PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Dillard 20T-401**

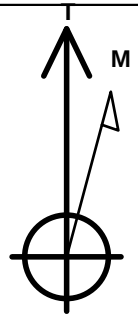
Surface Location: Dillard 20Y-HZ Pad Sec.20-T7N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4865.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1445347.72	3259445.65	40.552130	-104.566340	

RKB - 15' WELL @ 4880.0ft (RKB - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BHL 500'FNL & 1190'FEL	7110.0	4426.5	-527.9	Point



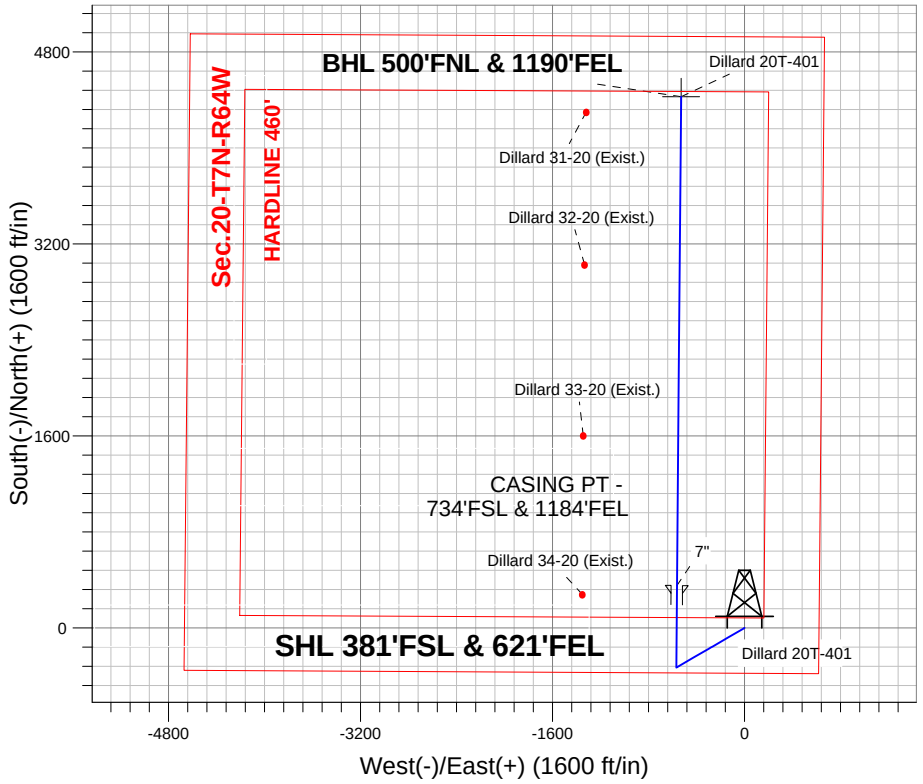
Azimuths to True North
Magnetic North: 8.58°

Magnetic Field
Strength: 53081.8snT
Dip Angle: 67.16°
Date: 11/15/2012
Model: IGRF2010

Dillard 20Y-HZ Pad Sec.20-T7N-R64W
Dillard 20T-401
Plan #1 (11-15-12)
12:16, November 26 2012

ANNOTATIONS

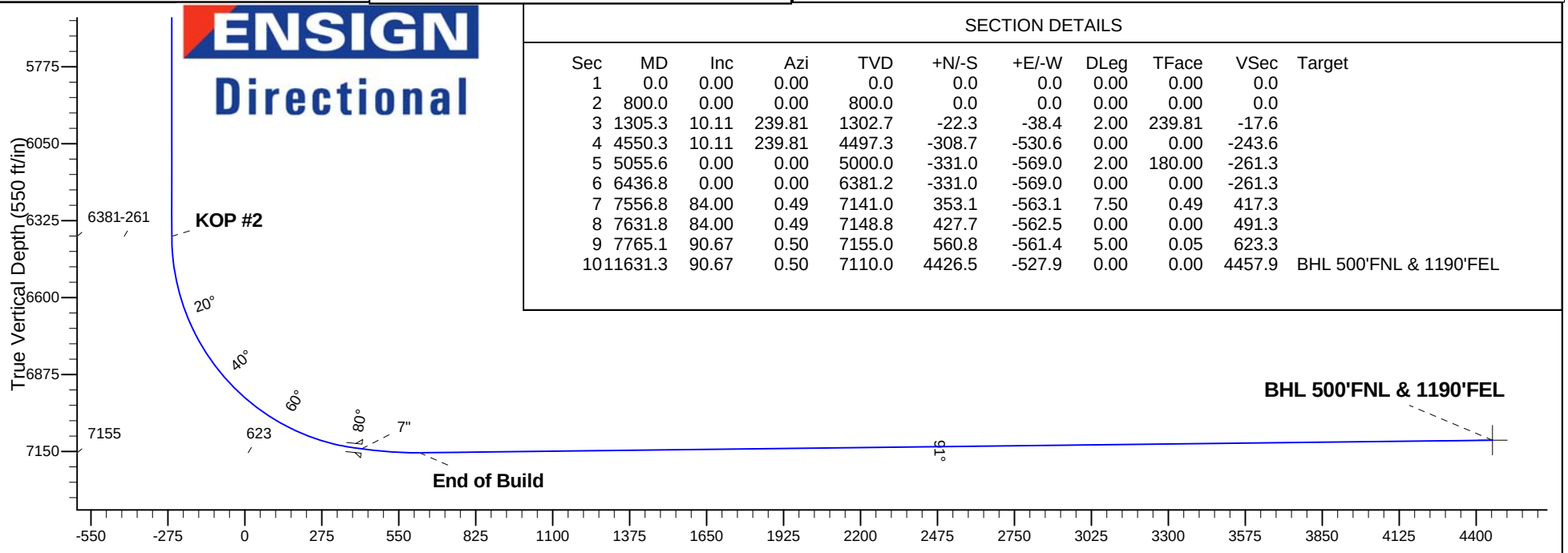
TVD	MD	Annotation
800.0	800.0	KOP #1
6381.2	6436.8	KOP #2
7155.0	7765.1	End of Build



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	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1305.3	10.11	239.81	1302.7	-22.3	-38.4	2.00	239.81	-17.6	
4	4550.3	10.11	239.81	4497.3	-308.7	-530.6	0.00	0.00	-243.6	
5	5055.6	0.00	0.00	5000.0	-331.0	-569.0	2.00	180.00	-261.3	
6	6436.8	0.00	0.00	6381.2	-331.0	-569.0	0.00	0.00	-261.3	
7	7556.8	84.00	0.49	7141.0	353.1	-563.1	7.50	0.49	417.3	
8	7631.8	84.00	0.49	7148.8	427.7	-562.5	0.00	0.00	491.3	
9	7765.1	90.67	0.50	7155.0	560.8	-561.4	5.00	0.05	623.3	
10	11631.3	90.67	0.50	7110.0	4426.5	-527.9	0.00	0.00	4457.9	BHL 500'FNL & 1190'FEL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.20-T7N-R64W
Dillard 20Y-HZ Pad Sec.20-T7N-R64W
Dillard 20T-401

Wellbore #1

Plan: Plan #1 (11-15-12)

Standard Planning Report

26 November, 2012

Database:	Landmark	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Project:	SEC.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**North Reference:**	True
Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-15-12)		

Project SEC.20-T7N-R64W, Weld County, CO

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 Dillard 20Y-HZ Pad Sec.20-T7N-R64W

Site Position:		**Northing:**	1,445,348.38 ft	**Latitude:**	40.552130
From:	Lat/Long	**Easting:**	3,259,506.78 ft	**Longitude:**	-104.566120
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.60 °

Well Dillard 20T-401

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,445,347.72 ft	**Latitude:**	40.552130
	+E/-W	-61.1 ft	**Easting:**	3,259,445.65 ft	**Longitude:**	-104.566340
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,865.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/15/2012	8.58	67.16	53,082

Design Plan #1 (11-15-12)

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	353.20

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	
1,305.3	10.11	239.81	1,302.7	-22.3	-38.4	2.00	2.00	0.00	239.81	
4,550.3	10.11	239.81	4,497.3	-308.7	-530.6	0.00	0.00	0.00	0.00	
5,055.6	0.00	0.00	5,000.0	-331.0	-569.0	2.00	-2.00	0.00	180.00	
6,436.8	0.00	0.00	6,381.2	-331.0	-569.0	0.00	0.00	0.00	0.00	
7,556.8	84.00	0.49	7,141.0	353.1	-563.1	7.50	7.50	0.00	0.49	
7,631.8	84.00	0.49	7,148.8	427.7	-562.5	0.00	0.00	0.00	0.00	
7,765.1	90.67	0.50	7,155.0	560.8	-561.4	5.00	5.00	0.00	0.05	
11,631.3	90.67	0.50	7,110.0	4,426.5	-527.9	0.00	0.00	0.00	0.00	BHL 500'FNL & 11

Database:	Landmark	**Local Co-ordinate Reference:**	Well Dillard 20T-401
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Project:	SEC.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**North Reference:**	True
Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-15-12)		

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
KOP #1									
840.0	0.80	239.81	840.0	-0.1	-0.2	-0.1	2.00	2.00	0.00
880.0	1.60	239.81	880.0	-0.6	-1.0	-0.4	2.00	2.00	0.00
920.0	2.40	239.81	920.0	-1.3	-2.2	-1.0	2.00	2.00	0.00
960.0	3.20	239.81	959.9	-2.2	-3.9	-1.8	2.00	2.00	0.00
1,000.0	4.00	239.81	999.8	-3.5	-6.0	-2.8	2.00	2.00	0.00
1,040.0	4.80	239.81	1,039.7	-5.1	-8.7	-4.0	2.00	2.00	0.00
1,080.0	5.60	239.81	1,079.6	-6.9	-11.8	-5.4	2.00	2.00	0.00
1,120.0	6.40	239.81	1,119.3	-9.0	-15.4	-7.1	2.00	2.00	0.00
1,160.0	7.20	239.81	1,159.1	-11.4	-19.5	-9.0	2.00	2.00	0.00
1,200.0	8.00	239.81	1,198.7	-14.0	-24.1	-11.1	2.00	2.00	0.00
1,240.0	8.80	239.81	1,238.3	-17.0	-29.1	-13.4	2.00	2.00	0.00
1,280.0	9.60	239.81	1,277.8	-20.2	-34.7	-15.9	2.00	2.00	0.00
1,305.3	10.11	239.81	1,302.7	-22.3	-38.4	-17.6	2.00	2.00	0.00
1,320.0	10.11	239.81	1,317.2	-23.6	-40.6	-18.7	0.00	0.00	0.00
1,360.0	10.11	239.81	1,356.5	-27.2	-46.7	-21.5	0.00	0.00	0.00
1,400.0	10.11	239.81	1,395.9	-30.7	-52.8	-24.2	0.00	0.00	0.00
1,440.0	10.11	239.81	1,435.3	-34.2	-58.8	-27.0	0.00	0.00	0.00
1,480.0	10.11	239.81	1,474.7	-37.8	-64.9	-29.8	0.00	0.00	0.00
1,520.0	10.11	239.81	1,514.1	-41.3	-71.0	-32.6	0.00	0.00	0.00
1,560.0	10.11	239.81	1,553.4	-44.8	-77.0	-35.4	0.00	0.00	0.00
1,600.0	10.11	239.81	1,592.8	-48.4	-83.1	-38.2	0.00	0.00	0.00
1,640.0	10.11	239.81	1,632.2	-51.9	-89.2	-41.0	0.00	0.00	0.00
1,680.0	10.11	239.81	1,671.6	-55.4	-95.3	-43.7	0.00	0.00	0.00
1,720.0	10.11	239.81	1,711.0	-58.9	-101.3	-46.5	0.00	0.00	0.00
1,760.0	10.11	239.81	1,750.3	-62.5	-107.4	-49.3	0.00	0.00	0.00
1,800.0	10.11	239.81	1,789.7	-66.0	-113.5	-52.1	0.00	0.00	0.00
1,840.0	10.11	239.81	1,829.1	-69.5	-119.5	-54.9	0.00	0.00	0.00
1,880.0	10.11	239.81	1,868.5	-73.1	-125.6	-57.7	0.00	0.00	0.00
1,920.0	10.11	239.81	1,907.8	-76.6	-131.7	-60.5	0.00	0.00	0.00
1,960.0	10.11	239.81	1,947.2	-80.1	-137.7	-63.2	0.00	0.00	0.00
2,000.0	10.11	239.81	1,986.6	-83.6	-143.8	-66.0	0.00	0.00	0.00

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Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**North Reference:**	True
Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-15-12)		

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)
2,040.0	10.11	239.81	2,026.0	-87.2	-149.9	-68.8	0.00	0.00	0.00
2,080.0	10.11	239.81	2,065.4	-90.7	-155.9	-71.6	0.00	0.00	0.00
2,120.0	10.11	239.81	2,104.7	-94.2	-162.0	-74.4	0.00	0.00	0.00
2,160.0	10.11	239.81	2,144.1	-97.8	-168.1	-77.2	0.00	0.00	0.00
2,200.0	10.11	239.81	2,183.5	-101.3	-174.1	-80.0	0.00	0.00	0.00
2,240.0	10.11	239.81	2,222.9	-104.8	-180.2	-82.7	0.00	0.00	0.00
2,280.0	10.11	239.81	2,262.3	-108.3	-186.3	-85.5	0.00	0.00	0.00
2,320.0	10.11	239.81	2,301.6	-111.9	-192.3	-88.3	0.00	0.00	0.00
2,360.0	10.11	239.81	2,341.0	-115.4	-198.4	-91.1	0.00	0.00	0.00
2,400.0	10.11	239.81	2,380.4	-118.9	-204.5	-93.9	0.00	0.00	0.00
2,440.0	10.11	239.81	2,419.8	-122.5	-210.5	-96.7	0.00	0.00	0.00
2,480.0	10.11	239.81	2,459.2	-126.0	-216.6	-99.5	0.00	0.00	0.00
2,520.0	10.11	239.81	2,498.5	-129.5	-222.7	-102.2	0.00	0.00	0.00
2,560.0	10.11	239.81	2,537.9	-133.1	-228.7	-105.0	0.00	0.00	0.00
2,600.0	10.11	239.81	2,577.3	-136.6	-234.8	-107.8	0.00	0.00	0.00
2,640.0	10.11	239.81	2,616.7	-140.1	-240.9	-110.6	0.00	0.00	0.00
2,680.0	10.11	239.81	2,656.1	-143.6	-246.9	-113.4	0.00	0.00	0.00
2,720.0	10.11	239.81	2,695.4	-147.2	-253.0	-116.2	0.00	0.00	0.00
2,760.0	10.11	239.81	2,734.8	-150.7	-259.1	-119.0	0.00	0.00	0.00
2,800.0	10.11	239.81	2,774.2	-154.2	-265.1	-121.7	0.00	0.00	0.00
2,840.0	10.11	239.81	2,813.6	-157.8	-271.2	-124.5	0.00	0.00	0.00
2,880.0	10.11	239.81	2,853.0	-161.3	-277.3	-127.3	0.00	0.00	0.00
2,920.0	10.11	239.81	2,892.3	-164.8	-283.3	-130.1	0.00	0.00	0.00
2,960.0	10.11	239.81	2,931.7	-168.3	-289.4	-132.9	0.00	0.00	0.00
3,000.0	10.11	239.81	2,971.1	-171.9	-295.5	-135.7	0.00	0.00	0.00
3,040.0	10.11	239.81	3,010.5	-175.4	-301.5	-138.5	0.00	0.00	0.00
3,080.0	10.11	239.81	3,049.9	-178.9	-307.6	-141.2	0.00	0.00	0.00
3,120.0	10.11	239.81	3,089.2	-182.5	-313.7	-144.0	0.00	0.00	0.00
3,160.0	10.11	239.81	3,128.6	-186.0	-319.7	-146.8	0.00	0.00	0.00
3,200.0	10.11	239.81	3,168.0	-189.5	-325.8	-149.6	0.00	0.00	0.00
3,240.0	10.11	239.81	3,207.4	-193.0	-331.9	-152.4	0.00	0.00	0.00
3,280.0	10.11	239.81	3,246.7	-196.6	-337.9	-155.2	0.00	0.00	0.00
3,320.0	10.11	239.81	3,286.1	-200.1	-344.0	-158.0	0.00	0.00	0.00
3,360.0	10.11	239.81	3,325.5	-203.6	-350.1	-160.7	0.00	0.00	0.00
3,400.0	10.11	239.81	3,364.9	-207.2	-356.1	-163.5	0.00	0.00	0.00
3,440.0	10.11	239.81	3,404.3	-210.7	-362.2	-166.3	0.00	0.00	0.00
3,480.0	10.11	239.81	3,443.6	-214.2	-368.3	-169.1	0.00	0.00	0.00
3,520.0	10.11	239.81	3,483.0	-217.8	-374.3	-171.9	0.00	0.00	0.00
3,560.0	10.11	239.81	3,522.4	-221.3	-380.4	-174.7	0.00	0.00	0.00
3,600.0	10.11	239.81	3,561.8	-224.8	-386.5	-177.5	0.00	0.00	0.00
3,640.0	10.11	239.81	3,601.2	-228.3	-392.5	-180.2	0.00	0.00	0.00
3,680.0	10.11	239.81	3,640.5	-231.9	-398.6	-183.0	0.00	0.00	0.00
3,720.0	10.11	239.81	3,679.9	-235.4	-404.7	-185.8	0.00	0.00	0.00
3,760.0	10.11	239.81	3,719.3	-238.9	-410.7	-188.6	0.00	0.00	0.00
3,800.0	10.11	239.81	3,758.7	-242.5	-416.8	-191.4	0.00	0.00	0.00
3,840.0	10.11	239.81	3,798.1	-246.0	-422.9	-194.2	0.00	0.00	0.00
3,880.0	10.11	239.81	3,837.4	-249.5	-428.9	-197.0	0.00	0.00	0.00
3,920.0	10.11	239.81	3,876.8	-253.0	-435.0	-199.8	0.00	0.00	0.00
3,960.0	10.11	239.81	3,916.2	-256.6	-441.1	-202.5	0.00	0.00	0.00
4,000.0	10.11	239.81	3,955.6	-260.1	-447.1	-205.3	0.00	0.00	0.00
4,040.0	10.11	239.81	3,995.0	-263.6	-453.2	-208.1	0.00	0.00	0.00
4,080.0	10.11	239.81	4,034.3	-267.2	-459.3	-210.9	0.00	0.00	0.00
4,120.0	10.11	239.81	4,073.7	-270.7	-465.3	-213.7	0.00	0.00	0.00

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Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**North Reference:**	True
Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-15-12)		

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)
4,160.0	10.11	239.81	4,113.1	-274.2	-471.4	-216.5	0.00	0.00	0.00
4,200.0	10.11	239.81	4,152.5	-277.7	-477.5	-219.3	0.00	0.00	0.00
4,240.0	10.11	239.81	4,191.9	-281.3	-483.5	-222.0	0.00	0.00	0.00
4,280.0	10.11	239.81	4,231.2	-284.8	-489.6	-224.8	0.00	0.00	0.00
4,320.0	10.11	239.81	4,270.6	-288.3	-495.7	-227.6	0.00	0.00	0.00
4,360.0	10.11	239.81	4,310.0	-291.9	-501.7	-230.4	0.00	0.00	0.00
4,400.0	10.11	239.81	4,349.4	-295.4	-507.8	-233.2	0.00	0.00	0.00
4,440.0	10.11	239.81	4,388.8	-298.9	-513.9	-236.0	0.00	0.00	0.00
4,480.0	10.11	239.81	4,428.1	-302.5	-519.9	-238.8	0.00	0.00	0.00
4,520.0	10.11	239.81	4,467.5	-306.0	-526.0	-241.5	0.00	0.00	0.00
4,550.3	10.11	239.81	4,497.3	-308.7	-530.6	-243.6	0.00	0.00	0.00
4,560.0	9.91	239.81	4,506.9	-309.5	-532.0	-244.3	2.00	-2.00	0.00
4,600.0	9.11	239.81	4,546.3	-312.8	-537.8	-246.9	2.00	-2.00	0.00
4,640.0	8.31	239.81	4,585.9	-315.9	-543.0	-249.3	2.00	-2.00	0.00
4,680.0	7.51	239.81	4,625.5	-318.6	-547.8	-251.5	2.00	-2.00	0.00
4,720.0	6.71	239.81	4,665.2	-321.1	-552.0	-253.5	2.00	-2.00	0.00
4,760.0	5.91	239.81	4,704.9	-323.3	-555.8	-255.2	2.00	-2.00	0.00
4,800.0	5.11	239.81	4,744.8	-325.3	-559.2	-256.8	2.00	-2.00	0.00
4,840.0	4.31	239.81	4,784.6	-326.9	-562.0	-258.1	2.00	-2.00	0.00
4,880.0	3.51	239.81	4,824.5	-328.3	-564.4	-259.2	2.00	-2.00	0.00
4,920.0	2.71	239.81	4,864.5	-329.4	-566.2	-260.0	2.00	-2.00	0.00
4,960.0	1.91	239.81	4,904.4	-330.2	-567.6	-260.7	2.00	-2.00	0.00
5,000.0	1.11	239.81	4,944.4	-330.7	-568.5	-261.1	2.00	-2.00	0.00
5,040.0	0.31	239.81	4,984.4	-331.0	-569.0	-261.3	2.00	-2.00	0.00
5,055.6	0.00	0.00	5,000.0	-331.0	-569.0	-261.3	2.00	-2.00	0.00
5,080.0	0.00	0.00	5,024.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,120.0	0.00	0.00	5,064.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,160.0	0.00	0.00	5,104.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,200.0	0.00	0.00	5,144.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,240.0	0.00	0.00	5,184.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,280.0	0.00	0.00	5,224.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,320.0	0.00	0.00	5,264.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,360.0	0.00	0.00	5,304.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,400.0	0.00	0.00	5,344.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,440.0	0.00	0.00	5,384.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,480.0	0.00	0.00	5,424.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,520.0	0.00	0.00	5,464.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,560.0	0.00	0.00	5,504.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,600.0	0.00	0.00	5,544.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,640.0	0.00	0.00	5,584.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,680.0	0.00	0.00	5,624.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,720.0	0.00	0.00	5,664.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,760.0	0.00	0.00	5,704.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,800.0	0.00	0.00	5,744.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,840.0	0.00	0.00	5,784.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,880.0	0.00	0.00	5,824.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,920.0	0.00	0.00	5,864.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
5,960.0	0.00	0.00	5,904.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
6,000.0	0.00	0.00	5,944.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
6,040.0	0.00	0.00	5,984.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
6,080.0	0.00	0.00	6,024.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
6,120.0	0.00	0.00	6,064.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
6,160.0	0.00	0.00	6,104.4	-331.0	-569.0	-261.3	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Project:	SEC.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**North Reference:**	True
Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-15-12)		

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)
6,200.0	0.00	0.00	6,144.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
6,240.0	0.00	0.00	6,184.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
6,280.0	0.00	0.00	6,224.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
6,320.0	0.00	0.00	6,264.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
6,360.0	0.00	0.00	6,304.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
6,400.0	0.00	0.00	6,344.4	-331.0	-569.0	-261.3	0.00	0.00	0.00
6,436.8	0.00	0.00	6,381.2	-331.0	-569.0	-261.3	0.00	0.00	0.00
KOP #2									
6,440.0	0.24	0.49	6,384.4	-331.0	-569.0	-261.3	7.50	7.50	0.00
6,480.0	3.24	0.49	6,424.4	-329.8	-569.0	-260.1	7.50	7.50	0.00
6,520.0	6.24	0.49	6,464.3	-326.5	-569.0	-256.8	7.50	7.50	0.00
6,560.0	9.24	0.49	6,503.9	-321.1	-568.9	-251.5	7.50	7.50	0.00
6,600.0	12.24	0.49	6,543.2	-313.6	-568.9	-244.1	7.50	7.50	0.00
6,640.0	15.24	0.49	6,582.0	-304.1	-568.8	-234.6	7.50	7.50	0.00
6,680.0	18.24	0.49	6,620.3	-292.6	-568.7	-223.2	7.50	7.50	0.00
6,720.0	21.24	0.49	6,658.0	-279.1	-568.6	-209.8	7.50	7.50	0.00
6,760.0	24.24	0.49	6,694.9	-263.6	-568.4	-194.5	7.50	7.50	0.00
6,800.0	27.24	0.49	6,730.9	-246.3	-568.3	-177.3	7.50	7.50	0.00
6,840.0	30.24	0.49	6,766.0	-227.0	-568.1	-158.2	7.50	7.50	0.00
6,880.0	33.24	0.49	6,800.0	-206.0	-567.9	-137.3	7.50	7.50	0.00
6,920.0	36.24	0.49	6,832.8	-183.2	-567.7	-114.7	7.50	7.50	0.00
6,960.0	39.24	0.49	6,864.5	-158.7	-567.5	-90.4	7.50	7.50	0.00
7,000.0	42.24	0.49	6,894.8	-132.6	-567.3	-64.5	7.50	7.50	0.00
7,040.0	45.24	0.49	6,923.7	-105.0	-567.1	-37.1	7.50	7.50	0.00
7,080.0	48.24	0.49	6,951.1	-75.9	-566.8	-8.2	7.50	7.50	0.00
7,120.0	51.24	0.49	6,976.9	-45.3	-566.6	22.1	7.50	7.50	0.00
7,160.0	54.24	0.49	7,001.1	-13.5	-566.3	53.6	7.50	7.50	0.00
7,200.0	57.24	0.49	7,023.7	19.5	-566.0	86.4	7.50	7.50	0.00
7,240.0	60.24	0.49	7,044.4	53.7	-565.7	120.3	7.50	7.50	0.00
7,280.0	63.24	0.49	7,063.4	89.0	-565.4	155.3	7.50	7.50	0.00
7,320.0	66.24	0.49	7,080.4	125.1	-565.1	191.2	7.50	7.50	0.00
7,360.0	69.24	0.49	7,095.6	162.1	-564.8	227.9	7.50	7.50	0.00
7,400.0	72.24	0.49	7,108.8	199.9	-564.5	265.3	7.50	7.50	0.00
7,440.0	75.24	0.49	7,120.0	238.3	-564.1	303.4	7.50	7.50	0.00
7,480.0	78.24	0.49	7,129.1	277.2	-563.8	342.0	7.50	7.50	0.00
7,520.0	81.24	0.49	7,136.3	316.6	-563.5	381.1	7.50	7.50	0.00
7,556.8	84.00	0.49	7,141.0	353.1	-563.1	417.3	7.50	7.50	0.00
7"									
7,560.0	84.00	0.49	7,141.3	356.2	-563.1	420.4	0.01	0.01	0.00
7,600.0	84.00	0.49	7,145.5	396.0	-562.8	459.9	0.00	0.00	0.00
7,631.8	84.00	0.49	7,148.8	427.7	-562.5	491.3	0.00	0.00	0.00
7,640.0	84.41	0.49	7,149.7	435.8	-562.4	499.3	5.00	5.00	0.00
7,680.0	86.41	0.49	7,152.9	475.7	-562.1	538.9	5.00	5.00	0.00
7,720.0	88.41	0.49	7,154.7	515.6	-561.8	578.5	5.00	5.00	0.00
7,760.0	90.41	0.50	7,155.1	555.6	-561.4	618.2	5.00	5.00	0.00
7,765.1	90.66	0.50	7,155.0	560.7	-561.4	623.3	5.00	5.00	0.00
End of Build									
7,800.0	90.67	0.50	7,154.6	595.6	-561.1	657.9	0.01	0.01	0.00
7,840.0	90.67	0.50	7,154.2	635.6	-560.7	697.5	0.00	0.00	0.00
7,880.0	90.67	0.50	7,153.7	675.6	-560.4	737.2	0.00	0.00	0.00
7,920.0	90.67	0.50	7,153.2	715.6	-560.0	776.9	0.00	0.00	0.00
7,960.0	90.67	0.50	7,152.8	755.6	-559.7	816.6	0.00	0.00	0.00
8,000.0	90.67	0.50	7,152.3	795.6	-559.3	856.2	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Project:	SEC.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**North Reference:**	True
Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-15-12)		

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)
8,040.0	90.67	0.50	7,151.8	835.6	-559.0	895.9	0.00	0.00	0.00
8,080.0	90.67	0.50	7,151.4	875.6	-558.6	935.6	0.00	0.00	0.00
8,120.0	90.67	0.50	7,150.9	915.6	-558.3	975.3	0.00	0.00	0.00
8,160.0	90.67	0.50	7,150.4	955.6	-557.9	1,014.9	0.00	0.00	0.00
8,200.0	90.67	0.50	7,150.0	995.6	-557.6	1,054.6	0.00	0.00	0.00
8,240.0	90.67	0.50	7,149.5	1,035.6	-557.3	1,094.3	0.00	0.00	0.00
8,280.0	90.67	0.50	7,149.0	1,075.6	-556.9	1,134.0	0.00	0.00	0.00
8,320.0	90.67	0.50	7,148.6	1,115.6	-556.6	1,173.6	0.00	0.00	0.00
8,360.0	90.67	0.50	7,148.1	1,155.6	-556.2	1,213.3	0.00	0.00	0.00
8,400.0	90.67	0.50	7,147.6	1,195.6	-555.9	1,253.0	0.00	0.00	0.00
8,440.0	90.67	0.50	7,147.2	1,235.6	-555.5	1,292.6	0.00	0.00	0.00
8,480.0	90.67	0.50	7,146.7	1,275.6	-555.2	1,332.3	0.00	0.00	0.00
8,520.0	90.67	0.50	7,146.2	1,315.5	-554.8	1,372.0	0.00	0.00	0.00
8,560.0	90.67	0.50	7,145.8	1,355.5	-554.5	1,411.7	0.00	0.00	0.00
8,600.0	90.67	0.50	7,145.3	1,395.5	-554.1	1,451.3	0.00	0.00	0.00
8,640.0	90.67	0.50	7,144.8	1,435.5	-553.8	1,491.0	0.00	0.00	0.00
8,680.0	90.67	0.50	7,144.4	1,475.5	-553.4	1,530.7	0.00	0.00	0.00
8,720.0	90.67	0.50	7,143.9	1,515.5	-553.1	1,570.4	0.00	0.00	0.00
8,760.0	90.67	0.50	7,143.4	1,555.5	-552.8	1,610.0	0.00	0.00	0.00
8,800.0	90.67	0.50	7,143.0	1,595.5	-552.4	1,649.7	0.00	0.00	0.00
8,840.0	90.67	0.50	7,142.5	1,635.5	-552.1	1,689.4	0.00	0.00	0.00
8,880.0	90.67	0.50	7,142.0	1,675.5	-551.7	1,729.1	0.00	0.00	0.00
8,920.0	90.67	0.50	7,141.6	1,715.5	-551.4	1,768.7	0.00	0.00	0.00
8,960.0	90.67	0.50	7,141.1	1,755.5	-551.0	1,808.4	0.00	0.00	0.00
9,000.0	90.67	0.50	7,140.6	1,795.5	-550.7	1,848.1	0.00	0.00	0.00
9,040.0	90.67	0.50	7,140.2	1,835.5	-550.3	1,887.7	0.00	0.00	0.00
9,080.0	90.67	0.50	7,139.7	1,875.5	-550.0	1,927.4	0.00	0.00	0.00
9,120.0	90.67	0.50	7,139.2	1,915.5	-549.6	1,967.1	0.00	0.00	0.00
9,160.0	90.67	0.50	7,138.8	1,955.5	-549.3	2,006.8	0.00	0.00	0.00
9,200.0	90.67	0.50	7,138.3	1,995.5	-548.9	2,046.4	0.00	0.00	0.00
9,240.0	90.67	0.50	7,137.8	2,035.5	-548.6	2,086.1	0.00	0.00	0.00
9,280.0	90.67	0.50	7,137.4	2,075.5	-548.3	2,125.8	0.00	0.00	0.00
9,320.0	90.67	0.50	7,136.9	2,115.5	-547.9	2,165.5	0.00	0.00	0.00
9,360.0	90.67	0.50	7,136.5	2,155.5	-547.6	2,205.1	0.00	0.00	0.00
9,400.0	90.67	0.50	7,136.0	2,195.5	-547.2	2,244.8	0.00	0.00	0.00
9,440.0	90.67	0.50	7,135.5	2,235.4	-546.9	2,284.5	0.00	0.00	0.00
9,480.0	90.67	0.50	7,135.1	2,275.4	-546.5	2,324.2	0.00	0.00	0.00
9,520.0	90.67	0.50	7,134.6	2,315.4	-546.2	2,363.8	0.00	0.00	0.00
9,560.0	90.67	0.50	7,134.1	2,355.4	-545.8	2,403.5	0.00	0.00	0.00
9,600.0	90.67	0.50	7,133.7	2,395.4	-545.5	2,443.2	0.00	0.00	0.00
9,640.0	90.67	0.50	7,133.2	2,435.4	-545.1	2,482.8	0.00	0.00	0.00
9,680.0	90.67	0.50	7,132.7	2,475.4	-544.8	2,522.5	0.00	0.00	0.00
9,720.0	90.67	0.50	7,132.3	2,515.4	-544.4	2,562.2	0.00	0.00	0.00
9,760.0	90.67	0.50	7,131.8	2,555.4	-544.1	2,601.9	0.00	0.00	0.00
9,800.0	90.67	0.50	7,131.3	2,595.4	-543.8	2,641.5	0.00	0.00	0.00
9,840.0	90.67	0.50	7,130.9	2,635.4	-543.4	2,681.2	0.00	0.00	0.00
9,880.0	90.67	0.50	7,130.4	2,675.4	-543.1	2,720.9	0.00	0.00	0.00
9,920.0	90.67	0.50	7,129.9	2,715.4	-542.7	2,760.6	0.00	0.00	0.00
9,960.0	90.67	0.50	7,129.5	2,755.4	-542.4	2,800.2	0.00	0.00	0.00
10,000.0	90.67	0.50	7,129.0	2,795.4	-542.0	2,839.9	0.00	0.00	0.00
10,040.0	90.67	0.50	7,128.5	2,835.4	-541.7	2,879.6	0.00	0.00	0.00
10,080.0	90.67	0.50	7,128.1	2,875.4	-541.3	2,919.3	0.00	0.00	0.00
10,120.0	90.67	0.50	7,127.6	2,915.4	-541.0	2,958.9	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Project:	SEC.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**North Reference:**	True
Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-15-12)		

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)
10,160.0	90.67	0.50	7,127.1	2,955.4	-540.6	2,998.6	0.00	0.00	0.00
10,200.0	90.67	0.50	7,126.7	2,995.4	-540.3	3,038.3	0.00	0.00	0.00
10,240.0	90.67	0.50	7,126.2	3,035.4	-539.9	3,077.9	0.00	0.00	0.00
10,280.0	90.67	0.50	7,125.7	3,075.4	-539.6	3,117.6	0.00	0.00	0.00
10,320.0	90.67	0.50	7,125.3	3,115.4	-539.3	3,157.3	0.00	0.00	0.00
10,360.0	90.67	0.50	7,124.8	3,155.4	-538.9	3,197.0	0.00	0.00	0.00
10,400.0	90.67	0.50	7,124.3	3,195.3	-538.6	3,236.6	0.00	0.00	0.00
10,440.0	90.67	0.50	7,123.9	3,235.3	-538.2	3,276.3	0.00	0.00	0.00
10,480.0	90.67	0.50	7,123.4	3,275.3	-537.9	3,316.0	0.00	0.00	0.00
10,520.0	90.67	0.50	7,122.9	3,315.3	-537.5	3,355.7	0.00	0.00	0.00
10,560.0	90.67	0.50	7,122.5	3,355.3	-537.2	3,395.3	0.00	0.00	0.00
10,600.0	90.67	0.50	7,122.0	3,395.3	-536.8	3,435.0	0.00	0.00	0.00
10,640.0	90.67	0.50	7,121.5	3,435.3	-536.5	3,474.7	0.00	0.00	0.00
10,680.0	90.67	0.50	7,121.1	3,475.3	-536.1	3,514.4	0.00	0.00	0.00
10,720.0	90.67	0.50	7,120.6	3,515.3	-535.8	3,554.0	0.00	0.00	0.00
10,760.0	90.67	0.50	7,120.1	3,555.3	-535.4	3,593.7	0.00	0.00	0.00
10,800.0	90.67	0.50	7,119.7	3,595.3	-535.1	3,633.4	0.00	0.00	0.00
10,840.0	90.67	0.50	7,119.2	3,635.3	-534.8	3,673.0	0.00	0.00	0.00
10,880.0	90.67	0.50	7,118.7	3,675.3	-534.4	3,712.7	0.00	0.00	0.00
10,920.0	90.67	0.50	7,118.3	3,715.3	-534.1	3,752.4	0.00	0.00	0.00
10,960.0	90.67	0.50	7,117.8	3,755.3	-533.7	3,792.1	0.00	0.00	0.00
11,000.0	90.67	0.50	7,117.4	3,795.3	-533.4	3,831.7	0.00	0.00	0.00
11,040.0	90.67	0.50	7,116.9	3,835.3	-533.0	3,871.4	0.00	0.00	0.00
11,080.0	90.67	0.50	7,116.4	3,875.3	-532.7	3,911.1	0.00	0.00	0.00
11,120.0	90.67	0.50	7,116.0	3,915.3	-532.3	3,950.8	0.00	0.00	0.00
11,160.0	90.67	0.50	7,115.5	3,955.3	-532.0	3,990.4	0.00	0.00	0.00
11,200.0	90.67	0.50	7,115.0	3,995.3	-531.6	4,030.1	0.00	0.00	0.00
11,240.0	90.67	0.50	7,114.6	4,035.3	-531.3	4,069.8	0.00	0.00	0.00
11,280.0	90.67	0.50	7,114.1	4,075.3	-530.9	4,109.5	0.00	0.00	0.00
11,320.0	90.67	0.50	7,113.6	4,115.3	-530.6	4,149.1	0.00	0.00	0.00
11,360.0	90.67	0.50	7,113.2	4,155.2	-530.3	4,188.8	0.00	0.00	0.00
11,400.0	90.67	0.50	7,112.7	4,195.2	-529.9	4,228.5	0.00	0.00	0.00
11,440.0	90.67	0.50	7,112.2	4,235.2	-529.6	4,268.1	0.00	0.00	0.00
11,480.0	90.67	0.50	7,111.8	4,275.2	-529.2	4,307.8	0.00	0.00	0.00
11,520.0	90.67	0.50	7,111.3	4,315.2	-528.9	4,347.5	0.00	0.00	0.00
11,560.0	90.67	0.50	7,110.8	4,355.2	-528.5	4,387.2	0.00	0.00	0.00
11,600.0	90.67	0.50	7,110.4	4,395.2	-528.2	4,426.8	0.00	0.00	0.00
11,631.3	90.67	0.50	7,110.0	4,426.5	-527.9	4,457.9	0.00	0.00	0.00
BHL 500'FNL & 1190'FEL									

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL 500'FNL & 1190' - plan hits target center - Point	0.00	0.00	7,110.0	4,426.5	-527.9	1,449,768.31	3,258,871.19	40.564280	-104.568240

Database:	Landmark	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Project:	SEC.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**North Reference:**	True
Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-15-12)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,556.8	7,141.0	7"	7	7-1/2

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
800.0	800.0	0.0	0.0	KOP #1
6,436.8	6,381.2	-331.0	-569.0	KOP #2
7,765.1	7,155.0	560.7	-561.4	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.20-T7N-R64W
Dillard 20Y-HZ Pad Sec.20-T7N-R64W
Dillard 20T-401

Wellbore #1
Plan #1 (11-15-12)

Anticollision Report

26 November, 2012

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Project:	SEC.20-T7N-R64W	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Reference Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (11-15-12)	**Offset TVD Reference:**	Offset Datum

Reference Plan #1 (11-15-12)

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

Survey Tool Program **Date** 11/26/2012

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,631.3	Plan #1 (11-15-12) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Dillard 20Y-HZ Pad Sec.20-T7N-R64W						
Dillard 20T-221 - Wellbore #1 - Plan #1 (11-15-12)	800.0	800.0	30.6	27.2	9.067	CC, ES
Dillard 20T-221 - Wellbore #1 - Plan #1 (11-15-12)	11,631.3	11,460.7	359.4	202.6	2.292	SF
Dillard 20Y-401 - Wellbore #1 - Plan #1 (11-15-12)	800.0	799.0	61.1	57.8	18.146	CC, ES
Dillard 20Y-401 - Wellbore #1 - Plan #1 (11-15-12)	11,631.3	11,594.3	989.2	813.8	5.640	SF
Existing Wells Sec.20-T7N-R64W						
Dillard 31-20 (Exist.) - Wellbore #1 - Design #1	11,498.4	7,020.0	800.3	700.3	7.998	CC
Dillard 31-20 (Exist.) - Wellbore #1 - Design #1	11,500.0	7,020.0	800.3	700.2	7.996	ES
Dillard 31-20 (Exist.) - Wellbore #1 - Design #1	11,631.3	7,020.0	811.3	708.7	7.911	SF
Dillard 32-20 (Exist.) - Wellbore #1 - Design #1	10,226.9	7,020.0	805.7	729.3	10.551	CC, ES
Dillard 32-20 (Exist.) - Wellbore #1 - Design #1	10,400.0	7,020.0	824.0	744.5	10.361	SF
Dillard 33-20 (Exist.) - Wellbore #1 - Design #1	8,802.2	7,020.0	803.3	752.2	15.734	CC, ES
Dillard 33-20 (Exist.) - Wellbore #1 - Design #1	9,000.0	7,020.0	827.3	772.8	15.195	SF
Dillard 34-20 (Exist.) - Wellbore #1 - Design #1	7,450.3	7,020.0	796.6	763.9	24.387	CC, ES
Dillard 34-20 (Exist.) - Wellbore #1 - Design #1	7,631.8	7,020.0	814.6	780.5	23.846	SF

Offset Design Dillard 20Y-HZ Pad Sec.20-T7N-R64W - Dillard 20T-221 - Wellbore #1 - Plan #1 (11-15-12) **Offset Site Error:** 0.0 ft

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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	30.6	30.6				
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	30.6	30.6	30.3	0.22	136.001	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	30.6	30.6	29.9	0.67	45.334	
300.0	300.0	300.0	300.0	0.6	0.6	90.00	0.0	30.6	30.6	29.4	1.12	27.200	
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	30.6	30.6	29.0	1.57	19.429	
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	30.6	30.6	28.5	2.02	15.111	
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	30.6	30.6	28.1	2.47	12.364	
700.0	700.0	700.0	700.0	1.5	1.5	90.00	0.0	30.6	30.6	27.6	2.92	10.462	
800.0	800.0	800.0	800.0	1.7	1.7	90.00	0.0	30.6	30.6	27.2	3.37	9.067	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	-151.36	0.0	30.6	32.1	28.3	3.80	8.445	
1,000.0	999.8	999.8	999.8	2.1	2.1	-155.24	0.0	30.6	36.8	32.6	4.21	8.728	
1,100.0	1,099.5	1,100.6	1,100.6	2.3	2.3	-158.43	-1.3	29.4	43.5	38.9	4.60	9.446	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Project:	SEC.20-T7N-R64W	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Reference Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (11-15-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dillard 20Y-HZ Pad Sec.20-T7N-R64W - Dillard 20T-221 - Wellbore #1 - Plan #1 (11-15-12)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,200.0	1,198.7	1,201.6	1,201.5	2.5	2.5	-159.56	-5.4	26.0	50.9	45.9	4.98	10.212	
1,305.3	1,302.7	1,308.1	1,307.6	2.8	2.7	-159.33	-12.6	19.8	59.2	53.8	5.40	10.973	
1,400.0	1,395.9	1,403.1	1,401.9	3.1	2.9	-158.30	-21.0	12.6	66.4	60.6	5.81	11.419	
1,500.0	1,494.4	1,502.8	1,500.9	3.5	3.2	-157.33	-29.9	5.0	73.8	67.6	6.28	11.760	
1,600.0	1,592.8	1,602.5	1,599.9	3.8	3.4	-156.55	-38.9	-2.7	81.3	74.5	6.76	12.023	
1,700.0	1,691.3	1,702.2	1,698.9	4.2	3.7	-155.89	-47.8	-10.3	88.8	81.5	7.26	12.224	
1,800.0	1,789.7	1,802.0	1,797.9	4.5	4.0	-155.34	-56.8	-18.0	96.3	88.5	7.77	12.380	
1,900.0	1,888.2	1,901.7	1,896.9	4.9	4.3	-154.87	-65.8	-25.6	103.7	95.4	8.30	12.501	
2,000.0	1,986.6	2,001.4	1,996.0	5.3	4.5	-154.46	-74.7	-33.3	111.2	102.4	8.83	12.595	
2,100.0	2,085.1	2,101.1	2,095.0	5.7	4.8	-154.10	-83.7	-41.0	118.7	109.4	9.37	12.668	
2,200.0	2,183.5	2,200.8	2,194.0	6.1	5.1	-153.78	-92.6	-48.6	126.2	116.3	9.92	12.726	
2,300.0	2,282.0	2,300.5	2,293.0	6.5	5.4	-153.50	-101.6	-56.3	133.7	123.3	10.47	12.770	
2,400.0	2,380.4	2,400.2	2,392.0	6.9	5.7	-153.25	-110.5	-63.9	141.3	130.2	11.03	12.805	
2,500.0	2,478.8	2,500.0	2,491.0	7.3	6.0	-153.03	-119.5	-71.6	148.8	137.2	11.59	12.832	
2,600.0	2,577.3	2,599.7	2,590.1	7.6	6.3	-152.83	-128.4	-79.2	156.3	144.1	12.16	12.853	
2,700.0	2,675.7	2,699.4	2,689.1	8.0	6.6	-152.64	-137.4	-86.9	163.8	151.1	12.73	12.869	
2,800.0	2,774.2	2,799.1	2,788.1	8.4	6.9	-152.47	-146.3	-94.5	171.3	158.0	13.30	12.881	
2,900.0	2,872.6	2,898.8	2,887.1	8.8	7.2	-152.32	-155.3	-102.2	178.8	165.0	13.87	12.890	
3,000.0	2,971.1	2,998.5	2,986.1	9.2	7.6	-152.18	-164.2	-109.9	186.4	171.9	14.45	12.897	
3,100.0	3,069.5	3,098.3	3,085.1	9.7	7.9	-152.05	-173.2	-117.5	193.9	178.9	15.03	12.901	
3,200.0	3,168.0	3,198.0	3,184.2	10.1	8.2	-151.93	-182.2	-125.2	201.4	185.8	15.61	12.903	
3,300.0	3,266.4	3,297.7	3,283.2	10.5	8.5	-151.81	-191.1	-132.8	208.9	192.7	16.19	12.905	
3,400.0	3,364.9	3,397.4	3,382.2	10.9	8.8	-151.71	-200.1	-140.5	216.4	199.7	16.77	12.905	
3,500.0	3,463.3	3,497.1	3,481.2	11.3	9.1	-151.61	-209.0	-148.1	224.0	206.6	17.36	12.904	
3,600.0	3,561.8	3,596.8	3,580.2	11.7	9.4	-151.52	-218.0	-155.8	231.5	213.6	17.94	12.903	
3,700.0	3,660.2	3,696.6	3,679.3	12.1	9.7	-151.44	-226.9	-163.4	239.0	220.5	18.53	12.901	
3,800.0	3,758.7	3,796.3	3,778.3	12.5	10.1	-151.36	-235.9	-171.1	246.6	227.4	19.12	12.898	
3,900.0	3,857.1	3,896.0	3,877.3	12.9	10.4	-151.28	-244.8	-178.8	254.1	234.4	19.70	12.895	
4,000.0	3,955.6	3,995.7	3,976.3	13.3	10.7	-151.21	-253.8	-186.4	261.6	241.3	20.29	12.892	
4,100.0	4,054.0	4,095.4	4,075.3	13.7	11.0	-151.14	-262.7	-194.1	269.1	248.3	20.88	12.888	
4,200.0	4,152.5	4,195.1	4,174.3	14.1	11.3	-151.08	-271.7	-201.7	276.7	255.2	21.47	12.885	
4,300.0	4,250.9	4,294.8	4,273.4	14.5	11.6	-151.02	-280.6	-209.4	284.2	262.1	22.06	12.881	
4,400.0	4,349.4	4,394.6	4,372.4	14.9	12.0	-150.96	-289.6	-217.0	291.7	269.1	22.65	12.877	
4,500.0	4,447.8	4,494.3	4,471.4	15.3	12.3	-150.91	-298.6	-224.7	299.2	276.0	23.25	12.873	
4,550.3	4,497.3	4,544.4	4,521.2	15.5	12.4	-150.88	-303.1	-228.5	303.0	279.5	23.54	12.871	
4,600.0	4,546.3	4,594.0	4,570.4	15.7	12.6	-150.85	-307.5	-232.3	306.4	282.6	23.83	12.856	
4,700.0	4,645.3	4,693.4	4,669.1	16.0	12.9	-150.54	-316.4	-240.0	310.9	286.5	24.39	12.749	
4,800.0	4,744.8	4,786.6	4,761.9	16.2	13.1	-150.18	-323.5	-246.0	313.6	288.8	24.83	12.633	
4,900.0	4,844.5	4,879.9	4,854.9	16.4	13.3	-149.95	-328.2	-250.0	315.5	290.3	25.20	12.518	
5,000.0	4,944.4	4,973.2	4,948.2	16.5	13.5	-149.83	-330.6	-252.1	316.4	290.9	25.51	12.403	
5,055.6	5,000.0	5,025.0	5,000.0	16.6	13.5	90.00	-331.0	-252.4	316.6	291.0	25.61	12.362	
5,100.0	5,044.4	5,069.4	5,044.4	16.7	13.6	90.00	-331.0	-252.4	316.6	290.8	25.76	12.290	
5,200.0	5,144.4	5,169.4	5,144.4	16.8	13.8	90.00	-331.0	-252.4	316.6	290.5	26.09	12.136	
5,300.0	5,244.4	5,269.4	5,244.4	16.9	13.9	90.00	-331.0	-252.4	316.6	290.2	26.41	11.986	
5,400.0	5,344.4	5,369.4	5,344.4	17.1	14.1	90.00	-331.0	-252.4	316.6	289.8	26.74	11.838	
5,500.0	5,444.4	5,469.4	5,444.4	17.2	14.2	90.00	-331.0	-252.4	316.6	289.5	27.07	11.692	
5,600.0	5,544.4	5,569.4	5,544.4	17.3	14.4	90.00	-331.0	-252.4	316.6	289.2	27.41	11.549	
5,700.0	5,644.4	5,669.4	5,644.4	17.5	14.6	90.00	-331.0	-252.4	316.6	288.8	27.75	11.407	
5,800.0	5,744.4	5,769.4	5,744.4	17.6	14.7	90.00	-331.0	-252.4	316.6	288.5	28.09	11.268	
5,900.0	5,844.4	5,869.4	5,844.4	17.8	14.9	90.00	-331.0	-252.4	316.6	288.1	28.44	11.131	
6,000.0	5,944.4	5,969.4	5,944.4	17.9	15.1	90.00	-331.0	-252.4	316.6	287.8	28.79	10.996	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Project:	SEC.20-T7N-R64W	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Reference Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (11-15-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dillard 20Y-HZ Pad Sec.20-T7N-R64W - Dillard 20T-221 - Wellbore #1 - Plan #1 (11-15-12)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,100.0	6,044.4	6,069.4	6,044.4	18.1	15.2	90.00	-331.0	-252.4	316.6	287.4	29.14	10.864	
6,200.0	6,144.4	6,169.4	6,144.4	18.2	15.4	90.00	-331.0	-252.4	316.6	287.1	29.49	10.733	
6,300.0	6,244.4	6,269.4	6,244.4	18.4	15.6	90.00	-331.0	-252.4	316.6	286.7	29.85	10.605	
6,302.5	6,246.9	6,271.9	6,246.9	18.4	15.6	90.00	-331.0	-252.4	316.6	286.7	29.86	10.602	
6,400.0	6,344.4	6,368.6	6,343.3	18.5	15.7	88.90	-324.9	-252.4	316.7	286.6	30.05	10.537	
6,436.8	6,381.2	6,404.4	6,378.7	18.6	15.7	87.93	-319.6	-252.3	316.9	286.8	30.05	10.544	
6,450.0	6,394.4	6,417.2	6,391.3	18.6	15.7	87.04	-317.3	-252.3	317.0	286.9	30.09	10.534	
6,500.0	6,444.4	6,465.1	6,438.1	18.7	15.8	85.52	-306.7	-252.2	317.6	287.5	30.04	10.572	
6,550.0	6,494.0	6,512.6	6,483.6	18.7	15.8	84.04	-293.4	-252.1	318.3	288.4	29.96	10.626	
6,600.0	6,543.2	6,559.6	6,527.8	18.7	15.8	82.59	-277.5	-252.0	319.3	289.4	29.86	10.693	
6,650.0	6,591.7	6,606.2	6,570.6	18.8	15.8	81.18	-259.1	-251.8	320.4	290.7	29.75	10.771	
6,700.0	6,639.2	6,652.3	6,611.8	18.8	15.8	79.82	-238.3	-251.6	321.7	292.1	29.64	10.856	
6,750.0	6,685.7	6,700.0	6,652.9	18.8	15.7	78.47	-214.2	-251.4	323.2	293.7	29.52	10.947	
6,800.0	6,730.9	6,743.5	6,689.1	18.7	15.7	77.28	-190.1	-251.2	324.7	295.3	29.42	11.037	
6,850.0	6,774.6	6,788.5	6,725.1	18.7	15.7	76.09	-163.0	-251.0	326.3	297.0	29.33	11.127	
6,900.0	6,816.6	6,833.3	6,759.1	18.7	15.7	74.98	-134.0	-250.7	328.0	298.7	29.25	11.213	
6,950.0	6,856.7	6,877.7	6,791.2	18.6	15.6	73.93	-103.2	-250.5	329.7	300.5	29.19	11.292	
7,000.0	6,894.8	6,921.9	6,821.3	18.6	15.6	72.95	-70.9	-250.2	331.3	302.2	29.17	11.360	
7,050.0	6,930.7	6,965.8	6,849.3	18.6	15.6	72.04	-37.1	-249.9	333.0	303.8	29.17	11.415	
7,100.0	6,964.2	7,009.5	6,875.2	18.5	15.6	71.20	-1.9	-249.6	334.6	305.4	29.21	11.454	
7,150.0	6,995.2	7,050.0	6,897.3	18.5	15.6	70.49	32.0	-249.3	336.1	306.9	29.29	11.476	
7,200.0	7,023.7	7,096.3	6,920.4	18.5	15.6	69.76	72.1	-248.9	337.6	308.1	29.44	11.468	
7,250.0	7,049.3	7,139.4	6,939.7	18.5	15.7	69.15	110.7	-248.6	338.9	309.3	29.63	11.437	
7,300.0	7,072.1	7,182.4	6,956.7	18.5	15.9	68.62	150.2	-248.3	340.1	310.2	29.88	11.381	
7,350.0	7,092.0	7,225.3	6,971.5	18.5	16.1	68.16	190.4	-247.9	341.2	311.0	30.20	11.296	
7,400.0	7,108.8	7,268.0	6,983.9	18.6	16.4	67.78	231.3	-247.6	342.1	311.5	30.59	11.183	
7,450.0	7,122.4	7,310.7	6,994.0	18.7	16.8	67.48	272.8	-247.2	342.8	311.7	31.05	11.042	
7,500.0	7,133.0	7,350.0	7,001.3	18.9	17.1	67.27	311.4	-246.9	343.4	311.8	31.55	10.884	
7,550.0	7,140.2	7,395.9	7,007.2	19.1	17.5	67.11	356.9	-246.5	343.7	311.5	32.17	10.683	
7,556.8	7,141.0	7,400.0	7,007.6	19.2	17.6	67.10	361.0	-246.4	343.8	311.5	32.25	10.660	
7,600.0	7,145.5	7,438.4	7,010.2	19.5	18.0	66.89	399.2	-246.1	344.4	311.5	32.91	10.464	
7,631.8	7,148.8	7,465.3	7,011.0	19.8	18.2	66.57	426.1	-245.9	345.4	312.0	33.38	10.348	
7,700.0	7,153.9	7,529.5	7,010.1	20.4	19.0	65.61	490.3	-245.3	347.8	313.5	34.32	10.133	
7,765.1	7,155.0	7,594.6	7,008.9	21.1	19.7	65.23	555.4	-244.7	348.7	313.3	35.45	9.837	
7,800.0	7,154.6	7,629.4	7,008.3	21.5	20.2	65.20	590.3	-244.4	348.8	312.6	36.21	9.634	
7,900.0	7,153.5	7,729.4	7,006.5	22.7	21.4	65.11	690.2	-243.6	349.1	310.6	38.49	9.071	
8,000.0	7,152.3	7,829.4	7,004.7	24.0	22.8	65.01	790.2	-242.7	349.4	308.4	40.94	8.534	
8,100.0	7,151.1	7,929.4	7,003.0	25.3	24.3	64.92	890.2	-241.8	349.6	306.1	43.54	8.031	
8,200.0	7,150.0	8,029.4	7,001.2	26.8	25.8	64.83	990.2	-241.0	349.9	303.6	46.25	7.565	
8,300.0	7,148.8	8,129.4	6,999.4	28.3	27.3	64.74	1,090.2	-240.1	350.2	301.1	49.06	7.137	
8,400.0	7,147.6	8,229.4	6,997.6	29.8	29.0	64.65	1,190.1	-239.2	350.4	298.5	51.96	6.745	
8,500.0	7,146.5	8,329.4	6,995.8	31.4	30.6	64.56	1,290.1	-238.4	350.7	295.8	54.92	6.386	
8,600.0	7,145.3	8,429.4	6,994.1	33.0	32.3	64.47	1,390.1	-237.5	350.9	293.0	57.93	6.058	
8,700.0	7,144.1	8,529.4	6,992.3	34.7	34.0	64.38	1,490.1	-236.6	351.2	290.2	61.00	5.758	
8,800.0	7,143.0	8,629.4	6,990.5	36.3	35.7	64.29	1,590.1	-235.8	351.5	287.4	64.10	5.483	
8,900.0	7,141.8	8,729.4	6,988.7	38.0	37.4	64.20	1,690.0	-234.9	351.8	284.5	67.24	5.232	
9,000.0	7,140.6	8,829.4	6,986.9	39.8	39.2	64.11	1,790.0	-234.0	352.0	281.6	70.40	5.000	
9,100.0	7,139.5	8,929.4	6,985.2	41.5	40.9	64.02	1,890.0	-233.2	352.3	278.7	73.59	4.787	
9,200.0	7,138.3	9,029.4	6,983.4	43.2	42.7	63.93	1,990.0	-232.3	352.6	275.8	76.80	4.591	
9,300.0	7,137.1	9,129.4	6,981.6	45.0	44.5	63.84	2,089.9	-231.4	352.8	272.8	80.02	4.409	
9,400.0	7,136.0	9,229.4	6,979.8	46.8	46.3	63.75	2,189.9	-230.6	353.1	269.8	83.27	4.241	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Project:	SEC.20-T7N-R64W	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Reference Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (11-15-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dillard 20Y-HZ Pad Sec.20-T7N-R64W - Dillard 20T-221 - Wellbore #1 - Plan #1 (11-15-12)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,500.0	7,134.8	9,329.4	6,978.0	48.6	48.1	63.66	2,289.9	-229.7	353.4	266.9	86.52	4.084	
9,600.0	7,133.7	9,429.4	6,976.3	50.4	49.9	63.57	2,389.9	-228.8	353.7	263.9	89.78	3.939	
9,700.0	7,132.5	9,529.4	6,974.5	52.2	51.8	63.48	2,489.9	-228.0	353.9	260.9	93.06	3.803	
9,800.0	7,131.3	9,629.4	6,972.7	54.0	53.6	63.39	2,589.8	-227.1	354.2	257.9	96.34	3.677	
9,900.0	7,130.2	9,729.4	6,970.9	55.8	55.4	63.30	2,689.8	-226.2	354.5	254.9	99.62	3.558	
10,000.0	7,129.0	9,829.4	6,969.1	57.6	57.3	63.21	2,789.8	-225.4	354.8	251.9	102.92	3.447	
10,100.0	7,127.8	9,929.4	6,967.4	59.5	59.1	63.13	2,889.8	-224.5	355.1	248.8	106.21	3.343	
10,200.0	7,126.7	10,029.4	6,965.6	61.3	61.0	63.04	2,989.8	-223.6	355.3	245.8	109.51	3.245	
10,300.0	7,125.5	10,129.4	6,963.8	63.1	62.9	62.95	3,089.7	-222.8	355.6	242.8	112.82	3.152	
10,400.0	7,124.3	10,229.4	6,962.0	65.0	64.7	62.86	3,189.7	-221.9	355.9	239.8	116.12	3.065	
10,500.0	7,123.2	10,329.4	6,960.2	66.8	66.6	62.77	3,289.7	-221.0	356.2	236.7	119.43	2.982	
10,600.0	7,122.0	10,429.4	6,958.5	68.7	68.5	62.69	3,389.7	-220.2	356.5	233.7	122.74	2.904	
10,700.0	7,120.8	10,529.4	6,956.7	70.6	70.3	62.60	3,489.6	-219.3	356.7	230.7	126.05	2.830	
10,800.0	7,119.7	10,629.4	6,954.9	72.4	72.2	62.51	3,589.6	-218.4	357.0	227.7	129.36	2.760	
10,900.0	7,118.5	10,729.4	6,953.1	74.3	74.1	62.42	3,689.6	-217.5	357.3	224.7	132.66	2.693	
11,000.0	7,117.4	10,829.4	6,951.3	76.1	76.0	62.34	3,789.6	-216.7	357.6	221.6	135.97	2.630	
11,100.0	7,116.2	10,929.4	6,949.6	78.0	77.8	62.25	3,889.6	-215.8	357.9	218.6	139.28	2.570	
11,200.0	7,115.0	11,029.4	6,947.8	79.9	79.7	62.16	3,989.5	-214.9	358.2	215.6	142.58	2.512	
11,300.0	7,113.9	11,129.4	6,946.0	81.8	81.6	62.07	4,089.5	-214.1	358.5	212.6	145.89	2.457	
11,400.0	7,112.7	11,229.4	6,944.2	83.6	83.5	61.99	4,189.5	-213.2	358.8	209.6	149.19	2.405	
11,500.0	7,111.5	11,329.4	6,942.4	85.5	85.4	61.90	4,289.5	-212.3	359.1	206.6	152.49	2.355	
11,600.0	7,110.4	11,429.4	6,940.7	87.4	87.3	61.81	4,389.5	-211.5	359.3	203.6	155.79	2.307	
11,631.3	7,110.0	11,460.7	6,940.1	88.0	87.9	61.79	4,420.8	-211.2	359.4	202.6	156.82	2.292	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Project:	SEC.20-T7N-R64W	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Reference Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (11-15-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dillard 20Y-HZ Pad Sec.20-T7N-R64W - Dillard 20Y-401 - Wellbore #1 - Plan #1 (11-15-12)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	61.1	61.1				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	61.1	61.1	60.9	0.22	273.366	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	61.1	61.1	60.5	0.67	90.970	
300.0	300.0	299.0	299.0	0.6	0.6	90.00	0.0	61.1	61.1	60.0	1.12	54.509	
400.0	400.0	399.0	399.0	0.8	0.8	90.00	0.0	61.1	61.1	59.6	1.57	38.913	
500.0	500.0	499.0	499.0	1.0	1.0	90.00	0.0	61.1	61.1	59.1	2.02	30.256	
600.0	600.0	599.0	599.0	1.2	1.2	90.00	0.0	61.1	61.1	58.7	2.47	24.750	
700.0	700.0	699.0	699.0	1.5	1.5	90.00	0.0	61.1	61.1	58.2	2.92	20.939	
800.0	800.0	799.0	799.0	1.7	1.7	90.00	0.0	61.1	61.1	57.8	3.37	18.146	CC, ES
900.0	900.0	899.0	899.0	1.9	1.9	-150.60	0.0	61.1	62.7	58.9	3.80	16.497	
1,000.0	999.8	998.8	998.8	2.1	2.1	-152.75	0.0	61.1	67.3	63.0	4.21	15.974	
1,100.0	1,099.5	1,098.5	1,098.5	2.3	2.4	-155.72	0.0	61.1	75.1	70.5	4.63	16.229	
1,200.0	1,198.7	1,197.7	1,197.7	2.5	2.6	-158.97	0.0	61.1	86.4	81.3	5.05	17.106	
1,305.3	1,302.7	1,300.0	1,300.0	2.8	2.8	-161.35	-1.2	62.4	103.1	97.6	5.47	18.834	
1,400.0	1,395.9	1,390.4	1,390.3	3.1	3.0	-162.00	-4.3	65.8	121.6	115.7	5.86	20.766	
1,500.0	1,494.4	1,485.6	1,485.1	3.5	3.1	-161.46	-9.6	71.6	143.0	136.7	6.28	22.774	
1,600.0	1,592.8	1,579.7	1,578.6	3.8	3.3	-160.17	-17.0	79.7	166.3	159.6	6.73	24.732	
1,700.0	1,691.3	1,675.3	1,673.3	4.2	3.6	-158.58	-26.1	89.6	191.2	184.0	7.20	26.567	
1,800.0	1,789.7	1,772.0	1,769.0	4.5	3.8	-157.31	-35.4	99.8	216.4	208.7	7.69	28.149	
1,900.0	1,888.2	1,868.7	1,864.7	4.9	4.1	-156.30	-44.7	110.0	241.6	233.4	8.19	29.499	
2,000.0	1,986.6	1,965.4	1,960.4	5.3	4.4	-155.48	-54.0	120.2	266.9	258.2	8.70	30.660	
2,100.0	2,085.1	2,062.1	2,056.1	5.7	4.7	-154.80	-63.3	130.4	292.2	282.9	9.23	31.653	
2,200.0	2,183.5	2,158.8	2,151.8	6.1	5.0	-154.24	-72.7	140.6	317.5	307.8	9.76	32.522	
2,300.0	2,282.0	2,255.5	2,247.5	6.5	5.3	-153.75	-82.0	150.8	342.9	332.6	10.30	33.279	
2,400.0	2,380.4	2,352.2	2,343.2	6.9	5.6	-153.33	-91.3	161.0	368.3	357.4	10.85	33.943	
2,500.0	2,478.8	2,448.9	2,438.9	7.3	5.9	-152.97	-100.6	171.2	393.7	382.3	11.40	34.530	
2,600.0	2,577.3	2,545.5	2,534.6	7.6	6.2	-152.65	-109.9	181.4	419.1	407.2	11.96	35.051	
2,700.0	2,675.7	2,642.2	2,630.3	8.0	6.5	-152.36	-119.3	191.6	444.6	432.0	12.52	35.515	
2,800.0	2,774.2	2,738.9	2,726.0	8.4	6.8	-152.11	-128.6	201.8	470.0	456.9	13.08	35.932	
2,900.0	2,872.6	2,835.6	2,821.7	8.8	7.1	-151.88	-137.9	212.0	495.4	481.8	13.65	36.306	
3,000.0	2,971.1	2,932.3	2,917.3	9.2	7.5	-151.68	-147.2	222.2	520.9	506.7	14.21	36.645	
3,100.0	3,069.5	3,029.0	3,013.0	9.7	7.8	-151.49	-156.5	232.4	546.4	531.6	14.79	36.953	
3,200.0	3,168.0	3,125.7	3,108.7	10.1	8.1	-151.33	-165.9	242.6	571.8	556.5	15.36	37.233	
3,300.0	3,266.4	3,222.4	3,204.4	10.5	8.4	-151.17	-175.2	252.8	597.3	581.4	15.93	37.489	
3,400.0	3,364.9	3,319.1	3,300.1	10.9	8.8	-151.03	-184.5	263.0	622.8	606.3	16.51	37.723	
3,500.0	3,463.3	3,415.8	3,395.8	11.3	9.1	-150.90	-193.8	273.2	648.2	631.2	17.09	37.939	
3,600.0	3,561.8	3,512.4	3,491.5	11.7	9.4	-150.78	-203.1	283.3	673.7	656.1	17.67	38.138	
3,700.0	3,660.2	3,609.1	3,587.2	12.1	9.8	-150.66	-212.4	293.5	699.2	681.0	18.25	38.322	
3,800.0	3,758.7	3,705.8	3,682.9	12.5	10.1	-150.56	-221.8	303.7	724.7	705.9	18.83	38.492	
3,900.0	3,857.1	3,802.5	3,778.6	12.9	10.5	-150.46	-231.1	313.9	750.2	730.8	19.41	38.650	
4,000.0	3,955.6	3,899.2	3,874.3	13.3	10.8	-150.37	-240.4	324.1	775.7	755.7	19.99	38.798	
4,100.0	4,054.0	3,995.9	3,970.0	13.7	11.1	-150.29	-249.7	334.3	801.2	780.6	20.58	38.935	
4,200.0	4,152.5	4,092.6	4,065.7	14.1	11.5	-150.21	-259.0	344.5	826.6	805.5	21.16	39.064	
4,300.0	4,250.9	4,189.3	4,161.4	14.5	11.8	-150.13	-268.4	354.7	852.1	830.4	21.75	39.184	
4,400.0	4,349.4	4,286.0	4,257.1	14.9	12.1	-150.06	-277.7	364.9	877.6	855.3	22.33	39.297	
4,500.0	4,447.8	4,382.7	4,352.8	15.3	12.5	-150.00	-287.0	375.1	903.1	880.2	22.92	39.403	
4,550.3	4,497.3	4,431.3	4,401.0	15.5	12.6	-149.96	-291.7	380.2	916.0	892.7	23.22	39.454	
4,600.0	4,546.3	4,479.4	4,448.6	15.7	12.8	-150.05	-296.3	385.3	928.3	904.7	23.52	39.467	
4,700.0	4,645.3	4,576.8	4,545.0	16.0	13.2	-150.11	-305.7	395.6	950.8	926.8	24.08	39.488	
4,800.0	4,744.8	4,691.9	4,659.0	16.2	13.5	-150.02	-316.3	407.1	970.0	945.4	24.63	39.375	
4,900.0	4,844.5	4,824.1	4,790.6	16.4	13.8	-149.93	-324.8	416.5	983.3	958.1	25.12	39.148	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Project:	SEC.20-T7N-R64W	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Reference Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (11-15-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dillard 20Y-HZ Pad Sec.20-T7N-R64W - Dillard 20Y-401 - Wellbore #1 - Plan #1 (11-15-12)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,944.4	4,957.8	4,924.1	16.5	14.1	-149.88	-329.3	421.4	990.1	964.6	25.53	38.781	
5,055.6	5,000.0	5,032.4	4,998.7	16.6	14.2	89.94	-330.0	422.1	991.1	965.4	25.73	38.520	
5,100.0	5,044.4	5,077.1	5,043.4	16.7	14.3	89.94	-330.0	422.1	991.1	965.3	25.88	38.296	
5,200.0	5,144.4	5,177.1	5,143.4	16.8	14.4	89.94	-330.0	422.1	991.1	964.9	26.21	37.819	
5,300.0	5,244.4	5,277.1	5,243.4	16.9	14.6	89.94	-330.0	422.1	991.1	964.6	26.54	37.350	
5,400.0	5,344.4	5,377.1	5,343.4	17.1	14.7	89.94	-330.0	422.1	991.1	964.3	26.87	36.888	
5,500.0	5,444.4	5,477.1	5,443.4	17.2	14.9	89.94	-330.0	422.1	991.1	963.9	27.20	36.432	
5,600.0	5,544.4	5,577.1	5,543.4	17.3	15.0	89.94	-330.0	422.1	991.1	963.6	27.54	35.984	
5,700.0	5,644.4	5,677.1	5,643.4	17.5	15.2	89.94	-330.0	422.1	991.1	963.3	27.89	35.542	
5,800.0	5,744.4	5,777.1	5,743.4	17.6	15.4	89.94	-330.0	422.1	991.1	962.9	28.23	35.108	
5,900.0	5,844.4	5,877.1	5,843.4	17.8	15.5	89.94	-330.0	422.1	991.1	962.6	28.58	34.680	
6,000.0	5,944.4	5,977.1	5,943.4	17.9	15.7	89.94	-330.0	422.1	991.1	962.2	28.93	34.259	
6,100.0	6,044.4	6,077.1	6,043.4	18.1	15.9	89.94	-330.0	422.1	991.1	961.9	29.28	33.846	
6,200.0	6,144.4	6,177.1	6,143.4	18.2	16.0	89.94	-330.0	422.1	991.1	961.5	29.64	33.439	
6,300.0	6,244.4	6,277.1	6,243.4	18.4	16.2	89.94	-330.0	422.1	991.1	961.1	30.00	33.039	
6,400.0	6,344.4	6,377.1	6,343.4	18.5	16.4	89.94	-330.0	422.1	991.1	960.8	30.36	32.646	
6,422.6	6,367.1	6,399.8	6,366.1	18.5	16.4	89.94	-330.0	422.1	991.1	960.7	30.44	32.558	
6,436.8	6,381.2	6,413.9	6,380.2	18.6	16.4	89.94	-330.0	422.1	991.1	960.6	30.49	32.504	
6,450.0	6,394.4	6,426.9	6,393.2	18.6	16.4	89.45	-329.8	422.1	991.1	960.6	30.55	32.444	
6,500.0	6,444.4	6,476.3	6,442.5	18.7	16.5	89.43	-327.0	422.2	991.1	960.4	30.70	32.289	
6,550.0	6,494.0	6,525.7	6,491.5	18.7	16.6	89.42	-321.1	422.2	991.1	960.3	30.81	32.174	
6,600.0	6,543.2	6,575.0	6,540.0	18.7	16.6	89.40	-312.0	422.3	991.1	960.3	30.88	32.097	
6,650.0	6,591.7	6,624.4	6,587.8	18.8	16.6	89.39	-299.8	422.4	991.1	960.2	30.92	32.054	
6,700.0	6,639.2	6,673.7	6,634.8	18.8	16.6	89.39	-284.6	422.5	991.1	960.2	30.94	32.038	
6,750.0	6,685.7	6,723.1	6,680.6	18.8	16.6	89.38	-266.3	422.7	991.1	960.2	30.93	32.044	
6,800.0	6,730.9	6,772.4	6,725.1	18.7	16.6	89.38	-245.2	422.8	991.1	960.2	30.91	32.063	
6,850.0	6,774.6	6,821.7	6,768.2	18.7	16.6	89.38	-221.2	423.0	991.1	960.2	30.89	32.087	
6,900.0	6,816.6	6,871.1	6,809.7	18.7	16.6	89.39	-194.5	423.2	991.1	960.2	30.87	32.105	
6,950.0	6,856.7	6,920.4	6,849.3	18.6	16.6	89.39	-165.1	423.5	991.1	960.2	30.87	32.107	
7,000.0	6,894.8	6,969.7	6,887.0	18.6	16.5	89.40	-133.3	423.8	991.1	960.2	30.89	32.083	
7,050.0	6,930.7	7,019.1	6,922.6	18.6	16.5	89.41	-99.1	424.0	991.1	960.1	30.95	32.019	
7,100.0	6,964.2	7,068.5	6,955.8	18.5	16.5	89.43	-62.6	424.3	991.0	960.0	31.06	31.907	
7,150.0	6,995.2	7,117.8	6,986.7	18.5	16.5	89.44	-24.1	424.6	991.0	959.8	31.23	31.737	
7,200.0	7,023.7	7,167.2	7,015.0	18.5	16.4	89.46	16.4	425.0	991.0	959.6	31.46	31.501	
7,250.0	7,049.3	7,216.7	7,040.7	18.5	16.4	89.48	58.6	425.3	991.0	959.2	31.77	31.194	
7,300.0	7,072.1	7,266.1	7,063.6	18.5	16.4	89.51	102.4	425.7	991.0	958.8	32.16	30.815	
7,350.0	7,092.0	7,315.6	7,083.6	18.5	16.4	89.53	147.7	426.1	991.0	958.3	32.64	30.364	
7,400.0	7,108.8	7,365.1	7,100.6	18.6	16.6	89.56	194.1	426.4	990.9	957.7	33.20	29.847	
7,450.0	7,122.4	7,414.6	7,114.6	18.7	17.0	89.59	241.6	426.8	990.9	957.1	33.85	29.271	
7,500.0	7,133.0	7,464.1	7,125.5	18.9	17.4	89.62	290.0	427.2	990.9	956.3	34.59	28.644	
7,550.0	7,140.2	7,513.7	7,133.3	19.1	17.8	89.65	338.9	427.6	990.9	955.5	35.41	27.981	
7,556.8	7,141.0	7,520.5	7,134.1	19.2	17.9	89.66	345.6	427.7	990.9	955.3	35.53	27.888	
7,600.0	7,145.5	7,563.6	7,138.7	19.5	18.3	89.66	388.5	428.0	990.9	954.5	36.32	27.278	
7,631.8	7,148.8	7,595.4	7,142.0	19.8	18.7	89.66	420.1	428.3	990.8	953.9	36.93	26.828	
7,700.0	7,153.9	7,663.3	7,147.5	20.4	19.4	89.68	487.8	428.8	990.8	952.5	38.35	25.835	
7,765.1	7,155.0	7,728.1	7,149.0	21.1	20.1	89.71	552.6	429.4	990.8	951.0	39.79	24.900	
7,800.0	7,154.6	7,763.0	7,148.8	21.5	20.6	89.72	587.4	429.7	990.8	950.2	40.62	24.393	
7,900.0	7,153.5	7,863.0	7,148.0	22.7	21.8	89.74	687.4	430.5	990.7	947.6	43.12	22.978	
8,000.0	7,152.3	7,963.0	7,147.2	24.0	23.2	89.76	787.4	431.3	990.7	944.9	45.80	21.632	
8,100.0	7,151.1	8,063.0	7,146.4	25.3	24.6	89.79	887.4	432.1	990.6	942.0	48.64	20.369	
8,200.0	7,150.0	8,163.0	7,145.7	26.8	26.1	89.81	987.4	433.0	990.6	939.0	51.60	19.196	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Project:	SEC.20-T7N-R64W	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Reference Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (11-15-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dillard 20Y-HZ Pad Sec.20-T7N-R64W - Dillard 20Y-401 - Wellbore #1 - Plan #1 (11-15-12)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,300.0	7,148.8	8,263.0	7,144.9	28.3	27.7	89.83	1,087.4	433.8	990.6	935.9	54.68	18.115	
8,400.0	7,147.6	8,363.0	7,144.1	29.8	29.2	89.85	1,187.4	434.6	990.5	932.7	57.85	17.122	
8,500.0	7,146.5	8,463.0	7,143.3	31.4	30.9	89.88	1,287.4	435.4	990.5	929.4	61.10	16.212	
8,600.0	7,145.3	8,563.0	7,142.6	33.0	32.5	89.90	1,387.4	436.2	990.4	926.0	64.41	15.377	
8,700.0	7,144.1	8,663.0	7,141.8	34.7	34.2	89.92	1,487.4	437.1	990.4	922.6	67.78	14.613	
8,800.0	7,143.0	8,763.0	7,141.0	36.3	35.9	89.94	1,587.4	437.9	990.3	919.1	71.19	13.911	
8,900.0	7,141.8	8,863.0	7,140.2	38.0	37.6	89.97	1,687.4	438.7	990.3	915.6	74.65	13.266	
9,000.0	7,140.6	8,963.0	7,139.5	39.8	39.4	89.99	1,787.3	439.5	990.3	912.1	78.14	12.672	
9,100.0	7,139.5	9,063.0	7,138.7	41.5	41.1	90.01	1,887.3	440.4	990.2	908.5	81.67	12.125	
9,200.0	7,138.3	9,163.0	7,137.9	43.2	42.9	90.03	1,987.3	441.2	990.2	904.9	85.22	11.619	
9,300.0	7,137.1	9,263.0	7,137.1	45.0	44.7	90.06	2,087.3	442.0	990.1	901.3	88.80	11.150	
9,400.0	7,136.0	9,363.0	7,136.4	46.8	46.5	90.08	2,187.3	442.8	990.1	897.7	92.40	10.716	
9,500.0	7,134.8	9,463.0	7,135.6	48.6	48.3	90.10	2,287.3	443.7	990.0	894.0	96.01	10.311	
9,600.0	7,133.7	9,563.0	7,134.8	50.4	50.1	90.12	2,387.3	444.5	990.0	890.4	99.65	9.935	
9,700.0	7,132.5	9,663.0	7,134.0	52.2	51.9	90.15	2,487.3	445.3	990.0	886.7	103.30	9.584	
9,800.0	7,131.3	9,763.0	7,133.2	54.0	53.7	90.17	2,587.3	446.1	989.9	883.0	106.96	9.255	
9,900.0	7,130.2	9,863.0	7,132.5	55.8	55.6	90.19	2,687.3	446.9	989.9	879.2	110.64	8.947	
10,000.0	7,129.0	9,963.0	7,131.7	57.6	57.4	90.21	2,787.3	447.8	989.8	875.5	114.32	8.658	
10,100.0	7,127.8	10,063.0	7,130.9	59.5	59.3	90.24	2,887.3	448.6	989.8	871.8	118.02	8.387	
10,200.0	7,126.7	10,163.0	7,130.1	61.3	61.1	90.26	2,987.3	449.4	989.8	868.0	121.72	8.131	
10,300.0	7,125.5	10,263.0	7,129.4	63.1	63.0	90.28	3,087.3	450.2	989.7	864.3	125.44	7.890	
10,400.0	7,124.3	10,363.0	7,128.6	65.0	64.8	90.30	3,187.2	451.1	989.7	860.5	129.16	7.663	
10,500.0	7,123.2	10,463.0	7,127.8	66.8	66.7	90.33	3,287.2	451.9	989.6	856.7	132.88	7.447	
10,600.0	7,122.0	10,563.0	7,127.0	68.7	68.5	90.35	3,387.2	452.7	989.6	853.0	136.62	7.243	
10,700.0	7,120.8	10,663.0	7,126.3	70.6	70.4	90.37	3,487.2	453.5	989.5	849.2	140.36	7.050	
10,800.0	7,119.7	10,763.0	7,125.5	72.4	72.3	90.39	3,587.2	454.4	989.5	845.4	144.10	6.867	
10,900.0	7,118.5	10,863.0	7,124.7	74.3	74.2	90.42	3,687.2	455.2	989.5	841.6	147.85	6.692	
11,000.0	7,117.4	10,963.0	7,123.9	76.1	76.0	90.44	3,787.2	456.0	989.4	837.8	151.61	6.526	
11,100.0	7,116.2	11,063.0	7,123.2	78.0	77.9	90.46	3,887.2	456.8	989.4	834.0	155.37	6.368	
11,200.0	7,115.0	11,163.0	7,122.4	79.9	79.8	90.48	3,987.2	457.6	989.4	830.2	159.13	6.217	
11,300.0	7,113.9	11,263.0	7,121.6	81.8	81.7	90.51	4,087.2	458.5	989.3	826.4	162.90	6.073	
11,400.0	7,112.7	11,363.0	7,120.8	83.6	83.5	90.53	4,187.2	459.3	989.3	822.6	166.67	5.936	
11,500.0	7,111.5	11,463.0	7,120.1	85.5	85.4	90.55	4,287.2	460.1	989.2	818.8	170.44	5.804	
11,600.0	7,110.4	11,563.0	7,119.3	87.4	87.3	90.57	4,387.2	460.9	989.2	815.0	174.22	5.678	
11,631.3	7,110.0	11,594.3	7,119.0	88.0	87.9	90.58	4,418.5	461.2	989.2	813.8	175.40	5.640	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Project:	SEC.20-T7N-R64W	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Reference Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (11-15-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.20-T7N-R64W - Dillard 31-20 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,900.0	7,118.5	7,020.0	7,020.0	74.3	15.7	-81.12	4,299.0	-1,319.8	999.3	910.4	88.93	11.237	
11,000.0	7,117.4	7,020.0	7,020.0	76.1	15.7	-81.12	4,299.0	-1,319.8	942.8	852.0	90.78	10.386	
11,100.0	7,116.2	7,020.0	7,020.0	78.0	15.7	-81.12	4,299.0	-1,319.8	894.0	801.4	92.64	9.650	
11,200.0	7,115.0	7,020.0	7,020.0	79.9	15.7	-81.12	4,299.0	-1,319.8	854.1	759.6	94.50	9.038	
11,300.0	7,113.9	7,020.0	7,020.0	81.8	15.7	-81.12	4,299.0	-1,319.8	824.5	728.2	96.36	8.557	
11,400.0	7,112.7	7,020.0	7,020.0	83.6	15.7	-81.12	4,299.0	-1,319.8	806.4	708.1	98.23	8.209	
11,498.4	7,111.5	7,020.0	7,020.0	85.5	15.7	-81.12	4,299.0	-1,319.8	800.3	700.3	100.06	7.998	CC
11,500.0	7,111.5	7,020.0	7,020.0	85.5	15.7	-81.12	4,299.0	-1,319.8	800.3	700.2	100.09	7.996	ES
11,600.0	7,110.4	7,020.0	7,020.0	87.4	15.7	-81.12	4,299.0	-1,319.8	806.7	704.8	101.96	7.912	
11,631.3	7,110.0	7,020.0	7,020.0	88.0	15.7	-81.12	4,299.0	-1,319.8	811.3	708.7	102.55	7.911	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Project:	SEC.20-T7N-R64W	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Reference Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (11-15-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.20-T7N-R64W - Dillard 32-20 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,700.0	7,132.5	7,020.0	7,020.0	52.2	15.7	-80.11	3,027.6	-1,333.7	962.7	895.9	66.78	14.415	
9,800.0	7,131.3	7,020.0	7,020.0	54.0	15.7	-80.11	3,027.6	-1,333.7	911.8	843.2	68.59	13.293	
9,900.0	7,130.2	7,020.0	7,020.0	55.8	15.7	-80.11	3,027.6	-1,333.7	869.5	799.1	70.40	12.350	
10,000.0	7,129.0	7,020.0	7,020.0	57.6	15.7	-80.11	3,027.6	-1,333.7	837.0	764.8	72.22	11.590	
10,100.0	7,127.8	7,020.0	7,020.0	59.5	15.7	-80.11	3,027.6	-1,333.7	815.6	741.6	74.04	11.016	
10,200.0	7,126.7	7,020.0	7,020.0	61.3	15.7	-80.11	3,027.6	-1,333.7	806.1	730.2	75.86	10.626	
10,226.9	7,126.4	7,020.0	7,020.0	61.8	15.7	-80.11	3,027.6	-1,333.7	805.7	729.3	76.36	10.551	CC, ES
10,300.0	7,125.5	7,020.0	7,020.0	63.1	15.7	-80.11	3,027.6	-1,333.7	809.0	731.3	77.69	10.412	
10,400.0	7,124.3	7,020.0	7,020.0	65.0	15.7	-80.11	3,027.6	-1,333.7	824.0	744.5	79.53	10.361	SF
10,500.0	7,123.2	7,020.0	7,020.0	66.8	15.7	-80.11	3,027.6	-1,333.7	850.7	769.3	81.37	10.455	
10,600.0	7,122.0	7,020.0	7,020.0	68.7	15.7	-80.11	3,027.6	-1,333.7	887.8	804.6	83.21	10.670	
10,700.0	7,120.8	7,020.0	7,020.0	70.6	15.7	-80.11	3,027.6	-1,333.7	934.3	849.2	85.05	10.985	
10,800.0	7,119.7	7,020.0	7,020.0	72.4	15.7	-80.11	3,027.6	-1,333.7	988.7	901.8	86.90	11.377	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Project:	SEC.20-T7N-R64W	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Reference Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (11-15-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.20-T7N-R64W - Dillard 33-20 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,300.0	7,148.8	7,020.0	7,020.0	28.3	15.7	-80.62	1,603.1	-1,344.9	947.4	904.5	42.89	22.089	
8,400.0	7,147.6	7,020.0	7,020.0	29.8	15.7	-80.62	1,603.1	-1,344.9	898.4	853.9	44.45	20.211	
8,500.0	7,146.5	7,020.0	7,020.0	31.4	15.7	-80.62	1,603.1	-1,344.9	858.3	812.2	46.05	18.639	
8,600.0	7,145.3	7,020.0	7,020.0	33.0	15.7	-80.62	1,603.1	-1,344.9	828.4	780.7	47.68	17.374	
8,700.0	7,144.1	7,020.0	7,020.0	34.7	15.7	-80.62	1,603.1	-1,344.9	809.8	760.4	49.34	16.413	
8,800.0	7,143.0	7,020.0	7,020.0	36.3	15.7	-80.62	1,603.1	-1,344.9	803.3	752.3	51.02	15.745	
8,802.2	7,142.9	7,020.0	7,020.0	36.4	15.7	-80.62	1,603.1	-1,344.9	803.3	752.2	51.06	15.734	CC, ES
8,900.0	7,141.8	7,020.0	7,020.0	38.0	15.7	-80.62	1,603.1	-1,344.9	809.2	756.5	52.72	15.349	
9,000.0	7,140.6	7,020.0	7,020.0	39.8	15.7	-80.62	1,603.1	-1,344.9	827.3	772.8	54.44	15.195	SF
9,100.0	7,139.5	7,020.0	7,020.0	41.5	15.7	-80.62	1,603.1	-1,344.9	856.7	800.5	56.18	15.249	
9,200.0	7,138.3	7,020.0	7,020.0	43.2	15.7	-80.62	1,603.1	-1,344.9	896.4	838.5	57.93	15.473	
9,300.0	7,137.1	7,020.0	7,020.0	45.0	15.7	-80.62	1,603.1	-1,344.9	945.0	885.3	59.70	15.831	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Project:	SEC.20-T7N-R64W	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Reference Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (11-15-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.20-T7N-R64W - Dillard 34-20 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,800.0	4,744.8	4,744.8	4,744.8	16.2	10.6	67.61	280.6	-1,353.3	998.9	972.7	26.16	38.177	
4,900.0	4,844.5	4,844.5	4,844.5	16.4	10.8	67.94	280.6	-1,353.3	996.2	969.6	26.59	37.461	
5,000.0	4,944.4	4,944.4	4,944.4	16.5	11.0	68.11	280.6	-1,353.3	994.8	967.8	26.98	36.877	
5,055.6	5,000.0	5,000.0	5,000.0	16.6	11.1	-52.06	280.6	-1,353.3	994.6	967.4	27.15	36.633	
5,100.0	5,044.4	5,044.4	5,044.4	16.7	11.2	-52.06	280.6	-1,353.3	994.6	967.3	27.31	36.418	
5,200.0	5,144.4	5,144.4	5,144.4	16.8	11.5	-52.06	280.6	-1,353.3	994.6	966.9	27.67	35.947	
5,300.0	5,244.4	5,244.4	5,244.4	16.9	11.7	-52.06	280.6	-1,353.3	994.6	966.5	28.03	35.485	
5,400.0	5,344.4	5,344.4	5,344.4	17.1	11.9	-52.06	280.6	-1,353.3	994.6	966.2	28.39	35.032	
5,500.0	5,444.4	5,444.4	5,444.4	17.2	12.1	-52.06	280.6	-1,353.3	994.6	965.8	28.75	34.589	
5,600.0	5,544.4	5,544.4	5,544.4	17.3	12.3	-52.06	280.6	-1,353.3	994.6	965.5	29.12	34.155	
5,700.0	5,644.4	5,644.4	5,644.4	17.5	12.6	-52.06	280.6	-1,353.3	994.6	965.1	29.49	33.729	
5,800.0	5,744.4	5,744.4	5,744.4	17.6	12.8	-52.06	280.6	-1,353.3	994.6	964.7	29.86	33.311	
5,900.0	5,844.4	5,844.4	5,844.4	17.8	13.0	-52.06	280.6	-1,353.3	994.6	964.3	30.23	32.903	
6,000.0	5,944.4	5,944.4	5,944.4	17.9	13.2	-52.06	280.6	-1,353.3	994.6	964.0	30.60	32.502	
6,100.0	6,044.4	6,044.4	6,044.4	18.1	13.5	-52.06	280.6	-1,353.3	994.6	963.6	30.98	32.109	
6,200.0	6,144.4	6,144.4	6,144.4	18.2	13.7	-52.06	280.6	-1,353.3	994.6	963.2	31.35	31.724	
6,300.0	6,244.4	6,244.4	6,244.4	18.4	13.9	-52.06	280.6	-1,353.3	994.6	962.8	31.73	31.346	
6,400.0	6,344.4	6,344.4	6,344.4	18.5	14.1	-52.06	280.6	-1,353.3	994.6	962.5	32.11	30.976	
6,436.8	6,381.2	6,381.2	6,381.2	18.6	14.2	-52.06	280.6	-1,353.3	994.6	962.3	32.25	30.842	
6,450.0	6,394.4	6,394.4	6,394.4	18.6	14.3	-52.55	280.6	-1,353.3	994.5	962.2	32.32	30.768	
6,500.0	6,444.4	6,444.4	6,444.4	18.7	14.4	-52.76	280.6	-1,353.3	993.0	960.5	32.47	30.584	
6,550.0	6,494.0	6,494.0	6,494.0	18.7	14.5	-53.23	280.6	-1,353.3	989.5	957.0	32.53	30.418	
6,600.0	6,543.2	6,543.2	6,543.2	18.7	14.6	-53.98	280.6	-1,353.3	984.1	951.6	32.52	30.263	
6,650.0	6,591.7	6,591.7	6,591.7	18.8	14.7	-54.99	280.6	-1,353.3	976.9	944.4	32.44	30.114	
6,700.0	6,639.2	6,639.2	6,639.2	18.8	14.8	-56.28	280.6	-1,353.3	967.9	935.6	32.31	29.961	
6,750.0	6,685.7	6,685.7	6,685.7	18.8	14.9	-57.83	280.6	-1,353.3	957.4	925.3	32.13	29.793	
6,800.0	6,730.9	6,730.9	6,730.9	18.7	15.0	-59.64	280.6	-1,353.3	945.4	913.5	31.94	29.599	
6,850.0	6,774.6	6,774.6	6,774.6	18.7	15.1	-61.71	280.6	-1,353.3	932.3	900.5	31.75	29.365	
6,900.0	6,816.6	6,816.6	6,816.6	18.7	15.2	-64.00	280.6	-1,353.3	918.2	886.6	31.57	29.079	
6,950.0	6,856.7	6,856.7	6,856.7	18.6	15.3	-66.49	280.6	-1,353.3	903.3	871.9	31.44	28.734	
7,000.0	6,894.8	6,894.8	6,894.8	18.6	15.4	-69.14	280.6	-1,353.3	888.0	856.7	31.35	28.325	
7,050.0	6,930.7	6,930.7	6,930.7	18.6	15.5	-71.89	280.6	-1,353.3	872.6	841.3	31.32	27.858	
7,100.0	6,964.2	6,964.2	6,964.2	18.5	15.5	-74.68	280.6	-1,353.3	857.5	826.1	31.36	27.342	
7,150.0	6,995.2	6,995.2	6,995.2	18.5	15.6	-77.45	280.6	-1,353.3	843.0	811.5	31.46	26.796	
7,200.0	7,023.7	7,020.0	7,020.0	18.5	15.7	-79.90	280.6	-1,353.3	829.5	797.9	31.60	26.252	
7,250.0	7,049.3	7,020.0	7,020.0	18.5	15.7	-80.78	280.6	-1,353.3	817.9	786.2	31.71	25.794	
7,300.0	7,072.1	7,020.0	7,020.0	18.5	15.7	-81.47	280.6	-1,353.3	808.7	776.8	31.87	25.373	
7,350.0	7,092.0	7,020.0	7,020.0	18.5	15.7	-81.97	280.6	-1,353.3	802.0	769.9	32.09	24.996	
7,400.0	7,108.8	7,020.0	7,020.0	18.6	15.7	-82.28	280.6	-1,353.3	797.9	765.6	32.35	24.666	
7,450.0	7,122.4	7,020.0	7,020.0	18.7	15.7	-82.38	280.6	-1,353.3	796.6	763.9	32.66	24.388	
7,450.3	7,122.5	7,020.0	7,020.0	18.7	15.7	-82.38	280.6	-1,353.3	796.6	763.9	32.66	24.387	CC, ES
7,500.0	7,133.0	7,020.0	7,020.0	18.9	15.7	-82.28	280.6	-1,353.3	797.9	764.9	33.02	24.163	
7,550.0	7,140.2	7,020.0	7,020.0	19.1	15.7	-81.98	280.6	-1,353.3	801.9	768.5	33.42	23.993	
7,556.8	7,141.0	7,020.0	7,020.0	19.2	15.7	-81.92	280.6	-1,353.3	802.7	769.2	33.48	23.974	
7,600.0	7,145.5	7,020.0	7,020.0	19.5	15.7	-81.92	280.6	-1,353.3	808.7	774.9	33.86	23.882	
7,631.8	7,148.8	7,020.0	7,020.0	19.8	15.7	-81.92	280.6	-1,353.3	814.6	780.5	34.16	23.846	SF
7,700.0	7,153.9	7,020.0	7,020.0	20.4	15.7	-81.09	280.6	-1,353.3	831.0	796.1	34.84	23.848	
7,765.1	7,155.0	7,020.0	7,020.0	21.1	15.7	-80.06	280.6	-1,353.3	850.9	815.3	35.55	23.937	
7,800.0	7,154.6	7,020.0	7,020.0	21.5	15.7	-80.06	280.6	-1,353.3	863.2	827.2	35.95	24.012	
7,900.0	7,153.5	7,020.0	7,020.0	22.7	15.7	-80.06	280.6	-1,353.3	905.1	867.9	37.17	24.346	
8,000.0	7,152.3	7,020.0	7,020.0	24.0	15.7	-80.06	280.6	-1,353.3	955.6	917.1	38.49	24.826	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Project:	SEC.20-T7N-R64W	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Reference Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (11-15-12)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4880.0ft (RKB - 15')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Dillard 20T-401
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.60°

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dillard 20T-401
Project:	SEC.20-T7N-R64W	**TVD Reference:**	WELL @ 4880.0ft (RKB - 15')
Reference Site:	Dillard 20Y-HZ Pad Sec.20-T7N-R64W	**MD Reference:**	WELL @ 4880.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dillard 20T-401	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (11-15-12)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4880.0ft (RKB - 15')	Coordinates are relative to: Dillard 20T-401
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: 0.60°