

ENSIGN

Directional

Well Name: Riteaway 11-32D

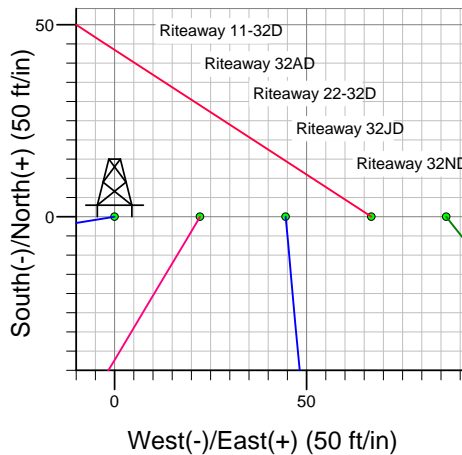
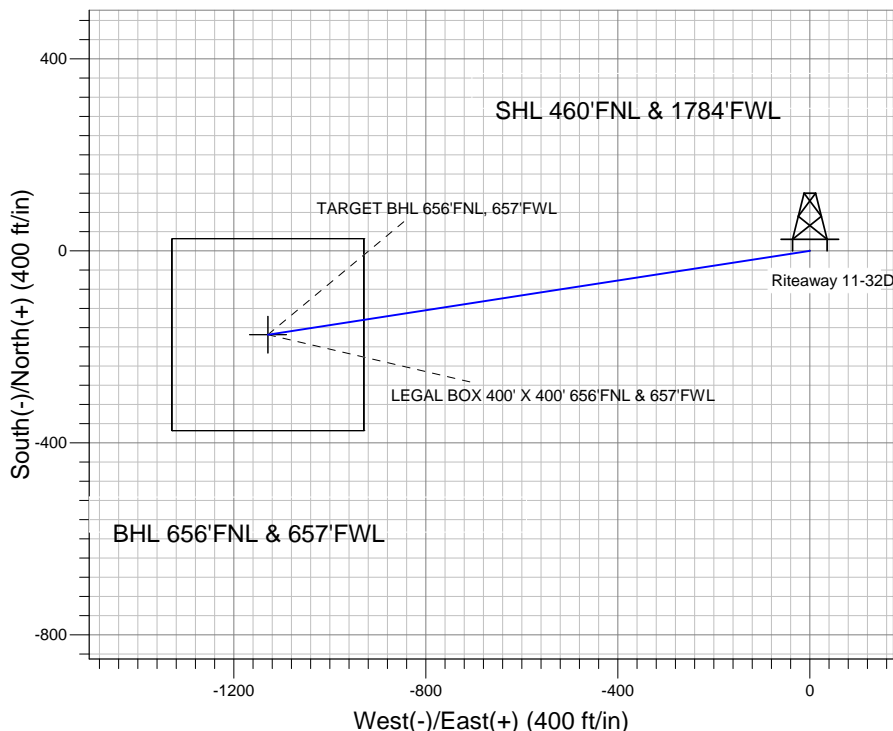
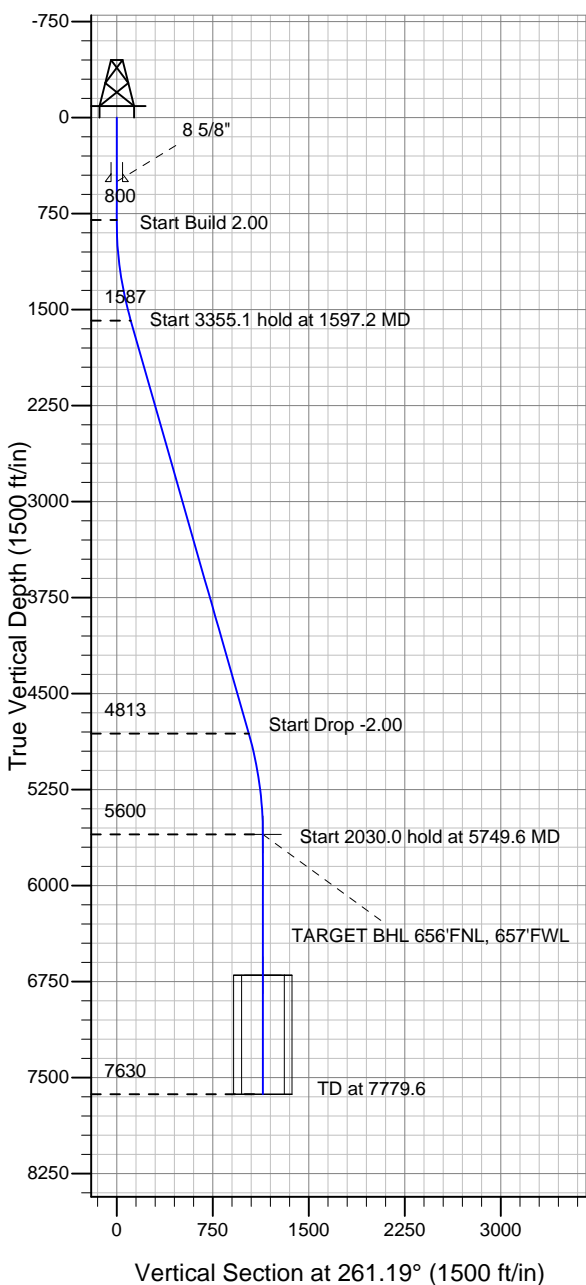
Surface Location: Riteaway 32ND Pad Sec.32-T5N-R67W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4795.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1375307.44	3161591.56	40.362170	-104.920120	

Original Well Elev WELL @ 4808.0ft (Original Well Elev)

PETROLEUM DEVELOPMENT CORP Weld County CO



Riteaway 32ND Pad Sec.32-T5N-R67W
 Riteaway 11-32D
 Plan #2 (3-29-11)
 11:58, March 29 2011



Azimuths to True North
 Magnetic North: 8.97°

Magnetic Field
 Strength: 53117.5nT
 Dip Angle: 67.00°
 Date: 3/29/2011
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 656'FNL, 657'FWL	5600.0	-174.8	-1128.7	40.361690	-104.924170	Point
LEGAL BOX 400' X 400' 656'FNL & 657'FWL	6700.0	-174.8	-1128.7	40.361690	-104.924170	Rectangle (Sides: L400.0 W400.0)

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	1597.2	15.94	261.19	1587.0	-16.9	-108.9	2.00	261.19	110.2	
4	4952.3	15.94	261.19	4813.0	-158.0	-1019.7	0.00	0.00	1031.9	
5	5749.6	0.00	0.00	5600.0	-174.8	-1128.7	2.00	180.00	1142.1	TARGET BHL 656'FNL, 657'FWL
6	7779.6	0.00	0.00	7630.0	-174.8	-1128.7	0.00	0.00	1142.1	



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T5N-R67W

Riteaway 32ND Pad Sec.32-T5N-R67W

Riteaway 11-32D

Wellbore #1

Plan: Plan #2 (3-29-11)

Standard Planning Report

29 March, 2011

Database:	Landmark	Local Co-ordinate Reference:	Well Riteaway 11-32D
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4808.0ft (Original Well Elev)
Project:	SEC.32-T5N-R67W	MD Reference:	WELL @ 4808.0ft (Original Well Elev)
Site:	Riteaway 32ND Pad Sec.32-T5N-R67W	North Reference:	True
Well:	Riteaway 11-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-29-11)		

Project	SEC.32-T5N-R67W		
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		Riteaway 32ND Pad Sec.32-T5N-R67W			
Site Position:		Northing:	1,375,308.02 ft	Latitude:	40.362170
From:	Lat/Long	Easting:	3,161,677.94 ft	Longitude:	-104.919810
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.37 °

Well	Riteaway 11-32D					
Well Position	+N/-S	0.0 ft	Northing:	1,375,307.44 ft	Latitude:	40.362170
	+E/-W	-86.4 ft	Easting:	3,161,591.56 ft	Longitude:	-104.920120
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,795.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/29/2011	8.97	67.00	53,117

Design	Plan #2 (3-29-11)			
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	261.19

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,597.2	15.94	261.19	1,587.0	-16.9	-108.9	2.00	2.00	0.00	261.19	
4,952.3	15.94	261.19	4,813.0	-158.0	-1,019.7	0.00	0.00	0.00	0.00	
5,749.6	0.00	0.00	5,600.0	-174.8	-1,128.7	2.00	-2.00	0.00	180.00	TARGET BHL 656'I
7,779.6	0.00	0.00	7,630.0	-174.8	-1,128.7	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Riteaway 11-32D
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4808.0ft (Original Well Elev)
Project:	SEC.32-T5N-R67W	MD Reference:	WELL @ 4808.0ft (Original Well Elev)
Site:	Riteaway 32ND Pad Sec.32-T5N-R67W	North Reference:	True
Well:	Riteaway 11-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-29-11)		

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
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	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
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	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
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	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
8 5/8"									
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	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
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	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
840.0	0.80	261.19	840.0	0.0	-0.3	0.3	2.00	2.00	0.00
880.0	1.60	261.19	880.0	-0.2	-1.1	1.1	2.00	2.00	0.00
920.0	2.40	261.19	920.0	-0.4	-2.5	2.5	2.00	2.00	0.00
960.0	3.20	261.19	959.9	-0.7	-4.4	4.5	2.00	2.00	0.00
1,000.0	4.00	261.19	999.8	-1.1	-6.9	7.0	2.00	2.00	0.00
1,040.0	4.80	261.19	1,039.7	-1.5	-9.9	10.0	2.00	2.00	0.00
1,080.0	5.60	261.19	1,079.6	-2.1	-13.5	13.7	2.00	2.00	0.00
1,120.0	6.40	261.19	1,119.3	-2.7	-17.6	17.9	2.00	2.00	0.00
1,160.0	7.20	261.19	1,159.1	-3.5	-22.3	22.6	2.00	2.00	0.00
1,200.0	8.00	261.19	1,198.7	-4.3	-27.6	27.9	2.00	2.00	0.00
1,240.0	8.80	261.19	1,238.3	-5.2	-33.3	33.7	2.00	2.00	0.00
1,280.0	9.60	261.19	1,277.8	-6.1	-39.6	40.1	2.00	2.00	0.00
1,320.0	10.40	261.19	1,317.1	-7.2	-46.5	47.1	2.00	2.00	0.00
1,360.0	11.20	261.19	1,356.4	-8.4	-53.9	54.6	2.00	2.00	0.00
1,400.0	12.00	261.19	1,395.6	-9.6	-61.9	62.6	2.00	2.00	0.00
1,440.0	12.80	261.19	1,434.7	-10.9	-70.4	71.2	2.00	2.00	0.00
1,480.0	13.60	261.19	1,473.6	-12.3	-79.4	80.3	2.00	2.00	0.00
1,520.0	14.40	261.19	1,512.4	-13.8	-88.9	90.0	2.00	2.00	0.00
1,560.0	15.20	261.19	1,551.1	-15.3	-99.0	100.2	2.00	2.00	0.00
1,597.2	15.94	261.19	1,587.0	-16.9	-108.9	110.2	2.00	2.00	0.00
1,600.0	15.94	261.19	1,589.6	-17.0	-109.7	111.0	0.00	0.00	0.00
1,640.0	15.94	261.19	1,628.1	-18.7	-120.5	122.0	0.00	0.00	0.00
1,680.0	15.94	261.19	1,666.6	-20.4	-131.4	133.0	0.00	0.00	0.00
1,720.0	15.94	261.19	1,705.0	-22.0	-142.2	143.9	0.00	0.00	0.00
1,760.0	15.94	261.19	1,743.5	-23.7	-153.1	154.9	0.00	0.00	0.00
1,800.0	15.94	261.19	1,781.9	-25.4	-164.0	165.9	0.00	0.00	0.00
1,840.0	15.94	261.19	1,820.4	-27.1	-174.8	176.9	0.00	0.00	0.00
1,880.0	15.94	261.19	1,858.9	-28.8	-185.7	187.9	0.00	0.00	0.00
1,920.0	15.94	261.19	1,897.3	-30.4	-196.5	198.9	0.00	0.00	0.00
1,960.0	15.94	261.19	1,935.8	-32.1	-207.4	209.9	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Riteaway 11-32D
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4808.0ft (Original Well Elev)
Project:	SEC.32-T5N-R67W	MD Reference:	WELL @ 4808.0ft (Original Well Elev)
Site:	Riteaway 32ND Pad Sec.32-T5N-R67W	North Reference:	True
Well:	Riteaway 11-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-29-11)		

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)	
2,000.0	15.94	261.19	1,974.3	-33.8	-218.3	220.9	0.00	0.00	0.00	
2,040.0	15.94	261.19	2,012.7	-35.5	-229.1	231.8	0.00	0.00	0.00	
2,080.0	15.94	261.19	2,051.2	-37.2	-240.0	242.8	0.00	0.00	0.00	
2,120.0	15.94	261.19	2,089.6	-38.9	-250.8	253.8	0.00	0.00	0.00	
2,160.0	15.94	261.19	2,128.1	-40.5	-261.7	264.8	0.00	0.00	0.00	
2,200.0	15.94	261.19	2,166.6	-42.2	-272.6	275.8	0.00	0.00	0.00	
2,240.0	15.94	261.19	2,205.0	-43.9	-283.4	286.8	0.00	0.00	0.00	
2,280.0	15.94	261.19	2,243.5	-45.6	-294.3	297.8	0.00	0.00	0.00	
2,320.0	15.94	261.19	2,281.9	-47.3	-305.1	308.8	0.00	0.00	0.00	
2,360.0	15.94	261.19	2,320.4	-48.9	-316.0	319.8	0.00	0.00	0.00	
2,400.0	15.94	261.19	2,358.9	-50.6	-326.8	330.7	0.00	0.00	0.00	
2,440.0	15.94	261.19	2,397.3	-52.3	-337.7	341.7	0.00	0.00	0.00	
2,480.0	15.94	261.19	2,435.8	-54.0	-348.6	352.7	0.00	0.00	0.00	
2,520.0	15.94	261.19	2,474.2	-55.7	-359.4	363.7	0.00	0.00	0.00	
2,560.0	15.94	261.19	2,512.7	-57.4	-370.3	374.7	0.00	0.00	0.00	
2,600.0	15.94	261.19	2,551.2	-59.0	-381.1	385.7	0.00	0.00	0.00	
2,640.0	15.94	261.19	2,589.6	-60.7	-392.0	396.7	0.00	0.00	0.00	
2,680.0	15.94	261.19	2,628.1	-62.4	-402.9	407.7	0.00	0.00	0.00	
2,720.0	15.94	261.19	2,666.6	-64.1	-413.7	418.7	0.00	0.00	0.00	
2,760.0	15.94	261.19	2,705.0	-65.8	-424.6	429.6	0.00	0.00	0.00	
2,800.0	15.94	261.19	2,743.5	-67.4	-435.4	440.6	0.00	0.00	0.00	
2,840.0	15.94	261.19	2,781.9	-69.1	-446.3	451.6	0.00	0.00	0.00	
2,880.0	15.94	261.19	2,820.4	-70.8	-457.2	462.6	0.00	0.00	0.00	
2,920.0	15.94	261.19	2,858.9	-72.5	-468.0	473.6	0.00	0.00	0.00	
2,960.0	15.94	261.19	2,897.3	-74.2	-478.9	484.6	0.00	0.00	0.00	
3,000.0	15.94	261.19	2,935.8	-75.9	-489.7	495.6	0.00	0.00	0.00	
3,040.0	15.94	261.19	2,974.2	-77.5	-500.6	506.6	0.00	0.00	0.00	
3,080.0	15.94	261.19	3,012.7	-79.2	-511.4	517.5	0.00	0.00	0.00	
3,120.0	15.94	261.19	3,051.2	-80.9	-522.3	528.5	0.00	0.00	0.00	
3,160.0	15.94	261.19	3,089.6	-82.6	-533.2	539.5	0.00	0.00	0.00	
3,200.0	15.94	261.19	3,128.1	-84.3	-544.0	550.5	0.00	0.00	0.00	
3,240.0	15.94	261.19	3,166.5	-86.0	-554.9	561.5	0.00	0.00	0.00	
3,280.0	15.94	261.19	3,205.0	-87.6	-565.7	572.5	0.00	0.00	0.00	
3,320.0	15.94	261.19	3,243.5	-89.3	-576.6	583.5	0.00	0.00	0.00	
3,360.0	15.94	261.19	3,281.9	-91.0	-587.5	594.5	0.00	0.00	0.00	
3,400.0	15.94	261.19	3,320.4	-92.7	-598.3	605.5	0.00	0.00	0.00	
3,440.0	15.94	261.19	3,358.9	-94.4	-609.2	616.4	0.00	0.00	0.00	
3,480.0	15.94	261.19	3,397.3	-96.0	-620.0	627.4	0.00	0.00	0.00	
3,520.0	15.94	261.19	3,435.8	-97.7	-630.9	638.4	0.00	0.00	0.00	
3,560.0	15.94	261.19	3,474.2	-99.4	-641.8	649.4	0.00	0.00	0.00	
3,600.0	15.94	261.19	3,512.7	-101.1	-652.6	660.4	0.00	0.00	0.00	
3,640.0	15.94	261.19	3,551.2	-102.8	-663.5	671.4	0.00	0.00	0.00	
3,680.0	15.94	261.19	3,589.6	-104.5	-674.3	682.4	0.00	0.00	0.00	
3,720.0	15.94	261.19	3,628.1	-106.1	-685.2	693.4	0.00	0.00	0.00	
3,760.0	15.94	261.19	3,666.5	-107.8	-696.0	704.3	0.00	0.00	0.00	
3,800.0	15.94	261.19	3,705.0	-109.5	-706.9	715.3	0.00	0.00	0.00	
3,840.0	15.94	261.19	3,743.5	-111.2	-717.8	726.3	0.00	0.00	0.00	
3,880.0	15.94	261.19	3,781.9	-112.9	-728.6	737.3	0.00	0.00	0.00	
3,920.0	15.94	261.19	3,820.4	-114.5	-739.5	748.3	0.00	0.00	0.00	
3,960.0	15.94	261.19	3,858.8	-116.2	-750.3	759.3	0.00	0.00	0.00	
4,000.0	15.94	261.19	3,897.3	-117.9	-761.2	770.3	0.00	0.00	0.00	
4,040.0	15.94	261.19	3,935.8	-119.6	-772.1	781.3	0.00	0.00	0.00	
4,080.0	15.94	261.19	3,974.2	-121.3	-782.9	792.3	0.00	0.00	0.00	

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Site:	Riteaway 32ND Pad Sec.32-T5N-R67W	North Reference:	True
Well:	Riteaway 11-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-29-11)		

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)
4,120.0	15.94	261.19	4,012.7	-123.0	-793.8	803.2	0.00	0.00	0.00
4,160.0	15.94	261.19	4,051.2	-124.6	-804.6	814.2	0.00	0.00	0.00
4,200.0	15.94	261.19	4,089.6	-126.3	-815.5	825.2	0.00	0.00	0.00
4,240.0	15.94	261.19	4,128.1	-128.0	-826.4	836.2	0.00	0.00	0.00
4,280.0	15.94	261.19	4,166.5	-129.7	-837.2	847.2	0.00	0.00	0.00
4,320.0	15.94	261.19	4,205.0	-131.4	-848.1	858.2	0.00	0.00	0.00
4,360.0	15.94	261.19	4,243.5	-133.1	-858.9	869.2	0.00	0.00	0.00
4,400.0	15.94	261.19	4,281.9	-134.7	-869.8	880.2	0.00	0.00	0.00
4,440.0	15.94	261.19	4,320.4	-136.4	-880.6	891.2	0.00	0.00	0.00
4,480.0	15.94	261.19	4,358.8	-138.1	-891.5	902.1	0.00	0.00	0.00
4,520.0	15.94	261.19	4,397.3	-139.8	-902.4	913.1	0.00	0.00	0.00
4,560.0	15.94	261.19	4,435.8	-141.5	-913.2	924.1	0.00	0.00	0.00
4,600.0	15.94	261.19	4,474.2	-143.1	-924.1	935.1	0.00	0.00	0.00
4,640.0	15.94	261.19	4,512.7	-144.8	-934.9	946.1	0.00	0.00	0.00
4,680.0	15.94	261.19	4,551.1	-146.5	-945.8	957.1	0.00	0.00	0.00
4,720.0	15.94	261.19	4,589.6	-148.2	-956.7	968.1	0.00	0.00	0.00
4,760.0	15.94	261.19	4,628.1	-149.9	-967.5	979.1	0.00	0.00	0.00
4,800.0	15.94	261.19	4,666.5	-151.6	-978.4	990.0	0.00	0.00	0.00
4,840.0	15.94	261.19	4,705.0	-153.2	-989.2	1,001.0	0.00	0.00	0.00
4,880.0	15.94	261.19	4,743.5	-154.9	-1,000.1	1,012.0	0.00	0.00	0.00
4,920.0	15.94	261.19	4,781.9	-156.6	-1,011.0	1,023.0	0.00	0.00	0.00
4,952.3	15.94	261.19	4,813.0	-158.0	-1,019.7	1,031.9	0.00	0.00	0.00
4,960.0	15.79	261.19	4,820.4	-158.3	-1,021.8	1,034.0	2.00	-2.00	0.00
5,000.0	14.99	261.19	4,858.9	-159.9	-1,032.3	1,044.6	2.00	-2.00	0.00
5,040.0	14.19	261.19	4,897.7	-161.4	-1,042.3	1,054.7	2.00	-2.00	0.00
5,080.0	13.39	261.19	4,936.5	-162.9	-1,051.7	1,064.2	2.00	-2.00	0.00
5,120.0	12.59	261.19	4,975.5	-164.3	-1,060.6	1,073.2	2.00	-2.00	0.00
5,160.0	11.79	261.19	5,014.6	-165.6	-1,068.9	1,081.7	2.00	-2.00	0.00
5,200.0	10.99	261.19	5,053.8	-166.8	-1,076.7	1,089.6	2.00	-2.00	0.00
5,240.0	10.19	261.19	5,093.1	-167.9	-1,084.0	1,096.9	2.00	-2.00	0.00
5,280.0	9.39	261.19	5,132.5	-169.0	-1,090.7	1,103.7	2.00	-2.00	0.00
5,320.0	8.59	261.19	5,172.0	-169.9	-1,096.9	1,110.0	2.00	-2.00	0.00
5,360.0	7.79	261.19	5,211.6	-170.8	-1,102.5	1,115.7	2.00	-2.00	0.00
5,400.0	6.99	261.19	5,251.3	-171.6	-1,107.6	1,120.8	2.00	-2.00	0.00
5,440.0	6.19	261.19	5,291.0	-172.3	-1,112.1	1,125.4	2.00	-2.00	0.00
5,480.0	5.39	261.19	5,330.8	-172.9	-1,116.1	1,129.4	2.00	-2.00	0.00
5,520.0	4.59	261.19	5,370.7	-173.4	-1,119.6	1,132.9	2.00	-2.00	0.00
5,560.0	3.79	261.19	5,410.6	-173.9	-1,122.5	1,135.8	2.00	-2.00	0.00
5,600.0	2.99	261.19	5,450.5	-174.2	-1,124.8	1,138.2	2.00	-2.00	0.00
5,640.0	2.19	261.19	5,490.4	-174.5	-1,126.6	1,140.0	2.00	-2.00	0.00
5,680.0	1.39	261.19	5,530.4	-174.7	-1,127.8	1,141.3	2.00	-2.00	0.00
5,720.0	0.59	261.19	5,570.4	-174.8	-1,128.5	1,142.0	2.00	-2.00	0.00
5,749.6	0.00	0.00	5,600.0	-174.8	-1,128.7	1,142.1	2.00	-2.00	334.01
TARGET BHL 656'FNL, 657'FWL									
5,760.0	0.00	0.00	5,610.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
5,800.0	0.00	0.00	5,650.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
5,840.0	0.00	0.00	5,690.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
5,880.0	0.00	0.00	5,730.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
5,920.0	0.00	0.00	5,770.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
5,960.0	0.00	0.00	5,810.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,000.0	0.00	0.00	5,850.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,040.0	0.00	0.00	5,890.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,080.0	0.00	0.00	5,930.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Riteaway 11-32D
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4808.0ft (Original Well Elev)
Project:	SEC.32-T5N-R67W	MD Reference:	WELL @ 4808.0ft (Original Well Elev)
Site:	Riteaway 32ND Pad Sec.32-T5N-R67W	North Reference:	True
Well:	Riteaway 11-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-29-11)		

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)
6,120.0	0.00	0.00	5,970.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,160.0	0.00	0.00	6,010.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,200.0	0.00	0.00	6,050.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,240.0	0.00	0.00	6,090.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,280.0	0.00	0.00	6,130.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,320.0	0.00	0.00	6,170.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,360.0	0.00	0.00	6,210.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,400.0	0.00	0.00	6,250.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,440.0	0.00	0.00	6,290.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,480.0	0.00	0.00	6,330.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,520.0	0.00	0.00	6,370.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,560.0	0.00	0.00	6,410.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,600.0	0.00	0.00	6,450.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,640.0	0.00	0.00	6,490.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,680.0	0.00	0.00	6,530.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,720.0	0.00	0.00	6,570.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,760.0	0.00	0.00	6,610.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,800.0	0.00	0.00	6,650.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,840.0	0.00	0.00	6,690.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,849.6	0.00	0.00	6,700.0	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
LEGAL BOX 400' X 400' 656'FNL & 657'FWL									
6,880.0	0.00	0.00	6,730.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,920.0	0.00	0.00	6,770.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
6,960.0	0.00	0.00	6,810.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,000.0	0.00	0.00	6,850.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,040.0	0.00	0.00	6,890.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,080.0	0.00	0.00	6,930.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,120.0	0.00	0.00	6,970.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,160.0	0.00	0.00	7,010.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,200.0	0.00	0.00	7,050.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,240.0	0.00	0.00	7,090.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,280.0	0.00	0.00	7,130.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,320.0	0.00	0.00	7,170.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,360.0	0.00	0.00	7,210.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,400.0	0.00	0.00	7,250.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,440.0	0.00	0.00	7,290.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,480.0	0.00	0.00	7,330.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,520.0	0.00	0.00	7,370.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,560.0	0.00	0.00	7,410.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,600.0	0.00	0.00	7,450.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,640.0	0.00	0.00	7,490.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,680.0	0.00	0.00	7,530.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,720.0	0.00	0.00	7,570.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,760.0	0.00	0.00	7,610.4	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00
7,779.6	0.00	0.00	7,630.0	-174.8	-1,128.7	1,142.1	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Riteaway 11-32D
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4808.0ft (Original Well Elev)
Project:	SEC.32-T5N-R67W	MD Reference:	WELL @ 4808.0ft (Original Well Elev)
Site:	Riteaway 32ND Pad Sec.32-T5N-R67W	North Reference:	True
Well:	Riteaway 11-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-29-11)		

Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
LEGAL BOX 400' X 400'	0.00	0.00	6,700.0	-174.8	-1,128.7	1,375,125.28	3,160,464.07	40.361690	-104.924170
- plan misses target center by 0.1ft at 6849.6ft MD (6700.0 TVD, -174.8 N, -1128.7 E)									
- Rectangle (sides W400.0 H400.0 D930.0)									
TARGET BHL 656'FN	0.00	0.00	5,600.0	-174.8	-1,128.7	1,375,125.24	3,160,464.12	40.361690	-104.924170
- plan hits target center									
- Point									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
500.0	500.0	8 5/8"	8-5/8	12-1/4



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T5N-R67W

Riteaway 32ND Pad Sec.32-T5N-R67W

Riteaway 11-32D

Wellbore #1

Plan #2 (3-29-11)

Anticollision Report

29 March, 2011



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Riteaway 11-32D
Project:	SEC.32-T5N-R67W	TVD Reference:	WELL @ 4808.0ft (Original Well Elev)
Reference Site:	Riteaway 32ND Pad Sec.32-T5N-R67W	MD Reference:	WELL @ 4808.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Riteaway 11-32D	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 (3-29-11)	Offset TVD Reference:	Offset Datum

Offset Design Riteaway 32ND Pad Sec.32-T5N-R67W - Riteaway 32AD - Wellbore #1 - Plan #1 (1-07-10)													Offset Site Error:	0.0 ft
Survey Program: 0-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		
2,300.0	2,262.7	2,279.7	2,250.9	7.8	6.6	-130.15	-208.5	-102.4	255.6	242.3	13.32	19.193		
2,400.0	2,358.9	2,377.0	2,344.4	8.3	7.1	-128.84	-231.5	-116.1	278.0	263.7	14.33	19.400		
2,500.0	2,455.0	2,474.3	2,437.9	8.9	7.6	-127.72	-254.5	-129.9	300.6	285.2	15.35	19.578		
2,600.0	2,551.2	2,571.5	2,531.4	9.5	8.2	-126.76	-277.5	-143.6	323.2	306.8	16.38	19.731		
2,700.0	2,647.3	2,668.8	2,624.9	10.0	8.7	-125.92	-300.4	-157.3	346.0	328.5	17.42	19.865		
2,800.0	2,743.5	2,766.1	2,718.4	10.6	9.2	-125.19	-323.4	-171.1	368.7	350.3	18.45	19.982		
2,900.0	2,839.6	2,863.3	2,811.9	11.2	9.8	-124.54	-346.4	-184.8	391.6	372.1	19.49	20.087		
3,000.0	2,935.8	2,960.6	2,905.5	11.8	10.3	-123.97	-369.3	-198.6	414.5	393.9	20.54	20.179		
3,100.0	3,031.9	3,057.9	2,999.0	12.4	10.8	-123.45	-392.3	-212.3	437.4	415.8	21.59	20.262		
3,200.0	3,128.1	3,155.2	3,092.5	12.9	11.4	-122.99	-415.3	-226.0	460.3	437.7	22.63	20.337		
3,300.0	3,224.2	3,252.4	3,186.0	13.5	11.9	-122.57	-438.3	-239.8	483.3	459.6	23.68	20.405		
3,400.0	3,320.4	3,349.7	3,279.5	14.1	12.5	-122.19	-461.2	-253.5	506.3	481.5	24.74	20.467		
3,500.0	3,416.5	3,447.0	3,373.0	14.7	13.0	-121.84	-484.2	-267.2	529.3	503.5	25.79	20.523		
3,600.0	3,512.7	3,544.2	3,466.5	15.3	13.6	-121.52	-507.2	-281.0	552.3	525.5	26.84	20.575		
3,700.0	3,608.9	3,641.5	3,560.0	15.9	14.1	-121.22	-530.1	-294.7	575.4	547.5	27.90	20.623		
3,800.0	3,705.0	3,738.8	3,653.6	16.5	14.7	-120.95	-553.1	-308.4	598.4	569.5	28.96	20.666		
3,900.0	3,801.2	3,836.0	3,747.1	17.0	15.2	-120.70	-576.1	-322.2	621.5	591.5	30.01	20.707		
4,000.0	3,897.3	3,933.3	3,840.6	17.6	15.8	-120.47	-599.0	-335.9	644.6	613.5	31.07	20.745		
4,100.0	3,993.5	4,030.6	3,934.1	18.2	16.3	-120.25	-622.0	-349.6	667.7	635.5	32.13	20.780		
4,200.0	4,089.6	4,127.8	4,027.6	18.8	16.9	-120.05	-645.0	-363.4	690.8	657.6	33.19	20.812		
4,300.0	4,185.8	4,225.1	4,121.1	19.4	17.4	-119.86	-668.0	-377.1	713.9	679.6	34.25	20.843		
4,400.0	4,281.9	4,322.4	4,214.6	20.0	18.0	-119.68	-690.9	-390.9	737.0	701.7	35.31	20.871		
4,500.0	4,378.1	4,419.6	4,308.2	20.6	18.5	-119.51	-713.9	-404.6	760.1	723.7	36.37	20.898		
4,600.0	4,474.2	4,516.9	4,401.7	21.2	19.1	-119.35	-736.9	-418.3	783.2	745.8	37.43	20.924		
4,700.0	4,570.4	4,623.2	4,504.2	21.7	19.6	-119.30	-760.6	-432.5	805.9	767.4	38.43	20.968		
4,800.0	4,666.5	4,731.0	4,609.3	22.3	20.0	-119.52	-781.4	-445.0	827.3	788.0	39.32	21.039		
4,900.0	4,762.7	4,839.0	4,715.4	22.9	20.3	-119.99	-798.8	-455.4	847.6	807.4	40.16	21.104		
4,952.3	4,813.0	4,895.6	4,771.2	23.2	20.5	-120.33	-806.6	-460.0	857.7	817.1	40.58	21.137		
5,000.0	4,858.9	4,947.1	4,822.2	23.5	20.6	-120.83	-812.8	-463.7	866.5	825.6	40.93	21.172		
5,100.0	4,956.0	5,055.4	4,929.8	23.9	20.9	-121.83	-823.3	-470.0	882.9	841.3	41.53	21.259		
5,200.0	5,053.8	5,163.9	5,038.0	24.2	21.1	-122.80	-830.3	-474.2	896.4	854.4	42.03	21.326		
5,300.0	5,152.3	5,272.5	5,146.5	24.5	21.2	-123.74	-833.8	-476.3	907.1	864.7	42.44	21.376		
5,400.0	5,251.3	5,376.2	5,250.3	24.8	21.3	-124.59	-834.3	-476.6	915.1	872.3	42.75	21.403		
5,500.0	5,350.7	5,475.7	5,349.7	25.0	21.4	-125.22	-834.3	-476.6	921.1	878.1	43.02	21.408		
5,600.0	5,450.5	5,575.4	5,449.5	25.2	21.5	-125.64	-834.3	-476.6	925.1	881.9	43.26	21.384		
5,700.0	5,550.4	5,675.4	5,549.4	25.3	21.6	-125.85	-834.3	-476.6	927.1	883.7	43.47	21.326		
5,749.6	5,600.0	5,724.9	5,599.0	25.4	21.7	135.32	-834.3	-476.6	927.4	883.8	43.57	21.284		
5,800.0	5,650.4	5,775.4	5,649.4	25.4	21.7	135.32	-834.3	-476.6	927.4	883.7	43.68	21.230		
5,900.0	5,750.4	5,875.4	5,749.4	25.5	21.9	135.32	-834.3	-476.6	927.4	883.5	43.91	21.122		
6,000.0	5,850.4	5,975.4	5,849.4	25.6	22.0	135.32	-834.3	-476.6	927.4	883.3	44.13	21.013		
6,100.0	5,950.4	6,075.4	5,949.4	25.7	22.1	135.32	-834.3	-476.6	927.4	883.0	44.36	20.904		
6,200.0	6,050.4	6,175.4	6,049.4	25.8	22.2	135.32	-834.3	-476.6	927.4	882.8	44.60	20.795		
6,300.0	6,150.4	6,275.4	6,149.4	25.9	22.3	135.32	-834.3	-476.6	927.4	882.6	44.84	20.685		
6,400.0	6,250.4	6,375.4	6,249.4	26.1	22.4	135.32	-834.3	-476.6	927.4	882.3	45.08	20.574		
6,500.0	6,350.4	6,475.4	6,349.4	26.2	22.5	135.32	-834.3	-476.6	927.4	882.1	45.32	20.464		
6,600.0	6,450.4	6,575.4	6,449.4	26.3	22.7	135.32	-834.3	-476.6	927.4	881.8	45.57	20.353		
6,700.0	6,550.4	6,675.4	6,549.4	26.4	22.8	135.32	-834.3	-476.6	927.4	881.6	45.82	20.242		
6,800.0	6,650.4	6,775.4	6,649.4	26.5	22.9	135.32	-834.3	-476.6	927.4	881.3	46.07	20.131		
6,900.0	6,750.4	6,875.4	6,749.4	26.6	23.0	135.32	-834.3	-476.6	927.4	881.1	46.32	20.020		
7,000.0	6,850.4	6,975.4	6,849.4	26.8	23.1	135.32	-834.3	-476.6	927.4	880.8	46.58	19.909		
7,100.0	6,950.4	7,075.4	6,949.4	26.9	23.3	135.32	-834.3	-476.6	927.4	880.6	46.84	19.797		

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 Riteaway 11-32D
Project:	SEC.32-T5N-R67W	TVD Reference:	WELL @ 4808.0ft (Original Well Elev)
Reference Site:	Riteaway 32ND Pad Sec.32-T5N-R67W	MD Reference:	WELL @ 4808.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Riteaway 11-32D	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 (3-29-11)	Offset TVD Reference:	Offset Datum

Offset Design		Riteaway 32ND Pad Sec.32-T5N-R67W - Riteaway 32AD - Wellbore #1 - Plan #1 (1-07-10)											Offset Site Error:	0.0 ft
Survey Program: 0-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		
7,200.0	7,050.4	7,175.4	7,049.4	27.0	23.4	135.32	-834.3	-476.6	927.4	880.3	47.11	19.686		
7,300.0	7,150.4	7,275.4	7,149.4	27.1	23.5	135.32	-834.3	-476.6	927.4	880.0	47.38	19.575		
7,400.0	7,250.4	7,275.9	7,150.0	27.2	23.5	135.32	-834.3	-476.6	932.7	885.2	47.51	19.631		
7,500.0	7,350.4	7,275.9	7,150.0	27.4	23.5	135.32	-834.3	-476.6	948.6	901.0	47.65	19.908		
7,600.0	7,450.4	7,275.9	7,150.0	27.5	23.5	135.32	-834.3	-476.6	974.5	926.8	47.79	20.393		
7,700.0	7,550.4	7,275.9	7,150.0	27.6	23.5	135.32	-834.3	-476.6	1,009.8	961.8	47.93	21.069		
7,779.6	7,630.0	7,275.9	7,150.0	27.7	23.5	135.32	-834.3	-476.6	1,043.8	995.8	48.04	21.729		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Riteaway 11-32D
Project:	SEC.32-T5N-R67W	TVD Reference:	WELL @ 4808.0ft (Original Well Elev)
Reference Site:	Riteaway 32ND Pad Sec.32-T5N-R67W	MD Reference:	WELL @ 4808.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Riteaway 11-32D	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 (3-29-11)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4808.0ft (Original Well Elev) Coordinates are relative to: Riteaway 11-32D
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: 0.37°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Riteaway 11-32D
Project:	SEC.32-T5N-R67W	TVD Reference:	WELL @ 4808.0ft (Original Well Elev)
Reference Site:	Riteaway 32ND Pad Sec.32-T5N-R67W	MD Reference:	WELL @ 4808.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Riteaway 11-32D	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 (3-29-11)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4808.0ft (Original Well Elev) Coordinates are relative to: Riteaway 11-32D
 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: 0.37°

