284.1	11.4	9.6	-176.39		56.6	291.8	168.4	153.0	15.37	10.954	
3,400.0	3,350.8	3,412.3	3,382.4	11.9	9.9	-175.36		62.5	308.6	172.2	156.3	15.92	10.818	
3,500.0	3,448.6	3,512.2	3,480.7	12.4	10.3	-174.38		68.5	325.3	176.1	159.7	16.48	10.690	
3,600.0	3,546.3	3,612.0	3,579.0	12.8	10.7	-173.45		74.5	342.1	180.1	163.0	17.04	10.569	
3,700.0	3,644.1	3,711.9	3,677.2	13.3	11.1	-172.55		80.5	358.8	184.1	166.5	17.61	10.454	
3,800.0	3,741.8	3,811.8	3,775.5	13.7	11.5	-171.69		86.5	375.6	188.1	169.9	18.19	10.344	
3,900.0	3,839.6	3,911.7	3,873.8	14.2	11.9	-170.87		92.5	392.3	192.2	173.4	18.77	10.240	
4,000.0	3,937.4	4,011.6	3,972.1	14.6	12.3	-170.08		98.4	409.1	196.3	176.9	19.36	10.140	
4,100.0	4,035.1	4,111.4	4,070.4	15.1	12.7	-169.33		104.4	425.8	200.5	180.5	19.96	10.045	
4,200.0	4,132.9	4,211.3	4,168.7	15.6	13.1	-168.60		110.4	442.5	204.6	184.1	20.56	9.955	
4,300.0	4,230.6	4,311.2	4,267.0	16.0	13.5	-167.91		116.4	459.3	208.9	187.7	21.16	9.868	
4,400.0	4,328.4	4,411.1	4,365.2	16.5	13.9	-167.24		122.4	476.0	213.1	191.3	21.78	9.785	
4,500.0	4,426.2	4,511.0	4,463.5	16.9	14.3	-166.60		128.3	492.8	217.4	195.0	22.40	9.706	
4,600.0	4,523.9	4,606.0	4,557.2	17.4	14.6	-166.10		133.8	508.0	222.5	199.5	22.97	9.684	
4,700.0	4,621.7	4,700.0	4,650.3	17.9	14.9	-165.94		138.1	520.2	230.4	206.9	23.48	9.614	
4,800.0	4,719.4	4,791.5	4,741.3	18.3	15.1	-166.09		141.4	529.4	241.3	217.4	23.93	10.083	
4,900.0	4,817.2	4,883.3	4,832.8	18.8	15.3	-166.50		143.7	535.8	255.1	230.7	24.34	10.480	
5,000.0	4,914.9	4,974.2	4,923.6	19.2	15.4	-167.12		145.0	539.4	271.8	247.1	24.71	10.998	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-421 - Wellbore #1 - Plan #2 (7-09-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,012.7	5,065.3	5,014.7	19.7	15.6	-167.91		145.4	540.4	291.3	266.2	25.06	11.622	
5,200.0	5,110.9	5,163.5	5,112.9	20.0	15.7	-168.71		145.4	540.4	309.7	284.3	25.42	12.185	
5,300.0	5,209.7	5,262.3	5,211.7	20.3	15.9	-169.30		145.4	540.4	324.8	299.0	25.76	12.605	
5,400.0	5,309.0	5,361.6	5,311.0	20.6	16.0	-169.72		145.4	540.4	336.5	310.4	26.09	12.894	
5,500.0	5,408.7	5,461.3	5,410.7	20.8	16.2	-170.00		145.4	540.4	344.7	318.3	26.41	13.056	
5,600.0	5,508.5	5,561.1	5,510.5	20.9	16.3	-170.15		145.4	540.4	349.6	322.9	26.69	13.098	
5,700.0	5,608.5	5,661.1	5,610.5	21.0	16.5	-89.13		145.4	540.4	351.0	324.1	26.97	13.018	
5,800.0	5,708.5	5,761.1	5,710.5	21.2	16.7	-89.13		145.4	540.4	351.0	323.7	27.34	12.838	
5,900.0	5,808.5	5,861.1	5,810.5	21.3	16.8	-89.13		145.4	540.4	351.0	323.3	27.72	12.662	
6,000.0	5,908.5	5,961.1	5,910.5	21.4	17.0	-89.13		145.4	540.4	351.0	322.9	28.11	12.490	
6,094.3	6,002.6	6,055.2	6,004.6	21.6	17.1	-90.00		145.7	540.4	351.0	322.6	28.41	12.354	
6,100.0	6,008.2	6,060.9	6,010.3	21.6	17.2	-90.07		145.9	540.4	351.0	322.6	28.43	12.346	
6,200.0	6,106.3	6,161.1	6,109.9	21.7	17.4	-91.53		156.4	540.4	351.1	322.3	28.82	12.183	
6,300.0	6,201.0	6,262.6	6,208.4	21.9	17.6	-92.98		180.1	540.4	351.5	322.1	29.34	11.981	
6,400.0	6,290.7	6,365.3	6,304.1	22.2	17.9	-94.38		217.2	540.4	352.0	322.0	30.00	11.735	
6,500.0	6,373.9	6,469.1	6,394.9	22.5	18.3	-95.70		267.5	540.4	352.8	321.9	30.84	11.437	
6,600.0	6,449.1	6,574.2	6,479.0	22.8	18.8	-96.93		330.4	540.4	353.6	321.7	31.93	11.073	
6,700.0	6,515.1	6,680.4	6,554.4	23.2	19.4	-98.04		405.0	540.4	354.5	321.2	33.33	10.636	
6,800.0	6,570.8	6,787.7	6,619.3	23.8	20.1	-99.00		490.3	540.4	355.4	320.3	35.10	10.126	
6,900.0	6,615.1	6,895.8	6,672.1	24.4	21.1	-99.80		584.6	540.4	356.2	318.9	37.27	9.559	
7,000.0	6,647.4	7,004.6	6,711.2	25.2	22.2	-100.42		686.1	540.4	356.9	317.1	39.84	8.958	
7,100.0	6,667.1	7,114.0	6,735.6	26.1	23.4	-100.84		792.6	540.4	357.4	314.6	42.78	8.355	
7,200.0	6,673.8	7,223.8	6,744.5	27.1	24.8	-101.07		901.9	540.4	357.7	311.7	46.00	7.776	
7,300.0	6,673.2	7,324.4	6,744.6	28.3	26.2	-101.18		1,002.5	540.4	357.8	308.9	48.91	7.316	
7,400.0	6,672.6	7,424.4	6,744.7	29.5	27.7	-101.29		1,102.5	540.4	357.9	306.0	51.90	6.897	
7,500.0	6,672.0	7,524.4	6,744.8	30.8	29.2	-101.41		1,202.5	540.4	358.1	303.1	54.98	6.513	
7,600.0	6,671.4	7,624.4	6,744.9	32.2	30.7	-101.52		1,302.5	540.4	358.2	300.1	58.14	6.161	
7,700.0	6,670.8	7,724.4	6,745.0	33.7	32.3	-101.63		1,402.5	540.4	358.4	297.0	61.37	5.840	
7,800.0	6,670.2	7,824.4	6,745.1	35.2	33.9	-101.74		1,502.5	540.4	358.5	293.9	64.65	5.545	
7,900.0	6,669.6	7,924.4	6,745.2	36.7	35.6	-101.86		1,602.5	540.4	358.7	290.7	67.98	5.276	
8,000.0	6,669.0	8,024.4	6,745.4	38.3	37.3	-101.97		1,702.5	540.4	358.8	287.4	71.35	5.029	
8,100.0	6,668.3	8,124.4	6,745.5	39.9	39.0	-102.08		1,802.5	540.4	358.9	284.2	74.76	4.802	
8,200.0	6,667.7	8,224.4	6,745.6	41.5	40.7	-102.19		1,902.5	540.4	359.1	280.9	78.19	4.593	
8,300.0	6,667.1	8,324.4	6,745.7	43.2	42.4	-102.30		2,002.5	540.4	359.3	277.6	81.65	4.400	
8,400.0	6,666.5	8,424.4	6,745.8	44.9	44.2	-102.41		2,102.5	540.4	359.4	274.3	85.13	4.222	
8,500.0	6,665.9	8,524.4	6,745.9	46.6	45.9	-102.52		2,202.5	540.4	359.6	270.9	88.63	4.057	
8,600.0	6,665.3	8,624.4	6,746.0	48.3	47.7	-102.64		2,302.5	540.4	359.7	267.6	92.15	3.904	
8,700.0	6,664.7	8,724.4	6,746.1	50.0	49.5	-102.75		2,402.5	540.4	359.9	264.2	95.68	3.761	
8,800.0	6,664.1	8,824.4	6,746.2	51.8	51.3	-102.86		2,502.5	540.4	360.0	260.8	99.22	3.629	
8,900.0	6,663.5	8,924.4	6,746.3	53.5	53.1	-102.97		2,602.5	540.4	360.2	257.4	102.77	3.505	
9,000.0	6,662.8	9,024.4	6,746.4	55.3	54.9	-103.08		2,702.5	540.4	360.4	254.0	106.33	3.389	
9,100.0	6,662.2	9,124.4	6,746.5	57.1	56.8	-103.19		2,802.5	540.4	360.5	250.6	109.90	3.280	
9,200.0	6,661.6	9,224.4	6,746.6	58.9	58.6	-103.30		2,902.5	540.4	360.7	247.2	113.48	3.178	
9,300.0	6,661.0	9,324.4	6,746.7	60.7	60.4	-103.41		3,002.5	540.4	360.8	243.8	117.06	3.083	
9,400.0	6,660.4	9,424.4	6,746.8	62.5	62.3	-103.52		3,102.5	540.4	361.0	240.4	120.65	2.992	
9,500.0	6,659.8	9,524.3	6,746.9	64.3	64.1	-103.63		3,202.5	540.4	361.2	236.9	124.24	2.907	
9,600.0	6,659.2	9,624.3	6,747.0	66.1	66.0	-103.74		3,302.5	540.4	361.3	233.5	127.83	2.827	
9,700.0	6,658.6	9,724.3	6,747.1	67.9	67.8	-103.85		3,402.5	540.4	361.5	230.1	131.43	2.751	
9,800.0	6,658.0	9,824.3	6,747.2	69.8	69.7	-103.96		3,502.5	540.4	361.7	226.7	135.03	2.678	
9,900.0	6,657.3	9,924.3	6,747.3	71.6	71.5	-104.07		3,602.4	540.4	361.9	223.2	138.64	2.610	
10,000.0	6,656.7	10,024.3	6,747.4	73.5	73.4	-104.18		3,702.4	540.4	362.0	219.8	142.24	2.545	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-421 - Wellbore #1 - Plan #2 (7-09-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
10,100.0	6,656.1	10,124.3	6,747.6	75.3	75.3	-104.29	3,802.4	540.4	362.2	216.4	145.85	2.484		
10,200.0	6,655.5	10,224.3	6,747.7	77.1	77.1	-104.40	3,902.4	540.4	362.4	212.9	149.45	2.425		
10,300.0	6,654.9	10,324.3	6,747.8	79.0	79.0	-104.51	4,002.4	540.4	362.6	209.5	153.06	2.369		
10,400.0	6,654.3	10,424.3	6,747.9	80.8	80.9	-104.62	4,102.4	540.4	362.7	206.1	156.66	2.315		
10,500.0	6,653.7	10,524.3	6,748.0	82.7	82.7	-104.73	4,202.4	540.4	362.9	202.7	160.27	2.264		
10,600.0	6,653.1	10,624.3	6,748.1	84.6	84.6	-104.84	4,302.4	540.4	363.1	199.2	163.88	2.216		
10,700.0	6,652.5	10,724.3	6,748.2	86.4	86.5	-104.95	4,402.4	540.4	363.3	195.8	167.48	2.169		
10,800.0	6,651.8	10,824.3	6,748.3	88.3	88.4	-105.06	4,502.4	540.4	363.5	192.4	171.09	2.125		
10,900.0	6,651.2	10,924.3	6,748.4	90.2	90.3	-105.17	4,602.4	540.4	363.7	189.0	174.69	2.082		
11,000.0	6,650.6	11,024.3	6,748.5	92.0	92.1	-105.28	4,702.4	540.4	363.9	185.6	178.29	2.041		
11,100.0	6,650.0	11,124.3	6,748.6	93.9	94.0	-105.38	4,802.4	540.4	364.0	182.1	181.89	2.001		
11,200.0	6,649.4	11,224.3	6,748.7	95.8	95.9	-105.49	4,902.4	540.4	364.2	178.7	185.49	1.964		
11,300.0	6,648.8	11,324.3	6,748.8	97.6	97.8	-105.60	5,002.4	540.4	364.4	175.3	189.09	1.927		
11,400.0	6,648.2	11,424.3	6,748.9	99.5	99.7	-105.71	5,102.4	540.4	364.6	171.9	192.68	1.892		
11,500.0	6,647.6	11,524.3	6,749.0	101.4	101.6	-105.82	5,202.4	540.4	364.8	168.5	196.28	1.859		
11,600.0	6,647.0	11,624.3	6,749.1	103.3	103.5	-105.93	5,302.4	540.4	365.0	165.1	199.87	1.826		
11,700.0	6,646.4	11,724.3	6,749.2	105.2	105.4	-106.03	5,402.4	540.4	365.2	161.7	203.46	1.795		
11,800.0	6,645.7	11,824.3	6,749.3	107.0	107.3	-106.14	5,502.4	540.4	365.4	158.4	207.04	1.765		
11,900.0	6,645.1	11,924.3	6,749.4	108.9	109.2	-106.25	5,602.4	540.4	365.6	155.0	210.63	1.736		
12,000.0	6,644.5	12,024.3	6,749.5	110.8	111.1	-106.36	5,702.4	540.4	365.8	151.6	214.21	1.708		
12,100.0	6,643.9	12,124.3	6,749.6	112.7	113.0	-106.46	5,802.4	540.4	366.0	148.2	217.79	1.681		
12,200.0	6,643.3	12,224.3	6,749.7	114.6	114.9	-106.57	5,902.4	540.4	366.2	144.8	221.36	1.654		
12,300.0	6,642.7	12,324.3	6,749.9	116.5	116.8	-106.68	6,002.4	540.4	366.4	141.5	224.94	1.629		
12,400.0	6,642.1	12,424.3	6,750.0	118.4	118.7	-106.79	6,102.4	540.4	366.6	138.1	228.51	1.604		
12,500.0	6,641.5	12,524.3	6,750.1	120.3	120.6	-106.89	6,202.4	540.4	366.8	134.7	232.08	1.581		
12,600.0	6,640.9	12,624.3	6,750.2	122.1	122.5	-107.00	6,302.4	540.4	367.0	131.4	235.64	1.558		
12,700.0	6,640.2	12,724.3	6,750.3	124.0	124.4	-107.11	6,402.4	540.4	367.2	128.0	239.20	1.535		
12,800.0	6,639.6	12,824.3	6,750.4	125.9	126.3	-107.21	6,502.4	540.4	367.5	124.7	242.76	1.514		
12,900.0	6,639.0	12,924.3	6,750.5	127.8	128.2	-107.32	6,602.4	540.4	367.7	121.4	246.31	1.493 Level 3		
13,000.0	6,638.4	13,024.3	6,750.6	129.7	130.1	-107.43	6,702.4	540.4	367.9	118.0	249.87	1.472 Level 3		
13,100.0	6,637.8	13,124.3	6,750.7	131.6	132.0	-107.53	6,802.4	540.4	368.1	114.7	253.41	1.453 Level 3		
13,200.0	6,637.2	13,224.3	6,750.8	133.5	133.9	-107.64	6,902.4	540.4	368.3	111.4	256.96	1.433 Level 3		
13,300.0	6,636.6	13,324.3	6,750.9	135.4	135.8	-107.75	7,002.4	540.4	368.5	108.0	260.50	1.415 Level 3		
13,394.3	6,636.0	13,418.6	6,751.0	137.2	137.6	-107.85	7,096.7	540.4	368.7	104.9	263.84	1.398 Level 3, SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	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
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	2.0	2.0	0.0	0.0	18.50	58.3	19.5	61.5	61.5	0.00	N/A		
100.0	100.0	102.0	102.0	0.1	0.1	18.50	58.3	19.5	61.5	61.2	0.23	268.123		
166.0	166.0	168.0	168.0	0.3	0.3	18.50	58.3	19.5	61.5	60.9	0.53	116.888 CC		
200.0	200.0	202.0	202.0	0.3	0.3	18.50	58.3	19.5	61.5	60.8	0.68	90.586 ES		
300.0	300.0	301.1	301.1	0.6	0.6	20.02	58.4	21.3	62.2	61.1	1.12	55.635		
400.0	400.0	400.0	399.8	0.8	0.8	24.25	58.8	26.5	64.5	62.9	1.56	41.261		
500.0	500.0	498.5	497.9	1.0	1.0	30.54	59.3	35.0	69.0	67.0	2.02	34.105		
600.0	600.0	596.2	594.9	1.2	1.3	37.90	60.1	46.8	76.5	74.0	2.51	30.488		
700.0	700.0	693.0	690.6	1.5	1.6	45.29	61.1	61.7	87.6	84.6	3.04	28.841		
800.0	800.0	788.7	784.6	1.7	2.0	51.97	62.3	79.6	102.6	99.0	3.62	28.356		
900.0	900.0	883.5	877.0	1.9	2.4	-23.62	63.7	100.5	120.0	116.0	3.99	30.071		
1,000.0	999.8	980.7	971.3	2.1	2.9	-19.52	65.2	124.1	137.0	132.6	4.46	30.719		
1,100.0	1,099.5	1,079.4	1,067.1	2.3	3.4	-16.66	66.8	148.1	151.4	146.5	4.94	30.665		
1,200.0	1,198.7	1,178.6	1,163.3	2.6	3.9	-14.63	68.5	172.3	162.7	157.3	5.42	30.012		
1,300.0	1,297.5	1,278.2	1,259.8	2.9	4.4	-13.13	70.1	196.6	170.8	164.9	5.91	28.889		
1,400.0	1,395.6	1,378.0	1,356.6	3.2	4.9	-12.02	71.7	220.9	175.5	169.1	6.41	27.374		
1,500.0	1,493.4	1,478.0	1,453.5	3.6	5.4	-11.11	73.3	245.2	178.4	171.5	6.94	25.713		
1,600.0	1,591.1	1,577.9	1,550.4	3.9	5.9	-10.23	74.9	269.6	181.3	173.8	7.47	24.279		
1,700.0	1,688.9	1,677.8	1,647.3	4.4	6.4	-9.38	76.5	293.9	184.2	176.2	8.00	23.040		
1,800.0	1,786.7	1,777.7	1,744.2	4.8	7.0	-8.55	78.2	318.3	187.2	178.7	8.53	21.960		
1,900.0	1,884.4	1,877.6	1,841.1	5.2	7.5	-7.75	79.8	342.6	190.2	181.2	9.05	21.012		
2,000.0	1,982.2	1,977.6	1,938.0	5.6	8.0	-6.98	81.4	366.9	193.3	183.7	9.58	20.173		
2,100.0	2,079.9	2,077.5	2,034.9	6.0	8.5	-6.23	83.0	391.3	196.4	186.3	10.11	19.427		
2,200.0	2,177.7	2,177.4	2,131.8	6.5	9.1	-5.50	84.6	415.6	199.5	188.9	10.64	18.758		
2,300.0	2,275.5	2,277.3	2,228.7	6.9	9.6	-4.80	86.2	440.0	202.7	191.5	11.16	18.156		
2,400.0	2,373.2	2,377.2	2,325.6	7.4	10.1	-4.11	87.9	464.3	205.8	194.1	11.69	17.611		
2,500.0	2,471.0	2,477.2	2,422.5	7.8	10.6	-3.45	89.5	488.7	209.0	196.8	12.21	17.115		
2,600.0	2,568.7	2,577.1	2,519.4	8.3	11.1	-2.81	91.1	513.0	212.3	199.5	12.74	16.661		
2,700.0	2,666.5	2,677.0	2,616.3	8.7	11.7	-2.19	92.7	537.4	215.5	202.3	13.27	16.245		
2,800.0	2,764.2	2,776.9	2,713.2	9.2	12.2	-1.58	94.3	561.7	218.8	205.0	13.80	15.861		
2,900.0	2,862.0	2,876.8	2,810.1	9.6	12.7	-1.00	96.0	586.0	222.1	207.8	14.33	15.507		
3,000.0	2,959.8	2,976.8	2,907.0	10.1	13.3	-0.43	97.6	610.4	225.5	210.6	14.86	15.177		
3,100.0	3,057.5	3,076.7	3,003.8	10.5	13.8	0.12	99.2	634.7	228.8	213.4	15.39	14.871		
3,200.0	3,155.3	3,176.6	3,100.7	11.0	14.3	0.66	100.8	659.1	232.2	216.3	15.92	14.585		
3,300.0	3,253.0	3,276.5	3,197.6	11.4	14.8	1.18	102.4	683.4	235.6	219.1	16.46	14.318		
3,400.0	3,350.8	3,376.4	3,294.5	11.9	15.4	1.69	104.0	707.8	239.0	222.0	16.99	14.066		
3,500.0	3,448.6	3,476.4	3,391.4	12.4	15.9	2.18	105.7	732.1	242.5	224.9	17.53	13.830		
3,600.0	3,546.3	3,576.3	3,488.3	12.8	16.4	2.65	107.3	756.5	245.9	227.8	18.07	13.608		
3,700.0	3,644.1	3,676.2	3,585.2	13.3	16.9	3.12	108.9	780.8	249.4	230.8	18.61	13.398		
3,800.0	3,741.8	3,776.1	3,682.1	13.7	17.5	3.57	110.5	805.1	252.9	233.7	19.16	13.199		
3,900.0	3,839.6	3,876.0	3,779.0	14.2	18.0	4.01	112.1	829.5	256.3	236.6	19.70	13.010		
4,000.0	3,937.4	3,976.0	3,875.9	14.6	18.5	4.44	113.8	853.8	259.9	239.6	20.25	12.832		
4,100.0	4,035.1	4,075.9	3,972.8	15.1	19.0	4.85	115.4	878.2	263.4	242.6	20.80	12.661		
4,200.0	4,132.9	4,175.8	4,069.7	15.6	19.6	5.26	117.0	902.5	266.9	245.6	21.36	12.499		
4,300.0	4,230.6	4,275.7	4,166.6	16.0	20.1	5.65	118.6	926.9	270.5	248.6	21.91	12.345		
4,400.0	4,328.4	4,375.6	4,263.5	16.5	20.6	6.04	120.2	951.2	274.0	251.6	22.47	12.198		
4,500.0	4,426.2	4,475.6	4,360.4	16.9	21.1	6.41	121.9	975.6	277.6	254.6	23.03	12.057		
4,600.0	4,523.9	4,575.5	4,457.3	17.4	21.7	6.78	123.5	999.9	281.2	257.6	23.59	11.922		
4,700.0	4,621.7	4,675.4	4,554.2	17.9	22.2	7.13	125.1	1,024.2	284.8	260.7	24.15	11.793		
4,800.0	4,719.4	4,775.3	4,651.1	18.3	22.7	7.48	126.7	1,048.6	288.4	263.7	24.72	11.669		
4,900.0	4,817.2	4,875.2	4,748.0	18.8	23.3	7.82	128.3	1,072.9	292.0	266.8	25.29	11.550		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 270-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 270-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design		Chesnut 27GK-HZ Pad Sec.27-T5N-R64W - Chesnut 270-201 - Wellbore #1 - Pan #1 (4-23-14)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
5,000.0	4,914.9	4,975.2	4,844.9	19.2	23.8	8.15	129.9	1,097.3	295.7	269.8	25.86	11.435		
5,100.0	5,012.7	5,075.1	4,941.8	19.7	24.3	8.47	131.6	1,121.6	299.4	272.9	26.43	11.328		
5,200.0	5,110.9	5,179.6	5,043.1	20.0	24.8	8.75	133.2	1,146.8	305.0	278.1	26.94	11.322		
5,300.0	5,209.7	5,291.4	5,152.5	20.3	25.2	8.97	134.8	1,170.2	310.9	283.5	27.38	11.354		
5,400.0	5,309.0	5,403.5	5,262.9	20.6	25.6	9.13	136.1	1,189.4	316.4	288.6	27.76	11.395		
5,500.0	5,408.7	5,515.8	5,374.2	20.8	25.9	9.23	137.1	1,204.4	321.4	293.3	28.08	11.444		
5,600.0	5,508.5	5,628.4	5,486.3	20.9	26.1	9.26	137.8	1,214.9	325.9	297.6	28.34	11.501		
5,700.0	5,608.5	5,741.2	5,598.9	21.0	26.3	90.32	138.2	1,221.1	329.9	301.4	28.55	11.556		
5,800.0	5,708.5	5,852.8	5,710.5	21.2	26.4	90.29	138.3	1,222.9	331.5	302.6	28.91	11.469		
5,900.0	5,808.5	5,952.8	5,810.5	21.3	26.5	90.29	138.3	1,222.9	331.5	302.3	29.25	11.333		
5,971.2	5,879.8	6,024.1	5,881.8	21.4	26.5	90.07	139.6	1,222.9	331.5	302.0	29.49	11.242		
6,000.0	5,908.5	6,052.8	5,910.4	21.4	26.6	89.70	141.8	1,222.9	331.5	301.9	29.57	11.213		
6,100.0	6,008.2	6,151.4	6,007.7	21.6	26.7	88.04	157.5	1,222.9	331.7	301.8	29.88	11.100		
6,200.0	6,106.3	6,249.0	6,101.1	21.7	26.8	86.43	185.2	1,222.9	332.2	301.9	30.30	10.962		
6,300.0	6,201.0	6,345.4	6,189.3	21.9	27.0	84.89	224.0	1,222.9	332.8	302.0	30.81	10.803		
6,400.0	6,290.7	6,440.8	6,271.0	22.2	27.1	83.45	273.1	1,222.9	333.7	302.3	31.42	10.620		
6,500.0	6,373.9	6,535.2	6,345.3	22.5	27.3	82.13	331.4	1,222.9	334.7	302.5	32.18	10.401		
6,600.0	6,449.1	6,628.9	6,411.3	22.8	27.6	80.94	397.8	1,222.9	335.7	302.6	33.14	10.131		
6,700.0	6,515.1	6,721.9	6,468.3	23.2	27.9	79.91	471.2	1,222.9	336.7	302.4	34.38	9.795		
6,800.0	6,570.8	6,814.3	6,515.7	23.8	28.2	79.04	550.4	1,222.9	337.7	301.7	35.96	9.390		
6,900.0	6,615.1	6,906.2	6,553.1	24.4	28.7	78.35	634.3	1,222.9	338.5	300.6	37.93	8.923		
7,000.0	6,647.4	6,997.8	6,580.0	25.2	29.2	77.83	721.8	1,222.9	339.1	298.8	40.30	8.414		
7,100.0	6,667.1	7,089.1	6,596.2	26.1	29.8	77.51	811.6	1,222.9	339.5	296.5	43.04	7.889		
7,200.0	6,673.8	7,180.3	6,601.6	27.1	30.5	77.38	902.6	1,222.9	339.7	293.6	46.07	7.374		
7,300.0	6,673.2	7,279.9	6,601.0	28.3	31.4	77.39	1,002.2	1,222.9	339.7	290.8	48.87	6.951		
7,400.0	6,672.6	7,379.9	6,600.5	29.5	32.4	77.39	1,102.2	1,222.9	339.7	287.9	51.76	6.563		
7,500.0	6,672.0	7,479.9	6,599.9	30.8	33.5	77.40	1,202.2	1,222.9	339.7	284.9	54.76	6.204		
7,600.0	6,671.4	7,579.9	6,599.4	32.2	34.7	77.41	1,302.2	1,222.9	339.7	281.8	57.84	5.872		
7,700.0	6,670.8	7,679.9	6,598.8	33.7	35.9	77.42	1,402.2	1,222.9	339.7	278.7	61.00	5.568		
7,800.0	6,670.2	7,779.9	6,598.2	35.2	37.2	77.43	1,502.2	1,222.9	339.6	275.4	64.23	5.288		
7,900.0	6,669.6	7,879.9	6,597.7	36.7	38.6	77.44	1,602.2	1,222.9	339.6	272.1	67.52	5.030		
8,000.0	6,669.0	7,979.9	6,597.1	38.3	40.0	77.45	1,702.2	1,222.9	339.6	268.8	70.85	4.794		
8,100.0	6,668.3	8,079.9	6,596.6	39.9	41.5	77.45	1,802.2	1,222.9	339.6	265.4	74.22	4.576		
8,200.0	6,667.7	8,179.9	6,596.0	41.5	43.0	77.46	1,902.2	1,222.9	339.6	262.0	77.63	4.375		
8,300.0	6,667.1	8,279.9	6,595.5	43.2	44.6	77.47	2,002.2	1,222.9	339.6	258.5	81.07	4.189		
8,400.0	6,666.5	8,379.9	6,594.9	44.9	46.2	77.48	2,102.2	1,222.9	339.6	255.0	84.54	4.017		
8,500.0	6,665.9	8,479.9	6,594.3	46.6	47.8	77.49	2,202.2	1,222.9	339.6	251.5	88.03	3.857		
8,600.0	6,665.3	8,579.9	6,593.8	48.3	49.4	77.50	2,302.2	1,222.9	339.6	248.0	91.55	3.709		
8,700.0	6,664.7	8,679.9	6,593.2	50.0	51.1	77.51	2,402.2	1,222.9	339.5	244.5	95.08	3.571		
8,800.0	6,664.1	8,779.9	6,592.7	51.8	52.7	77.51	2,502.2	1,222.9	339.5	240.9	98.63	3.442		
8,900.0	6,663.5	8,879.9	6,592.1	53.5	54.4	77.52	2,602.2	1,222.9	339.5	237.3	102.20	3.322		
9,000.0	6,662.8	8,979.9	6,591.5	55.3	56.1	77.53	2,702.2	1,222.9	339.5	233.7	105.78	3.209		
9,100.0	6,662.2	9,079.9	6,591.0	57.1	57.8	77.54	2,802.1	1,222.9	339.5	230.1	109.38	3.104		
9,200.0	6,661.6	9,179.9	6,590.4	58.9	59.6	77.55	2,902.1	1,222.9	339.5	226.5	112.98	3.005		
9,300.0	6,661.0	9,279.9	6,589.9	60.7	61.3	77.56	3,002.1	1,222.9	339.5	222.9	116.60	2.911		
9,400.0	6,660.4	9,379.9	6,589.3	62.5	63.1	77.57	3,102.1	1,222.9	339.5	219.2	120.22	2.824		
9,500.0	6,659.8	9,479.9	6,588.8	64.3	64.9	77.57	3,202.1	1,222.9	339.5	215.6	123.86	2.741		
9,600.0	6,659.2	9,579.9	6,588.2	66.1	66.6	77.58	3,302.1	1,222.9	339.4	211.9	127.50	2.662		
9,700.0	6,658.6	9,679.9	6,587.6	67.9	68.4	77.59	3,402.1	1,222.9	339.4	208.3	131.15	2.588		
9,800.0	6,658.0	9,779.9	6,587.1	69.8	70.2	77.60	3,502.1	1,222.9	339.4	204.6	134.81	2.518		
9,900.0	6,657.3	9,879.9	6,586.5	71.6	72.0	77.61	3,602.1	1,222.9	339.4	200.9	138.47	2.451		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	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
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,656.7	9,979.9	6,586.0	73.5	73.8	77.62	77.62	3,702.1	1,222.9	339.4	197.3	142.14	2.388	
10,100.0	6,656.1	10,079.9	6,585.4	75.3	75.6	77.63	77.63	3,802.1	1,222.9	339.4	193.6	145.81	2.328	
10,200.0	6,655.5	10,179.9	6,584.8	77.1	77.4	77.64	77.64	3,902.1	1,222.9	339.4	189.9	149.49	2.270	
10,300.0	6,654.9	10,279.9	6,584.3	79.0	79.3	77.64	77.64	4,002.1	1,222.9	339.4	186.2	153.17	2.216	
10,400.0	6,654.3	10,379.9	6,583.7	80.8	81.1	77.65	77.65	4,102.1	1,222.9	339.3	182.5	156.86	2.163	
10,500.0	6,653.7	10,479.9	6,583.2	82.7	82.9	77.66	77.66	4,202.1	1,222.9	339.3	178.8	160.55	2.114	
10,600.0	6,653.1	10,579.9	6,582.6	84.6	84.8	77.67	77.67	4,302.1	1,222.9	339.3	175.1	164.24	2.066	
10,700.0	6,652.5	10,679.9	6,582.1	86.4	86.6	77.68	77.68	4,402.1	1,222.9	339.3	171.4	167.94	2.020	
10,800.0	6,651.8	10,779.9	6,581.5	88.3	88.4	77.69	77.69	4,502.1	1,222.9	339.3	167.7	171.64	1.977	
10,900.0	6,651.2	10,879.9	6,580.9	90.2	90.3	77.70	77.70	4,602.1	1,222.9	339.3	163.9	175.35	1.935	
11,000.0	6,650.6	10,979.9	6,580.4	92.0	92.1	77.70	77.70	4,702.1	1,222.9	339.3	160.2	179.06	1.895	
11,100.0	6,650.0	11,079.9	6,579.8	93.9	94.0	77.71	77.71	4,802.1	1,222.9	339.3	156.5	182.77	1.856	
11,200.0	6,649.4	11,179.9	6,579.3	95.8	95.8	77.72	77.72	4,902.1	1,222.9	339.3	152.8	186.48	1.819	
11,300.0	6,648.8	11,279.9	6,578.7	97.6	97.7	77.73	77.73	5,002.1	1,222.9	339.2	149.0	190.20	1.784	
11,400.0	6,648.2	11,379.9	6,578.1	99.5	99.5	77.74	77.74	5,102.1	1,222.9	339.2	145.3	193.92	1.749	
11,500.0	6,647.6	11,479.9	6,577.6	101.4	101.4	77.75	77.75	5,202.1	1,222.9	339.2	141.6	197.64	1.716	
11,600.0	6,647.0	11,579.9	6,577.0	103.3	103.3	77.76	77.76	5,302.1	1,222.9	339.2	137.9	201.36	1.685	
11,700.0	6,646.4	11,679.9	6,576.5	105.2	105.1	77.76	77.76	5,402.1	1,222.9	339.2	134.1	205.08	1.654	
11,800.0	6,645.7	11,779.9	6,575.9	107.0	107.0	77.77	77.77	5,502.1	1,222.9	339.2	130.4	208.81	1.624	
11,900.0	6,645.1	11,879.9	6,575.3	108.9	108.9	77.78	77.78	5,602.1	1,222.9	339.2	126.6	212.54	1.596	
12,000.0	6,644.5	11,979.9	6,574.8	110.8	110.7	77.79	77.79	5,702.1	1,222.9	339.2	122.9	216.27	1.568	
12,100.0	6,643.9	12,079.9	6,574.2	112.7	112.6	77.80	77.80	5,802.1	1,222.9	339.2	119.2	220.00	1.542	
12,200.0	6,643.3	12,179.9	6,573.7	114.6	114.5	77.81	77.81	5,902.1	1,222.9	339.1	115.4	223.73	1.516	
12,300.0	6,642.7	12,279.9	6,573.1	116.5	116.4	77.82	77.82	6,002.1	1,222.9	339.1	111.7	227.47	1.491 Level 3	
12,400.0	6,642.1	12,379.9	6,572.6	118.4	118.2	77.83	77.83	6,102.1	1,222.9	339.1	107.9	231.20	1.467 Level 3	
12,500.0	6,641.5	12,479.9	6,572.0	120.3	120.1	77.83	77.83	6,202.1	1,222.9	339.1	104.2	234.94	1.443 Level 3	
12,600.0	6,640.9	12,579.9	6,571.4	122.1	122.0	77.84	77.84	6,302.1	1,222.9	339.1	100.4	238.68	1.421 Level 3	
12,700.0	6,640.2	12,679.9	6,570.9	124.0	123.9	77.85	77.85	6,402.1	1,222.9	339.1	96.7	242.42	1.399 Level 3	
12,800.0	6,639.6	12,779.9	6,570.3	125.9	125.8	77.86	77.86	6,502.1	1,222.9	339.1	92.9	246.16	1.377 Level 3	
12,900.0	6,639.0	12,879.9	6,569.8	127.8	127.7	77.87	77.87	6,602.1	1,222.9	339.1	89.2	249.90	1.357 Level 3	
13,000.0	6,638.4	12,979.9	6,569.2	129.7	129.5	77.88	77.88	6,702.1	1,222.9	339.1	85.4	253.65	1.337 Level 3	
13,100.0	6,637.8	13,079.9	6,568.6	131.6	131.4	77.89	77.89	6,802.1	1,222.9	339.0	81.7	257.39	1.317 Level 3	
13,200.0	6,637.2	13,179.9	6,568.1	133.5	133.3	77.89	77.89	6,902.1	1,222.9	339.0	77.9	261.14	1.298 Level 3	
13,300.0	6,636.6	13,279.9	6,567.5	135.4	135.2	77.90	77.90	7,002.1	1,222.9	339.0	74.1	264.88	1.280 Level 3	
13,394.3	6,636.0	13,374.2	6,567.0	137.2	137.0	77.91	77.91	7,096.4	1,222.9	339.0	70.6	268.42	1.263 Level 3, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-323 - Wellbore #1 - Plan #2 (7-09-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWDD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.5	1.5	0.0	0.0	173.43	-677.6	78.0	682.1				
100.0	100.0	101.5	101.5	0.1	0.1	173.43	-677.6	78.0	682.1	681.9	0.23	2,989.854	
200.0	200.0	201.5	201.5	0.3	0.3	173.43	-677.6	78.0	682.1	681.4	0.68	1,006.535	
300.0	300.0	301.5	301.5	0.6	0.6	173.43	-677.6	78.0	682.1	681.0	1.13	605.125	
400.0	400.0	401.5	401.5	0.8	0.8	173.43	-677.6	78.0	682.1	680.5	1.58	432.602	
500.0	500.0	501.5	501.5	1.0	1.0	173.43	-677.6	78.0	682.1	680.1	2.03	336.628	
600.0	600.0	601.5	601.5	1.2	1.2	173.43	-677.6	78.0	682.1	679.6	2.48	275.506	
700.0	700.0	701.5	701.5	1.5	1.5	173.43	-677.6	78.0	682.1	679.2	2.93	233.170	
800.0	800.0	801.5	801.5	1.7	1.7	173.43	-677.6	78.0	682.1	678.7	3.37	202.111	
900.0	900.0	901.5	901.5	1.9	1.9	92.50	-677.6	78.0	682.2	678.4	3.81	178.869	
1,000.0	999.8	1,001.6	1,001.6	2.1	2.1	92.94	-677.6	78.0	682.4	678.2	4.25	160.583	
1,100.0	1,099.5	1,119.9	1,119.9	2.3	2.4	93.66	-675.8	79.7	681.5	676.8	4.74	143.841	
1,200.0	1,198.7	1,238.3	1,238.0	2.6	2.7	94.48	-670.4	84.8	678.2	672.9	5.25	129.101	
1,300.0	1,297.5	1,356.7	1,355.7	2.9	2.9	95.40	-661.4	93.2	672.5	666.6	5.81	115.681	
1,400.0	1,395.6	1,474.8	1,472.7	3.2	3.3	96.43	-648.9	104.8	664.4	657.9	6.44	103.231	
1,500.0	1,493.4	1,583.9	1,579.9	3.6	3.6	97.22	-634.6	118.3	654.1	647.0	7.09	92.232	
1,600.0	1,591.1	1,683.0	1,677.3	3.9	3.9	97.90	-621.1	130.9	643.5	635.8	7.75	82.997	
1,700.0	1,688.9	1,782.2	1,774.7	4.4	4.2	98.61	-607.6	143.5	633.1	624.6	8.44	75.037	
1,800.0	1,786.7	1,881.3	1,872.1	4.8	4.6	99.34	-594.1	156.1	622.7	613.6	9.13	68.170	
1,900.0	1,884.4	1,980.4	1,969.5	5.2	4.9	100.10	-580.7	168.7	612.4	602.6	9.84	62.219	
2,000.0	1,982.2	2,079.6	2,066.9	5.6	5.3	100.88	-567.2	181.3	602.3	591.7	10.56	57.043	
2,100.0	2,079.9	2,178.7	2,164.3	6.0	5.7	101.69	-553.7	194.0	592.2	581.0	11.28	52.517	
2,200.0	2,177.7	2,277.9	2,261.7	6.5	6.0	102.52	-540.2	206.6	582.3	570.3	12.00	48.537	
2,300.0	2,275.5	2,377.0	2,359.2	6.9	6.4	103.39	-526.7	219.2	572.5	559.8	12.72	45.021	
2,400.0	2,373.2	2,476.1	2,456.6	7.4	6.8	104.28	-513.2	231.8	562.9	549.5	13.43	41.899	
2,500.0	2,471.0	2,575.3	2,554.0	7.8	7.2	105.21	-499.7	244.4	553.4	539.2	14.15	39.114	
2,600.0	2,568.7	2,674.4	2,651.4	8.3	7.6	106.16	-486.3	257.0	544.0	529.2	14.86	36.619	
2,700.0	2,666.5	2,773.5	2,748.8	8.7	8.0	107.15	-472.8	269.6	534.8	519.2	15.56	34.376	
2,800.0	2,764.2	2,872.7	2,846.2	9.2	8.4	108.17	-459.3	282.2	525.8	509.5	16.25	32.352	
2,900.0	2,862.0	2,971.8	2,943.6	9.6	8.8	109.23	-445.8	294.9	516.9	500.0	16.94	30.520	
3,000.0	2,959.8	3,071.0	3,041.0	10.1	9.2	110.33	-432.3	307.5	508.2	490.6	17.61	28.857	
3,100.0	3,057.5	3,170.1	3,138.4	10.5	9.6	111.46	-418.8	320.1	499.7	481.4	18.27	27.344	
3,200.0	3,155.3	3,269.2	3,235.8	11.0	10.0	112.63	-405.4	332.7	491.4	472.5	18.93	25.965	
3,300.0	3,253.0	3,368.4	3,333.2	11.4	10.4	113.84	-391.9	345.3	483.3	463.8	19.56	24.704	
3,400.0	3,350.8	3,467.5	3,430.6	11.9	10.8	115.09	-378.4	357.9	475.5	455.3	20.19	23.551	
3,500.0	3,448.6	3,566.7	3,528.0	12.4	11.2	116.38	-364.9	370.5	467.9	447.1	20.80	22.495	
3,600.0	3,546.3	3,665.8	3,625.4	12.8	11.6	117.71	-351.4	383.2	460.5	439.1	21.39	21.526	
3,700.0	3,644.1	3,764.9	3,722.8	13.3	12.0	119.08	-337.9	395.8	453.4	431.4	21.97	20.637	
3,800.0	3,741.8	3,864.1	3,820.2	13.7	12.4	120.50	-324.4	408.4	446.5	424.0	22.53	19.820	
3,900.0	3,839.6	3,963.2	3,917.6	14.2	12.8	121.96	-311.0	421.0	440.0	416.9	23.07	19.070	
4,000.0	3,937.4	4,062.3	4,015.0	14.6	13.2	123.46	-297.5	433.6	433.7	410.1	23.59	18.382	
4,100.0	4,035.1	4,161.5	4,112.4	15.1	13.6	125.00	-284.0	446.2	427.7	403.6	24.10	17.749	
4,200.0	4,132.9	4,260.6	4,209.8	15.6	14.0	126.59	-270.5	458.8	422.1	397.5	24.59	17.169	
4,300.0	4,230.6	4,359.8	4,307.2	16.0	14.4	128.21	-257.0	471.5	416.8	391.8	25.05	16.636	
4,400.0	4,328.4	4,458.9	4,404.6	16.5	14.8	129.88	-243.5	484.1	411.9	386.4	25.51	16.148	
4,500.0	4,426.2	4,558.0	4,502.0	16.9	15.2	131.59	-230.1	496.7	407.3	381.3	25.94	15.701	
4,600.0	4,523.9	4,657.2	4,599.4	17.4	15.6	133.33	-216.6	509.3	403.1	376.7	26.36	15.292	
4,700.0	4,621.7	4,756.3	4,696.8	17.9	16.0	135.10	-203.1	521.9	399.2	372.5	26.76	14.918	
4,800.0	4,719.4	4,855.5	4,794.3	18.3	16.4	136.91	-189.6	534.5	395.8	368.6	27.15	14.576	
4,900.0	4,817.2	4,954.6	4,891.7	18.8	16.8	138.75	-176.1	547.1	392.8	365.2	27.53	14.265	
5,000.0	4,914.9	5,053.7	4,989.1	19.2	17.2	140.61	-162.6	559.8	390.2	362.3	27.91	13.980	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-323 - Wellbore #1 - Plan #2 (7-09-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,100.0	5,012.7	5,152.9	5,086.5	19.7	17.6	142.49	-149.1	572.4	387.9	359.7	28.27	13.722		
5,200.0	5,110.9	5,252.1	5,184.0	20.0	18.0	144.16	-135.6	585.0	384.3	355.7	28.57	13.451		
5,300.0	5,209.7	5,349.7	5,279.8	20.3	18.4	145.51	-122.4	597.4	378.2	349.3	28.87	13.100		
5,400.0	5,309.0	5,437.6	5,366.6	20.6	18.7	146.48	-111.7	607.4	371.4	342.2	29.12	12.751		
5,500.0	5,408.7	5,526.0	5,454.1	20.8	19.0	147.20	-102.9	615.6	364.8	335.5	29.35	12.429		
5,600.0	5,508.5	5,614.5	5,542.1	20.9	19.2	147.65	-96.1	622.0	358.4	328.9	29.56	12.125		
5,700.0	5,608.5	5,700.0	5,627.4	21.0	19.3	-131.13	-91.4	626.4	352.3	322.5	29.77	11.834		
5,800.0	5,708.5	5,792.5	5,719.7	21.2	19.5	-131.06	-88.4	629.2	347.9	317.8	30.08	11.567		
5,900.0	5,808.5	5,882.8	5,810.0	21.3	19.6	-131.04	-87.6	629.9	346.7	316.3	30.39	11.409		
6,000.0	5,908.5	5,982.8	5,910.0	21.4	19.8	-131.04	-87.6	629.9	346.7	315.9	30.74	11.277	CC, ES, SF	
6,100.0	6,008.2	6,066.7	5,993.9	21.6	19.9	-131.54	-89.3	629.9	352.4	321.2	31.23	11.285		
6,200.0	6,106.3	6,138.4	6,065.1	21.7	19.9	-132.94	-97.5	629.9	373.4	342.0	31.44	11.877		
6,300.0	6,201.0	6,200.0	6,125.5	21.9	19.8	-134.27	-109.8	629.9	410.9	379.6	31.30	13.125		
6,400.0	6,290.7	6,250.0	6,173.6	22.2	19.8	-134.54	-123.3	629.9	464.4	433.6	30.80	15.078		
6,500.0	6,373.9	6,300.0	6,220.7	22.5	19.7	-134.09	-140.0	629.9	532.3	502.1	30.14	17.662		
6,600.0	6,449.1	6,318.1	6,237.5	22.8	19.7	-128.84	-146.8	629.9	611.1	581.3	29.82	20.496		
6,700.0	6,515.1	6,335.4	6,253.4	23.2	19.7	-120.22	-153.6	629.9	698.2	667.4	30.79	22.675		
6,800.0	6,570.8	6,350.0	6,266.7	23.8	19.6	-106.39	-159.7	629.9	790.5	757.0	33.53	23.575		
6,900.0	6,615.1	6,350.0	6,266.7	24.4	19.6	-84.07	-159.7	629.9	885.3	849.2	36.18	24.471		
7,000.0	6,647.4	6,350.0	6,266.7	25.2	19.6	-61.19	-159.7	629.9	980.9	946.8	34.00	28.847		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-403 - Wellbore #1 - Plan #2 (7-09-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	2.5	2.5	0.0	0.0	173.92	173.92	-706.8	75.2	710.8				
100.0	100.0	102.5	102.5	0.1	0.1	173.92	173.92	-706.8	75.2	710.8	710.5	0.23	3,085.054	
200.0	200.0	202.5	202.5	0.3	0.3	173.92	173.92	-706.8	75.2	710.8	710.1	0.68	1,045.349	
300.0	300.0	302.5	302.5	0.6	0.6	173.92	173.92	-706.8	75.2	710.8	709.6	1.13	629.290	
400.0	400.0	402.5	402.5	0.8	0.8	173.92	173.92	-706.8	75.2	710.8	709.2	1.58	450.132	
500.0	500.0	502.5	502.5	1.0	1.0	173.92	173.92	-706.8	75.2	710.8	708.7	2.03	350.380	
600.0	600.0	602.5	602.5	1.2	1.2	173.92	173.92	-706.8	75.2	710.8	708.3	2.48	286.819	
700.0	700.0	702.5	702.5	1.5	1.5	173.92	173.92	-706.8	75.2	710.8	707.8	2.93	242.778	
800.0	800.0	802.5	802.5	1.7	1.7	173.92	173.92	-706.8	75.2	710.8	707.4	3.38	210.461	
900.0	900.0	902.5	902.5	1.9	1.9	92.99	92.99	-706.8	75.2	710.8	707.0	3.82	186.276	
1,000.0	999.8	1,002.3	1,002.3	2.1	2.1	93.40	93.40	-706.8	75.2	711.1	706.9	4.25	167.271	
1,100.0	1,099.5	1,102.0	1,102.0	2.3	2.4	94.09	94.09	-706.8	75.2	711.7	707.0	4.70	151.380	
1,200.0	1,198.7	1,201.2	1,201.2	2.6	2.6	95.04	95.04	-706.8	75.2	712.7	707.5	5.17	137.737	
1,300.0	1,297.5	1,300.0	1,300.0	2.9	2.8	96.24	96.24	-706.8	75.2	714.2	708.6	5.68	125.771	
1,400.0	1,395.6	1,398.1	1,398.1	3.2	3.0	97.69	97.69	-706.8	75.2	716.6	710.4	6.23	115.092	
1,500.0	1,493.4	1,495.9	1,495.9	3.6	3.2	99.31	99.31	-706.8	75.2	719.8	713.0	6.81	105.748	
1,600.0	1,591.1	1,593.6	1,593.6	3.9	3.5	100.91	100.91	-706.8	75.2	723.6	716.1	7.41	97.690	
1,700.0	1,688.9	1,691.4	1,691.4	4.4	3.7	102.51	102.51	-706.8	75.2	727.9	719.9	8.02	90.782	
1,800.0	1,786.7	1,789.2	1,789.2	4.8	3.9	104.08	104.08	-706.8	75.2	732.9	724.2	8.64	84.849	
1,900.0	1,884.4	1,886.9	1,886.9	5.2	4.1	105.63	105.63	-706.8	75.2	738.4	729.1	9.26	79.738	
2,000.0	1,982.2	1,984.7	1,984.7	5.6	4.3	107.16	107.16	-706.8	75.2	744.4	734.6	9.88	75.316	
2,100.0	2,079.9	2,110.8	2,110.8	6.0	4.6	109.06	109.06	-704.8	76.0	749.5	738.9	10.56	70.944	
2,200.0	2,177.7	2,243.0	2,242.7	6.5	4.9	110.94	110.94	-697.2	79.1	750.7	739.4	11.25	66.702	
2,300.0	2,275.5	2,375.5	2,374.4	6.9	5.2	112.75	112.75	-684.0	84.5	747.8	735.9	11.94	62.615	
2,400.0	2,373.2	2,507.7	2,505.1	7.4	5.6	114.50	114.50	-665.2	92.2	740.9	728.3	12.63	58.665	
2,500.0	2,471.0	2,615.9	2,611.4	7.8	5.8	115.94	115.94	-646.4	99.9	731.0	717.7	13.27	55.103	
2,600.0	2,568.7	2,714.0	2,707.6	8.3	6.1	117.27	117.27	-629.2	106.9	721.3	707.4	13.87	51.989	
2,700.0	2,666.5	2,812.0	2,803.9	8.7	6.4	118.64	118.64	-612.0	114.0	712.0	697.5	14.48	49.178	
2,800.0	2,764.2	2,910.1	2,900.1	9.2	6.7	120.05	120.05	-594.7	121.0	703.1	688.0	15.07	46.641	
2,900.0	2,862.0	3,008.1	2,996.4	9.6	7.0	121.48	121.48	-577.5	128.1	694.7	679.0	15.66	44.345	
3,000.0	2,959.8	3,106.2	3,092.7	10.1	7.4	122.96	122.96	-560.3	135.1	686.7	670.4	16.25	42.264	
3,100.0	3,057.5	3,204.2	3,188.9	10.5	7.7	124.46	124.46	-543.0	142.2	679.2	662.3	16.82	40.376	
3,200.0	3,155.3	3,302.3	3,285.2	11.0	8.0	125.99	125.99	-525.8	149.2	672.1	654.8	17.39	38.660	
3,300.0	3,253.0	3,400.3	3,381.5	11.4	8.4	127.56	127.56	-508.6	156.3	665.6	647.7	17.94	37.099	
3,400.0	3,350.8	3,498.4	3,477.7	11.9	8.7	129.15	129.15	-491.3	163.3	659.7	641.2	18.49	35.677	
3,500.0	3,448.6	3,596.4	3,574.0	12.4	9.1	130.77	130.77	-474.1	170.4	654.2	635.2	19.03	34.382	
3,600.0	3,546.3	3,694.5	3,670.3	12.8	9.5	132.42	132.42	-456.8	177.4	649.3	629.7	19.56	33.200	
3,700.0	3,644.1	3,792.5	3,766.5	13.3	9.8	134.08	134.08	-439.6	184.4	645.0	624.9	20.08	32.122	
3,800.0	3,741.8	3,890.6	3,862.8	13.7	10.2	135.77	135.77	-422.4	191.5	641.2	620.6	20.59	31.138	
3,900.0	3,839.6	3,988.6	3,959.1	14.2	10.6	137.48	137.48	-405.1	198.5	638.0	616.9	21.10	30.239	
4,000.0	3,937.4	4,086.7	4,055.3	14.6	10.9	139.20	139.20	-387.9	205.6	635.4	613.8	21.60	29.418	
4,100.0	4,035.1	4,184.7	4,151.6	15.1	11.3	140.93	140.93	-370.7	212.6	633.4	611.3	22.10	28.668	
4,200.0	4,132.9	4,282.8	4,247.8	15.6	11.7	142.67	142.67	-353.4	219.7	632.1	609.5	22.59	27.983	
4,300.0	4,230.6	4,380.8	4,344.1	16.0	12.1	144.42	144.42	-336.2	226.7	631.3	608.2	23.08	27.357	
4,376.4	4,305.3	4,455.7	4,417.7	16.4	12.4	145.76	145.76	-323.0	232.1	631.1	607.7	23.45	26.915	
4,400.0	4,328.4	4,478.8	4,440.4	16.5	12.5	146.17	146.17	-319.0	233.8	631.1	607.6	23.56	26.784	
4,500.0	4,426.2	4,576.9	4,536.6	16.9	12.8	147.92	147.92	-301.7	240.8	631.6	607.5	24.05	26.261	
4,600.0	4,523.9	4,674.9	4,632.9	17.4	13.2	149.66	149.66	-284.5	247.9	632.6	608.1	24.54	25.782	
4,700.0	4,621.7	4,773.0	4,729.2	17.9	13.6	151.40	151.40	-267.2	254.9	634.3	609.3	25.03	25.343	
4,800.0	4,719.4	4,871.0	4,825.4	18.3	14.0	153.13	153.13	-250.0	262.0	636.6	611.1	25.52	24.942	
4,900.0	4,817.2	4,969.1	4,921.7	18.8	14.4	154.84	154.84	-232.8	269.0	639.4	613.4	26.02	24.574	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-403 - Wellbore #1 - Plan #2 (7-09-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,914.9	5,067.1	5,018.0	19.2	14.8	156.54		-215.5	276.0	642.9	616.4	26.53	24.236	
5,100.0	5,012.7	5,165.2	5,114.2	19.7	15.2	158.22		-198.3	283.1	646.9	619.9	27.04	23.920	
5,200.0	5,110.9	5,263.5	5,210.7	20.0	15.6	159.83		-181.0	290.2	649.3	621.8	27.55	23.573	
5,300.0	5,209.7	5,362.0	5,307.4	20.3	16.0	161.32		-163.7	297.2	649.0	620.9	28.03	23.151	
5,400.0	5,309.0	5,453.5	5,397.3	20.6	16.3	162.58		-147.9	303.7	646.0	617.6	28.46	22.696	
5,500.0	5,408.7	5,538.2	5,480.9	20.8	16.6	163.55		-135.3	308.9	642.0	613.2	28.82	22.278	
5,600.0	5,508.5	5,623.5	5,565.5	20.9	16.8	164.31		-124.9	313.1	637.0	607.9	29.11	21.881	
5,700.0	5,608.5	5,709.2	5,650.8	21.0	17.0	-114.07		-116.8	316.4	631.0	601.6	29.38	21.480	
5,800.0	5,708.5	5,800.0	5,741.3	21.2	17.2	-113.66		-110.8	318.9	625.8	596.1	29.72	21.057	
5,900.0	5,808.5	5,881.8	5,823.0	21.3	17.3	-113.44		-107.7	320.1	622.8	592.8	30.04	20.735	
6,000.0	5,908.5	5,969.8	5,911.0	21.4	17.4	-113.38		-106.8	320.5	621.9	591.6	30.35	20.489 CC, ES	
6,100.0	6,008.2	6,069.5	6,010.7	21.6	17.6	-113.73		-106.8	320.5	624.5	593.7	30.80	20.277 SF	
6,200.0	6,106.3	6,141.7	6,082.8	21.7	17.7	-114.47		-110.1	320.5	634.6	603.5	31.05	20.438	
6,300.0	6,201.0	6,200.0	6,140.6	21.9	17.7	-115.12		-117.8	320.5	655.3	624.1	31.15	21.039	
6,400.0	6,290.7	6,259.6	6,198.9	22.2	17.6	-115.75		-130.2	320.5	687.8	656.7	31.15	22.081	
6,500.0	6,373.9	6,300.0	6,237.8	22.5	17.6	-114.81		-141.2	320.5	732.9	701.7	31.24	23.464	
6,600.0	6,449.1	6,331.9	6,268.0	22.8	17.6	-112.34		-151.3	320.5	789.9	758.2	31.64	24.962	
6,700.0	6,515.1	6,350.0	6,285.0	23.2	17.5	-107.41		-157.6	320.5	857.0	824.3	32.69	26.216	
6,800.0	6,570.8	6,363.2	6,297.3	23.8	17.5	-100.31		-162.4	320.5	932.1	897.8	34.31	27.167	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 270-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 270-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design		Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 270-243 - Wellbore #1 - Plan #2 (7-08-14)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	1.5	1.5	0.0	0.0	173.10	-644.8	78.0	649.5						
100.0	100.0	101.5	101.5	0.1	0.1	173.10	-644.8	78.0	649.5	649.3	0.23	2,847.089			
200.0	200.0	201.5	201.5	0.3	0.3	173.10	-644.8	78.0	649.5	648.9	0.68	958.473			
300.0	300.0	301.5	301.5	0.6	0.6	173.10	-644.8	78.0	649.5	648.4	1.13	576.230			
400.0	400.0	401.7	401.7	0.8	0.8	173.10	-644.8	78.0	649.5	648.0	1.58	411.876			
500.0	500.0	512.2	512.1	1.0	1.0	172.93	-643.7	79.9	648.7	646.6	2.04	317.307			
600.0	600.0	622.3	622.1	1.2	1.3	172.41	-640.3	85.3	646.3	643.8	2.52	256.932			
700.0	700.0	731.8	731.1	1.5	1.6	171.55	-634.7	94.3	642.4	639.4	3.00	214.385			
800.0	800.0	840.4	838.6	1.7	1.9	170.34	-627.0	106.7	637.1	633.6	3.49	182.607			
900.0	900.0	948.0	944.6	1.9	2.2	88.01	-617.3	122.4	630.7	626.6	4.11	153.576			
1,000.0	999.8	1,053.9	1,048.3	2.1	2.6	86.76	-605.7	141.2	623.2	618.5	4.71	132.291			
1,100.0	1,099.5	1,152.9	1,144.7	2.3	3.0	85.77	-594.1	159.9	615.3	609.9	5.34	115.154			
1,200.0	1,198.7	1,252.1	1,241.5	2.6	3.5	85.08	-582.4	178.6	607.3	601.3	6.01	100.989			
1,300.0	1,297.5	1,351.6	1,338.5	2.9	3.9	84.70	-570.8	197.5	599.1	592.4	6.73	89.059			
1,400.0	1,395.6	1,451.2	1,435.6	3.2	4.4	84.64	-559.1	216.3	590.6	583.1	7.49	78.844			
1,500.0	1,493.4	1,550.8	1,532.7	3.6	4.8	84.62	-547.4	235.2	582.0	573.7	8.30	70.151			
1,600.0	1,591.1	1,650.5	1,629.8	3.9	5.3	84.59	-535.7	254.0	573.3	564.2	9.13	62.813			
1,700.0	1,688.9	1,750.1	1,727.0	4.4	5.7	84.55	-524.0	272.9	564.7	554.7	9.98	56.597			
1,800.0	1,786.7	1,849.7	1,824.1	4.8	6.2	84.52	-512.3	291.7	556.0	545.2	10.84	51.292			
1,900.0	1,884.4	1,949.3	1,921.2	5.2	6.7	84.48	-500.6	310.5	547.3	535.6	11.71	46.728			
2,000.0	1,982.2	2,049.0	2,018.3	5.6	7.1	84.44	-489.0	329.4	538.7	526.1	12.59	42.770			
2,100.0	2,079.9	2,148.6	2,115.5	6.0	7.6	84.40	-477.3	348.2	530.0	516.5	13.48	39.311			
2,200.0	2,177.7	2,248.2	2,212.6	6.5	8.1	84.36	-465.6	367.1	521.4	507.0	14.38	36.266			
2,300.0	2,275.5	2,347.8	2,309.7	6.9	8.6	84.32	-453.9	385.9	512.7	497.4	15.27	33.568			
2,400.0	2,373.2	2,447.5	2,406.8	7.4	9.0	84.28	-442.2	404.8	504.1	487.9	16.18	31.162			
2,500.0	2,471.0	2,547.1	2,504.0	7.8	9.5	84.23	-430.5	423.6	495.4	478.3	17.08	29.005			
2,600.0	2,568.7	2,646.7	2,601.1	8.3	10.0	84.18	-418.8	442.5	486.7	468.8	17.99	27.062			
2,700.0	2,666.5	2,746.3	2,698.2	8.7	10.5	84.14	-407.2	461.3	478.1	459.2	18.90	25.302			
2,800.0	2,764.2	2,845.9	2,795.3	9.2	10.9	84.09	-395.5	480.2	469.4	449.6	19.81	23.701			
2,900.0	2,862.0	2,945.6	2,892.5	9.6	11.4	84.03	-383.8	499.0	460.8	440.1	20.72	22.240			
3,000.0	2,959.8	3,045.2	2,989.6	10.1	11.9	83.98	-372.1	517.8	452.1	430.5	21.63	20.900			
3,100.0	3,057.5	3,144.8	3,086.7	10.5	12.4	83.92	-360.4	536.7	443.5	420.9	22.55	19.668			
3,200.0	3,155.3	3,244.4	3,183.8	11.0	12.8	83.87	-348.7	555.5	434.8	411.3	23.46	18.531			
3,300.0	3,253.0	3,344.1	3,281.0	11.4	13.3	83.81	-337.0	574.4	426.2	401.8	24.38	17.479			
3,400.0	3,350.8	3,443.7	3,378.1	11.9	13.8	83.74	-325.4	593.2	417.5	392.2	25.30	16.503			
3,500.0	3,448.6	3,543.3	3,475.2	12.4	14.3	83.68	-313.7	612.1	408.8	382.6	26.22	15.594			
3,600.0	3,546.3	3,642.9	3,572.3	12.8	14.7	83.61	-302.0	630.9	400.2	373.1	27.14	14.747			
3,700.0	3,644.1	3,742.6	3,669.5	13.3	15.2	83.54	-290.3	649.8	391.5	363.5	28.06	13.954			
3,800.0	3,741.8	3,842.2	3,766.6	13.7	15.7	83.46	-278.6	668.6	382.9	353.9	28.98	13.212			
3,900.0	3,839.6	3,941.8	3,863.7	14.2	16.2	83.38	-266.9	687.5	374.2	344.3	29.90	12.516			
4,000.0	3,937.4	4,041.4	3,960.8	14.6	16.6	83.30	-255.2	706.3	365.6	334.8	30.82	11.860			
4,100.0	4,035.1	4,141.1	4,057.9	15.1	17.1	83.21	-243.5	725.2	356.9	325.2	31.75	11.243			
4,200.0	4,132.9	4,240.7	4,155.1	15.6	17.6	83.12	-231.9	744.0	348.3	315.6	32.67	10.661			
4,300.0	4,230.6	4,340.3	4,252.2	16.0	18.1	83.03	-220.2	762.8	339.6	306.0	33.59	10.110			
4,400.0	4,328.4	4,439.9	4,349.3	16.5	18.5	82.93	-208.5	781.7	331.0	296.5	34.52	9.589			
4,500.0	4,426.2	4,539.6	4,446.4	16.9	19.0	82.82	-196.8	800.5	322.4	286.9	35.44	9.095			
4,600.0	4,523.9	4,639.2	4,543.6	17.4	19.5	82.71	-185.1	819.4	313.7	277.3	36.37	8.626			
4,700.0	4,621.7	4,738.8	4,640.7	17.9	20.0	82.59	-173.4	838.2	305.1	267.8	37.30	8.180			
4,800.0	4,719.4	4,838.4	4,737.8	18.3	20.5	82.47	-161.7	857.1	296.4	258.2	38.22	7.755			
4,900.0	4,817.2	4,938.0	4,834.9	18.8	20.9	82.34	-150.1	875.9	287.8	248.6	39.15	7.351			
5,000.0	4,914.9	5,037.7	4,932.1	19.2	21.4	82.20	-138.4	894.8	279.1	239.1	40.07	6.966			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27O-243 - Wellbore #1 - Plan #2 (7-08-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,012.7	5,137.3	5,029.2	19.7	21.9	82.01		-126.7	913.6	270.5	229.5	41.00	6.599	
5,200.0	5,110.9	5,235.5	5,125.1	20.0	22.3	81.35		-115.5	931.6	262.4	220.7	41.74	6.287	
5,300.0	5,209.7	5,333.1	5,221.1	20.3	22.6	80.62		-106.1	946.9	255.6	213.2	42.35	6.035	
5,400.0	5,309.0	5,431.0	5,317.8	20.6	22.9	79.86		-98.3	959.4	250.2	207.3	42.88	5.834	
5,500.0	5,408.7	5,529.1	5,415.2	20.8	23.1	79.07		-92.3	969.1	246.1	202.8	43.32	5.681	
5,600.0	5,508.5	5,627.3	5,513.1	20.9	23.3	78.28		-88.0	975.9	243.5	199.8	43.68	5.575	
5,700.0	5,608.5	5,725.7	5,611.4	21.0	23.5	158.56		-85.5	980.0	242.3	198.4	43.96	5.513	
5,800.0	5,708.5	5,824.4	5,710.0	21.2	23.6	158.24		-84.8	981.1	242.1	197.9	44.20	5.477	
5,900.0	5,808.5	5,924.4	5,810.0	21.3	23.7	158.24		-84.8	981.1	242.1	197.6	44.44	5.448	
5,938.8	5,847.3	5,963.2	5,848.8	21.3	23.7	158.24		-84.8	981.1	242.1	197.5	44.53	5.436 CC, ES, SF	
6,000.0	5,908.5	6,014.0	5,899.6	21.4	23.8	158.32		-85.6	981.1	243.0	198.4	44.66	5.442	
6,100.0	6,008.2	6,089.6	5,974.8	21.6	23.8	158.92		-92.8	981.1	257.8	213.3	44.58	5.783	
6,200.0	6,106.3	6,158.7	6,042.7	21.7	23.8	159.94		-105.9	981.1	293.3	249.4	43.91	6.681	
6,300.0	6,201.0	6,217.5	6,099.3	21.9	23.7	160.69		-121.8	981.1	347.5	304.8	42.64	8.150	
6,400.0	6,290.7	6,264.4	6,143.4	22.2	23.7	160.59		-137.6	981.1	417.1	376.3	40.83	10.217	
6,500.0	6,373.9	6,300.0	6,176.3	22.5	23.6	159.13		-151.3	981.1	498.7	460.1	38.60	12.922	
6,600.0	6,449.1	6,323.0	6,197.2	22.8	23.6	154.98		-161.1	981.1	588.8	552.6	36.21	16.261	
6,700.0	6,515.1	6,337.2	6,209.9	23.2	23.6	144.60		-167.4	981.1	684.4	650.0	34.43	19.879	
6,800.0	6,570.8	6,350.0	6,221.2	23.8	23.6	116.31		-173.2	981.1	782.9	747.6	35.32	22.166	
6,900.0	6,615.1	6,350.0	6,221.2	24.4	23.6	54.54		-173.2	981.1	882.3	850.8	31.46	28.042	
7,000.0	6,647.4	6,350.0	6,221.2	25.2	23.6	25.98		-173.2	981.1	980.9	956.6	24.32	40.333	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 270-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 270-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design		Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 270-303 - Wellbore #1 - Plan #2 (7-08-14)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	1.5	1.5	0.0	0.0	172.78	-615.7	78.0	620.6						
100.0	100.0	101.5	101.5	0.1	0.1	172.78	-615.7	78.0	620.6	620.4	0.23	2,720.306			
200.0	200.0	201.6	201.6	0.3	0.3	172.78	-615.7	78.0	620.6	619.9	0.68	915.607			
300.0	300.0	307.9	307.9	0.6	0.6	172.60	-614.9	79.9	620.1	618.9	1.14	545.420			
400.0	400.0	413.9	413.7	0.8	0.8	172.07	-612.5	85.4	618.6	617.0	1.60	385.610			
500.0	500.0	519.4	518.7	1.0	1.1	171.19	-608.7	94.4	616.2	614.1	2.08	296.168			
600.0	600.0	624.0	622.4	1.2	1.4	169.96	-603.3	106.8	613.0	610.5	2.57	238.980			
700.0	700.0	727.4	724.4	1.5	1.8	168.40	-596.5	122.5	609.4	606.4	3.06	199.316			
800.0	800.0	829.5	824.4	1.7	2.2	166.50	-588.5	141.3	605.6	602.1	3.56	170.333			
900.0	900.0	930.4	922.5	1.9	2.6	83.44	-579.1	163.1	601.8	597.3	4.52	133.131			
1,000.0	999.8	1,029.3	1,017.9	2.1	3.1	81.51	-568.7	187.1	597.9	592.6	5.24	114.153			
1,100.0	1,099.5	1,127.6	1,112.6	2.3	3.7	79.85	-558.3	211.3	594.1	588.1	5.99	99.234			
1,200.0	1,198.7	1,226.4	1,207.7	2.6	4.2	78.49	-547.9	235.7	590.2	583.4	6.77	87.186			
1,300.0	1,297.5	1,325.6	1,303.3	2.9	4.7	77.43	-537.4	260.1	585.8	578.2	7.59	77.201			
1,400.0	1,395.6	1,425.1	1,399.2	3.2	5.3	76.70	-526.8	284.6	580.9	572.5	8.45	68.711			
1,500.0	1,493.4	1,524.7	1,495.2	3.6	5.8	76.06	-516.2	309.2	575.7	566.3	9.36	61.509			
1,600.0	1,591.1	1,624.4	1,591.2	3.9	6.4	75.41	-505.7	333.7	570.5	560.2	10.29	55.465			
1,700.0	1,688.9	1,724.0	1,687.2	4.4	6.9	74.74	-495.1	358.3	565.4	554.1	11.23	50.365			
1,800.0	1,786.7	1,823.7	1,783.2	4.8	7.5	74.05	-484.6	382.8	560.3	548.1	12.17	46.025			
1,900.0	1,884.4	1,923.3	1,879.2	5.2	8.1	73.36	-474.0	407.4	555.4	542.2	13.13	42.300			
2,000.0	1,982.2	2,023.0	1,975.2	5.6	8.6	72.65	-463.4	431.9	550.5	536.4	14.09	39.077			
2,100.0	2,079.9	2,122.6	2,071.2	6.0	9.2	71.93	-452.9	456.5	545.7	530.7	15.05	36.267			
2,200.0	2,177.7	2,222.3	2,167.1	6.5	9.7	71.20	-442.3	481.0	541.0	525.0	16.01	33.800			
2,300.0	2,275.5	2,321.9	2,263.1	6.9	10.3	70.45	-431.7	505.6	536.4	519.4	16.96	31.620			
2,400.0	2,373.2	2,421.6	2,359.1	7.4	10.9	69.70	-421.2	530.1	531.9	514.0	17.92	29.683			
2,500.0	2,471.0	2,521.2	2,455.1	7.8	11.4	68.93	-410.6	554.7	527.5	508.6	18.87	27.953			
2,600.0	2,568.7	2,620.9	2,551.1	8.3	12.0	68.14	-400.1	579.2	523.1	503.3	19.82	26.400			
2,700.0	2,666.5	2,720.5	2,647.1	8.7	12.6	67.35	-389.5	603.8	518.9	498.2	20.76	25.001			
2,800.0	2,764.2	2,820.1	2,743.1	9.2	13.1	66.54	-378.9	628.3	514.8	493.1	21.69	23.735			
2,900.0	2,862.0	2,919.8	2,839.1	9.6	13.7	65.72	-368.4	652.9	510.8	488.2	22.62	22.585			
3,000.0	2,959.8	3,019.4	2,935.1	10.1	14.2	64.88	-357.8	677.4	506.9	483.3	23.53	21.538			
3,100.0	3,057.5	3,119.1	3,031.1	10.5	14.8	64.04	-347.3	702.0	503.1	478.6	24.44	20.582			
3,200.0	3,155.3	3,218.7	3,127.1	11.0	15.4	63.18	-336.7	726.5	499.4	474.0	25.34	19.706			
3,300.0	3,253.0	3,318.4	3,223.1	11.4	15.9	62.30	-326.1	751.1	495.8	469.6	26.23	18.903			
3,400.0	3,350.8	3,418.0	3,319.1	11.9	16.5	61.42	-315.6	775.6	492.3	465.2	27.11	18.164			
3,500.0	3,448.6	3,517.7	3,415.1	12.4	17.1	60.52	-305.0	800.2	489.0	461.0	27.97	17.483			
3,600.0	3,546.3	3,617.3	3,511.1	12.8	17.6	59.61	-294.4	824.7	485.8	457.0	28.82	16.854			
3,700.0	3,644.1	3,717.0	3,607.1	13.3	18.2	58.69	-283.9	849.3	482.7	453.0	29.66	16.274			
3,800.0	3,741.8	3,816.6	3,703.1	13.7	18.8	57.76	-273.3	873.8	479.7	449.2	30.48	15.737			
3,900.0	3,839.6	3,916.3	3,799.1	14.2	19.3	56.82	-262.8	898.4	476.9	445.6	31.29	15.239			
4,000.0	3,937.4	4,015.9	3,895.1	14.6	19.9	55.86	-252.2	922.9	474.2	442.1	32.09	14.778			
4,100.0	4,035.1	4,115.6	3,991.1	15.1	20.5	54.90	-241.6	947.5	471.6	438.7	32.86	14.351			
4,200.0	4,132.9	4,215.2	4,087.1	15.6	21.0	53.92	-231.1	972.0	469.2	435.6	33.62	13.954			
4,300.0	4,230.6	4,314.9	4,183.1	16.0	21.6	52.94	-220.5	996.6	466.9	432.5	34.37	13.585			
4,400.0	4,328.4	4,414.5	4,279.1	16.5	22.1	51.94	-210.0	1,021.1	464.7	429.6	35.09	13.244			
4,500.0	4,426.2	4,514.2	4,375.1	16.9	22.7	50.94	-199.4	1,045.7	462.7	426.9	35.80	12.926			
4,600.0	4,523.9	4,613.8	4,471.1	17.4	23.3	49.93	-188.8	1,070.2	460.8	424.4	36.48	12.632			
4,700.0	4,621.7	4,713.4	4,567.1	17.9	23.8	48.91	-178.3	1,094.8	459.1	422.0	37.15	12.358			
4,800.0	4,719.4	4,813.1	4,663.1	18.3	24.4	47.88	-167.7	1,119.3	457.5	419.7	37.80	12.105			
4,900.0	4,817.2	4,912.7	4,759.1	18.8	25.0	46.85	-157.1	1,143.9	456.1	417.7	38.42	11.870			
5,000.0	4,914.9	5,012.4	4,855.0	19.2	25.5	45.81	-146.6	1,168.4	454.8	415.8	39.03	11.653			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27O-303 - Wellbore #1 - Plan #2 (7-08-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,012.7	5,112.0	4,951.0	19.7	26.1	44.76		-136.0	1,193.0	453.7	414.1	39.62	11.454	
5,124.3	5,036.5	5,136.3	4,974.4	19.8	26.2	44.48		-133.5	1,199.0	453.7	413.9	39.74	11.417	CC, ES
5,200.0	5,110.9	5,213.0	5,048.3	20.0	26.6	43.50		-125.3	1,217.8	454.4	414.4	40.05	11.346	
5,300.0	5,209.7	5,321.9	5,154.0	20.3	27.1	42.14		-114.8	1,242.2	456.5	416.2	40.31	11.325	SF
5,400.0	5,309.0	5,431.3	5,261.0	20.6	27.5	40.90		-105.9	1,263.0	459.3	418.8	40.51	11.340	
5,500.0	5,408.7	5,541.2	5,369.3	20.8	27.8	39.79		-98.6	1,280.1	462.8	422.1	40.64	11.387	
5,600.0	5,508.5	5,651.5	5,478.6	20.9	28.1	38.83		-92.8	1,293.4	466.8	426.0	40.72	11.463	
5,700.0	5,608.5	5,762.1	5,588.8	21.0	28.3	119.07		-88.8	1,302.9	471.3	430.5	40.75	11.563	
5,800.0	5,708.5	5,873.3	5,699.7	21.2	28.5	118.50		-86.4	1,308.4	474.6	433.7	40.89	11.608	
5,900.0	5,808.5	5,983.6	5,810.0	21.3	28.6	118.33		-85.7	1,310.0	475.6	434.5	41.11	11.567	
6,000.0	5,908.5	6,083.6	5,910.0	21.4	28.7	118.33		-85.7	1,310.0	475.6	434.2	41.38	11.494	
6,100.0	6,008.2	6,167.4	5,993.8	21.6	28.8	118.77		-87.5	1,310.0	479.8	438.3	41.50	11.561	
6,200.0	6,106.3	6,239.2	6,065.0	21.7	28.8	119.99		-95.7	1,310.0	495.4	453.8	41.57	11.915	
6,300.0	6,201.0	6,300.0	6,124.6	21.9	28.8	121.13		-107.9	1,310.0	524.1	482.8	41.32	12.683	
6,400.0	6,290.7	6,350.0	6,172.7	22.2	28.7	121.37		-121.5	1,310.0	566.9	526.3	40.57	13.972	
6,500.0	6,373.9	6,400.0	6,219.9	22.5	28.7	120.97		-138.1	1,310.0	623.5	584.0	39.51	15.781	
6,600.0	6,449.1	6,418.9	6,237.4	22.8	28.7	116.57		-145.2	1,310.0	691.9	653.9	38.04	18.190	
6,700.0	6,515.1	6,436.1	6,253.2	23.2	28.7	109.86		-152.1	1,310.0	769.8	732.8	36.97	20.821	
6,800.0	6,570.8	6,450.0	6,265.8	23.8	28.6	100.19		-157.8	1,310.0	854.2	817.6	36.68	23.291	
6,900.0	6,615.1	6,450.0	6,265.8	24.4	28.6	86.08		-157.8	1,310.0	942.6	905.6	37.00	25.477	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut Existing Pad Sec.27-T5N-R64W - Chesnut 22-23 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 6939-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,600.0	6,659.2	6,632.2	6,632.2	66.1	132.6	94.54	4,280.7	966.7	981.0	784.5	196.48	4.993	
9,700.0	6,658.6	6,631.6	6,631.6	67.9	132.6	94.07	4,280.7	966.7	881.4	682.9	198.47	4.441	
9,800.0	6,658.0	6,631.0	6,631.0	69.8	132.6	93.61	4,280.7	966.7	781.8	581.3	200.44	3.900	
9,900.0	6,657.3	6,630.3	6,630.3	71.6	132.6	93.15	4,280.7	966.7	682.3	479.9	202.41	3.371	
10,000.0	6,656.7	6,629.7	6,629.7	73.5	132.6	92.68	4,280.7	966.7	583.0	378.6	204.37	2.853	
10,100.0	6,656.1	6,629.1	6,629.1	75.3	132.6	92.22	4,280.7	966.7	484.0	277.7	206.33	2.346	
10,200.0	6,655.5	6,628.5	6,628.5	77.1	132.6	91.76	4,280.7	966.7	385.6	177.3	208.27	1.851	
10,300.0	6,654.9	6,627.9	6,627.9	79.0	132.6	91.29	4,280.7	966.7	288.2	78.0	210.20	1.371 Level 3	
10,400.0	6,654.3	6,627.3	6,627.3	80.8	132.5	90.83	4,280.7	966.7	193.4	-18.7	212.12	0.912 Level 1	
10,500.0	6,653.7	6,626.7	6,626.7	82.7	132.5	90.36	4,280.7	966.7	108.5	-105.5	214.04	0.507 Level 1	
10,578.1	6,653.2	6,626.2	6,626.2	84.2	132.5	90.00	4,280.7	966.7	75.3	-140.2	215.52	0.349 Level 1, CC, ES, SF	
10,600.0	6,653.1	6,626.1	6,626.1	84.6	132.5	89.90	4,280.7	966.7	78.4	-137.5	215.94	0.363 Level 1	
10,700.0	6,652.5	6,625.5	6,625.5	86.4	132.5	89.43	4,280.7	966.7	143.3	-74.6	217.82	0.658 Level 1	
10,800.0	6,651.8	6,624.8	6,624.8	88.3	132.5	88.97	4,280.7	966.7	234.3	14.6	219.70	1.066 Level 2	
10,900.0	6,651.2	6,624.2	6,624.2	90.2	132.5	88.50	4,280.7	966.7	330.5	109.0	221.56	1.492 Level 3	
11,000.0	6,650.6	6,623.6	6,623.6	92.0	132.5	88.04	4,280.7	966.7	428.5	205.1	223.41	1.918	
11,100.0	6,650.0	6,623.0	6,623.0	93.9	132.5	87.58	4,280.7	966.7	527.3	302.0	225.25	2.341	
11,200.0	6,649.4	6,622.4	6,622.4	95.8	132.4	87.11	4,280.7	966.7	626.4	399.3	227.07	2.759	
11,300.0	6,648.8	6,621.8	6,621.8	97.6	132.4	86.65	4,280.7	966.7	725.8	496.9	228.88	3.171	
11,400.0	6,648.2	6,621.2	6,621.2	99.5	132.4	86.19	4,280.7	966.7	825.3	594.6	230.67	3.578	
11,500.0	6,647.6	6,620.6	6,620.6	101.4	132.4	85.72	4,280.7	966.7	924.9	692.5	232.45	3.979	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut Existing Pad Sec.27-T5N-R64W - Chesnut 22-24 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 69450-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,500.0	6,665.9	6,637.9	6,637.9	46.6	132.8	123.57		3,125.8	899.9	923.3	776.0	147.26	6.270	
8,600.0	6,665.3	6,637.3	6,637.3	48.3	132.7	120.62		3,125.8	899.9	823.3	669.7	153.61	5.360	
8,700.0	6,664.7	6,636.7	6,636.7	50.0	132.7	117.47		3,125.8	899.9	723.3	563.4	159.94	4.522	
8,800.0	6,664.1	6,636.1	6,636.1	51.8	132.7	114.13		3,125.8	899.9	623.3	457.2	166.14	3.752	
8,900.0	6,663.5	6,635.5	6,635.5	53.5	132.7	110.61		3,125.8	899.9	523.3	351.2	172.11	3.041	
9,000.0	6,662.8	6,634.8	6,634.8	55.3	132.7	106.92		3,125.8	899.9	423.3	245.6	177.69	2.382	
9,100.0	6,662.2	6,634.2	6,634.2	57.1	132.7	103.08		3,125.8	899.9	323.4	140.6	182.76	1.769	
9,200.0	6,661.6	6,633.6	6,633.6	58.9	132.7	99.12		3,125.8	899.9	223.4	36.3	187.16	1.194 Level 2	
9,300.0	6,661.0	6,633.0	6,633.0	60.7	132.7	95.06		3,125.8	899.9	123.5	-67.2	190.77	0.648 Level 1	
9,400.0	6,660.4	6,632.4	6,632.4	62.5	132.6	90.96		3,125.8	899.9	24.8	-168.7	193.50	0.128 Level 1	
9,423.3	6,660.3	6,632.3	6,632.3	62.9	132.6	90.00		3,125.8	899.9	8.5	-185.5	194.00	0.044 Level 1, CC, ES, SF	
9,500.0	6,659.8	6,631.8	6,631.8	64.3	132.6	86.84		3,125.8	899.9	77.2	-118.1	195.29	0.395 Level 1	
9,600.0	6,659.2	6,631.2	6,631.2	66.1	132.6	82.76		3,125.8	899.9	176.9	-19.2	196.12	0.902 Level 1	
9,700.0	6,658.6	6,630.6	6,630.6	67.9	132.6	78.75		3,125.8	899.9	276.9	80.9	196.01	1.413 Level 3	
9,800.0	6,658.0	6,630.0	6,630.0	69.8	132.6	74.85		3,125.8	899.9	376.8	181.8	195.05	1.932	
9,900.0	6,657.3	6,629.3	6,629.3	71.6	132.6	71.08		3,125.8	899.9	476.8	283.5	193.32	2.466	
10,000.0	6,656.7	6,628.7	6,628.7	73.5	132.6	67.48		3,125.8	899.9	576.8	385.9	190.94	3.021	
10,100.0	6,656.1	6,628.1	6,628.1	75.3	132.6	64.06		3,125.8	899.9	676.8	488.8	188.03	3.599	
10,200.0	6,655.5	6,627.5	6,627.5	77.1	132.6	60.82		3,125.8	899.9	776.8	592.0	184.74	4.205	
10,300.0	6,654.9	6,626.9	6,626.9	79.0	132.5	57.78		3,125.8	899.9	876.8	695.6	181.15	4.840	
10,400.0	6,654.3	6,626.3	6,626.3	80.8	132.5	54.93		3,125.8	899.9	976.8	799.4	177.40	5.506	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut Existing Pad Sec.27-T5N-R64W - Joshua 1 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6889-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
12,400.0	6,642.1	6,589.1	6,589.1	118.4	131.8	-92.21	7,034.9	743.8	944.0	694.7	249.26	3.787		
12,500.0	6,641.5	6,588.5	6,588.5	120.3	131.8	-91.97	7,034.9	743.8	845.4	594.2	251.17	3.366		
12,600.0	6,640.9	6,587.9	6,587.9	122.1	131.8	-91.74	7,034.9	743.8	747.1	494.0	253.09	2.952		
12,700.0	6,640.2	6,587.2	6,587.2	124.0	131.7	-91.50	7,034.9	743.8	649.4	394.4	254.99	2.547		
12,800.0	6,639.6	6,586.6	6,586.6	125.9	131.7	-91.26	7,034.9	743.8	552.5	295.6	256.90	2.151		
12,900.0	6,639.0	6,586.0	6,586.0	127.8	131.7	-91.02	7,034.9	743.8	456.9	198.1	258.80	1.765		
13,000.0	6,638.4	6,585.4	6,585.4	129.7	131.7	-90.79	7,034.9	743.8	363.7	103.0	260.70	1.395 Level 3		
13,100.0	6,637.8	6,584.8	6,584.8	131.6	131.7	-90.55	7,034.9	743.8	275.3	12.7	262.59	1.048 Level 2		
13,200.0	6,637.2	6,584.2	6,584.2	133.5	131.7	-90.31	7,034.9	743.8	198.3	-66.2	264.48	0.750 Level 1		
13,300.0	6,636.6	6,583.6	6,583.6	135.4	131.7	-90.08	7,034.9	743.8	151.1	-115.2	266.37	0.567 Level 1		
13,332.4	6,636.4	6,583.4	6,583.4	136.0	131.7	-90.00	7,034.9	743.8	147.6	-119.3	266.98	0.553 Level 1, CC, ES, SF		
13,394.3	6,636.0	6,583.0	6,583.0	137.2	131.7	-89.85	7,034.9	743.8	160.1	-108.0	268.15	0.597 Level 1		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut Existing Pad Sec.27-T5N-R64W - Rice 22-1 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6840-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
11,000.0	6,650.6	6,627.6	6,627.6	92.0	132.6	-92.29	5,595.8	754.9	903.7	680.2	223.46	4.044		
11,100.0	6,650.0	6,627.0	6,627.0	93.9	132.5	-92.03	5,595.8	754.9	805.0	579.6	225.36	3.572		
11,200.0	6,649.4	6,626.4	6,626.4	95.8	132.5	-91.78	5,595.8	754.9	706.6	479.4	227.26	3.109		
11,300.0	6,648.8	6,625.8	6,625.8	97.6	132.5	-91.52	5,595.8	754.9	608.8	379.6	229.16	2.657		
11,400.0	6,648.2	6,625.2	6,625.2	99.5	132.5	-91.27	5,595.8	754.9	511.8	280.8	231.06	2.215		
11,500.0	6,647.6	6,624.6	6,624.6	101.4	132.5	-91.01	5,595.8	754.9	416.3	183.4	232.95	1.787		
11,600.0	6,647.0	6,624.0	6,624.0	103.3	132.5	-90.75	5,595.8	754.9	323.5	88.7	234.83	1.378	Level 3	
11,700.0	6,646.4	6,623.4	6,623.4	105.2	132.5	-90.50	5,595.8	754.9	236.6	-0.1	236.72	1.000	Level 1	
11,800.0	6,645.7	6,622.7	6,622.7	107.0	132.5	-90.24	5,595.8	754.9	165.3	-73.3	238.60	0.693	Level 1	
11,893.3	6,645.2	6,622.2	6,622.2	108.8	132.4	-90.00	5,595.8	754.9	136.5	-103.9	240.35	0.568	Level 1, CC, ES, SF	
11,900.0	6,645.1	6,622.1	6,622.1	108.9	132.4	-89.98	5,595.8	754.9	136.6	-103.9	240.48	0.568	Level 1	
12,000.0	6,644.5	6,621.5	6,621.5	110.8	132.4	-89.73	5,595.8	754.9	173.2	-69.2	242.35	0.715	Level 1	
12,100.0	6,643.9	6,620.9	6,620.9	112.7	132.4	-89.47	5,595.8	754.9	247.6	3.4	244.22	1.014	Level 2	
12,200.0	6,643.3	6,620.3	6,620.3	114.6	132.4	-89.21	5,595.8	754.9	335.7	89.6	246.09	1.364	Level 3	
12,300.0	6,642.7	6,619.7	6,619.7	116.5	132.4	-88.96	5,595.8	754.9	428.9	181.0	247.95	1.730		
12,400.0	6,642.1	6,619.1	6,619.1	118.4	132.4	-88.70	5,595.8	754.9	524.7	274.9	249.81	2.100		
12,500.0	6,641.5	6,618.5	6,618.5	120.3	132.4	-88.44	5,595.8	754.9	621.8	370.2	251.66	2.471		
12,600.0	6,640.9	6,617.9	6,617.9	122.1	132.4	-88.19	5,595.8	754.9	719.7	466.2	253.51	2.839		
12,700.0	6,640.2	6,617.2	6,617.2	124.0	132.3	-87.93	5,595.8	754.9	818.1	562.8	255.35	3.204		
12,800.0	6,639.6	6,616.6	6,616.6	125.9	132.3	-87.68	5,595.8	754.9	916.9	659.7	257.19	3.565		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design		Chesnut Existing Pad Sec.27-T5N-R64W - White 27-3 (Exist) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0 ft	
Survey Program: 6910-UNKNOWN														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	69.45	320.6	855.4	914.0						
100.0	100.0	72.0	72.0	0.1	1.4	69.45	320.6	855.4	913.5	912.0	1.55	588.392			
200.0	200.0	172.0	172.0	0.3	3.4	69.45	320.6	855.4	913.5	909.7	3.78	241.843			
300.0	300.0	272.0	272.0	0.6	5.4	69.45	320.6	855.4	913.5	907.5	6.00	152.201			
400.0	400.0	372.0	372.0	0.8	7.4	69.45	320.6	855.4	913.5	905.3	8.23	111.042			
500.0	500.0	472.0	472.0	1.0	9.4	69.45	320.6	855.4	913.5	903.1	10.45	87.405			
600.0	600.0	572.0	572.0	1.2	11.4	69.45	320.6	855.4	913.5	900.8	12.68	72.065			
700.0	700.0	672.0	672.0	1.5	13.4	69.45	320.6	855.4	913.5	898.6	14.90	61.306			
800.0	800.0	772.0	772.0	1.7	15.4	69.45	320.6	855.4	913.5	896.4	17.13	53.342			
900.0	900.0	872.0	872.0	1.9	17.4	-11.65	320.6	855.4	911.8	892.5	19.33	47.175			
1,000.0	999.8	971.8	971.8	2.1	19.4	-11.74	320.6	855.4	906.7	885.2	21.49	42.183			
1,100.0	1,099.5	1,071.5	1,071.5	2.3	21.4	-11.89	320.6	855.4	898.2	874.5	23.63	38.015			
1,200.0	1,198.7	1,170.7	1,170.7	2.6	23.4	-12.10	320.6	855.4	886.2	860.5	25.72	34.461			
1,300.0	1,297.5	1,269.5	1,269.5	2.9	25.4	-12.38	320.6	855.4	870.9	843.2	27.76	31.375			
1,400.0	1,395.6	1,367.6	1,367.6	3.2	27.4	-12.74	320.6	855.4	852.3	822.6	29.75	28.652			
1,500.0	1,493.4	1,465.4	1,465.4	3.6	29.3	-13.06	320.6	855.4	831.8	799.9	31.89	26.081			
1,600.0	1,591.1	1,563.1	1,563.1	3.9	31.3	-13.40	320.6	855.4	811.2	777.2	34.06	23.818			
1,700.0	1,688.9	1,660.9	1,660.9	4.4	33.2	-13.75	320.6	855.4	790.8	754.5	36.24	21.823			
1,800.0	1,786.7	1,758.7	1,758.7	4.8	35.2	-14.12	320.6	855.4	770.3	731.9	38.42	20.051			
1,900.0	1,884.4	1,856.4	1,856.4	5.2	37.1	-14.52	320.6	855.4	749.9	709.3	40.60	18.468			
2,000.0	1,982.2	1,954.2	1,954.2	5.6	39.1	-14.93	320.6	855.4	729.5	686.7	42.80	17.046			
2,100.0	2,079.9	2,051.9	2,051.9	6.0	41.0	-15.37	320.6	855.4	709.1	664.1	44.99	15.761			
2,200.0	2,177.7	2,149.7	2,149.7	6.5	43.0	-15.83	320.6	855.4	688.8	641.6	47.19	14.595			
2,300.0	2,275.5	2,247.5	2,247.5	6.9	44.9	-16.32	320.6	855.4	668.6	619.2	49.40	13.533			
2,400.0	2,373.2	2,345.2	2,345.2	7.4	46.9	-16.84	320.6	855.4	648.3	596.7	51.61	12.561			
2,500.0	2,471.0	2,443.0	2,443.0	7.8	48.9	-17.40	320.6	855.4	628.2	574.4	53.83	11.669			
2,600.0	2,568.7	2,540.7	2,540.7	8.3	50.8	-17.99	320.6	855.4	608.1	552.0	56.06	10.848			
2,700.0	2,666.5	2,638.5	2,638.5	8.7	52.8	-18.62	320.6	855.4	588.1	529.8	58.29	10.089			
2,800.0	2,764.2	2,736.2	2,736.2	9.2	54.7	-19.30	320.6	855.4	568.1	507.6	60.53	9.386			
2,900.0	2,862.0	2,834.0	2,834.0	9.6	56.7	-20.03	320.6	855.4	548.2	485.5	62.78	8.733			
3,000.0	2,959.8	2,931.8	2,931.8	10.1	58.6	-20.81	320.6	855.4	528.4	463.4	65.03	8.126			
3,100.0	3,057.5	3,029.5	3,029.5	10.5	60.6	-21.65	320.6	855.4	508.8	441.5	67.30	7.560			
3,200.0	3,155.3	3,127.3	3,127.3	11.0	62.5	-22.55	320.6	855.4	489.2	419.6	69.58	7.031			
3,300.0	3,253.0	3,225.0	3,225.0	11.4	64.5	-23.53	320.6	855.4	469.8	397.9	71.87	6.536			
3,400.0	3,350.8	3,322.8	3,322.8	11.9	66.5	-24.60	320.6	855.4	450.5	376.3	74.18	6.072			
3,500.0	3,448.6	3,420.6	3,420.6	12.4	68.4	-25.76	320.6	855.4	431.3	354.8	76.51	5.638			
3,600.0	3,546.3	3,518.3	3,518.3	12.8	70.4	-27.02	320.6	855.4	412.4	333.5	78.86	5.230			
3,700.0	3,644.1	3,616.1	3,616.1	13.3	72.3	-28.41	320.6	855.4	393.7	312.4	81.23	4.846			
3,800.0	3,741.8	3,713.8	3,713.8	13.7	74.3	-29.93	320.6	855.4	375.2	291.6	83.63	4.486			
3,900.0	3,839.6	3,811.6	3,811.6	14.2	76.2	-31.61	320.6	855.4	357.0	270.9	86.06	4.148			
4,000.0	3,937.4	3,909.4	3,909.4	14.6	78.2	-33.46	320.6	855.4	339.1	250.6	88.53	3.831			
4,100.0	4,035.1	4,007.1	4,007.1	15.1	80.1	-35.51	320.6	855.4	321.6	230.6	91.04	3.533			
4,200.0	4,132.9	4,104.9	4,104.9	15.6	82.1	-37.79	320.6	855.4	304.6	211.0	93.60	3.254			
4,300.0	4,230.6	4,202.6	4,202.6	16.0	84.1	-40.33	320.6	855.4	288.1	191.9	96.21	2.995			
4,400.0	4,328.4	4,300.4	4,300.4	16.5	86.0	-43.17	320.6	855.4	272.2	173.4	98.88	2.753			
4,500.0	4,426.2	4,398.2	4,398.2	16.9	88.0	-46.35	320.6	855.4	257.1	155.5	101.61	2.530			
4,600.0	4,523.9	4,495.9	4,495.9	17.4	89.9	-49.89	320.6	855.4	242.9	138.5	104.41	2.326			
4,700.0	4,621.7	4,593.7	4,593.7	17.9	91.9	-53.86	320.6	855.4	229.7	122.4	107.27	2.141			
4,800.0	4,719.4	4,691.4	4,691.4	18.3	93.8	-58.26	320.6	855.4	217.8	107.6	110.17	1.976			
4,900.0	4,817.2	4,789.2	4,789.2	18.8	95.8	-63.13	320.6	855.4	207.3	94.2	113.10	1.832			
5,000.0	4,914.9	4,886.9	4,886.9	19.2	97.7	-68.45	320.6	855.4	198.5	82.4	116.02	1.710			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 270-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 270-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

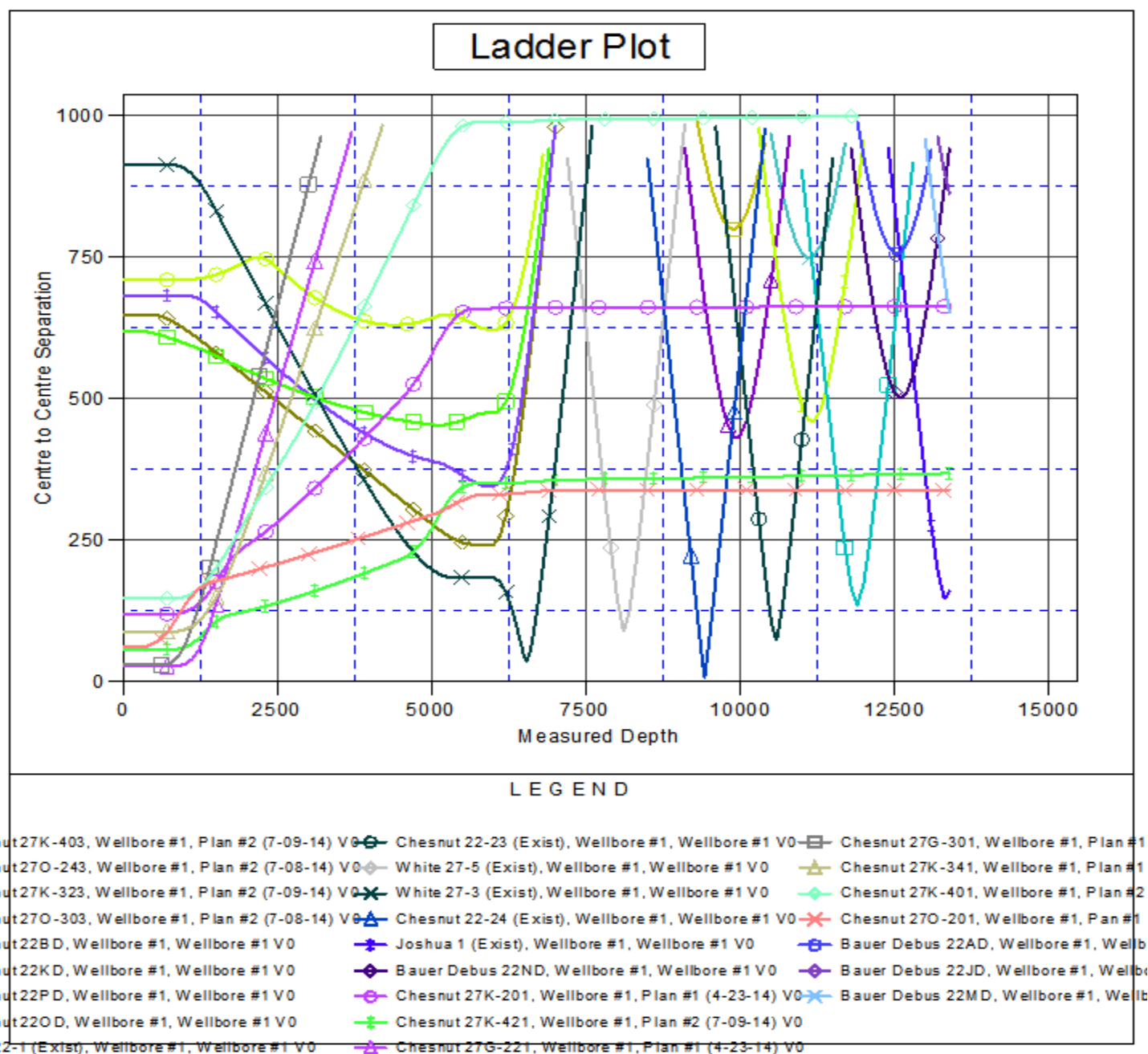
Offset Design Chesnut Existing Pad Sec.27-T5N-R64W - White 27-3 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6910-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,100.0	5,012.7	4,984.7	4,984.7	19.7	99.7	-74.17	320.6	855.4	191.6	72.7	118.88	1.612		
5,200.0	5,110.9	5,082.9	5,082.9	20.0	101.7	-79.52	320.6	855.4	187.2	65.7	121.49	1.541		
5,300.0	5,209.7	5,181.7	5,181.7	20.3	103.6	-84.10	320.6	855.4	185.0	61.1	123.90	1.493 Level 3		
5,400.0	5,309.0	5,281.0	5,281.0	20.6	105.6	-87.74	320.6	855.4	184.2	58.0	126.17	1.460 Level 3		
5,483.8	5,392.5	5,364.5	5,364.5	20.7	107.3	-90.00	320.6	855.4	184.0	56.0	128.01	1.437 Level 3		
5,500.0	5,408.7	5,380.7	5,380.7	20.8	107.6	-90.35	320.6	855.4	184.0	55.7	128.36	1.434 Level 3		
5,600.0	5,508.5	5,480.5	5,480.5	20.9	109.6	-91.89	320.6	855.4	184.1	53.6	130.51	1.411 Level 3		
5,700.0	5,608.5	5,580.5	5,580.5	21.0	111.6	-11.27	320.6	855.4	184.2	51.5	132.63	1.389 Level 3		
5,800.0	5,708.5	5,680.5	5,680.5	21.2	113.6	-11.27	320.6	855.4	184.2	49.4	134.75	1.367 Level 3		
5,900.0	5,808.5	5,780.5	5,780.5	21.3	115.6	-11.27	320.6	855.4	184.2	47.3	136.88	1.345 Level 3		
6,000.0	5,908.5	5,880.5	5,880.5	21.4	117.6	-11.27	320.6	855.4	184.2	45.2	139.01	1.325 Level 3		
6,100.0	6,008.2	5,980.2	5,980.2	21.6	119.6	-11.76	320.6	855.4	177.9	37.9	140.03	1.271 Level 3		
6,200.0	6,106.3	6,078.3	6,078.3	21.7	121.6	-13.51	320.6	855.4	159.1	20.3	138.76	1.146 Level 2		
6,300.0	6,201.0	6,173.0	6,173.0	21.9	123.5	-17.56	320.6	855.4	128.1	-7.3	135.44	0.946 Level 1		
6,400.0	6,290.7	6,262.7	6,262.7	22.2	125.3	-27.74	320.6	855.4	86.8	-45.0	131.80	0.658 Level 1		
6,500.0	6,373.9	6,345.9	6,345.9	22.5	126.9	-62.51	320.6	855.4	43.0	-96.1	139.11	0.309 Level 1		
6,537.6	6,403.2	6,375.2	6,375.2	22.6	127.5	-90.00	320.6	855.4	36.0	-107.6	143.60	0.251 Level 1, CC, ES, SF		
6,600.0	6,449.1	6,421.1	6,421.1	22.8	128.4	-129.71	320.6	855.4	55.4	-74.7	130.14	0.426 Level 1		
6,700.0	6,515.1	6,487.1	6,487.1	23.2	129.7	-153.29	320.6	855.4	122.6	16.1	106.47	1.151 Level 2		
6,800.0	6,570.8	6,542.8	6,542.8	23.8	130.9	-160.28	320.6	855.4	203.4	113.9	89.53	2.272		
6,900.0	6,615.1	6,587.1	6,587.1	24.4	131.7	-162.09	320.6	855.4	292.0	216.5	75.44	3.870		
7,000.0	6,647.4	6,619.4	6,619.4	25.2	132.4	-160.23	320.6	855.4	386.0	318.5	67.46	5.722		
7,100.0	6,667.1	6,639.1	6,639.1	26.1	132.8	-150.57	320.6	855.4	483.6	402.3	81.29	5.949		
7,200.0	6,673.8	6,645.8	6,645.8	27.1	132.9	-91.64	320.6	855.4	583.1	427.3	155.76	3.743		
7,300.0	6,673.2	6,645.2	6,645.2	28.3	132.9	-83.40	320.6	855.4	682.9	527.1	155.84	4.382		
7,400.0	6,672.6	6,644.6	6,644.6	29.5	132.9	-82.44	320.6	855.4	782.8	625.8	156.95	4.988		
7,500.0	6,672.0	6,644.0	6,644.0	30.8	132.9	-81.48	320.6	855.4	882.7	724.6	158.07	5.584		
7,600.0	6,671.4	6,643.4	6,643.4	32.2	132.9	-80.54	320.6	855.4	982.6	823.4	159.18	6.173		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 27O-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 27O-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Offset Design Chesnut Existing Pad Sec.27-T5N-R64W - White 27-5 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 6910-UNKNOWN												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,200.0	6,673.8	6,644.8	6,644.8	27.1	132.9	-88.98	1,821.6	799.6	923.5	767.9	155.66	5.933	
7,300.0	6,673.2	6,644.2	6,644.2	28.3	132.9	-93.12	1,821.6	799.6	824.1	667.0	157.07	5.247	
7,400.0	6,672.6	6,643.6	6,643.6	29.5	132.9	-92.74	1,821.6	799.6	724.8	566.2	158.59	4.570	
7,500.0	6,672.0	6,643.0	6,643.0	30.8	132.9	-92.36	1,821.6	799.6	625.7	465.6	160.16	3.907	
7,600.0	6,671.4	6,642.4	6,642.4	32.2	132.8	-91.98	1,821.6	799.6	527.0	365.3	161.76	3.258	
7,700.0	6,670.8	6,641.8	6,641.8	33.7	132.8	-91.60	1,821.6	799.6	428.9	265.5	163.40	2.625	
7,800.0	6,670.2	6,641.2	6,641.2	35.2	132.8	-91.22	1,821.6	799.6	331.9	166.9	165.06	2.011	
7,900.0	6,669.6	6,640.6	6,640.6	36.7	132.8	-90.84	1,821.6	799.6	237.4	70.7	166.73	1.424	Level 3
8,000.0	6,669.0	6,640.0	6,640.0	38.3	132.8	-90.45	1,821.6	799.6	150.3	-18.2	168.43	0.892	Level 1
8,100.0	6,668.3	6,639.3	6,639.3	39.9	132.8	-90.07	1,821.6	799.6	93.7	-76.4	170.14	0.551	Level 1
8,119.0	6,668.2	6,639.2	6,639.2	40.2	132.8	-90.00	1,821.6	799.6	91.8	-78.7	170.47	0.538	Level 1, CC, ES, SF
8,200.0	6,667.7	6,638.7	6,638.7	41.5	132.8	-89.69	1,821.6	799.6	122.4	-49.5	171.86	0.712	Level 1
8,300.0	6,667.1	6,638.1	6,638.1	43.2	132.8	-89.31	1,821.6	799.6	202.9	29.3	173.59	1.169	Level 2
8,400.0	6,666.5	6,637.5	6,637.5	44.9	132.8	-88.93	1,821.6	799.6	295.6	120.3	175.32	1.686	
8,500.0	6,665.9	6,636.9	6,636.9	46.6	132.7	-88.55	1,821.6	799.6	391.9	214.8	177.05	2.213	
8,600.0	6,665.3	6,636.3	6,636.3	48.3	132.7	-88.17	1,821.6	799.6	489.7	310.9	178.79	2.739	
8,700.0	6,664.7	6,635.7	6,635.7	50.0	132.7	-87.79	1,821.6	799.6	588.2	407.7	180.53	3.258	
8,800.0	6,664.1	6,635.1	6,635.1	51.8	132.7	-87.40	1,821.6	799.6	687.1	504.9	182.27	3.770	
8,900.0	6,663.5	6,634.5	6,634.5	53.5	132.7	-87.02	1,821.6	799.6	786.4	602.4	184.01	4.274	
9,000.0	6,662.8	6,633.8	6,633.8	55.3	132.7	-86.64	1,821.6	799.6	885.8	700.0	185.74	4.769	
9,100.0	6,662.2	6,633.2	6,633.2	57.1	132.7	-86.26	1,821.6	799.6	985.3	797.8	187.48	5.255	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 270-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 270-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4629.0ft (Ensign 123 RKB - Coordinates are relative to: Chesnut 270-341
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.62°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Chesnut 270-341
Project:	SEC.27-T5N-R64W	TVD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Reference Site:	Chesnut 27GK-HZ Pad Sec.27-T5N-R64W	MD Reference:	WELL @ 4629.0ft (Ensign 123 RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chesnut 270-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-09-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4629.0ft (Ensign 123 RKB - Coordinates are relative to: Chesnut 270-341
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°

