

# PETROLEUM DEVELOPMENT CORP Weld County CO

## Well Name: Dillard 20M-203

Surface Location: Dillard 20M-HZ Pad Sec.20-T7N-R64W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

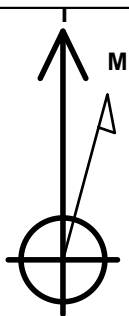
Ground Elevation: 4899.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1449911.67	3257602.69	40.564710	-104.572800	

RKB - 15' WELL @ 4914.0ft (RKB - 15')

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape Point
BHL 500'FSL, 2489'FEL	7046.0	-4459.3	-72.3	Point



Azimuths to True North  
Magnetic North: 8.58°

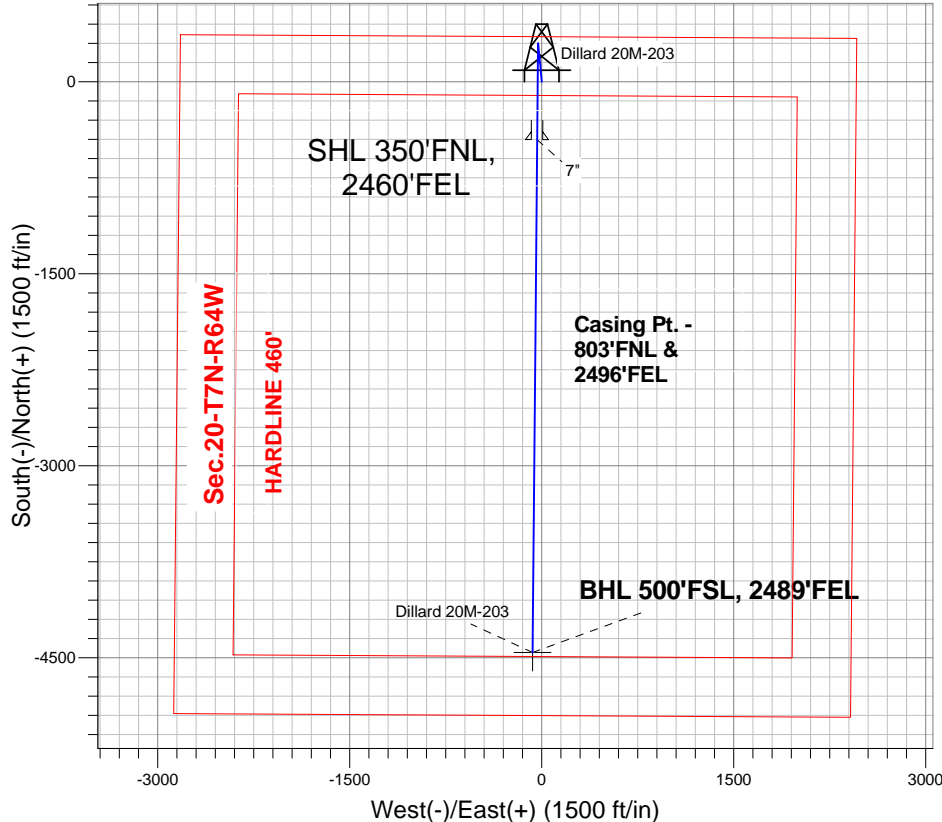
Magnetic Field  
Strength: 53083.7nT  
Dip Angle: 67.16°  
Date: 11/28/2012  
Model: IGRF2010

## ANNOTATIONS

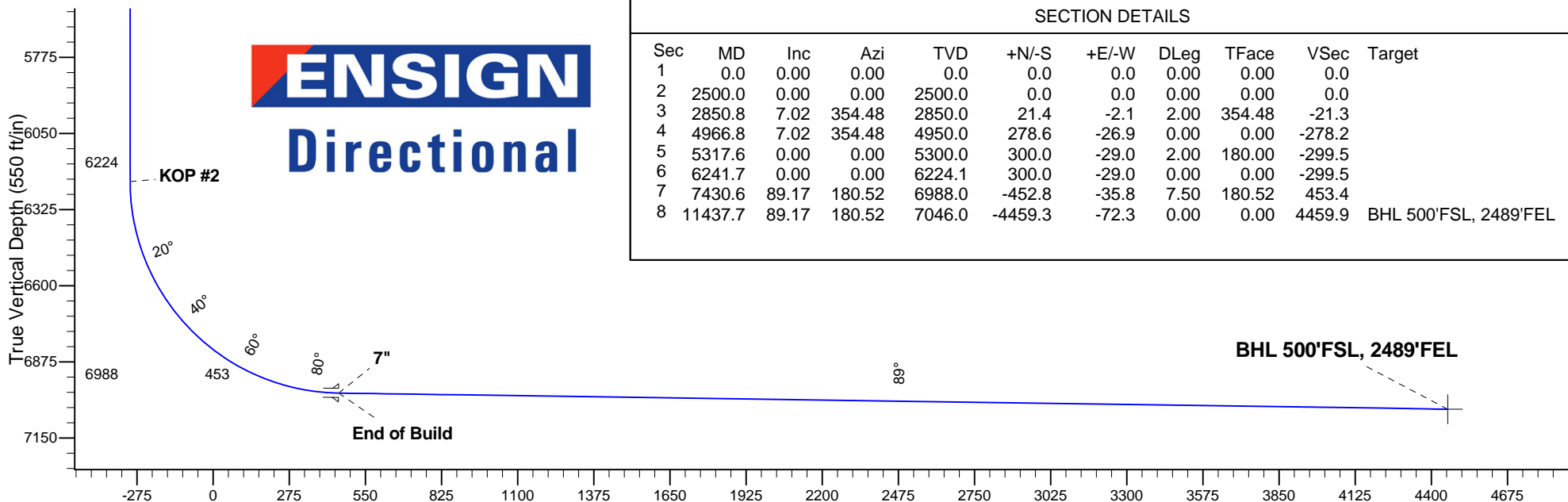
TVD	MD	Annotation
2500.0	2500.0	KOP #1
6224.1	6241.7	KOP #2
6988.0	7430.6	End of Build

Dillard 20M-HZ Pad Sec.20-T7N-R64W  
Dillard 20M-203  
Plan #1 (11-28-12)

South(-)/North(+) (1500 ft/in)



**ENSIGN**  
Directional



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2500.0	0.00	0.00	2500.0	0.0	0.0	0.00	0.00	0.0	
3	2850.8	7.02	354.48	2850.0	21.4	-2.1	2.00	354.48	-21.3	
4	4966.8	7.02	354.48	4950.0	278.6	-26.9	0.00	0.00	-278.2	
5	5317.6	0.00	0.00	5300.0	300.0	-29.0	2.00	180.00	-299.5	
6	6241.7	0.00	0.00	6224.1	300.0	-29.0	0.00	0.00	-299.5	
7	7430.6	89.17	180.52	6988.0	-452.8	-35.8	7.50	180.52	453.4	
8	11437.7	89.17	180.52	7046.0	-4459.3	-72.3	0.00	0.00	4459.9	BHL 500'FSL, 2489'FEL

Vertical Section at 180.93° (550 ft/in)



## **Directional**

# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.20-T7N-R64W**

**Dillard 20M-HZ Pad Sec.20-T7N-R64W**

**Dillard 20M-203**

**Wellbore #1**

**Plan: Plan #1 (11-28-12)**

## **Standard Planning Report**

**28 November, 2012**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Dillard 20M-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Project:</b>	SEC.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (11-28-12)		

<b>Project</b>	SEC.20-T7N-R64W, Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site						Dillard 20M-HZ Pad Sec.20-T7N-R64W											
Site Position:						Northing:			1,449,911.68ft			Latitude:			40.564710		
From:			Lat/Long			Easting:			3,257,602.69ft			Longitude:			-104.572800		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.60 °		

Well	Dillard 20M-203					
Well Position	+N/-S	0.0 ft	Northing:	1,449,911.67 ft	Latitude:	40.564710
	+E/-W	0.0 ft	Easting:	3,257,602.69 ft	Longitude:	-104.572800
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,899.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	11/28/2012	8.58	67.16	53,084

<b>Design</b>	Plan #1 (11-28-12)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	180.93

<b>Plan Sections</b>										
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	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,850.8	7.02	354.48	2,850.0	21.4	-2.1	2.00	2.00	0.00	354.48	
4,966.8	7.02	354.48	4,950.0	278.6	-26.9	0.00	0.00	0.00	0.00	
5,317.6	0.00	0.00	5,300.0	300.0	-29.0	2.00	-2.00	0.00	180.00	
6,241.7	0.00	0.00	6,224.1	300.0	-29.0	0.00	0.00	0.00	0.00	
7,430.6	89.17	180.52	6,988.0	-452.8	-35.8	7.50	7.50	0.00	180.52	
11,437.7	89.17	180.52	7,046.0	-4,459.3	-72.3	0.00	0.00	0.00	0.00	BHL 500'FSL, 2489

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Dillard 20M-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Project:</b>	SEC.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (11-28-12)		

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
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	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,040.0	0.00	0.00	1,040.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.00	0.00	1,080.0	0.0	0.0	0.0	0.00	0.00	0.00
1,120.0	0.00	0.00	1,120.0	0.0	0.0	0.0	0.00	0.00	0.00
1,160.0	0.00	0.00	1,160.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,240.0	0.00	0.00	1,240.0	0.0	0.0	0.0	0.00	0.00	0.00
1,280.0	0.00	0.00	1,280.0	0.0	0.0	0.0	0.00	0.00	0.00
1,320.0	0.00	0.00	1,320.0	0.0	0.0	0.0	0.00	0.00	0.00
1,360.0	0.00	0.00	1,360.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,440.0	0.00	0.00	1,440.0	0.0	0.0	0.0	0.00	0.00	0.00
1,480.0	0.00	0.00	1,480.0	0.0	0.0	0.0	0.00	0.00	0.00
1,520.0	0.00	0.00	1,520.0	0.0	0.0	0.0	0.00	0.00	0.00
1,560.0	0.00	0.00	1,560.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,640.0	0.00	0.00	1,640.0	0.0	0.0	0.0	0.00	0.00	0.00
1,680.0	0.00	0.00	1,680.0	0.0	0.0	0.0	0.00	0.00	0.00
1,720.0	0.00	0.00	1,720.0	0.0	0.0	0.0	0.00	0.00	0.00
1,760.0	0.00	0.00	1,760.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,840.0	0.00	0.00	1,840.0	0.0	0.0	0.0	0.00	0.00	0.00
1,880.0	0.00	0.00	1,880.0	0.0	0.0	0.0	0.00	0.00	0.00
1,920.0	0.00	0.00	1,920.0	0.0	0.0	0.0	0.00	0.00	0.00
1,960.0	0.00	0.00	1,960.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,040.0	0.00	0.00	2,040.0	0.0	0.0	0.0	0.00	0.00	0.00
2,080.0	0.00	0.00	2,080.0	0.0	0.0	0.0	0.00	0.00	0.00

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<b>Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (11-28-12)		

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)
2,120.0	0.00	0.00	2,120.0	0.0	0.0	0.0	0.00	0.00	0.00
2,160.0	0.00	0.00	2,160.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,240.0	0.00	0.00	2,240.0	0.0	0.0	0.0	0.00	0.00	0.00
2,280.0	0.00	0.00	2,280.0	0.0	0.0	0.0	0.00	0.00	0.00
2,320.0	0.00	0.00	2,320.0	0.0	0.0	0.0	0.00	0.00	0.00
2,360.0	0.00	0.00	2,360.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,440.0	0.00	0.00	2,440.0	0.0	0.0	0.0	0.00	0.00	0.00
2,480.0	0.00	0.00	2,480.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP #1</b>									
2,520.0	0.40	354.48	2,520.0	0.1	0.0	-0.1	2.00	2.00	0.00
2,560.0	1.20	354.48	2,560.0	0.6	-0.1	-0.6	2.00	2.00	0.00
2,600.0	2.00	354.48	2,600.0	1.7	-0.2	-1.7	2.00	2.00	0.00
2,640.0	2.80	354.48	2,639.9	3.4	-0.3	-3.4	2.00	2.00	0.00
2,680.0	3.60	354.48	2,679.9	5.6	-0.5	-5.6	2.00	2.00	0.00
2,720.0	4.40	354.48	2,719.8	8.4	-0.8	-8.4	2.00	2.00	0.00
2,760.0	5.20	354.48	2,759.6	11.7	-1.1	-11.7	2.00	2.00	0.00
2,800.0	6.00	354.48	2,799.5	15.6	-1.5	-15.6	2.00	2.00	0.00
2,840.0	6.80	354.48	2,839.2	20.1	-1.9	-20.0	2.00	2.00	0.00
2,850.8	7.02	354.48	2,850.0	21.4	-2.1	-21.3	2.00	2.00	0.00
2,880.0	7.02	354.48	2,878.9	24.9	-2.4	-24.9	0.00	0.00	0.00
2,920.0	7.02	354.48	2,918.6	29.8	-2.9	-29.7	0.00	0.00	0.00
2,960.0	7.02	354.48	2,958.3	34.6	-3.3	-34.6	0.00	0.00	0.00
3,000.0	7.02	354.48	2,998.0	39.5	-3.8	-39.4	0.00	0.00	0.00
3,040.0	7.02	354.48	3,037.7	44.4	-4.3	-44.3	0.00	0.00	0.00
3,080.0	7.02	354.48	3,077.4	49.2	-4.8	-49.1	0.00	0.00	0.00
3,120.0	7.02	354.48	3,117.1	54.1	-5.2	-54.0	0.00	0.00	0.00
3,160.0	7.02	354.48	3,156.8	58.9	-5.7	-58.8	0.00	0.00	0.00
3,200.0	7.02	354.48	3,196.5	63.8	-6.2	-63.7	0.00	0.00	0.00
3,240.0	7.02	354.48	3,236.2	68.7	-6.6	-68.6	0.00	0.00	0.00
3,280.0	7.02	354.48	3,275.9	73.5	-7.1	-73.4	0.00	0.00	0.00
3,320.0	7.02	354.48	3,315.6	78.4	-7.6	-78.3	0.00	0.00	0.00
3,360.0	7.02	354.48	3,355.3	83.3	-8.0	-83.1	0.00	0.00	0.00
3,400.0	7.02	354.48	3,395.0	88.1	-8.5	-88.0	0.00	0.00	0.00
3,440.0	7.02	354.48	3,434.7	93.0	-9.0	-92.8	0.00	0.00	0.00
3,480.0	7.02	354.48	3,474.4	97.9	-9.5	-97.7	0.00	0.00	0.00
3,520.0	7.02	354.48	3,514.1	102.7	-9.9	-102.5	0.00	0.00	0.00
3,560.0	7.02	354.48	3,553.8	107.6	-10.4	-107.4	0.00	0.00	0.00
3,600.0	7.02	354.48	3,593.5	112.5	-10.9	-112.3	0.00	0.00	0.00
3,640.0	7.02	354.48	3,633.2	117.3	-11.3	-117.1	0.00	0.00	0.00
3,680.0	7.02	354.48	3,672.9	122.2	-11.8	-122.0	0.00	0.00	0.00
3,720.0	7.02	354.48	3,712.6	127.0	-12.3	-126.8	0.00	0.00	0.00
3,760.0	7.02	354.48	3,752.3	131.9	-12.8	-131.7	0.00	0.00	0.00
3,800.0	7.02	354.48	3,792.0	136.8	-13.2	-136.5	0.00	0.00	0.00
3,840.0	7.02	354.48	3,831.7	141.6	-13.7	-141.4	0.00	0.00	0.00
3,880.0	7.02	354.48	3,871.4	146.5	-14.2	-146.2	0.00	0.00	0.00
3,920.0	7.02	354.48	3,911.1	151.4	-14.6	-151.1	0.00	0.00	0.00
3,960.0	7.02	354.48	3,950.8	156.2	-15.1	-156.0	0.00	0.00	0.00
4,000.0	7.02	354.48	3,990.5	161.1	-15.6	-160.8	0.00	0.00	0.00
4,040.0	7.02	354.48	4,030.2	166.0	-16.0	-165.7	0.00	0.00	0.00
4,080.0	7.02	354.48	4,069.9	170.8	-16.5	-170.5	0.00	0.00	0.00

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<b>Project:</b>	SEC.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (11-28-12)		

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	7.02	354.48	4,109.6	175.7	-17.0	-175.4	0.00	0.00	0.00
4,160.0	7.02	354.48	4,149.3	180.5	-17.5	-180.2	0.00	0.00	0.00
4,200.0	7.02	354.48	4,189.0	185.4	-17.9	-185.1	0.00	0.00	0.00
4,240.0	7.02	354.48	4,228.7	190.3	-18.4	-189.9	0.00	0.00	0.00
4,280.0	7.02	354.48	4,268.4	195.1	-18.9	-194.8	0.00	0.00	0.00
4,320.0	7.02	354.48	4,308.1	200.0	-19.3	-199.7	0.00	0.00	0.00
4,360.0	7.02	354.48	4,347.8	204.9	-19.8	-204.5	0.00	0.00	0.00
4,400.0	7.02	354.48	4,387.5	209.7	-20.3	-209.4	0.00	0.00	0.00
4,440.0	7.02	354.48	4,427.2	214.6	-20.7	-214.2	0.00	0.00	0.00
4,480.0	7.02	354.48	4,466.9	219.5	-21.2	-219.1	0.00	0.00	0.00
4,520.0	7.02	354.48	4,506.6	224.3	-21.7	-223.9	0.00	0.00	0.00
4,560.0	7.02	354.48	4,546.3	229.2	-22.2	-228.8	0.00	0.00	0.00
4,600.0	7.02	354.48	4,586.0	234.0	-22.6	-233.6	0.00	0.00	0.00
4,640.0	7.02	354.48	4,625.7	238.9	-23.1	-238.5	0.00	0.00	0.00
4,680.0	7.02	354.48	4,665.4	243.8	-23.6	-243.4	0.00	0.00	0.00
4,720.0	7.02	354.48	4,705.1	248.6	-24.0	-248.2	0.00	0.00	0.00
4,760.0	7.02	354.48	4,744.8	253.5	-24.5	-253.1	0.00	0.00	0.00
4,800.0	7.02	354.48	4,784.5	258.4	-25.0	-257.9	0.00	0.00	0.00
4,840.0	7.02	354.48	4,824.2	263.2	-25.4	-262.8	0.00	0.00	0.00
4,880.0	7.02	354.48	4,863.9	268.1	-25.9	-267.6	0.00	0.00	0.00
4,920.0	7.02	354.48	4,903.6	273.0	-26.4	-272.5	0.00	0.00	0.00
4,960.0	7.02	354.48	4,943.3	277.8	-26.9	-277.3	0.00	0.00	0.00
4,966.8	7.02	354.48	4,950.0	278.6	-26.9	-278.2	0.00	0.00	0.00
5,000.0	6.35	354.48	4,983.0	282.5	-27.3	-282.0	2.00	-2.00	0.00
5,040.0	5.55	354.48	5,022.8	286.6	-27.7	-286.1	2.00	-2.00	0.00
5,080.0	4.75	354.48	5,062.7	290.2	-28.1	-289.7	2.00	-2.00	0.00
5,120.0	3.95	354.48	5,102.6	293.2	-28.3	-292.7	2.00	-2.00	0.00
5,160.0	3.15	354.48	5,142.5	295.7	-28.6	-295.2	2.00	-2.00	0.00
5,200.0	2.35	354.48	5,182.4	297.6	-28.8	-297.1	2.00	-2.00	0.00
5,240.0	1.55	354.48	5,222.4	299.0	-28.9	-298.4	2.00	-2.00	0.00
5,280.0	0.75	354.48	5,262.4	299.8	-29.0	-299.2	2.00	-2.00	0.00
5,317.6	0.00	0.00	5,300.0	300.0	-29.0	-299.5	2.00	-2.00	0.00
5,320.0	0.00	0.00	5,302.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,360.0	0.00	0.00	5,342.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,400.0	0.00	0.00	5,382.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,440.0	0.00	0.00	5,422.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,480.0	0.00	0.00	5,462.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,520.0	0.00	0.00	5,502.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,560.0	0.00	0.00	5,542.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,600.0	0.00	0.00	5,582.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,640.0	0.00	0.00	5,622.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,680.0	0.00	0.00	5,662.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,720.0	0.00	0.00	5,702.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,760.0	0.00	0.00	5,742.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,782.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,840.0	0.00	0.00	5,822.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,880.0	0.00	0.00	5,862.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,920.0	0.00	0.00	5,902.4	300.0	-29.0	-299.5	0.00	0.00	0.00
5,960.0	0.00	0.00	5,942.4	300.0	-29.0	-299.5	0.00	0.00	0.00
6,000.0	0.00	0.00	5,982.4	300.0	-29.0	-299.5	0.00	0.00	0.00
6,040.0	0.00	0.00	6,022.4	300.0	-29.0	-299.5	0.00	0.00	0.00
6,080.0	0.00	0.00	6,062.4	300.0	-29.0	-299.5	0.00	0.00	0.00
6,120.0	0.00	0.00	6,102.4	300.0	-29.0	-299.5	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Dillard 20M-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Project:</b>	SEC.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (11-28-12)		

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)
6,160.0	0.00	0.00	6,142.4	300.0	-29.0	-299.5	0.00	0.00	0.00
6,200.0	0.00	0.00	6,182.4	300.0	-29.0	-299.5	0.00	0.00	0.00
6,240.0	0.00	0.00	6,222.4	300.0	-29.0	-299.5	0.00	0.00	0.00
6,241.7	0.00	0.00	6,224.1	300.0	-29.0	-299.5	0.00	0.00	0.00
<b>KOP #2</b>									
6,280.0	2.87	180.52	6,262.4	299.0	-29.0	-298.5	7.50	7.50	0.00
6,320.0	5.87	180.52	6,302.3	296.0	-29.0	-295.5	7.50	7.50	0.00
6,360.0	8.87	180.52	6,341.9	290.9	-29.1	-290.3	7.50	7.50	0.00
6,400.0	11.87	180.52	6,381.3	283.7	-29.1	-283.1	7.50	7.50	0.00
6,440.0	14.87	180.52	6,420.2	274.4	-29.2	-273.9	7.50	7.50	0.00
6,480.0	17.87	180.52	6,458.6	263.1	-29.3	-262.6	7.50	7.50	0.00
6,520.0	20.87	180.52	6,496.3	249.9	-29.5	-249.4	7.50	7.50	0.00
6,560.0	23.87	180.52	6,533.3	234.6	-29.6	-234.1	7.50	7.50	0.00
6,600.0	26.87	180.52	6,569.4	217.5	-29.7	-217.0	7.50	7.50	0.00
6,640.0	29.87	180.52	6,604.6	198.5	-29.9	-198.0	7.50	7.50	0.00
6,680.0	32.87	180.52	6,638.7	177.7	-30.1	-177.2	7.50	7.50	0.00
6,720.0	35.87	180.52	6,671.8	155.1	-30.3	-154.6	7.50	7.50	0.00
6,760.0	38.87	180.52	6,703.5	130.8	-30.5	-130.3	7.50	7.50	0.00
6,800.0	41.87	180.52	6,734.0	104.9	-30.8	-104.4	7.50	7.50	0.00
6,840.0	44.87	180.52	6,763.1	77.4	-31.0	-76.9	7.50	7.50	0.00
6,880.0	47.87	180.52	6,790.7	48.5	-31.3	-48.0	7.50	7.50	0.00
6,920.0	50.87	180.52	6,816.7	18.1	-31.6	-17.6	7.50	7.50	0.00
6,960.0	53.87	180.52	6,841.1	-13.5	-31.8	14.0	7.50	7.50	0.00
7,000.0	56.87	180.52	6,863.9	-46.4	-32.1	47.0	7.50	7.50	0.00
7,040.0	59.87	180.52	6,884.8	-80.5	-32.5	81.0	7.50	7.50	0.00
7,080.0	62.87	180.52	6,904.0	-115.6	-32.8	116.1	7.50	7.50	0.00
7,120.0	65.87	180.52	6,921.3	-151.7	-33.1	152.2	7.50	7.50	0.00
7,160.0	68.87	180.52	6,936.7	-188.6	-33.4	189.1	7.50	7.50	0.00
7,200.0	71.87	180.52	6,950.1	-226.2	-33.8	226.8	7.50	7.50	0.00
7,240.0	74.87	180.52	6,961.6	-264.6	-34.1	265.1	7.50	7.50	0.00
7,280.0	77.87	180.52	6,971.0	-303.4	-34.5	304.0	7.50	7.50	0.00
7,320.0	80.87	180.52	6,978.4	-342.7	-34.8	343.3	7.50	7.50	0.00
7,360.0	83.87	180.52	6,983.7	-382.4	-35.2	382.9	7.50	7.50	0.00
7,400.0	86.87	180.52	6,986.9	-422.2	-35.6	422.8	7.50	7.50	0.00
7,430.6	89.17	180.52	6,988.0	-452.8	-35.8	453.3	7.50	7.50	0.00
<b>End of Build - 7"</b>									
7,440.0	89.17	180.52	6,988.1	-462.2	-35.9	462.7	0.02	0.02	0.00
7,480.0	89.17	180.52	6,988.7	-502.2	-36.3	502.7	0.00	0.00	0.00
7,520.0	89.17	180.52	6,989.2	-542.2	-36.7	542.7	0.00	0.00	0.00
7,560.0	89.17	180.52	6,989.8	-582.2	-37.0	582.7	0.00	0.00	0.00
7,600.0	89.17	180.52	6,990.4	-622.2	-37.4	622.7	0.00	0.00	0.00
7,640.0	89.17	180.52	6,991.0	-662.2	-37.7	662.7	0.00	0.00	0.00
7,680.0	89.17	180.52	6,991.6	-702.2	-38.1	702.7	0.00	0.00	0.00
7,720.0	89.17	180.52	6,992.1	-742.2	-38.5	742.7	0.00	0.00	0.00
7,760.0	89.17	180.52	6,992.7	-782.2	-38.8	782.7	0.00	0.00	0.00
7,800.0	89.17	180.52	6,993.3	-822.2	-39.2	822.7	0.00	0.00	0.00
7,840.0	89.17	180.52	6,993.9	-862.2	-39.6	862.7	0.00	0.00	0.00
7,880.0	89.17	180.52	6,994.5	-902.2	-39.9	902.7	0.00	0.00	0.00
7,920.0	89.17	180.52	6,995.0	-942.1	-40.3	942.7	0.00	0.00	0.00
7,960.0	89.17	180.52	6,995.6	-982.1	-40.7	982.7	0.00	0.00	0.00
8,000.0	89.17	180.52	6,996.2	-1,022.1	-41.0	1,022.7	0.00	0.00	0.00
8,040.0	89.17	180.52	6,996.8	-1,062.1	-41.4	1,062.7	0.00	0.00	0.00
8,080.0	89.17	180.52	6,997.4	-1,102.1	-41.7	1,102.7	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Dillard 20M-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Project:</b>	SEC.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (11-28-12)		

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)
8,120.0	89.17	180.52	6,997.9	-1,142.1	-42.1	1,142.7	0.00	0.00	0.00
8,160.0	89.17	180.52	6,998.5	-1,182.1	-42.5	1,182.6	0.00	0.00	0.00
8,200.0	89.17	180.52	6,999.1	-1,222.1	-42.8	1,222.6	0.00	0.00	0.00
8,240.0	89.17	180.52	6,999.7	-1,262.1	-43.2	1,262.6	0.00	0.00	0.00
8,280.0	89.17	180.52	7,000.3	-1,302.1	-43.6	1,302.6	0.00	0.00	0.00
8,320.0	89.17	180.52	7,000.8	-1,342.1	-43.9	1,342.6	0.00	0.00	0.00
8,360.0	89.17	180.52	7,001.4	-1,382.1	-44.3	1,382.6	0.00	0.00	0.00
8,400.0	89.17	180.52	7,002.0	-1,422.1	-44.7	1,422.6	0.00	0.00	0.00
8,440.0	89.17	180.52	7,002.6	-1,462.1	-45.0	1,462.6	0.00	0.00	0.00
8,480.0	89.17	180.52	7,003.2	-1,502.1	-45.4	1,502.6	0.00	0.00	0.00
8,520.0	89.17	180.52	7,003.7	-1,542.1	-45.7	1,542.6	0.00	0.00	0.00
8,560.0	89.17	180.52	7,004.3	-1,582.1	-46.1	1,582.6	0.00	0.00	0.00
8,600.0	89.17	180.52	7,004.9	-1,622.1	-46.5	1,622.6	0.00	0.00	0.00
8,640.0	89.17	180.52	7,005.5	-1,662.0	-46.8	1,662.6	0.00	0.00	0.00
8,680.0	89.17	180.52	7,006.1	-1,702.0	-47.2	1,702.6	0.00	0.00	0.00
8,720.0	89.17	180.52	7,006.6	-1,742.0	-47.6	1,742.6	0.00	0.00	0.00
8,760.0	89.17	180.52	7,007.2	-1,782.0	-47.9	1,782.6	0.00	0.00	0.00
8,800.0	89.17	180.52	7,007.8	-1,822.0	-48.3	1,822.6	0.00	0.00	0.00
8,840.0	89.17	180.52	7,008.4	-1,862.0	-48.6	1,862.6	0.00	0.00	0.00
8,880.0	89.17	180.52	7,009.0	-1,902.0	-49.0	1,902.6	0.00	0.00	0.00
8,920.0	89.17	180.52	7,009.5	-1,942.0	-49.4	1,942.5	0.00	0.00	0.00
8,960.0	89.17	180.52	7,010.1	-1,982.0	-49.7	1,982.5	0.00	0.00	0.00
9,000.0	89.17	180.52	7,010.7	-2,022.0	-50.1	2,022.5	0.00	0.00	0.00
9,040.0	89.17	180.52	7,011.3	-2,062.0	-50.5	2,062.5	0.00	0.00	0.00
9,080.0	89.17	180.52	7,011.8	-2,102.0	-50.8	2,102.5	0.00	0.00	0.00
9,120.0	89.17	180.52	7,012.4	-2,142.0	-51.2	2,142.5	0.00	0.00	0.00
9,160.0	89.17	180.52	7,013.0	-2,182.0	-51.6	2,182.5	0.00	0.00	0.00
9,200.0	89.17	180.52	7,013.6	-2,222.0	-51.9	2,222.5	0.00	0.00	0.00
9,240.0	89.17	180.52	7,014.2	-2,262.0	-52.3	2,262.5	0.00	0.00	0.00
9,280.0	89.17	180.52	7,014.7	-2,302.0	-52.6	2,302.5	0.00	0.00	0.00
9,320.0	89.17	180.52	7,015.3	-2,341.9	-53.0	2,342.5	0.00	0.00	0.00
9,360.0	89.17	180.52	7,015.9	-2,381.9	-53.4	2,382.5	0.00	0.00	0.00
9,400.0	89.17	180.52	7,016.5	-2,421.9	-53.7	2,422.5	0.00	0.00	0.00
9,440.0	89.17	180.52	7,017.1	-2,461.9	-54.1	2,462.5	0.00	0.00	0.00
9,480.0	89.17	180.52	7,017.6	-2,501.9	-54.5	2,502.5	0.00	0.00	0.00
9,520.0	89.17	180.52	7,018.2	-2,541.9	-54.8	2,542.5	0.00	0.00	0.00
9,560.0	89.17	180.52	7,018.8	-2,581.9	-55.2	2,582.5	0.00	0.00	0.00
9,600.0	89.17	180.52	7,019.4	-2,621.9	-55.6	2,622.5	0.00	0.00	0.00
9,640.0	89.17	180.52	7,020.0	-2,661.9	-55.9	2,662.5	0.00	0.00	0.00
9,680.0	89.17	180.52	7,020.5	-2,701.9	-56.3	2,702.4	0.00	0.00	0.00
9,720.0	89.17	180.52	7,021.1	-2,741.9	-56.6	2,742.4	0.00	0.00	0.00
9,760.0	89.17	180.52	7,021.7	-2,781.9	-57.0	2,782.4	0.00	0.00	0.00
9,800.0	89.17	180.52	7,022.3	-2,821.9	-57.4	2,822.4	0.00	0.00	0.00
9,840.0	89.17	180.52	7,022.9	-2,861.9	-57.7	2,862.4	0.00	0.00	0.00
9,880.0	89.17	180.52	7,023.4	-2,901.9	-58.1	2,902.4	0.00	0.00	0.00
9,920.0	89.17	180.52	7,024.0	-2,941.9	-58.5	2,942.4	0.00	0.00	0.00
9,960.0	89.17	180.52	7,024.6	-2,981.9	-58.8	2,982.4	0.00	0.00	0.00
10,000.0	89.17	180.52	7,025.2	-3,021.8	-59.2	3,022.4	0.00	0.00	0.00
10,040.0	89.17	180.52	7,025.8	-3,061.8	-59.6	3,062.4	0.00	0.00	0.00
10,080.0	89.17	180.52	7,026.3	-3,101.8	-59.9	3,102.4	0.00	0.00	0.00
10,120.0	89.17	180.52	7,026.9	-3,141.8	-60.3	3,142.4	0.00	0.00	0.00
10,160.0	89.17	180.52	7,027.5	-3,181.8	-60.6	3,182.4	0.00	0.00	0.00
10,200.0	89.17	180.52	7,028.1	-3,221.8	-61.0	3,222.4	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Dillard 20M-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Project:</b>	SEC.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (11-28-12)		

## 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)
10,240.0	89.17	180.52	7,028.7	-3,261.8	-61.4	3,262.4	0.00	0.00	0.00
10,280.0	89.17	180.52	7,029.2	-3,301.8	-61.7	3,302.4	0.00	0.00	0.00
10,320.0	89.17	180.52	7,029.8	-3,341.8	-62.1	3,342.4	0.00	0.00	0.00
10,360.0	89.17	180.52	7,030.4	-3,381.8	-62.5	3,382.4	0.00	0.00	0.00
10,400.0	89.17	180.52	7,031.0	-3,421.8	-62.8	3,422.4	0.00	0.00	0.00
10,440.0	89.17	180.52	7,031.5	-3,461.8	-63.2	3,462.4	0.00	0.00	0.00
10,480.0	89.17	180.52	7,032.1	-3,501.8	-63.6	3,502.3	0.00	0.00	0.00
10,520.0	89.17	180.52	7,032.7	-3,541.8	-63.9	3,542.3	0.00	0.00	0.00
10,560.0	89.17	180.52	7,033.3	-3,581.8	-64.3	3,582.3	0.00	0.00	0.00
10,600.0	89.17	180.52	7,033.9	-3,621.8	-64.6	3,622.3	0.00	0.00	0.00
10,640.0	89.17	180.52	7,034.4	-3,661.8	-65.0	3,662.3	0.00	0.00	0.00
10,680.0	89.17	180.52	7,035.0	-3,701.7	-65.4	3,702.3	0.00	0.00	0.00
10,720.0	89.17	180.52	7,035.6	-3,741.7	-65.7	3,742.3	0.00	0.00	0.00
10,760.0	89.17	180.52	7,036.2	-3,781.7	-66.1	3,782.3	0.00	0.00	0.00
10,800.0	89.17	180.52	7,036.8	-3,821.7	-66.5	3,822.3	0.00	0.00	0.00
10,840.0	89.17	180.52	7,037.3	-3,861.7	-66.8	3,862.3	0.00	0.00	0.00
10,880.0	89.17	180.52	7,037.9	-3,901.7	-67.2	3,902.3	0.00	0.00	0.00
10,920.0	89.17	180.52	7,038.5	-3,941.7	-67.5	3,942.3	0.00	0.00	0.00
10,960.0	89.17	180.52	7,039.1	-3,981.7	-67.9	3,982.3	0.00	0.00	0.00
11,000.0	89.17	180.52	7,039.7	-4,021.7	-68.3	4,022.3	0.00	0.00	0.00
11,040.0	89.17	180.52	7,040.2	-4,061.7	-68.6	4,062.3	0.00	0.00	0.00
11,080.0	89.17	180.52	7,040.8	-4,101.7	-69.0	4,102.3	0.00	0.00	0.00
11,120.0	89.17	180.52	7,041.4	-4,141.7	-69.4	4,142.3	0.00	0.00	0.00
11,160.0	89.17	180.52	7,042.0	-4,181.7	-69.7	4,182.3	0.00	0.00	0.00
11,200.0	89.17	180.52	7,042.6	-4,221.7	-70.1	4,222.3	0.00	0.00	0.00
11,240.0	89.17	180.52	7,043.1	-4,261.7	-70.5	4,262.2	0.00	0.00	0.00
11,280.0	89.17	180.52	7,043.7	-4,301.7	-70.8	4,302.2	0.00	0.00	0.00
11,320.0	89.17	180.52	7,044.3	-4,341.7	-71.2	4,342.2	0.00	0.00	0.00
11,360.0	89.17	180.52	7,044.9	-4,381.6	-71.5	4,382.2	0.00	0.00	0.00
11,400.0	89.17	180.52	7,045.5	-4,421.6	-71.9	4,422.2	0.00	0.00	0.00
11,437.7	89.17	180.52	7,046.0	-4,459.3	-72.3	4,459.9	0.00	0.00	0.00

## Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,430.6	6,988.0	7"	7	8-3/4

## Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,500.0	2,500.0	0.0	0.0	KOP #1
6,241.7	6,224.1	300.0	-29.0	KOP #2
7,430.6	6,988.0	-452.8	-35.8	End of Build



## **Directional**

# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.20-T7N-R64W**

**Dillard 20M-HZ Pad Sec.20-T7N-R64W**

**Dillard 20M-203**

**Wellbore #1**

**Plan #1 (11-28-12)**

## **Anticollision Report**

**28 November, 2012**



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dillard 20M-203
<b>Project:</b>	SEC.20-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Reference Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (11-28-12)
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria
<b>Interpolation Method:</b>	Stations
<b>Depth Range:</b>	Unlimited
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.0ft
<b>Warning Levels Evaluated at:</b>	2.00 Sigma
<b>Error Model:</b>	ISCWSA
<b>Scan Method:</b>	Closest Approach 3D
<b>Error Surface:</b>	Elliptical Conic

Survey Tool Program		Date	11/28/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,437.7	Plan #1 (11-28-12) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Dillard 20M-HZ Pad Sec.20-T7N-R64W						
Dillard 20R-203 - Wellbore #1 - Plan #1 (11-28-12)	800.0	800.0	61.9	58.6	18.369	CC, ES
Dillard 20R-203 - Wellbore #1 - Plan #1 (11-28-12)	11,437.7	11,523.0	983.7	806.6	5.553	SF
Dillard 20R-443 - Wellbore #1 - Plan #1 (11-28-12)	1,000.0	1,000.0	32.8	28.5	7.677	CC, ES
Dillard 20R-443 - Wellbore #1 - Plan #1 (11-28-12)	11,437.7	11,614.5	683.4	510.7	3.958	SF

Offset Design      Dillard 20M-HZ Pad Sec.20-T7N-R64W - Dillard 20R-203 - Wellbore #1 - Plan #1 (11-28-12)												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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	61.9	0.0	61.9				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	61.9	0.0	61.9	61.7	0.22	275.535	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	61.9	0.0	61.9	61.3	0.67	91.845	
300.0	300.0	300.0	300.0	0.6	0.6	0.00	61.9	0.0	61.9	60.8	1.12	55.107	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	61.9	0.0	61.9	60.4	1.57	39.362	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	61.9	0.0	61.9	59.9	2.02	30.615	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	61.9	0.0	61.9	59.5	2.47	25.049	
700.0	700.0	700.0	700.0	1.5	1.5	0.00	61.9	0.0	61.9	59.0	2.92	21.195	
800.0	800.0	800.0	800.0	1.7	1.7	0.00	61.9	0.0	61.9	58.6	3.37	18.369	CC, ES
900.0	900.0	899.4	899.4	1.9	1.9	1.54	62.4	1.7	62.4	58.6	3.81	16.369	
1,000.0	1,000.0	998.6	998.5	2.1	2.1	5.99	63.6	6.7	64.0	59.7	4.25	15.064	
1,100.0	1,100.0	1,097.4	1,096.8	2.4	2.3	12.82	65.7	15.0	67.4	62.8	4.69	14.366	
1,200.0	1,200.0	1,195.4	1,194.1	2.6	2.6	21.07	68.6	26.4	73.7	68.6	5.15	14.301	
1,300.0	1,300.0	1,292.5	1,290.0	2.8	2.9	29.55	72.2	40.9	83.6	78.0	5.62	14.875	
1,400.0	1,400.0	1,388.4	1,384.3	3.0	3.2	37.31	76.6	58.4	97.6	91.5	6.09	16.032	
1,500.0	1,500.0	1,486.3	1,480.1	3.3	3.5	43.67	81.5	77.8	114.4	107.9	6.55	17.459	
1,600.0	1,600.0	1,584.2	1,575.9	3.5	3.9	48.38	86.4	97.2	132.3	125.3	7.01	18.868	
1,700.0	1,700.0	1,682.0	1,671.7	3.7	4.3	51.96	91.3	116.6	150.8	143.3	7.47	20.197	
1,800.0	1,800.0	1,779.9	1,767.5	3.9	4.7	54.75	96.2	136.1	169.7	161.8	7.92	21.428	
1,900.0	1,900.0	1,877.8	1,863.3	4.2	5.1	56.98	101.0	155.5	189.0	180.6	8.38	22.559	
2,000.0	2,000.0	1,975.7	1,959.2	4.4	5.5	58.80	105.9	174.9	208.5	199.7	8.84	23.595	
2,100.0	2,100.0	2,073.6	2,055.0	4.6	5.9	60.30	110.8	194.3	228.2	218.9	9.30	24.541	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dillard 20M-203
<b>Project:</b>	SEC.20-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Reference Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Dillard 20M-HZ Pad Sec.20-T7N-R64W - Dillard 20R-203 - Wellbore #1 - Plan #1 (11-28-12)											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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
2,200.0	2,200.0	2,171.5	2,150.8	4.8	6.3	61.57	115.7	213.7	248.0	238.2	9.76	25.408			
2,300.0	2,300.0	2,269.4	2,246.6	5.1	6.7	62.65	120.6	233.1	267.9	257.6	10.22	26.201			
2,400.0	2,400.0	2,367.2	2,342.4	5.3	7.1	63.58	125.5	252.6	287.8	277.1	10.69	26.929			
2,500.0	2,500.0	2,465.1	2,438.2	5.5	7.6	64.39	130.4	272.0	307.9	296.7	11.15	27.599			
2,600.0	2,600.0	2,563.1	2,534.1	5.7	8.0	70.54	135.2	291.4	327.4	315.7	11.71	27.956			
2,700.0	2,699.8	2,661.0	2,629.9	6.0	8.4	71.63	140.1	310.8	345.9	333.7	12.17	28.411			
2,800.0	2,799.5	2,758.7	2,725.6	6.2	8.9	73.11	145.0	330.2	363.6	351.0	12.63	28.788			
2,850.8	2,850.0	2,808.4	2,774.2	6.3	9.1	73.99	147.5	340.1	372.4	359.6	12.86	28.953			
2,900.0	2,898.8	2,856.3	2,821.1	6.4	9.3	75.03	149.9	349.6	380.9	367.8	13.08	29.111			
3,000.0	2,998.0	2,953.8	2,916.6	6.6	9.7	77.00	154.7	368.9	398.5	385.0	13.55	29.423			
3,100.0	3,097.3	3,051.4	3,012.1	6.9	10.1	78.81	159.6	388.3	416.6	402.6	14.02	29.718			
3,200.0	3,196.5	3,148.9	3,107.5	7.1	10.6	80.47	164.5	407.6	435.0	420.5	14.50	29.995			
3,300.0	3,295.8	3,246.4	3,203.0	7.4	11.0	81.99	169.3	426.9	453.8	438.8	15.00	30.254			
3,400.0	3,395.0	3,343.9	3,298.5	7.6	11.4	83.39	174.2	446.3	472.8	457.3	15.51	30.495			
3,500.0	3,494.3	3,441.5	3,393.9	7.9	11.9	84.69	179.1	465.6	492.2	476.1	16.02	30.719			
3,600.0	3,593.5	3,539.0	3,489.4	8.2	12.3	85.89	183.9	485.0	511.7	495.1	16.55	30.926			
3,700.0	3,692.8	3,636.5	3,584.9	8.4	12.8	87.00	188.8	504.3	531.4	514.3	17.08	31.118			
3,800.0	3,792.0	3,734.0	3,680.3	8.7	13.2	88.03	193.7	523.7	551.3	533.7	17.62	31.297			
3,900.0	3,891.3	3,831.6	3,775.8	9.0	13.6	88.99	198.5	543.0	571.4	553.2	18.16	31.462			
4,000.0	3,990.5	3,929.1	3,871.2	9.3	14.1	89.88	203.4	562.4	591.6	572.9	18.71	31.616			
4,100.0	4,089.8	4,026.6	3,966.7	9.6	14.5	90.72	208.3	581.7	612.0	592.7	19.27	31.759			
4,200.0	4,189.0	4,124.1	4,062.2	9.8	14.9	91.50	213.1	601.1	632.4	612.6	19.83	31.893			
4,300.0	4,288.3	4,221.7	4,157.6	10.1	15.4	92.24	218.0	620.4	653.0	632.6	20.40	32.017			
4,400.0	4,387.5	4,319.2	4,253.1	10.4	15.8	92.92	222.9	639.7	673.7	652.7	20.97	32.134			
4,500.0	4,486.8	4,416.7	4,348.6	10.7	16.2	93.57	227.7	659.1	694.5	672.9	21.54	32.243			
4,600.0	4,586.0	4,514.2	4,444.0	11.0	16.7	94.18	232.6	678.4	715.3	693.2	22.11	32.345			
4,700.0	4,685.3	4,611.8	4,539.5	11.3	17.1	94.76	237.5	697.8	736.2	713.5	22.69	32.442			
4,800.0	4,784.5	4,709.3	4,635.0	11.6	17.6	95.30	242.3	717.1	757.2	733.9	23.28	32.532			
4,900.0	4,883.8	4,806.8	4,730.4	11.9	18.0	95.82	247.2	736.5	778.2	754.4	23.86	32.618			
4,966.8	4,950.0	4,871.9	4,794.2	12.1	18.3	96.15	250.5	749.4	792.3	768.1	24.25	32.672			
5,000.0	4,983.0	4,904.4	4,825.9	12.1	18.4	96.44	252.1	755.8	799.3	774.9	24.44	32.699			
5,100.0	5,082.6	5,002.1	4,921.6	12.4	18.9	97.12	257.0	775.2	820.1	795.2	24.98	32.832			
5,200.0	5,182.4	5,100.0	5,017.4	12.6	19.3	97.53	261.8	794.6	840.5	815.0	25.48	32.985			
5,300.0	5,282.4	5,197.9	5,113.3	12.7	19.8	97.71	266.7	814.0	860.5	834.5	25.95	33.161			
5,317.6	5,300.0	5,215.2	5,130.1	12.8	19.8	92.19	267.6	817.5	864.0	838.0	25.99	33.241			
5,400.0	5,382.4	5,295.8	5,209.1	12.9	20.2	91.89	271.6	833.5	880.2	853.8	26.34	33.413			
5,500.0	5,482.4	5,393.7	5,304.9	13.1	20.6	91.53	276.5	852.9	899.9	873.1	26.79	33.591			
5,600.0	5,582.4	5,491.6	5,400.7	13.3	21.1	91.18	281.4	872.3	919.6	892.4	27.24	33.762			
5,700.0	5,682.4	5,589.5	5,496.5	13.5	21.5	90.85	286.3	891.7	939.4	911.7	27.69	33.928			
5,800.0	5,782.4	5,725.7	5,630.3	13.7	22.0	90.46	292.5	916.4	957.6	929.4	28.20	33.962			
5,900.0	5,882.4	5,872.7	5,775.9	13.9	22.4	90.15	297.4	936.2	971.0	942.3	28.68	33.853			
6,000.0	5,982.4	6,021.4	5,924.0	14.1	22.7	89.96	300.6	948.8	979.5	950.3	29.15	33.596			
6,100.0	6,082.4	6,171.1	6,073.6	14.3	22.9	89.89	301.9	953.9	982.9	953.3	29.61	33.196			
6,200.0	6,182.4	6,279.9	6,182.4	14.5	23.1	89.89	301.9	954.0	983.0	953.0	30.01	32.760			
6,241.7	6,224.1	6,321.6	6,224.1	14.6	23.1	89.89	301.9	954.0	983.0	952.8	30.17	32.585			
6,250.0	6,232.4	6,330.0	6,232.5	14.7	23.1	-90.63	301.9	954.0	983.0	952.8	30.23	32.515			
6,300.0	6,282.3	6,380.7	6,283.2	14.7	23.2	-90.63	299.6	954.0	983.0	952.6	30.37	32.365			
6,315.7	6,298.0	6,396.7	6,299.0	14.7	23.2	-90.63	298.2	954.0	983.0	952.6	30.41	32.326			
6,350.0	6,332.0	6,431.4	6,333.6	14.8	23.2	-90.63	294.0	953.9	983.0	952.5	30.48	32.252			
6,400.0	6,381.3	6,482.1	6,383.5	14.8	23.3	-90.62	285.1	953.8	983.0	952.4	30.55	32.172			
6,450.0	6,429.8	6,532.8	6,432.6	14.8	23.3	-90.61	272.9	953.7	983.0	952.4	30.60	32.120			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dillard 20M-203
<b>Project:</b>	SEC.20-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Reference Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Dillard 20M-HZ Pad Sec.20-T7N-R64W - Dillard 20R-203 - Wellbore #1 - Plan #1 (11-28-12)													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
6,500.0	6,477.5	6,583.5	6,480.9	14.8	23.3	-90.60		257.4	953.6	983.0	952.4	30.63	32.092	
6,550.0	6,524.1	6,634.1	6,528.0	14.8	23.3	-90.58		238.8	953.4	983.0	952.4	30.64	32.081	
6,600.0	6,569.4	6,684.8	6,573.8	14.8	23.3	-90.56		217.2	953.2	983.0	952.4	30.65	32.077	
6,650.0	6,613.2	6,735.4	6,618.0	14.8	23.3	-90.54		192.5	953.0	983.0	952.4	30.65	32.071	
6,700.0	6,655.4	6,786.0	6,660.4	14.8	23.3	-90.52		165.0	952.8	983.0	952.3	30.67	32.054	
6,750.0	6,695.7	6,836.6	6,700.9	14.8	23.3	-90.49		134.8	952.5	983.0	952.3	30.70	32.015	
6,800.0	6,734.0	6,887.1	6,739.3	14.8	23.3	-90.47		102.0	952.2	983.0	952.2	30.78	31.942	
6,850.0	6,770.1	6,937.6	6,775.5	14.9	23.3	-90.44		66.7	951.9	983.0	952.1	30.89	31.825	
6,900.0	6,803.9	6,988.1	6,809.2	14.9	23.3	-90.41		29.1	951.6	983.0	952.0	31.06	31.653	
6,950.0	6,835.2	7,038.5	6,840.3	15.0	23.4	-90.37		-10.5	951.2	983.0	951.7	31.29	31.420	
7,000.0	6,863.9	7,088.9	6,868.7	15.2	23.4	-90.34		-52.1	950.8	983.0	951.4	31.59	31.119	
7,050.0	6,889.8	7,139.2	6,894.3	15.3	23.5	-90.30		-95.5	950.5	983.0	951.0	31.97	30.747	
7,100.0	6,912.9	7,189.5	6,917.0	15.6	23.6	-90.27		-140.4	950.1	983.0	950.6	32.44	30.304	
7,150.0	6,933.0	7,239.8	6,936.6	15.8	23.7	-90.23		-186.7	949.6	983.0	950.0	32.99	29.794	
7,200.0	6,950.1	7,290.0	6,953.2	16.1	23.9	-90.19		-234.1	949.2	983.0	949.4	33.64	29.224	
7,250.0	6,964.1	7,340.2	6,966.5	16.5	24.1	-90.15		-282.4	948.8	983.0	948.7	34.37	28.602	
7,300.0	6,974.9	7,390.4	6,976.7	16.9	24.3	-90.11		-331.5	948.3	983.0	947.9	35.19	27.938	
7,350.0	6,982.5	7,440.5	6,983.7	17.3	24.6	-90.07		-381.1	947.9	983.1	947.0	36.08	27.243	
7,400.0	6,986.9	7,490.5	6,987.3	17.8	24.9	-90.03		-431.0	947.5	983.1	946.0	37.05	26.531	
7,430.6	6,988.0	7,521.1	6,988.0	18.1	25.1	-90.00		-461.6	947.2	983.1	945.4	37.68	26.087	
7,500.0	6,989.0	7,590.5	6,989.0	18.9	25.6	-90.00		-531.0	946.6	983.1	943.9	39.19	25.084	
7,600.0	6,990.4	7,690.5	6,990.5	20.1	26.5	-90.00		-631.0	945.7	983.1	941.5	41.57	23.648	
7,700.0	6,991.9	7,790.5	6,991.9	21.4	27.5	-90.00		-731.0	944.8	983.1	939.0	44.16	22.263	
7,800.0	6,993.3	7,890.5	6,993.4	22.8	28.5	-90.00		-830.9	943.9	983.1	936.2	46.92	20.954	
7,900.0	6,994.8	7,990.5	6,994.8	24.3	29.7	-90.00		-930.9	943.0	983.1	933.3	49.82	19.734	
8,000.0	6,996.2	8,090.5	6,996.3	25.8	31.0	-90.00		-1,030.9	942.1	983.2	930.3	52.84	18.605	
8,100.0	6,997.7	8,190.5	6,997.7	27.3	32.4	-90.00		-1,130.9	941.2	983.2	927.2	55.97	17.567	
8,200.0	6,999.1	8,290.5	6,999.2	29.0	33.8	-90.00		-1,230.9	940.3	983.2	924.0	59.18	16.615	
8,300.0	7,000.5	8,390.5	7,000.6	30.6	35.2	-90.00		-1,330.9	939.4	983.2	920.8	62.46	15.743	
8,400.0	7,002.0	8,490.5	7,002.1	32.3	36.7	-90.00		-1,430.9	938.5	983.2	917.4	65.80	14.944	
8,500.0	7,003.4	8,590.5	7,003.5	34.0	38.3	-90.00		-1,530.8	937.6	983.2	914.1	69.19	14.211	
8,600.0	7,004.9	8,690.5	7,005.0	35.7	39.8	-90.00		-1,630.8	936.8	983.3	910.6	72.63	13.539	
8,700.0	7,006.3	8,790.5	7,006.4	37.5	41.4	-90.00		-1,730.8	935.9	983.3	907.2	76.10	12.920	
8,800.0	7,007.8	8,890.5	7,007.9	39.2	43.1	-90.00		-1,830.8	935.0	983.3	903.7	79.61	12.351	
8,900.0	7,009.2	8,990.5	7,009.3	41.0	44.7	-90.00		-1,930.8	934.1	983.3	900.2	83.15	11.825	
9,000.0	7,010.7	9,090.5	7,010.8	42.8	46.4	-90.00		-2,030.8	933.2	983.3	896.6	86.72	11.339	
9,100.0	7,012.1	9,190.5	7,012.2	44.6	48.1	-90.00		-2,130.7	932.3	983.3	893.0	90.31	10.889	
9,200.0	7,013.6	9,290.5	7,013.7	46.4	49.8	-90.00		-2,230.7	931.4	983.4	889.4	93.92	10.471	
9,300.0	7,015.0	9,390.5	7,015.1	48.2	51.5	-90.00		-2,330.7	930.5	983.4	885.8	97.54	10.082	
9,400.0	7,016.5	9,490.5	7,016.6	50.1	53.3	-90.00		-2,430.7	929.6	983.4	882.2	101.18	9.719	
9,500.0	7,017.9	9,590.5	7,018.0	51.9	55.0	-90.00		-2,530.7	928.7	983.4	878.6	104.84	9.380	
9,600.0	7,019.4	9,690.5	7,019.5	53.7	56.8	-90.00		-2,630.7	927.8	983.4	874.9	108.51	9.063	
9,700.0	7,020.8	9,790.5	7,020.9	55.6	58.6	-90.00		-2,730.7	926.9	983.4	871.3	112.19	8.766	
9,800.0	7,022.3	9,890.5	7,022.4	57.4	60.4	-90.00		-2,830.6	926.1	983.5	867.6	115.88	8.487	
9,900.0	7,023.7	9,990.5	7,023.8	59.3	62.2	-90.00		-2,930.6	925.2	983.5	863.9	119.58	8.224	
10,000.0	7,025.2	10,090.5	7,025.2	61.1	64.0	-90.00		-3,030.6	924.3	983.5	860.2	123.29	7.977	
10,100.0	7,026.6	10,190.5	7,026.7	63.0	65.8	-90.00		-3,130.6	923.4	983.5	856.5	127.01	7.744	
10,200.0	7,028.1	10,290.5	7,028.1	64.9	67.6	-90.00		-3,230.6	922.5	983.5	852.8	130.73	7.523	
10,300.0	7,029.5	10,390.5	7,029.6	66.7	69.4	-90.00		-3,330.6	921.6	983.5	849.1	134.47	7.314	
10,400.0	7,031.0	10,490.5	7,031.0	68.6	71.2	-90.00		-3,430.6	920.7	983.6	845.4	138.20	7.117	
10,500.0	7,032.4	10,590.5	7,032.5	70.5	73.0	-90.00		-3,530.5	919.8	983.6	841.6	141.95	6.929	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dillard 20M-203
<b>Project:</b>	SEC.20-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Reference Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Dillard 20M-HZ Pad Sec.20-T7N-R64W - Dillard 20R-203 - Wellbore #1 - Plan #1 (11-28-12)													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis 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	
10,600.0	7,033.9	10,690.5	7,033.9	72.4	74.9	-90.00	-3,630.5	918.9	983.6	837.9	145.69	6.751		
10,700.0	7,035.3	10,790.5	7,035.4	74.2	76.7	-90.00	-3,730.5	918.0	983.6	834.2	149.45	6.582		
10,800.0	7,036.8	10,890.5	7,036.8	76.1	78.5	-90.00	-3,830.5	917.1	983.6	830.4	153.20	6.420		
10,900.0	7,038.2	10,990.5	7,038.3	78.0	80.4	-90.00	-3,930.5	916.2	983.6	826.7	156.97	6.267		
11,000.0	7,039.7	11,090.5	7,039.7	79.9	82.2	-90.00	-4,030.5	915.3	983.7	822.9	160.73	6.120		
11,100.0	7,041.1	11,190.5	7,041.2	81.8	84.1	-90.00	-4,130.5	914.5	983.7	819.2	164.50	5.980		
11,200.0	7,042.6	11,290.5	7,042.6	83.7	85.9	-90.00	-4,230.4	913.6	983.7	815.4	168.27	5.846		
11,300.0	7,044.0	11,390.5	7,044.1	85.6	87.8	-90.00	-4,330.4	912.7	983.7	811.7	172.05	5.718		
11,400.0	7,045.5	11,490.5	7,045.5	87.5	89.7	-90.00	-4,430.4	911.8	983.7	807.9	175.83	5.595		
11,416.8	7,045.7	11,507.3	7,045.8	87.8	90.0	-90.00	-4,447.2	911.6	983.7	807.3	176.46	5.575		
11,437.7	7,046.0	11,523.0	7,046.0	88.2	90.3	-90.00	-4,462.9	911.5	983.7	806.6	177.15	5.553 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dillard 20M-203
<b>Project:</b>	SEC.20-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Reference Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Dillard 20M-HZ Pad Sec.20-T7N-R64W - Dillard 20R-443 - Wellbore #1 - Plan #1 (11-28-12)													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
0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	32.8	0.0	32.8				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	0.00	32.8	0.0	32.8	32.6	0.22	145.863	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	0.00	32.8	0.0	32.8	32.1	0.67	48.621	
300.0	300.0	300.0	300.0	0.6	0.6	0.00	0.00	32.8	0.0	32.8	31.7	1.12	29.173	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	0.00	32.8	0.0	32.8	31.2	1.57	20.838	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	0.00	32.8	0.0	32.8	30.8	2.02	16.207	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	0.00	32.8	0.0	32.8	30.3	2.47	13.260	
700.0	700.0	700.0	700.0	1.5	1.5	0.00	0.00	32.8	0.0	32.8	29.9	2.92	11.220	
800.0	800.0	800.0	800.0	1.7	1.7	0.00	0.00	32.8	0.0	32.8	29.4	3.37	9.724	
900.0	900.0	900.0	900.0	1.9	1.9	0.00	0.00	32.8	0.0	32.8	29.0	3.82	8.580	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	0.00	32.8	0.0	32.8	28.5	4.27	7.677 CC, ES	
1,100.0	1,100.0	1,099.5	1,099.5	2.4	2.4	2.72	33.5	1.6	33.5	28.8	4.71	7.110		
1,200.0	1,200.0	1,198.8	1,198.6	2.6	2.6	10.15	35.5	6.3	36.1	30.9	5.15	7.002		
1,300.0	1,300.0	1,297.6	1,297.1	2.8	2.8	20.13	38.8	14.2	41.4	35.8	5.60	7.404		
1,400.0	1,400.0	1,395.7	1,394.4	3.0	3.0	30.06	43.4	25.1	50.5	44.4	6.05	8.349		
1,500.0	1,500.0	1,493.9	1,491.5	3.3	3.3	38.20	49.2	38.7	63.1	56.6	6.50	9.715		
1,600.0	1,600.0	1,592.7	1,589.1	3.5	3.6	43.71	55.1	52.6	77.0	70.0	6.94	11.084		
1,700.0	1,700.0	1,691.5	1,686.8	3.7	3.9	47.53	61.0	66.6	91.3	83.9	7.39	12.353		
1,800.0	1,800.0	1,790.3	1,784.4	3.9	4.2	50.31	66.9	80.6	105.9	98.1	7.84	13.512		
1,900.0	1,900.0	1,889.1	1,882.1	4.2	4.5	52.41	72.8	94.6	120.7	112.4	8.29	14.564		
2,000.0	2,000.0	1,987.9	1,979.7	4.4	4.8	54.05	78.7	108.6	135.6	126.9	8.74	15.520		
2,100.0	2,100.0	2,086.7	2,077.3	4.6	5.1	55.36	84.6	122.5	150.6	141.4	9.19	16.388		
2,200.0	2,200.0	2,185.5	2,175.0	4.8	5.5	56.44	90.6	136.5	165.7	156.1	9.65	17.179		
2,300.0	2,300.0	2,284.4	2,272.6	5.1	5.8	57.34	96.5	150.5	180.8	170.7	10.10	17.901		
2,400.0	2,400.0	2,383.2	2,370.3	5.3	6.2	58.10	102.4	164.5	196.0	185.4	10.56	18.562		
2,500.0	2,500.0	2,482.0	2,467.9	5.5	6.5	58.74	108.3	178.4	211.2	200.2	11.02	19.169		
2,600.0	2,600.0	2,580.9	2,565.6	5.7	6.8	64.97	114.2	192.4	225.7	214.1	11.51	19.607		
2,700.0	2,699.8	2,679.8	2,663.3	6.0	7.2	66.34	120.1	206.4	238.8	226.8	11.96	19.960		
2,800.0	2,799.5	2,778.6	2,761.0	6.2	7.5	68.30	126.1	220.4	250.8	238.4	12.42	20.202		
2,850.8	2,850.0	2,828.8	2,810.6	6.3	7.7	69.50	129.1	227.5	256.6	243.9	12.65	20.291		
2,900.0	2,898.8	2,877.3	2,858.5	6.4	7.9	70.80	132.0	234.3	262.2	249.3	12.87	20.368		
3,000.0	2,998.0	2,975.9	2,956.0	6.6	8.2	73.28	137.9	248.3	273.9	260.5	13.34	20.532		
3,100.0	3,097.3	3,074.5	3,053.4	6.9	8.6	75.55	143.8	262.2	286.0	272.2	13.82	20.702		
3,200.0	3,196.5	3,173.2	3,150.9	7.1	8.9	77.63	149.7	276.2	298.6	284.3	14.31	20.872		
3,300.0	3,295.8	3,271.8	3,248.4	7.4	9.3	79.55	155.6	290.1	311.6	296.8	14.81	21.040		
3,400.0	3,395.0	3,370.5	3,345.8	7.6	9.6	81.31	161.5	304.1	324.8	309.5	15.32	21.205		
3,500.0	3,494.3	3,469.1	3,443.3	7.9	10.0	82.94	167.4	318.0	338.4	322.6	15.84	21.365		
3,600.0	3,593.5	3,567.7	3,540.8	8.2	10.3	84.44	173.3	332.0	352.2	335.8	16.37	21.519		
3,700.0	3,692.8	3,666.4	3,638.2	8.4	10.7	85.83	179.2	345.9	366.2	349.3	16.90	21.668		
3,800.0	3,792.0	3,765.0	3,735.7	8.7	11.1	87.11	185.1	359.9	380.4	363.0	17.44	21.810		
3,900.0	3,891.3	3,863.6	3,833.1	9.0	11.4	88.30	191.0	373.8	394.8	376.8	17.99	21.947		
4,000.0	3,990.5	3,962.3	3,930.6	9.3	11.8	89.41	196.9	387.8	409.4	390.8	18.54	22.078		
4,100.0	4,089.8	4,060.9	4,028.1	9.6	12.1	90.44	202.8	401.7	424.0	404.9	19.10	22.204		
4,200.0	4,189.0	4,159.5	4,125.5	9.8	12.5	91.40	208.7	415.7	438.9	419.2	19.66	22.324		
4,300.0	4,288.3	4,258.2	4,223.0	10.1	12.8	92.31	214.6	429.6	453.8	433.6	20.22	22.439		
4,400.0	4,387.5	4,356.8	4,320.5	10.4	13.2	93.15	220.5	443.6	468.8	448.0	20.79	22.549		
4,500.0	4,486.8	4,455.4	4,417.9	10.7	13.5	93.94	226.4	457.5	483.9	462.6	21.36	22.655		
4,600.0	4,586.0	4,554.1	4,515.4	11.0	13.9	94.68	232.3	471.5	499.1	477.2	21.93	22.756		
4,700.0	4,685.3	4,652.7	4,612.9	11.3	14.3	95.38	238.2	485.4	514.4	491.9	22.51	22.853		
4,800.0	4,784.5	4,751.3	4,710.3	11.6	14.6	96.04	244.1	499.4	529.8	506.7	23.09	22.946		
4,900.0	4,883.8	4,850.0	4,807.8	11.9	15.0	96.66	250.0	513.3	545.2	521.5	23.67	23.036		

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dillard 20M-203
<b>Project:</b>	SEC.20-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Reference Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Dillard 20M-HZ Pad Sec.20-T7N-R64W - Dillard 20R-443 - Wellbore #1 - Plan #1 (11-28-12)													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
4,966.8	4,950.0	4,915.8	4,872.9	12.1	15.2	97.06	97.06	254.0	522.7	555.5	531.5	24.06	23.094	
5,000.0	4,983.0	4,948.6	4,905.3	12.1	15.3	97.33	97.33	255.9	527.3	560.7	536.4	24.24	23.126	
5,100.0	5,082.6	5,047.4	5,002.9	12.4	15.7	97.90	97.90	261.9	541.3	575.8	551.0	24.76	23.256	
5,200.0	5,182.4	5,146.3	5,100.6	12.6	16.0	98.11	98.11	267.8	555.3	590.5	565.2	25.24	23.397	
5,300.0	5,282.4	5,245.2	5,198.4	12.7	16.4	97.99	97.99	273.7	569.2	604.7	579.0	25.68	23.551	
5,317.6	5,300.0	5,262.6	5,215.5	12.8	16.5	92.41	92.41	274.7	571.7	607.1	581.4	25.72	23.605	
5,400.0	5,382.4	5,344.0	5,296.0	12.9	16.8	91.91	91.91	279.6	583.2	618.6	592.6	26.06	23.738	
5,500.0	5,482.4	5,442.9	5,393.6	13.1	17.1	91.32	91.32	285.5	597.2	632.6	606.1	26.49	23.878	
5,600.0	5,582.4	5,549.9	5,499.5	13.3	17.5	90.73	90.73	291.8	612.1	646.5	619.5	26.94	24.001	
5,700.0	5,682.4	5,675.5	5,624.2	13.5	17.8	90.21	90.21	297.6	625.7	657.3	630.0	27.38	24.009	
5,800.0	5,782.4	5,802.1	5,750.4	13.7	18.1	89.89	89.89	301.3	634.4	664.2	636.4	27.80	23.887	
5,900.0	5,882.4	5,929.3	5,877.6	13.9	18.3	89.76	89.76	302.8	637.9	666.9	638.7	28.22	23.633	
6,000.0	5,982.4	6,034.2	5,982.4	14.1	18.4	89.76	89.76	302.8	638.0	667.0	638.4	28.61	23.311	
6,100.0	6,082.4	6,134.2	6,082.4	14.3	18.6	89.76	89.76	302.8	638.0	667.0	638.0	29.01	22.993	
6,200.0	6,182.4	6,234.2	6,182.4	14.5	18.7	89.76	89.76	302.8	638.0	667.0	637.6	29.41	22.683	
6,241.7	6,224.1	6,275.9	6,224.1	14.6	18.8	89.76	89.76	302.8	638.0	667.0	637.4	29.57	22.556	
6,250.0	6,232.4	6,284.2	6,232.4	14.7	18.8	-90.76	-90.76	302.8	638.0	667.0	637.4	29.63	22.511	
6,300.0	6,282.3	6,334.1	6,282.3	14.7	18.9	-90.95	-90.95	302.8	638.0	667.0	637.3	29.78	22.396	
6,350.0	6,332.0	6,383.8	6,332.0	14.8	19.0	-91.40	-91.40	302.8	638.0	667.2	637.2	29.90	22.311	
6,400.0	6,381.3	6,433.6	6,381.9	14.8	19.0	-92.11	-92.11	302.6	638.0	667.4	637.4	29.99	22.257	
6,450.0	6,429.8	6,484.8	6,432.9	14.8	19.1	-92.87	-92.87	299.6	638.0	667.8	637.8	30.03	22.237	
6,500.0	6,477.5	6,536.6	6,484.3	14.8	19.2	-93.63	-93.63	293.2	637.9	668.3	638.3	30.05	22.241	
6,550.0	6,524.1	6,589.0	6,535.8	14.8	19.2	-94.38	-94.38	283.1	637.8	669.0	638.9	30.05	22.265	
6,600.0	6,569.4	6,642.2	6,587.1	14.8	19.2	-95.11	-95.11	269.3	637.7	669.7	639.7	30.02	22.305	
6,650.0	6,613.2	6,696.1	6,638.0	14.8	19.2	-95.82	-95.82	251.8	637.5	670.5	640.5	29.99	22.354	
6,700.0	6,655.4	6,750.6	6,688.2	14.8	19.2	-96.51	-96.51	230.4	637.3	671.4	641.4	29.97	22.406	
6,750.0	6,695.7	6,805.8	6,737.3	14.8	19.2	-97.18	-97.18	205.1	637.1	672.3	642.4	29.95	22.452	
6,800.0	6,734.0	6,861.8	6,785.0	14.8	19.2	-97.81	-97.81	176.0	636.8	673.3	643.4	29.95	22.483	
6,850.0	6,770.1	6,918.4	6,831.1	14.9	19.2	-98.41	-98.41	143.0	636.6	674.3	644.4	29.98	22.491	
6,900.0	6,803.9	6,975.7	6,875.0	14.9	19.2	-98.97	-98.97	106.3	636.2	675.4	645.3	30.06	22.464	
6,950.0	6,835.2	7,033.6	6,916.5	15.0	19.2	-99.50	-99.50	66.0	635.9	676.3	646.1	30.20	22.395	
7,000.0	6,863.9	7,092.1	6,955.2	15.2	19.2	-99.97	-99.97	22.1	635.5	677.3	646.9	30.41	22.275	
7,050.0	6,889.8	7,151.1	6,990.8	15.3	19.2	-100.40	-100.40	-25.0	635.0	678.2	647.5	30.69	22.098	
7,100.0	6,912.9	7,210.7	7,022.8	15.6	19.3	-100.78	-100.78	-75.2	634.6	679.0	647.9	31.07	21.855	
7,150.0	6,933.0	7,270.7	7,051.1	15.8	19.4	-101.10	-101.10	-128.1	634.1	679.7	648.2	31.54	21.548	
7,200.0	6,950.1	7,331.1	7,075.2	16.1	19.6	-101.37	-101.37	-183.5	633.6	680.3	648.2	32.12	21.180	
7,250.0	6,964.1	7,391.9	7,095.0	16.5	19.8	-101.58	-101.58	-240.9	633.1	680.8	648.0	32.80	20.757	
7,300.0	6,974.9	7,452.8	7,110.3	16.9	20.1	-101.72	-101.72	-299.9	632.5	681.2	647.6	33.58	20.283	
7,350.0	6,982.5	7,513.9	7,120.8	17.3	20.5	-101.81	-101.81	-360.0	632.0	681.4	646.9	34.47	19.769	
7,400.0	6,986.9	7,567.8	7,126.7	17.8	20.9	-101.89	-101.89	-413.6	631.5	681.6	646.2	35.38	19.267	
7,430.6	6,988.0	7,598.4	7,129.9	18.1	21.1	-102.03	-102.03	-444.0	631.2	682.1	646.1	35.92	18.988	
7,500.0	6,989.0	7,676.1	7,136.1	18.9	21.8	-102.45	-102.45	-521.4	630.5	683.0	645.6	37.41	18.256	
7,600.0	6,990.4	7,780.7	7,138.2	20.1	22.9	-102.50	-102.50	-626.1	629.6	683.1	643.4	39.77	17.176	
7,700.0	6,991.9	7,880.7	7,139.7	21.4	24.1	-102.50	-102.50	-726.1	628.7	683.1	640.8	42.30	16.150	
7,800.0	6,993.3	7,980.7	7,141.2	22.8	25.3	-102.50	-102.50	-826.0	627.7	683.1	638.2	45.00	15.182	
7,900.0	6,994.8	8,080.7	7,142.6	24.3	26.7	-102.50	-102.50	-926.0	626.8	683.2	635.3	47.84	14.280	
8,000.0	6,996.2	8,180.7	7,144.1	25.8	28.1	-102.51	-102.51	-1,026.0	625.9	683.2	632.4	50.80	13.448	
8,100.0	6,997.7	8,280.7	7,145.6	27.3	29.6	-102.51	-102.51	-1,126.0	625.0	683.2	629.3	53.86	12.683	
8,200.0	6,999.1	8,380.7	7,147.1	29.0	31.1	-102.51	-102.51	-1,226.0	624.1	683.2	626.2	57.01	11.983	
8,300.0	7,000.5	8,480.7	7,148.6	30.6	32.7	-102.51	-102.51	-1,326.0	623.2	683.2	623.0	60.23	11.343	
8,400.0	7,002.0	8,580.7	7,150.1	32.3	34.3	-102.52	-102.52	-1,426.0	622.3	683.2	619.7	63.50	10.758	

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dillard 20M-203
<b>Project:</b>	SEC.20-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Reference Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Dillard 20M-HZ Pad Sec.20-T7N-R64W - Dillard 20R-443 - Wellbore #1 - Plan #1 (11-28-12)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)				Between Centres (ft)	Between Ellipses (ft)
8,500.0	7,003.4	8,680.7	7,151.5	34.0	35.9	-102.52	-1,525.9	621.4	683.2	616.4	66.83	10.222	
8,600.0	7,004.9	8,780.7	7,153.0	35.7	37.6	-102.52	-1,625.9	620.5	683.2	613.0	70.21	9.731	
8,700.0	7,006.3	8,880.7	7,154.5	37.5	39.2	-102.53	-1,725.9	619.6	683.2	609.6	73.62	9.281	
8,800.0	7,007.8	8,980.7	7,156.0	39.2	40.9	-102.53	-1,825.9	618.7	683.2	606.2	77.06	8.866	
8,900.0	7,009.2	9,080.7	7,157.5	41.0	42.7	-102.53	-1,925.9	617.7	683.2	602.7	80.53	8.484	
9,000.0	7,010.7	9,180.7	7,158.9	42.8	44.4	-102.53	-2,025.9	616.8	683.2	599.2	84.03	8.131	
9,100.0	7,012.1	9,280.7	7,160.4	44.6	46.2	-102.54	-2,125.8	615.9	683.2	595.7	87.55	7.804	
9,200.0	7,013.6	9,380.7	7,161.9	46.4	47.9	-102.54	-2,225.8	615.0	683.2	592.2	91.08	7.501	
9,300.0	7,015.0	9,480.7	7,163.4	48.2	49.7	-102.54	-2,325.8	614.1	683.2	588.6	94.64	7.219	
9,400.0	7,016.5	9,580.7	7,164.9	50.1	51.5	-102.54	-2,425.8	613.2	683.2	585.0	98.21	6.957	
9,500.0	7,017.9	9,680.7	7,166.3	51.9	53.3	-102.55	-2,525.8	612.3	683.3	581.5	101.80	6.712	
9,600.0	7,019.4	9,780.7	7,167.8	53.7	55.1	-102.55	-2,625.8	611.4	683.3	577.9	105.39	6.483	
9,700.0	7,020.8	9,880.7	7,169.3	55.6	56.9	-102.55	-2,725.8	610.5	683.3	574.3	109.00	6.268	
9,800.0	7,022.3	9,980.7	7,170.8	57.4	58.7	-102.56	-2,825.7	609.6	683.3	570.7	112.62	6.067	
9,900.0	7,023.7	10,080.7	7,172.3	59.3	60.5	-102.56	-2,925.7	608.6	683.3	567.0	116.25	5.878	
10,000.0	7,025.2	10,180.7	7,173.8	61.1	62.4	-102.56	-3,025.7	607.7	683.3	563.4	119.88	5.700	
10,100.0	7,026.6	10,280.7	7,175.2	63.0	64.2	-102.56	-3,125.7	606.8	683.3	559.8	123.53	5.532	
10,200.0	7,028.1	10,380.7	7,176.7	64.9	66.0	-102.57	-3,225.7	605.9	683.3	556.1	127.18	5.373	
10,300.0	7,029.5	10,480.7	7,178.2	66.7	67.9	-102.57	-3,325.7	605.0	683.3	552.5	130.83	5.223	
10,400.0	7,031.0	10,580.7	7,179.7	68.6	69.7	-102.57	-3,425.7	604.1	683.3	548.8	134.49	5.081	
10,500.0	7,032.4	10,680.7	7,181.2	70.5	71.6	-102.57	-3,525.6	603.2	683.3	545.2	138.16	4.946	
10,600.0	7,033.9	10,780.7	7,182.6	72.4	73.5	-102.58	-3,625.6	602.3	683.3	541.5	141.83	4.818	
10,700.0	7,035.3	10,880.7	7,184.1	74.2	75.3	-102.58	-3,725.6	601.4	683.3	537.8	145.51	4.696	
10,800.0	7,036.8	10,980.7	7,185.6	76.1	77.2	-102.58	-3,825.6	600.5	683.3	534.1	149.19	4.580	
10,900.0	7,038.2	11,080.7	7,187.1	78.0	79.0	-102.59	-3,925.6	599.5	683.3	530.5	152.88	4.470	
11,000.0	7,039.7	11,180.7	7,188.6	79.9	80.9	-102.59	-4,025.6	598.6	683.3	526.8	156.57	4.365	
11,100.0	7,041.1	11,280.7	7,190.1	81.8	82.8	-102.59	-4,125.5	597.7	683.4	523.1	160.26	4.264	
11,200.0	7,042.6	11,380.7	7,191.5	83.7	84.7	-102.59	-4,225.5	596.8	683.4	519.4	163.95	4.168	
11,300.0	7,044.0	11,480.7	7,193.0	85.6	86.5	-102.60	-4,325.5	595.9	683.4	515.7	167.65	4.076	
11,400.0	7,045.5	11,580.7	7,194.5	87.5	88.4	-102.60	-4,425.5	595.0	683.4	512.0	171.35	3.988	
11,417.9	7,045.7	11,598.6	7,194.8	87.8	88.7	-102.60	-4,443.4	594.8	683.4	511.4	172.01	3.973	
11,437.7	7,046.0	11,614.5	7,195.0	88.2	89.0	-102.60	-4,459.3	594.7	683.4	510.7	172.67	3.958 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dillard 20M-203
<b>Project:</b>	SEC.20-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Reference Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4914.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Dillard 20M-203

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.60°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dillard 20M-203
<b>Project:</b>	SEC.20-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Reference Site:</b>	Dillard 20M-HZ Pad Sec.20-T7N-R64W	<b>MD Reference:</b>	WELL @ 4914.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dillard 20M-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (11-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4914.0ft (RKB - 15')  
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