

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: Alm 33V-234

Surface Location: Alm 33V-HZ Pad South Sec.33-T7N-R65W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4790.0
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1438723.18 3233474.94 40.534660 -104.660020
Original Well Elev WELL @ 4805.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape Point
BHL 1743'FNL & 500'FWL	7007.0	-433.1	-4425.3	

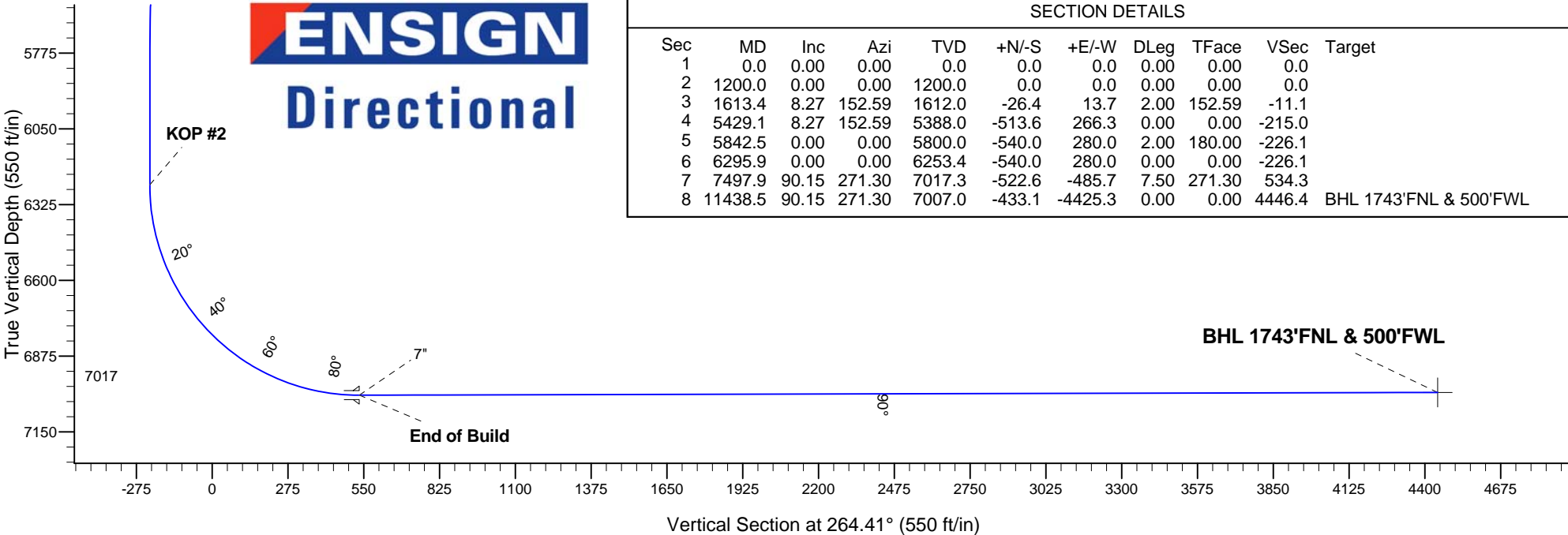
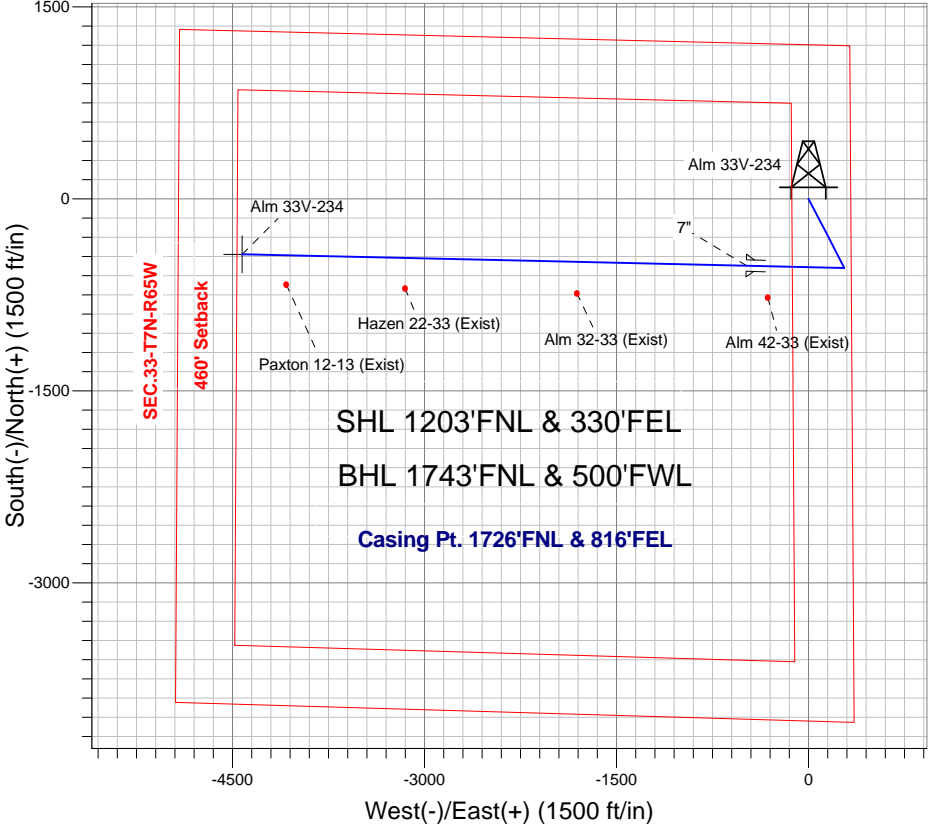


Azimuths to True North
Magnetic North: 8.59°
Magnetic Field
Strength: 53031.1nT
Dip Angle: 67.12°
Date: 3/7/2013
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1200.0	1200.0	KOP #1
6253.4	6295.9	KOP #2
7017.3	7497.9	End of Build

Alm 33V-HZ Pad South Sec.33-T7N-R65W
Alm 33V-234
Plan #1 (03-07-13)
7:55, March 08 2013



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	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1613.4	8.27	152.59	1612.0	-26.4	13.7	2.00	152.59	-11.1	
4	5429.1	8.27	152.59	5388.0	-513.6	266.3	0.00	0.00	-215.0	
5	5842.5	0.00	0.00	5800.0	-540.0	280.0	2.00	180.00	-226.1	
6	6295.9	0.00	0.00	6253.4	-540.0	280.0	0.00	0.00	-226.1	
7	7497.9	90.15	271.30	7017.3	-522.6	-485.7	7.50	271.30	534.3	
8	11438.5	90.15	271.30	7007.0	-433.1	-4425.3	0.00	0.00	4446.4	BHL 1743'FNL & 500'FWL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.33-T7N-R65W

Alm 33V-HZ Pad South Sec.33-T7N-R65W

Alm 33V-234

Wellbore #1

Plan: Plan #1 (03-07-13)

Standard Planning Report

08 March, 2013

Database:	Landmark	Local Co-ordinate Reference:	Well Alm 33V-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4805.0ft (Original Well Elev)
Project:	SEC.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	North Reference:	True
Well:	Alm 33V-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (03-07-13)		

Project	SEC.33-T7N-R65W, 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		Alm 33V-HZ Pad South Sec.33-T7N-R65W			
Site Position:		Northing:	1,438,694.05 ft	Latitude:	40.534580
From:	Lat/Long	Easting:	3,233,475.22 ft	Longitude:	-104.660020
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.54 °

Well	Alm 33V-234					
Well Position	+N-S	29.1 ft	Northing:	1,438,723.18 ft	Latitude:	40.534660
	+E-W	0.0 ft	Easting:	3,233,474.94 ft	Longitude:	-104.660020
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,790.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/7/2013	8.59	67.12	53,031

Design	Plan #1 (03-07-13)			
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	264.41

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,613.4	8.27	152.59	1,612.0	-26.4	13.7	2.00	2.00	0.00	152.59	
5,429.1	8.27	152.59	5,388.0	-513.6	266.3	0.00	0.00	0.00	0.00	
5,842.5	0.00	0.00	5,800.0	-540.0	280.0	2.00	-2.00	0.00	180.00	
6,295.9	0.00	0.00	6,253.4	-540.0	280.0	0.00	0.00	0.00	0.00	
7,497.9	90.15	271.30	7,017.3	-522.6	-485.7	7.50	7.50	0.00	271.30	
11,438.5	90.15	271.30	7,007.0	-433.1	-4,425.3	0.00	0.00	0.00	0.00	BHL 1743'FNL & 5C

Database:	Landmark	Local Co-ordinate Reference:	Well Alm 33V-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4805.0ft (Original Well Elev)
Project:	SEC.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	North Reference:	True
Well:	Alm 33V-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (03-07-13)		

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
KOP #1									
1,240.0	0.80	152.59	1,240.0	-0.2	0.1	-0.1	2.00	2.00	0.00
1,280.0	1.60	152.59	1,280.0	-1.0	0.5	-0.4	2.00	2.00	0.00
1,320.0	2.40	152.59	1,320.0	-2.2	1.2	-0.9	2.00	2.00	0.00
1,360.0	3.20	152.59	1,359.9	-4.0	2.1	-1.7	2.00	2.00	0.00
1,400.0	4.00	152.59	1,399.8	-6.2	3.2	-2.6	2.00	2.00	0.00
1,440.0	4.80	152.59	1,439.7	-8.9	4.6	-3.7	2.00	2.00	0.00
1,480.0	5.60	152.59	1,479.6	-12.1	6.3	-5.1	2.00	2.00	0.00
1,520.0	6.40	152.59	1,519.3	-15.8	8.2	-6.6	2.00	2.00	0.00
1,560.0	7.20	152.59	1,559.1	-20.1	10.4	-8.4	2.00	2.00	0.00
1,600.0	8.00	152.59	1,598.7	-24.8	12.8	-10.4	2.00	2.00	0.00
1,613.4	8.27	152.59	1,612.0	-26.4	13.7	-11.1	2.00	2.00	0.00
1,640.0	8.27	152.59	1,638.3	-29.8	15.5	-12.5	0.00	0.00	0.00
1,680.0	8.27	152.59	1,677.9	-34.9	18.1	-14.6	0.00	0.00	0.00
1,720.0	8.27	152.59	1,717.5	-40.0	20.8	-16.8	0.00	0.00	0.00
1,760.0	8.27	152.59	1,757.0	-45.1	23.4	-18.9	0.00	0.00	0.00
1,800.0	8.27	152.59	1,796.6	-50.3	26.1	-21.0	0.00	0.00	0.00
1,840.0	8.27	152.59	1,836.2	-55.4	28.7	-23.2	0.00	0.00	0.00
1,880.0	8.27	152.59	1,875.8	-60.5	31.4	-25.3	0.00	0.00	0.00
1,920.0	8.27	152.59	1,915.4	-65.6	34.0	-27.5	0.00	0.00	0.00
1,960.0	8.27	152.59	1,955.0	-70.7	36.6	-29.6	0.00	0.00	0.00
2,000.0	8.27	152.59	1,994.5	-75.8	39.3	-31.7	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Alm 33V-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4805.0ft (Original Well Elev)
Project:	SEC.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	North Reference:	True
Well:	Alm 33V-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (03-07-13)		

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	8.27	152.59	2,034.1	-80.9	41.9	-33.9	0.00	0.00	0.00
2,080.0	8.27	152.59	2,073.7	-86.0	44.6	-36.0	0.00	0.00	0.00
2,120.0	8.27	152.59	2,113.3	-91.1	47.2	-38.1	0.00	0.00	0.00
2,160.0	8.27	152.59	2,152.9	-96.2	49.9	-40.3	0.00	0.00	0.00
2,200.0	8.27	152.59	2,192.5	-101.3	52.5	-42.4	0.00	0.00	0.00
2,240.0	8.27	152.59	2,232.1	-106.4	55.2	-44.6	0.00	0.00	0.00
2,280.0	8.27	152.59	2,271.6	-111.5	57.8	-46.7	0.00	0.00	0.00
2,320.0	8.27	152.59	2,311.2	-116.6	60.5	-48.8	0.00	0.00	0.00
2,360.0	8.27	152.59	2,350.8	-121.7	63.1	-51.0	0.00	0.00	0.00
2,400.0	8.27	152.59	2,390.4	-126.9	65.8	-53.1	0.00	0.00	0.00
2,440.0	8.27	152.59	2,430.0	-132.0	68.4	-55.2	0.00	0.00	0.00
2,480.0	8.27	152.59	2,469.6	-137.1	71.1	-57.4	0.00	0.00	0.00
2,520.0	8.27	152.59	2,509.1	-142.2	73.7	-59.5	0.00	0.00	0.00
2,560.0	8.27	152.59	2,548.7	-147.3	76.4	-61.7	0.00	0.00	0.00
2,600.0	8.27	152.59	2,588.3	-152.4	79.0	-63.8	0.00	0.00	0.00
2,640.0	8.27	152.59	2,627.9	-157.5	81.7	-65.9	0.00	0.00	0.00
2,680.0	8.27	152.59	2,667.5	-162.6	84.3	-68.1	0.00	0.00	0.00
2,720.0	8.27	152.59	2,707.1	-167.7	87.0	-70.2	0.00	0.00	0.00
2,760.0	8.27	152.59	2,746.6	-172.8	89.6	-72.3	0.00	0.00	0.00
2,800.0	8.27	152.59	2,786.2	-177.9	92.3	-74.5	0.00	0.00	0.00
2,840.0	8.27	152.59	2,825.8	-183.0	94.9	-76.6	0.00	0.00	0.00
2,880.0	8.27	152.59	2,865.4	-188.1	97.6	-78.8	0.00	0.00	0.00
2,920.0	8.27	152.59	2,905.0	-193.2	100.2	-80.9	0.00	0.00	0.00
2,960.0	8.27	152.59	2,944.6	-198.3	102.8	-83.0	0.00	0.00	0.00
3,000.0	8.27	152.59	2,984.2	-203.5	105.5	-85.2	0.00	0.00	0.00
3,040.0	8.27	152.59	3,023.7	-208.6	108.1	-87.3	0.00	0.00	0.00
3,080.0	8.27	152.59	3,063.3	-213.7	110.8	-89.4	0.00	0.00	0.00
3,120.0	8.27	152.59	3,102.9	-218.8	113.4	-91.6	0.00	0.00	0.00
3,160.0	8.27	152.59	3,142.5	-223.9	116.1	-93.7	0.00	0.00	0.00
3,200.0	8.27	152.59	3,182.1	-229.0	118.7	-95.9	0.00	0.00	0.00
3,240.0	8.27	152.59	3,221.7	-234.1	121.4	-98.0	0.00	0.00	0.00
3,280.0	8.27	152.59	3,261.2	-239.2	124.0	-100.1	0.00	0.00	0.00
3,320.0	8.27	152.59	3,300.8	-244.3	126.7	-102.3	0.00	0.00	0.00
3,360.0	8.27	152.59	3,340.4	-249.4	129.3	-104.4	0.00	0.00	0.00
3,400.0	8.27	152.59	3,380.0	-254.5	132.0	-106.6	0.00	0.00	0.00
3,440.0	8.27	152.59	3,419.6	-259.6	134.6	-108.7	0.00	0.00	0.00
3,480.0	8.27	152.59	3,459.2	-264.7	137.3	-110.8	0.00	0.00	0.00
3,520.0	8.27	152.59	3,498.7	-269.8	139.9	-113.0	0.00	0.00	0.00
3,560.0	8.27	152.59	3,538.3	-274.9	142.6	-115.1	0.00	0.00	0.00
3,600.0	8.27	152.59	3,577.9	-280.1	145.2	-117.2	0.00	0.00	0.00
3,640.0	8.27	152.59	3,617.5	-285.2	147.9	-119.4	0.00	0.00	0.00
3,680.0	8.27	152.59	3,657.1	-290.3	150.5	-121.5	0.00	0.00	0.00
3,720.0	8.27	152.59	3,696.7	-295.4	153.2	-123.7	0.00	0.00	0.00
3,760.0	8.27	152.59	3,736.3	-300.5	155.8	-125.8	0.00	0.00	0.00
3,800.0	8.27	152.59	3,775.8	-305.6	158.5	-127.9	0.00	0.00	0.00
3,840.0	8.27	152.59	3,815.4	-310.7	161.1	-130.1	0.00	0.00	0.00
3,880.0	8.27	152.59	3,855.0	-315.8	163.7	-132.2	0.00	0.00	0.00
3,920.0	8.27	152.59	3,894.6	-320.9	166.4	-134.3	0.00	0.00	0.00
3,960.0	8.27	152.59	3,934.2	-326.0	169.0	-136.5	0.00	0.00	0.00
4,000.0	8.27	152.59	3,973.8	-331.1	171.7	-138.6	0.00	0.00	0.00
4,040.0	8.27	152.59	4,013.3	-336.2	174.3	-140.8	0.00	0.00	0.00
4,080.0	8.27	152.59	4,052.9	-341.3	177.0	-142.9	0.00	0.00	0.00
4,120.0	8.27	152.59	4,092.5	-346.4	179.6	-145.0	0.00	0.00	0.00

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Project:	SEC.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	North Reference:	True
Well:	Alm 33V-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (03-07-13)		

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	8.27	152.59	4,132.1	-351.5	182.3	-147.2	0.00	0.00	0.00	
4,200.0	8.27	152.59	4,171.7	-356.7	184.9	-149.3	0.00	0.00	0.00	
4,240.0	8.27	152.59	4,211.3	-361.8	187.6	-151.4	0.00	0.00	0.00	
4,280.0	8.27	152.59	4,250.8	-366.9	190.2	-153.6	0.00	0.00	0.00	
4,320.0	8.27	152.59	4,290.4	-372.0	192.9	-155.7	0.00	0.00	0.00	
4,360.0	8.27	152.59	4,330.0	-377.1	195.5	-157.9	0.00	0.00	0.00	
4,400.0	8.27	152.59	4,369.6	-382.2	198.2	-160.0	0.00	0.00	0.00	
4,440.0	8.27	152.59	4,409.2	-387.3	200.8	-162.1	0.00	0.00	0.00	
4,480.0	8.27	152.59	4,448.8	-392.4	203.5	-164.3	0.00	0.00	0.00	
4,520.0	8.27	152.59	4,488.4	-397.5	206.1	-166.4	0.00	0.00	0.00	
4,560.0	8.27	152.59	4,527.9	-402.6	208.8	-168.5	0.00	0.00	0.00	
4,600.0	8.27	152.59	4,567.5	-407.7	211.4	-170.7	0.00	0.00	0.00	
4,640.0	8.27	152.59	4,607.1	-412.8	214.1	-172.8	0.00	0.00	0.00	
4,680.0	8.27	152.59	4,646.7	-417.9	216.7	-175.0	0.00	0.00	0.00	
4,720.0	8.27	152.59	4,686.3	-423.0	219.4	-177.1	0.00	0.00	0.00	
4,760.0	8.27	152.59	4,725.9	-428.1	222.0	-179.2	0.00	0.00	0.00	
4,800.0	8.27	152.59	4,765.4	-433.2	224.6	-181.4	0.00	0.00	0.00	
4,840.0	8.27	152.59	4,805.0	-438.4	227.3	-183.5	0.00	0.00	0.00	
4,880.0	8.27	152.59	4,844.6	-443.5	229.9	-185.7	0.00	0.00	0.00	
4,920.0	8.27	152.59	4,884.2	-448.6	232.6	-187.8	0.00	0.00	0.00	
4,960.0	8.27	152.59	4,923.8	-453.7	235.2	-189.9	0.00	0.00	0.00	
5,000.0	8.27	152.59	4,963.4	-458.8	237.9	-192.1	0.00	0.00	0.00	
5,040.0	8.27	152.59	5,003.0	-463.9	240.5	-194.2	0.00	0.00	0.00	
5,080.0	8.27	152.59	5,042.5	-469.0	243.2	-196.3	0.00	0.00	0.00	
5,120.0	8.27	152.59	5,082.1	-474.1	245.8	-198.5	0.00	0.00	0.00	
5,160.0	8.27	152.59	5,121.7	-479.2	248.5	-200.6	0.00	0.00	0.00	
5,200.0	8.27	152.59	5,161.3	-484.3	251.1	-202.8	0.00	0.00	0.00	
5,240.0	8.27	152.59	5,200.9	-489.4	253.8	-204.9	0.00	0.00	0.00	
5,280.0	8.27	152.59	5,240.5	-494.5	256.4	-207.0	0.00	0.00	0.00	
5,320.0	8.27	152.59	5,280.0	-499.6	259.1	-209.2	0.00	0.00	0.00	
5,360.0	8.27	152.59	5,319.6	-504.7	261.7	-211.3	0.00	0.00	0.00	
5,400.0	8.27	152.59	5,359.2	-509.8	264.4	-213.4	0.00	0.00	0.00	
5,429.1	8.27	152.59	5,388.0	-513.6	266.3	-215.0	0.00	0.00	0.00	
5,440.0	8.05	152.59	5,398.8	-514.9	267.0	-215.6	2.00	-2.00	0.00	
5,480.0	7.25	152.59	5,438.4	-519.7	269.5	-217.6	2.00	-2.00	0.00	
5,520.0	6.45	152.59	5,478.2	-523.9	271.7	-219.3	2.00	-2.00	0.00	
5,560.0	5.65	152.59	5,517.9	-527.6	273.6	-220.9	2.00	-2.00	0.00	
5,600.0	4.85	152.59	5,557.8	-530.9	275.3	-222.3	2.00	-2.00	0.00	
5,640.0	4.05	152.59	5,597.6	-533.6	276.7	-223.4	2.00	-2.00	0.00	
5,680.0	3.25	152.59	5,637.6	-535.9	277.9	-224.4	2.00	-2.00	0.00	
5,720.0	2.45	152.59	5,677.5	-537.7	278.8	-225.1	2.00	-2.00	0.00	
5,760.0	1.65	152.59	5,717.5	-538.9	279.5	-225.6	2.00	-2.00	0.00	
5,800.0	0.85	152.59	5,757.5	-539.7	279.9	-225.9	2.00	-2.00	0.00	
5,840.0	0.05	152.59	5,797.5	-540.0	280.0	-226.1	2.00	-2.00	0.00	
5,842.5	0.00	0.00	5,800.0	-540.0	280.0	-226.1	2.00	-2.00	0.00	
5,880.0	0.00	0.00	5,837.5	-540.0	280.0	-226.1	0.00	0.00	0.00	
5,920.0	0.00	0.00	5,877.5	-540.0	280.0	-226.1	0.00	0.00	0.00	
5,960.0	0.00	0.00	5,917.5	-540.0	280.0	-226.1	0.00	0.00	0.00	
6,000.0	0.00	0.00	5,957.5	-540.0	280.0	-226.1	0.00	0.00	0.00	
6,040.0	0.00	0.00	5,997.5	-540.0	280.0	-226.1	0.00	0.00	0.00	
6,080.0	0.00	0.00	6,037.5	-540.0	280.0	-226.1	0.00	0.00	0.00	
6,120.0	0.00	0.00	6,077.5	-540.0	280.0	-226.1	0.00	0.00	0.00	
6,160.0	0.00	0.00	6,117.5	-540.0	280.0	-226.1	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Alm 33V-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4805.0ft (Original Well Elev)
Project:	SEC.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	North Reference:	True
Well:	Alm 33V-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (03-07-13)		

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	6,157.5	-540.0	280.0	-226.1	0.00	0.00	0.00
6,240.0	0.00	0.00	6,197.5	-540.0	280.0	-226.1	0.00	0.00	0.00
6,280.0	0.00	0.00	6,237.5	-540.0	280.0	-226.1	0.00	0.00	0.00
6,295.9	0.00	0.00	6,253.4	-540.0	280.0	-226.1	0.00	0.00	0.00
KOP #2									
6,320.0	1.81	271.30	6,277.5	-540.0	279.6	-225.7	7.50	7.50	0.00
6,360.0	4.81	271.30	6,317.4	-539.9	277.3	-223.4	7.50	7.50	0.00
6,400.0	7.81	271.30	6,357.2	-539.8	272.9	-219.0	7.50	7.50	0.00
6,440.0	10.81	271.30	6,396.6	-539.7	266.5	-212.6	7.50	7.50	0.00
6,480.0	13.81	271.30	6,435.7	-539.5	257.9	-204.2	7.50	7.50	0.00
6,520.0	16.81	271.30	6,474.3	-539.3	247.4	-193.7	7.50	7.50	0.00
6,560.0	19.81	271.30	6,512.2	-539.0	234.8	-181.2	7.50	7.50	0.00
6,600.0	22.81	271.30	6,549.5	-538.6	220.3	-166.8	7.50	7.50	0.00
6,640.0	25.81	271.30	6,586.0	-538.3	203.8	-150.4	7.50	7.50	0.00
6,680.0	28.81	271.30	6,621.5	-537.9	185.5	-132.2	7.50	7.50	0.00
6,720.0	31.81	271.30	6,656.0	-537.4	165.3	-112.2	7.50	7.50	0.00
6,760.0	34.81	271.30	6,689.4	-536.9	143.3	-90.4	7.50	7.50	0.00
6,800.0	37.81	271.30	6,721.7	-536.4	119.7	-66.9	7.50	7.50	0.00
6,840.0	40.81	271.30	6,752.6	-535.8	94.3	-41.7	7.50	7.50	0.00
6,880.0	43.81	271.30	6,782.2	-535.2	67.4	-15.0	7.50	7.50	0.00
6,920.0	46.81	271.30	6,810.3	-534.5	39.0	13.3	7.50	7.50	0.00
6,960.0	49.81	271.30	6,836.9	-533.8	9.1	42.9	7.50	7.50	0.00
7,000.0	52.81	271.30	6,861.9	-533.1	-22.1	73.9	7.50	7.50	0.00
7,040.0	55.81	271.30	6,885.3	-532.4	-54.5	106.1	7.50	7.50	0.00
7,080.0	58.81	271.30	6,906.9	-531.6	-88.2	139.6	7.50	7.50	0.00
7,120.0	61.81	271.30	6,926.7	-530.8	-122.9	174.1	7.50	7.50	0.00
7,160.0	64.81	271.30	6,944.7	-530.0	-158.6	209.5	7.50	7.50	0.00
7,200.0	67.81	271.30	6,960.7	-529.2	-195.3	245.9	7.50	7.50	0.00
7,240.0	70.81	271.30	6,974.9	-528.4	-232.7	283.0	7.50	7.50	0.00
7,280.0	73.81	271.30	6,987.0	-527.5	-270.8	320.9	7.50	7.50	0.00
7,320.0	76.81	271.30	6,997.2	-526.6	-309.4	359.3	7.50	7.50	0.00
7,360.0	79.81	271.30	7,005.3	-525.7	-348.6	398.1	7.50	7.50	0.00
7,400.0	82.81	271.30	7,011.3	-524.8	-388.1	437.4	7.50	7.50	0.00
7,440.0	85.81	271.30	7,015.3	-523.9	-427.9	476.9	7.50	7.50	0.00
7,480.0	88.81	271.30	7,017.2	-523.0	-467.8	516.6	7.50	7.50	0.00
7,497.9	90.15	271.30	7,017.3	-522.6	-485.7	534.3	7.50	7.50	0.00
End of Build - 7"									
7,520.0	90.15	271.30	7,017.3	-522.1	-507.8	556.3	0.00	0.00	0.00
7,560.0	90.15	271.30	7,017.2	-521.2	-547.8	596.0	0.00	0.00	0.00
7,600.0	90.15	271.30	7,017.0	-520.3	-587.8	635.7	0.00	0.00	0.00
7,640.0	90.15	271.30	7,016.9	-519.4	-627.8	675.4	0.00	0.00	0.00
7,680.0	90.15	271.30	7,016.8	-518.5	-667.8	715.1	0.00	0.00	0.00
7,720.0	90.15	271.30	7,016.7	-517.6	-707.8	754.8	0.00	0.00	0.00
7,760.0	90.15	271.30	7,016.6	-516.7	-747.8	794.5	0.00	0.00	0.00
7,800.0	90.15	271.30	7,016.5	-515.7	-787.8	834.3	0.00	0.00	0.00
7,840.0	90.15	271.30	7,016.4	-514.8	-827.8	874.0	0.00	0.00	0.00
7,880.0	90.15	271.30	7,016.3	-513.9	-867.7	913.7	0.00	0.00	0.00
7,920.0	90.15	271.30	7,016.2	-513.0	-907.7	953.4	0.00	0.00	0.00
7,960.0	90.15	271.30	7,016.1	-512.1	-947.7	993.1	0.00	0.00	0.00
8,000.0	90.15	271.30	7,016.0	-511.2	-987.7	1,032.8	0.00	0.00	0.00
8,040.0	90.15	271.30	7,015.9	-510.3	-1,027.7	1,072.5	0.00	0.00	0.00
8,080.0	90.15	271.30	7,015.8	-509.4	-1,067.7	1,112.2	0.00	0.00	0.00
8,120.0	90.15	271.30	7,015.7	-508.5	-1,107.7	1,151.9	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Alm 33V-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4805.0ft (Original Well Elev)
Project:	SEC.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	North Reference:	True
Well:	Alm 33V-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (03-07-13)		

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)
8,160.0	90.15	271.30	7,015.6	-507.6	-1,147.7	1,191.7	0.00	0.00	0.00
8,200.0	90.15	271.30	7,015.5	-506.7	-1,187.7	1,231.4	0.00	0.00	0.00
8,240.0	90.15	271.30	7,015.4	-505.8	-1,227.7	1,271.1	0.00	0.00	0.00
8,280.0	90.15	271.30	7,015.3	-504.9	-1,267.6	1,310.8	0.00	0.00	0.00
8,320.0	90.15	271.30	7,015.2	-503.9	-1,307.6	1,350.5	0.00	0.00	0.00
8,360.0	90.15	271.30	7,015.1	-503.0	-1,347.6	1,390.2	0.00	0.00	0.00
8,400.0	90.15	271.30	7,015.0	-502.1	-1,387.6	1,429.9	0.00	0.00	0.00
8,440.0	90.15	271.30	7,014.9	-501.2	-1,427.6	1,469.6	0.00	0.00	0.00
8,480.0	90.15	271.30	7,014.7	-500.3	-1,467.6	1,509.3	0.00	0.00	0.00
8,520.0	90.15	271.30	7,014.6	-499.4	-1,507.6	1,549.1	0.00	0.00	0.00
8,560.0	90.15	271.30	7,014.5	-498.5	-1,547.6	1,588.8	0.00	0.00	0.00
8,600.0	90.15	271.30	7,014.4	-497.6	-1,587.6	1,628.5	0.00	0.00	0.00
8,640.0	90.15	271.30	7,014.3	-496.7	-1,627.5	1,668.2	0.00	0.00	0.00
8,680.0	90.15	271.30	7,014.2	-495.8	-1,667.5	1,707.9	0.00	0.00	0.00
8,720.0	90.15	271.30	7,014.1	-494.9	-1,707.5	1,747.6	0.00	0.00	0.00
8,760.0	90.15	271.30	7,014.0	-494.0	-1,747.5	1,787.3	0.00	0.00	0.00
8,800.0	90.15	271.30	7,013.9	-493.0	-1,787.5	1,827.0	0.00	0.00	0.00
8,840.0	90.15	271.30	7,013.8	-492.1	-1,827.5	1,866.7	0.00	0.00	0.00
8,880.0	90.15	271.30	7,013.7	-491.2	-1,867.5	1,906.5	0.00	0.00	0.00
8,920.0	90.15	271.30	7,013.6	-490.3	-1,907.5	1,946.2	0.00	0.00	0.00
8,960.0	90.15	271.30	7,013.5	-489.4	-1,947.5	1,985.9	0.00	0.00	0.00
9,000.0	90.15	271.30	7,013.4	-488.5	-1,987.5	2,025.6	0.00	0.00	0.00
9,040.0	90.15	271.30	7,013.3	-487.6	-2,027.4	2,065.3	0.00	0.00	0.00
9,080.0	90.15	271.30	7,013.2	-486.7	-2,067.4	2,105.0	0.00	0.00	0.00
9,120.0	90.15	271.30	7,013.1	-485.8	-2,107.4	2,144.7	0.00	0.00	0.00
9,160.0	90.15	271.30	7,013.0	-484.9	-2,147.4	2,184.4	0.00	0.00	0.00
9,200.0	90.15	271.30	7,012.9	-484.0	-2,187.4	2,224.1	0.00	0.00	0.00
9,240.0	90.15	271.30	7,012.8	-483.1	-2,227.4	2,263.9	0.00	0.00	0.00
9,280.0	90.15	271.30	7,012.7	-482.1	-2,267.4	2,303.6	0.00	0.00	0.00
9,320.0	90.15	271.30	7,012.5	-481.2	-2,307.4	2,343.3	0.00	0.00	0.00
9,360.0	90.15	271.30	7,012.4	-480.3	-2,347.4	2,383.0	0.00	0.00	0.00
9,400.0	90.15	271.30	7,012.3	-479.4	-2,387.3	2,422.7	0.00	0.00	0.00
9,440.0	90.15	271.30	7,012.2	-478.5	-2,427.3	2,462.4	0.00	0.00	0.00
9,480.0	90.15	271.30	7,012.1	-477.6	-2,467.3	2,502.1	0.00	0.00	0.00
9,520.0	90.15	271.30	7,012.0	-476.7	-2,507.3	2,541.8	0.00	0.00	0.00
9,560.0	90.15	271.30	7,011.9	-475.8	-2,547.3	2,581.5	0.00	0.00	0.00
9,600.0	90.15	271.30	7,011.8	-474.9	-2,587.3	2,621.2	0.00	0.00	0.00
9,640.0	90.15	271.30	7,011.7	-474.0	-2,627.3	2,661.0	0.00	0.00	0.00
9,680.0	90.15	271.30	7,011.6	-473.1	-2,667.3	2,700.7	0.00	0.00	0.00
9,720.0	90.15	271.30	7,011.5	-472.2	-2,707.3	2,740.4	0.00	0.00	0.00
9,760.0	90.15	271.30	7,011.4	-471.2	-2,747.3	2,780.1	0.00	0.00	0.00
9,800.0	90.15	271.30	7,011.3	-470.3	-2,787.2	2,819.8	0.00	0.00	0.00
9,840.0	90.15	271.30	7,011.2	-469.4	-2,827.2	2,859.5	0.00	0.00	0.00
9,880.0	90.15	271.30	7,011.1	-468.5	-2,867.2	2,899.2	0.00	0.00	0.00
9,920.0	90.15	271.30	7,011.0	-467.6	-2,907.2	2,938.9	0.00	0.00	0.00
9,960.0	90.15	271.30	7,010.9	-466.7	-2,947.2	2,978.6	0.00	0.00	0.00
10,000.0	90.15	271.30	7,010.8	-465.8	-2,987.2	3,018.4	0.00	0.00	0.00
10,040.0	90.15	271.30	7,010.7	-464.9	-3,027.2	3,058.1	0.00	0.00	0.00
10,080.0	90.15	271.30	7,010.6	-464.0	-3,067.2	3,097.8	0.00	0.00	0.00
10,120.0	90.15	271.30	7,010.5	-463.1	-3,107.2	3,137.5	0.00	0.00	0.00
10,160.0	90.15	271.30	7,010.3	-462.2	-3,147.1	3,177.2	0.00	0.00	0.00
10,200.0	90.15	271.30	7,010.2	-461.3	-3,187.1	3,216.9	0.00	0.00	0.00
10,240.0	90.15	271.30	7,010.1	-460.3	-3,227.1	3,256.6	0.00	0.00	0.00

Plan Annotations					
	Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
			+N/-S	+E/-W	
			(ft)	(ft)	
	1,200.0	1,200.0	0.0	0.0	KOP #1
	6,295.9	6,253.4	-540.0	280.0	KOP #2
	7,497.9	7,017.3	-522.6	-485.7	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.33-T7N-R65W

Alm 33V-HZ Pad South Sec.33-T7N-R65W

Alm 33V-234

Wellbore #1

Plan #1 (03-07-13)

Anticollision Report

08 March, 2013

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33V-234
Project:	SEC.33-T7N-R65W	TVD Reference:	WELL @ 4805.0ft (Original Well Elev)
Reference Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Alm 33V-234	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 (03-07-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad North Sec.33-T7N-R65W - Alm 32-33 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7300-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
9,400.0	7,012.3	7,000.3	7,000.3	71.4	7.9	-89.64	-735.9	-1,809.6	632.1	553.0	79.07	7.994		
9,500.0	7,012.1	7,000.1	7,000.1	74.1	7.9	-89.58	-735.9	-1,809.6	725.4	643.6	81.81	8.867		
9,600.0	7,011.8	6,999.8	6,999.8	76.8	7.9	-89.52	-735.9	-1,809.6	820.3	735.7	84.56	9.701		
9,700.0	7,011.6	6,999.6	6,999.6	79.6	7.9	-89.46	-735.9	-1,809.6	916.3	829.0	87.31	10.494		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33V-234
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Reference Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Alm 33V-234	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 (03-07-13)	Offset TVD Reference:	Offset Datum

Offset Design													Alm 33V-HZ Pad North Sec.33-T7N-R65W - Alm 42-33 (Exist) - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft
Survey Program: 7300-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)						
0.0	0.0	0.0	0.0	0.0	0.0	-157.42	-768.7	-319.7	832.7								
100.0	100.0	83.0	83.0	0.1	0.1	-157.42	-768.7	-319.7	832.5	832.3	0.21	4,044.198					
200.0	200.0	183.0	183.0	0.3	0.2	-157.42	-768.7	-319.7	832.5	832.0	0.54	1,533.196					
300.0	300.0	283.0	283.0	0.6	0.3	-157.42	-768.7	-319.7	832.5	831.7	0.88	945.898					
400.0	400.0	383.0	383.0	0.8	0.4	-157.42	-768.7	-319.7	832.5	831.3	1.22	683.919					
500.0	500.0	483.0	483.0	1.0	0.5	-157.42	-768.7	-319.7	832.5	831.0	1.55	535.583					
600.0	600.0	583.0	583.0	1.2	0.7	-157.42	-768.7	-319.7	832.5	830.6	1.89	440.123					
700.0	700.0	683.0	683.0	1.5	0.8	-157.42	-768.7	-319.7	832.5	830.3	2.23	373.545					
800.0	800.0	783.0	783.0	1.7	0.9	-157.42	-768.7	-319.7	832.5	830.0	2.57	324.463					
900.0	900.0	883.0	883.0	1.9	1.0	-157.42	-768.7	-319.7	832.5	829.6	2.90	286.781					
1,000.0	1,000.0	983.0	983.0	2.1	1.1	-157.42	-768.7	-319.7	832.5	829.3	3.24	256.941					
1,100.0	1,100.0	1,083.0	1,083.0	2.4	1.2	-157.42	-768.7	-319.7	832.5	829.0	3.58	232.725					
1,200.0	1,200.0	1,183.0	1,183.0	2.6	1.3	-157.42	-768.7	-319.7	832.5	828.6	3.91	212.681					
1,300.0	1,300.0	1,283.0	1,283.0	2.8	1.4	50.10	-768.7	-319.7	831.4	827.2	4.22	196.806					
1,400.0	1,399.8	1,382.8	1,382.8	3.0	1.6	50.43	-768.7	-319.7	828.1	823.5	4.51	183.453					
1,500.0	1,499.5	1,482.5	1,482.5	3.2	1.7	50.98	-768.7	-319.7	822.5	817.7	4.81	170.889					
1,600.0	1,598.7	1,581.7	1,581.7	3.4	1.8	51.76	-768.7	-319.7	814.9	809.8	5.13	158.917					
1,700.0	1,697.7	1,680.7	1,680.7	3.6	1.9	52.58	-768.7	-319.7	806.0	800.6	5.46	147.492					
1,800.0	1,796.6	1,779.6	1,779.6	3.9	2.0	53.39	-768.7	-319.7	797.3	791.5	5.82	137.050					
1,900.0	1,895.6	1,878.6	1,878.6	4.1	2.1	54.22	-768.7	-319.7	788.8	782.6	6.18	127.561					
2,000.0	1,994.5	1,977.5	1,977.5	4.4	2.2	55.08	-768.7	-319.7	780.4	773.8	6.56	118.950					
2,100.0	2,093.5	2,076.5	2,076.5	4.7	2.3	55.94	-768.7	-319.7	772.2	765.2	6.95	111.139					
2,200.0	2,192.5	2,175.5	2,175.5	5.0	2.4	56.83	-768.7	-319.7	764.2	756.8	7.34	104.050					
2,300.0	2,291.4	2,274.4	2,274.4	5.3	2.6	57.74	-768.7	-319.7	756.3	748.6	7.75	97.608					
2,400.0	2,390.4	2,373.4	2,373.4	5.7	2.7	58.66	-768.7	-319.7	748.7	740.5	8.16	91.747					
2,500.0	2,489.4	2,472.4	2,472.4	6.0	2.8	59.60	-768.7	-319.7	741.3	732.7	8.58	86.403					
2,600.0	2,588.3	2,571.3	2,571.3	6.3	2.9	60.56	-768.7	-319.7	734.0	725.0	9.00	81.524					
2,700.0	2,687.3	2,670.3	2,670.3	6.6	3.0	61.54	-768.7	-319.7	727.0	717.6	9.43	77.059					
2,800.0	2,786.2	2,769.2	2,769.2	7.0	3.1	62.54	-768.7	-319.7	720.2	710.4	9.87	72.966					
2,900.0	2,885.2	2,868.2	2,868.2	7.3	3.2	63.56	-768.7	-319.7	713.7	703.3	10.31	69.208					
3,000.0	2,984.2	2,967.2	2,967.2	7.6	3.3	64.59	-768.7	-319.7	707.3	696.6	10.76	65.751					
3,100.0	3,083.1	3,066.1	3,066.1	8.0	3.4	65.64	-768.7	-319.7	701.2	690.0	11.21	62.566					
3,200.0	3,182.1	3,165.1	3,165.1	8.3	3.6	66.71	-768.7	-319.7	695.3	683.7	11.66	59.627					
3,300.0	3,281.0	3,264.0	3,264.0	8.7	3.7	67.80	-768.7	-319.7	689.7	677.6	12.12	56.911					
3,400.0	3,380.0	3,363.0	3,363.0	9.0	3.8	68.90	-768.7	-319.7	684.4	671.8	12.58	54.399					
3,500.0	3,479.0	3,462.0	3,462.0	9.3	3.9	70.03	-768.7	-319.7	679.3	666.2	13.05	52.072					
3,600.0	3,577.9	3,560.9	3,560.9	9.7	4.0	71.16	-768.7	-319.7	674.5	661.0	13.51	49.914					
3,700.0	3,676.9	3,659.9	3,659.9	10.0	4.1	72.32	-768.7	-319.7	669.9	655.9	13.98	47.911					
3,800.0	3,775.8	3,758.8	3,758.8	10.4	4.2	73.48	-768.7	-319.7	665.7	651.2	14.45	46.051					
3,900.0	3,874.8	3,857.8	3,857.8	10.7	4.3	74.67	-768.7	-319.7	661.7	646.7	14.93	44.321					
4,000.0	3,973.8	3,956.8	3,956.8	11.1	4.4	75.86	-768.7	-319.7	658.0	642.6	15.40	42.713					
4,100.0	4,072.7	4,055.7	4,055.7	11.4	4.6	77.07	-768.7	-319.7	654.6	638.7	15.88	41.216					
4,200.0	4,171.7	4,154.7	4,154.7	11.8	4.7	78.29	-768.7	-319.7	651.5	635.1	16.36	39.823					
4,300.0	4,270.6	4,253.6	4,253.6	12.1	4.8	79.52	-768.7	-319.7	648.7	631.8	16.84	38.526					
4,400.0	4,369.6	4,352.6	4,352.6	12.5	4.9	80.76	-768.7	-319.7	646.2	628.9	17.32	37.318					
4,500.0	4,468.6	4,451.6	4,451.6	12.8	5.0	82.01	-768.7	-319.7	644.0	626.2	17.79	36.192					
4,600.0	4,567.5	4,550.5	4,550.5	13.2	5.1	83.27	-768.7	-319.7	642.2	623.9	18.27	35.144					
4,700.0	4,666.5	4,649.5	4,649.5	13.6	5.2	84.54	-768.7	-319.7	640.6	621.9	18.75	34.168					
4,800.0	4,765.4	4,748.4	4,748.4	13.9	5.3	85.81	-768.7	-319.7	639.4	620.2	19.22	33.259					
4,900.0	4,864.4	4,847.4	4,847.4	14.3	5.4	87.08	-768.7	-319.7	638.5	618.8	19.70	32.413					
5,000.0	4,963.4	4,946.4	4,946.4	14.6	5.6	88.36	-768.7	-319.7	637.9	617.7	20.17	31.626					

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

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Reference Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Alm 33V-234	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 (03-07-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad North Sec.33-T7N-R65W - Alm 42-33 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7300-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	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)	+E/-W (ft)					
5,100.0	5,062.3	5,045.3	5,045.3	15.0	5.7	89.63	-768.7	-319.7	637.7	617.0	20.64	30.894	
5,128.6	5,090.6	5,073.6	5,073.6	15.1	5.7	90.00	-768.7	-319.7	637.6	616.9	20.77	30.694	
5,200.0	5,161.3	5,144.3	5,144.3	15.3	5.8	90.91	-768.7	-319.7	637.7	616.6	21.11	30.214	
5,300.0	5,260.2	5,243.2	5,243.2	15.7	5.9	92.19	-768.7	-319.7	638.1	616.5	21.57	29.582	
5,400.0	5,359.2	5,342.2	5,342.2	16.0	6.0	93.47	-768.7	-319.7	638.8	616.8	22.03	28.995	
5,500.0	5,458.3	5,441.3	5,441.3	16.4	6.1	94.68	-768.7	-319.7	639.8	617.4	22.45	28.500	
5,600.0	5,557.8	5,540.8	5,540.8	16.6	6.2	95.60	-768.7	-319.7	640.7	617.9	22.78	28.131	
5,700.0	5,657.5	5,640.5	5,640.5	16.8	6.3	96.21	-768.7	-319.7	641.4	618.3	23.07	27.797	
5,800.0	5,757.5	5,740.5	5,740.5	16.9	6.5	96.50	-768.7	-319.7	641.8	618.4	23.35	27.490	
5,900.0	5,857.5	5,840.5	5,840.5	17.1	6.6	-110.88	-768.7	-319.7	641.8	622.1	19.69	32.588	
6,000.0	5,957.5	5,940.5	5,940.5	17.2	6.7	-110.88	-768.7	-319.7	641.8	621.8	19.99	32.107	
6,100.0	6,057.5	6,040.5	6,040.5	17.4	6.8	-110.88	-768.7	-319.7	641.8	621.5	20.29	31.638	
6,200.0	6,157.5	6,140.5	6,140.5	17.5	6.9	-110.88	-768.7	-319.7	641.8	621.2	20.58	31.180	
6,300.0	6,257.5	6,240.5	6,240.5	17.6	7.0	-22.18	-768.7	-319.7	641.8	617.2	24.62	26.065	
6,400.0	6,357.2	6,340.2	6,340.2	17.8	7.1	-22.61	-768.7	-319.7	635.3	610.5	24.72	25.693	
6,500.0	6,455.1	6,438.1	6,438.1	17.8	7.2	-23.89	-768.7	-319.7	616.8	592.2	24.58	25.091	
6,600.0	6,549.5	6,532.5	6,532.5	17.8	7.3	-26.18	-768.7	-319.7	586.9	562.7	24.23	24.226	
6,700.0	6,638.9	6,621.9	6,621.9	17.8	7.4	-29.80	-768.7	-319.7	546.5	522.8	23.72	23.041	
6,800.0	6,721.7	6,704.7	6,704.7	17.8	7.5	-35.25	-768.7	-319.7	497.0	473.8	23.19	21.436	
6,900.0	6,796.5	6,779.5	6,779.5	17.8	7.6	-43.14	-768.7	-319.7	440.3	417.5	22.86	19.263	
7,000.0	6,861.9	6,844.9	6,844.9	17.8	7.7	-53.91	-768.7	-319.7	379.6	356.5	23.08	16.445	
7,100.0	6,917.0	6,900.0	6,900.0	17.7	7.8	-66.88	-768.7	-319.7	319.8	295.8	24.04	13.305	
7,200.0	6,960.7	6,943.7	6,943.7	17.9	7.8	-79.49	-768.7	-319.7	269.9	244.5	25.42	10.616	
7,300.0	6,992.3	6,975.3	6,975.3	19.2	7.8	-88.55	-768.7	-319.7	243.5	216.6	26.89	9.055	
7,324.9	6,998.2	6,981.2	6,981.2	19.6	7.8	-90.00	-768.7	-319.7	242.3	215.0	27.29	8.877	CC, ES, SF
7,400.0	7,011.3	6,994.3	6,994.3	20.9	7.9	-92.19	-768.7	-319.7	253.3	224.8	28.52	8.883	
7,500.0	7,017.3	7,000.3	7,000.3	22.8	7.9	-89.89	-768.7	-319.7	298.1	267.6	30.48	9.780	
7,600.0	7,017.0	7,000.0	7,000.0	24.9	7.9	-89.83	-768.7	-319.7	365.5	333.0	32.54	11.233	
7,700.0	7,016.8	6,999.8	6,999.8	27.1	7.9	-89.77	-768.7	-319.7	445.4	410.6	34.74	12.821	
7,800.0	7,016.5	6,999.5	6,999.5	29.4	7.9	-89.71	-768.7	-319.7	532.1	495.0	37.04	14.364	
7,900.0	7,016.3	6,999.3	6,999.3	31.8	7.9	-89.64	-768.7	-319.7	622.8	583.3	39.43	15.795	
8,000.0	7,016.0	6,999.0	6,999.0	34.2	7.9	-89.58	-768.7	-319.7	716.0	674.1	41.88	17.096	
8,100.0	7,015.7	6,998.7	6,998.7	36.7	7.9	-89.52	-768.7	-319.7	810.8	766.4	44.38	18.267	
8,200.0	7,015.5	6,998.5	6,998.5	39.3	7.9	-89.46	-768.7	-319.7	906.7	859.8	46.93	19.320	

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Reference Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Alm 33V-234	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 (03-07-13)	Offset TVD Reference:	Offset Datum

Offset Design												Alm 33V-HZ Pad North Sec.33-T7N-R65W - Hazen 22-33 (Exist) - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft	
Survey Program: 7300-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)						
9,200.0	7,012.9	7,002.9	7,002.9	65.9	7.9	-90.62	-695.7	-3,152.2	987.8	914.2	73.58	13.425	2.335 CC, ES, SF				
9,300.0	7,012.6	7,002.6	7,002.6	68.6	7.9	-90.55	-695.7	-3,152.2	890.9	814.6	76.31	11.675					
9,400.0	7,012.3	7,002.3	7,002.3	71.4	7.9	-90.49	-695.7	-3,152.2	794.9	715.8	79.05	10.055					
9,500.0	7,012.1	7,002.1	7,002.1	74.1	7.9	-90.42	-695.7	-3,152.2	699.9	618.1	81.80	8.556					
9,600.0	7,011.8	7,001.8	7,001.8	76.8	7.9	-90.36	-695.7	-3,152.2	606.5	522.0	84.55	7.174					
9,700.0	7,011.6	7,001.6	7,001.6	79.6	7.9	-90.30	-695.7	-3,152.2	515.7	428.4	87.30	5.907					
9,800.0	7,011.3	7,001.3	7,001.3	82.3	7.9	-90.23	-695.7	-3,152.2	428.9	338.9	90.06	4.763					
9,900.0	7,011.0	7,001.0	7,001.0	85.1	7.9	-90.17	-695.7	-3,152.2	349.3	256.5	92.83	3.763					
10,000.0	7,010.8	7,000.8	7,000.8	87.9	7.9	-90.10	-695.7	-3,152.2	283.0	187.4	95.59	2.960					
10,100.0	7,010.5	7,000.5	7,000.5	90.6	7.9	-90.04	-695.7	-3,152.2	241.1	142.7	98.36	2.451					
10,159.8	7,010.3	7,000.3	7,000.3	92.3	7.9	-90.00	-695.7	-3,152.2	233.5	133.5	100.02						
10,200.0	7,010.2	7,000.2	7,000.2	93.4	7.9	-89.97	-695.7	-3,152.2	237.0	135.8	101.13	2.343					
10,300.0	7,010.0	7,000.0	7,000.0	96.2	7.9	-89.91	-695.7	-3,152.2	272.4	168.5	103.90	2.622					
10,400.0	7,009.7	6,999.7	6,999.7	98.9	7.9	-89.85	-695.7	-3,152.2	335.0	228.4	106.68	3.141					
10,500.0	7,009.5	6,999.5	6,999.5	101.7	7.9	-89.78	-695.7	-3,152.2	412.7	303.2	109.46	3.770					
10,600.0	7,009.2	6,999.2	6,999.2	104.5	7.9	-89.72	-695.7	-3,152.2	498.3	386.1	112.24	4.440					
10,700.0	7,008.9	6,998.9	6,998.9	107.3	7.9	-89.65	-695.7	-3,152.2	588.5	473.5	115.02	5.117					
10,800.0	7,008.7	6,998.7	6,998.7	110.0	7.9	-89.59	-695.7	-3,152.2	681.5	563.7	117.80	5.785					
10,900.0	7,008.4	6,998.4	6,998.4	112.8	7.9	-89.52	-695.7	-3,152.2	776.2	655.6	120.59	6.437					
11,000.0	7,008.1	6,998.1	6,998.1	115.6	7.9	-89.46	-695.7	-3,152.2	872.1	748.7	123.37	7.069					
11,100.0	7,007.9	6,997.9	6,997.9	118.4	7.9	-89.40	-695.7	-3,152.2	968.8	842.6	126.16	7.679					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33V-234
Project:	SEC.33-T7N-R65W	TVD Reference:	WELL @ 4805.0ft (Original Well Elev)
Reference Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Alm 33V-234	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 (03-07-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad North Sec.33-T7N-R65W - Paxton 12-13 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7300-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
10,200.0	7,010.2	7,005.2	7,005.2	93.4	7.9	-90.59	-666.4	-4,080.7	916.8	815.6	101.12	9.066	
10,300.0	7,010.0	7,005.0	7,005.0	96.2	7.9	-90.52	-666.4	-4,080.7	820.2	716.3	103.90	7.894	
10,400.0	7,009.7	7,004.7	7,004.7	98.9	7.9	-90.46	-666.4	-4,080.7	724.6	617.9	106.67	6.792	
10,500.0	7,009.5	7,004.5	7,004.5	101.7	7.9	-90.39	-666.4	-4,080.7	630.3	520.8	109.45	5.759	
10,600.0	7,009.2	7,004.2	7,004.2	104.5	7.9	-90.33	-666.4	-4,080.7	538.1	425.9	112.23	4.794	
10,700.0	7,008.9	7,003.9	7,003.9	107.3	7.9	-90.26	-666.4	-4,080.7	449.2	334.2	115.02	3.906	
10,800.0	7,008.7	7,003.7	7,003.7	110.0	7.9	-90.19	-666.4	-4,080.7	366.2	248.4	117.80	3.109	
10,900.0	7,008.4	7,003.4	7,003.4	112.8	7.9	-90.13	-666.4	-4,080.7	293.9	173.3	120.59	2.437	
11,000.0	7,008.1	7,003.1	7,003.1	115.6	7.9	-90.06	-666.4	-4,080.7	242.2	118.8	123.37	1.963	
11,088.6	7,007.9	7,002.9	7,002.9	118.1	7.9	-90.00	-666.4	-4,080.7	225.3	99.5	125.84	1.791 CC	
11,100.0	7,007.9	7,002.9	7,002.9	118.4	7.9	-89.99	-666.4	-4,080.7	225.6	99.5	126.16	1.788 ES, SF	
11,200.0	7,007.6	7,002.6	7,002.6	121.2	7.9	-89.93	-666.4	-4,080.7	251.4	122.4	128.95	1.949	
11,300.0	7,007.4	7,002.4	7,002.4	124.0	7.9	-89.86	-666.4	-4,080.7	309.0	177.2	131.74	2.345	
11,400.0	7,007.1	7,002.1	7,002.1	126.8	7.9	-89.79	-666.4	-4,080.7	384.4	249.8	134.53	2.857	
11,438.5	7,007.0	7,002.0	7,002.0	127.8	7.9	-89.77	-666.4	-4,080.7	416.1	280.5	135.60	3.069	

Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33V-404 - Wellbore #1 - Plan #1 (03-07-13)													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.0	0.0	1.0	1.0	0.0	0.0	0.00	29.1	0.0	29.1	29.1	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	0.00	29.1	0.0	29.1	28.9	0.23	128.387		
200.0	200.0	201.0	201.0	0.3	0.3	0.00	29.1	0.0	29.1	28.5	0.68	43.080		
300.0	300.0	301.0	301.0	0.6	0.6	0.00	29.1	0.0	29.1	28.0	1.13	25.882		
400.0	400.0	401.0	401.0	0.8	0.8	0.00	29.1	0.0	29.1	27.6	1.58	18.498		
500.0	500.0	501.0	501.0	1.0	1.0	0.00	29.1	0.0	29.1	27.1	2.03	14.392		
600.0	600.0	601.0	601.0	1.2	1.2	0.00	29.1	0.0	29.1	26.7	2.47	11.778		
700.0	700.0	701.0	701.0	1.5	1.5	0.00	29.1	0.0	29.1	26.2	2.92	9.967		
800.0	800.0	801.0	801.0	1.7	1.7	0.00	29.1	0.0	29.1	25.8	3.37	8.639		
900.0	900.0	901.0	901.0	1.9	1.9	0.00	29.1	0.0	29.1	25.3	3.82	7.623		
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	0.00	29.1	0.0	29.1	24.9	4.27	6.821		
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	0.00	29.1	0.0	29.1	24.4	4.72	6.172		
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	0.00	29.1	0.0	29.1	24.0	5.17	5.635	CC, ES	
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	-154.08	29.1	0.0	30.7	25.1	5.59	5.489		
1,400.0	1,399.8	1,400.8	1,400.8	3.0	3.0	-157.74	29.1	0.0	35.5	29.5	5.99	5.924		
1,500.0	1,499.5	1,500.5	1,500.5	3.2	3.3	-162.02	29.1	0.0	43.7	37.3	6.39	6.838		
1,600.0	1,598.7	1,599.7	1,599.7	3.4	3.5	-165.85	29.1	0.0	55.4	48.6	6.78	8.167		
1,700.0	1,697.7	1,698.7	1,698.7	3.6	3.7	-168.74	29.1	0.0	69.4	62.2	7.20	9.644		
1,800.0	1,796.6	1,797.6	1,797.6	3.9	3.9	-170.67	29.1	0.0	83.6	75.9	7.62	10.966		
1,900.0	1,895.6	1,899.5	1,899.5	4.1	4.1	-171.55	28.0	1.3	96.3	88.3	8.03	11.996		
2,000.0	1,994.5	2,002.1	2,002.0	4.4	4.3	-171.25	24.5	5.4	106.1	97.6	8.43	12.584		
2,100.0	2,093.5	2,105.3	2,104.7	4.7	4.5	-170.02	18.6	12.3	112.7	103.9	8.84	12.749		
2,200.0	2,192.5	2,207.3	2,206.0	5.0	4.7	-168.04	10.5	21.8	116.6	107.4	9.27	12.577		
2,300.0	2,291.4	2,307.2	2,305.0	5.3	5.0	-166.02	2.1	31.6	120.0	110.3	9.72	12.354		
2,400.0	2,390.4	2,407.1	2,404.0	5.7	5.2	-164.11	-6.3	41.4	123.6	113.4	10.18	12.148		
2,500.0	2,489.4	2,506.9	2,503.0	6.0	5.5	-162.31	-14.7	51.2	127.3	116.7	10.65	11.954		
2,600.0	2,588.3	2,606.8	2,602.1	6.3	5.7	-160.61	-23.1	61.0	131.1	120.0	11.14	11.774		
2,700.0	2,687.3	2,706.6	2,701.1	6.6	6.0	-159.01	-31.5	70.8	135.0	123.4	11.64	11.604		
2,800.0	2,786.2	2,806.5	2,800.1	7.0	6.2	-157.50	-39.9	80.6	139.1	126.9	12.15	11.445		
2,900.0	2,885.2	2,906.3	2,899.1	7.3	6.5	-156.08	-48.3	90.4	143.2	130.5	12.68	11.295		
3,000.0	2,984.2	3,006.2	2,998.1	7.6	6.8	-154.74	-56.7	100.2	147.4	134.2	13.21	11.154		
3,100.0	3,083.1	3,106.0	3,097.1	8.0	7.1	-153.47	-65.2	110.0	151.6	137.9	13.76	11.021		
3,200.0	3,182.1	3,205.9	3,196.2	8.3	7.4	-152.27	-73.6	119.8	156.0	141.7	14.32	10.896		
3,300.0	3,281.0	3,305.7	3,295.2	8.7	7.7	-151.14	-82.0	129.6	160.4	145.5	14.88	10.778		
3,400.0	3,380.0	3,405.6	3,394.2	9.0	8.0	-150.07	-90.4	139.4	164.9	149.4	15.45	10.667		
3,500.0	3,479.0	3,505.4	3,493.2	9.3	8.3	-149.05	-98.8	149.2	169.4	153.3	16.04	10.562		
3,600.0	3,577.9	3,605.3	3,592.2	9.7	8.6	-148.09	-107.2	159.0	173.9	157.3	16.62	10.464		
3,700.0	3,676.9	3,705.2	3,691.2	10.0	8.9	-147.18	-115.6	168.8	178.6	161.3	17.22	10.371		
3,800.0	3,775.8	3,805.0	3,790.3	10.4	9.2	-146.31	-124.0	178.6	183.2	165.4	17.82	10.283		
3,900.0	3,874.8	3,904.9	3,889.3	10.7	9.5	-145.49	-132.4	188.4	187.9	169.5	18.42	10.200		
4,000.0	3,973.8	4,004.7	3,988.3	11.1	9.8	-144.70	-140.8	198.2	192.7	173.6	19.03	10.122		
4,100.0	4,072.7	4,104.6	4,087.3	11.4	10.1	-143.96	-149.2	208.0	197.4	177.8	19.65	10.048		
4,200.0	4,171.7	4,204.4	4,186.3	11.8	10.5	-143.25	-157.6	217.9	202.2	182.0	20.27	9.978		
4,300.0	4,270.6	4,304.3	4,285.3	12.1	10.8	-142.57	-166.0	227.7	207.1	186.2	20.89	9.912		
4,400.0	4,369.6	4,404.1	4,384.3	12.5	11.1	-141.93	-174.4	237.5	211.9	190.4	21.52	9.849		
4,500.0	4,468.6	4,504.0	4,483.4	12.8	11.4	-141.31	-182.8	247.3	216.8	194.7	22.15	9.790		
4,600.0	4,567.5	4,603.8	4,582.4	13.2	11.7	-140.72	-191.2	257.1	221.7	198.9	22.78	9.734		
4,700.0	4,666.5	4,700.0	4,677.8	13.6	12.0	-140.27	-199.0	266.2	226.9	203.5	23.38	9.705		
4,800.0	4,765.4	4,797.9	4,775.2	13.9	12.3	-140.46	-205.1	273.3	233.4	209.6	23.88	9.777		
4,900.0	4,864.4	4,893.6	4,870.8	14.3	12.5	-141.31	-209.0	277.8	241.6	217.3	24.29	9.948		
5,000.0	4,963.4	4,988.8	4,965.9	14.6	12.6	-142.73	-210.7	279.8	251.6	227.0	24.63	10.213		

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Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33V-234
Project:	SEC.33-T7N-R65W	TVD Reference:	WELL @ 4805.0ft (Original Well Elev)
Reference Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Alm 33V-234	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 (03-07-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33V-404 - Wellbore #1 - Plan #1 (03-07-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,062.3	5,086.2	5,063.3	15.0	12.8	-144.56		-210.9	280.0	263.1	238.2	24.93	10.553	
5,200.0	5,161.3	5,185.2	5,162.3	15.3	13.0	-146.29		-210.9	280.0	275.0	249.7	25.24	10.895	
5,300.0	5,260.2	5,284.1	5,261.2	15.7	13.1	-147.88		-210.9	280.0	287.1	261.5	25.56	11.234	
5,400.0	5,359.2	5,383.1	5,360.2	16.0	13.3	-149.34		-210.9	280.0	299.4	273.5	25.88	11.568	
5,500.0	5,458.3	5,482.2	5,459.3	16.4	13.5	-150.68		-210.9	280.0	311.1	284.9	26.22	11.867	
5,600.0	5,557.8	5,581.7	5,558.8	16.6	13.7	-151.66		-210.9	280.0	320.1	293.5	26.54	12.060	
5,700.0	5,657.5	5,681.4	5,658.5	16.8	13.9	-152.28		-210.9	280.0	326.0	299.1	26.87	12.134	
5,800.0	5,757.5	5,781.4	5,758.5	16.9	14.0	-152.56		-210.9	280.0	328.9	301.7	27.19	12.095	
5,900.0	5,857.5	5,881.4	5,858.5	17.1	14.2	0.00		-210.9	280.0	329.1	299.4	29.73	11.071	
6,000.0	5,957.5	5,981.4	5,958.5	17.2	14.4	0.00		-210.9	280.0	329.1	299.1	30.07	10.946	
6,100.0	6,057.5	6,081.4	6,058.5	17.4	14.6	0.00		-210.9	280.0	329.1	298.7	30.41	10.824	
6,200.0	6,157.5	6,181.4	6,158.5	17.5	14.8	0.00		-210.9	280.0	329.1	298.4	30.75	10.703	
6,300.0	6,257.5	6,281.4	6,258.5	17.6	15.0	88.70		-210.9	280.0	329.1	300.1	29.03	11.336	
6,400.0	6,357.2	6,381.1	6,358.2	17.8	15.2	89.93		-210.9	280.0	329.1	299.6	29.47	11.166	
6,402.8	6,360.0	6,383.9	6,361.0	17.8	15.2	90.00		-210.9	280.0	329.1	299.6	29.48	11.161	
6,500.0	6,455.1	6,480.9	6,457.8	17.8	15.3	92.33		-210.7	273.8	329.3	299.5	29.89	11.019	
6,600.0	6,549.5	6,582.7	6,557.5	17.8	15.4	94.70		-210.3	254.1	330.2	300.0	30.17	10.943	
6,700.0	6,638.9	6,686.4	6,655.6	17.8	15.4	97.00		-209.5	220.7	331.6	301.2	30.36	10.923	
6,800.0	6,721.7	6,792.0	6,749.9	17.8	15.5	99.17		-208.4	173.3	333.4	302.9	30.52	10.925	
6,900.0	6,796.5	6,899.7	6,838.4	17.8	15.5	101.19		-207.0	112.1	335.6	304.8	30.80	10.898	
7,000.0	6,861.9	7,009.3	6,918.7	17.8	15.7	102.99		-205.2	37.6	337.9	306.5	31.38	10.768	
7,100.0	6,917.0	7,120.7	6,988.5	17.7	16.2	104.56		-203.2	-49.0	340.2	307.8	32.48	10.475	
7,200.0	6,960.7	7,233.7	7,045.7	17.9	17.1	105.85		-201.0	-146.2	342.4	308.1	34.27	9.991	
7,300.0	6,992.3	7,348.0	7,088.4	19.2	18.6	106.84		-198.5	-252.1	344.1	307.3	36.82	9.346	
7,400.0	7,011.3	7,463.3	7,114.9	20.9	20.5	107.50		-195.9	-364.2	345.4	305.3	40.12	8.609	
7,500.0	7,017.3	7,568.6	7,127.0	22.8	22.5	108.25		-193.5	-468.8	347.1	303.4	43.76	7.933	
7,600.0	7,017.0	7,678.3	7,134.0	24.9	24.8	109.39		-190.9	-578.2	349.3	301.7	47.62	7.336	
7,700.0	7,016.8	7,778.9	7,135.2	27.1	27.0	109.60		-188.6	-678.8	349.8	298.1	51.72	6.764	
7,800.0	7,016.5	7,878.9	7,136.3	29.4	29.3	109.81		-186.3	-778.8	350.4	294.4	56.00	6.257	
7,900.0	7,016.3	7,978.9	7,137.4	31.8	31.6	110.02		-183.9	-878.7	350.9	290.5	60.42	5.808	
8,000.0	7,016.0	8,078.9	7,138.5	34.2	34.1	110.23		-181.6	-978.7	351.4	286.5	64.95	5.410	
8,100.0	7,015.7	8,178.9	7,139.6	36.7	36.6	110.44		-179.3	-1,078.7	351.9	282.4	69.57	5.059	
8,200.0	7,015.5	8,278.9	7,140.8	39.3	39.1	110.65		-177.0	-1,178.6	352.5	278.2	74.26	4.746	
8,300.0	7,015.2	8,378.9	7,141.9	41.9	41.7	110.85		-174.6	-1,278.6	353.0	274.0	79.00	4.468	
8,400.0	7,015.0	8,478.9	7,143.0	44.5	44.3	111.06		-172.3	-1,378.5	353.5	269.8	83.78	4.220	
8,500.0	7,014.7	8,578.9	7,144.1	47.1	46.9	111.26		-170.0	-1,478.5	354.1	265.5	88.60	3.996	
8,600.0	7,014.4	8,678.9	7,145.2	49.7	49.6	111.47		-167.7	-1,578.4	354.6	261.2	93.44	3.795	
8,700.0	7,014.2	8,778.8	7,146.3	52.4	52.3	111.67		-165.4	-1,678.4	355.2	256.9	98.30	3.613	
8,800.0	7,013.9	8,878.8	7,147.5	55.1	54.9	111.87		-163.0	-1,778.4	355.8	252.6	103.17	3.448	
8,900.0	7,013.6	8,978.8	7,148.6	57.8	57.6	112.08		-160.7	-1,878.3	356.3	248.3	108.06	3.298	
9,000.0	7,013.4	9,078.8	7,149.7	60.5	60.3	112.28		-158.4	-1,978.3	356.9	243.9	112.95	3.160	
9,100.0	7,013.1	9,178.8	7,150.8	63.2	63.0	112.48		-156.1	-2,078.2	357.5	239.6	117.84	3.033	
9,200.0	7,012.9	9,278.8	7,151.9	65.9	65.8	112.68		-153.7	-2,178.2	358.0	235.3	122.73	2.917	
9,300.0	7,012.6	9,378.8	7,153.0	68.6	68.5	112.88		-151.4	-2,278.1	358.6	231.0	127.63	2.810	
9,400.0	7,012.3	9,478.8	7,154.2	71.4	71.2	113.08		-149.1	-2,378.1	359.2	226.7	132.52	2.711	
9,500.0	7,012.1	9,578.8	7,155.3	74.1	74.0	113.28		-146.8	-2,478.1	359.8	222.4	137.41	2.618	
9,600.0	7,011.8	9,678.8	7,156.4	76.8	76.7	113.48		-144.5	-2,578.0	360.4	218.1	142.29	2.533	
9,700.0	7,011.6	9,778.8	7,157.5	79.6	79.5	113.67		-142.1	-2,678.0	361.0	213.8	147.17	2.453	
9,800.0	7,011.3	9,878.7	7,158.6	82.3	82.2	113.87		-139.8	-2,777.9	361.6	209.6	152.03	2.378	
9,900.0	7,011.0	9,978.7	7,159.7	85.1	85.0	114.07		-137.5	-2,877.9	362.2	205.3	156.89	2.309	
10,000.0	7,010.8	10,078.7	7,160.9	87.9	87.7	114.26		-135.2	-2,977.8	362.8	201.1	161.75	2.243	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33V-234
Project:	SEC.33-T7N-R65W	TVD Reference:	WELL @ 4805.0ft (Original Well Elev)
Reference Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Alm 33V-234	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 (03-07-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33V-404 - Wellbore #1 - Plan #1 (03-07-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	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)	+E/-W (ft)					
10,100.0	7,010.5	10,178.7	7,162.0	90.6	90.5	114.46	-132.8	-3,077.8	363.4	196.8	166.59	2.182	
10,200.0	7,010.2	10,278.7	7,163.1	93.4	93.3	114.65	-130.5	-3,177.8	364.0	192.6	171.42	2.124	
10,300.0	7,010.0	10,378.7	7,164.2	96.2	96.1	114.85	-128.2	-3,277.7	364.7	188.4	176.24	2.069	
10,400.0	7,009.7	10,478.7	7,165.3	98.9	98.8	115.04	-125.9	-3,377.7	365.3	184.2	181.05	2.018	
10,500.0	7,009.5	10,578.7	7,166.4	101.7	101.6	115.23	-123.6	-3,477.6	365.9	180.1	185.85	1.969	
10,600.0	7,009.2	10,678.7	7,167.6	104.5	104.4	115.42	-121.2	-3,577.6	366.6	175.9	190.64	1.923	
10,700.0	7,008.9	10,778.7	7,168.7	107.3	107.2	115.61	-118.9	-3,677.5	367.2	171.8	195.41	1.879	
10,800.0	7,008.7	10,878.6	7,169.8	110.0	109.9	115.80	-116.6	-3,777.5	367.9	167.7	200.17	1.838	
10,900.0	7,008.4	10,978.6	7,170.9	112.8	112.7	115.99	-114.3	-3,877.5	368.5	163.6	204.92	1.798	
11,000.0	7,008.1	11,078.6	7,172.0	115.6	115.5	116.18	-111.9	-3,977.4	369.2	159.5	209.66	1.761	
11,100.0	7,007.9	11,178.6	7,173.1	118.4	118.3	116.37	-109.6	-4,077.4	369.8	155.4	214.38	1.725	
11,200.0	7,007.6	11,278.6	7,174.3	121.2	121.1	116.56	-107.3	-4,177.3	370.5	151.4	219.09	1.691	
11,300.0	7,007.4	11,378.6	7,175.4	124.0	123.9	116.74	-105.0	-4,277.3	371.1	147.4	223.78	1.658	
11,400.0	7,007.1	11,478.6	7,176.5	126.8	126.7	116.93	-102.7	-4,377.2	371.8	143.3	228.46	1.627	
11,438.5	7,007.0	11,517.1	7,176.9	127.8	127.7	117.00	-101.8	-4,415.7	372.1	141.8	230.26	1.616 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33V-234
Project:	SEC.33-T7N-R65W	TVD Reference:	WELL @ 4805.0ft (Original Well Elev)
Reference Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Alm 33V-234	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 (03-07-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33W-214 - Wellbore #1 - Plan #1 (03-17-13)													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 (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	180.00		-29.1	0.0	29.1				
100.0	100.0	100.0	100.0	0.1	0.1	180.00		-29.1	0.0	29.1	28.9	0.22	129.671	
200.0	200.0	200.0	200.0	0.3	0.3	180.00		-29.1	0.0	29.1	28.5	0.67	43.224	
300.0	300.0	300.0	300.0	0.6	0.6	180.00		-29.1	0.0	29.1	28.0	1.12	25.934	
400.0	400.0	400.0	400.0	0.8	0.8	180.00		-29.1	0.0	29.1	27.6	1.57	18.524	
500.0	500.0	500.0	500.0	1.0	1.0	180.00		-29.1	0.0	29.1	27.1	2.02	14.408	
600.0	600.0	600.0	600.0	1.2	1.2	180.00		-29.1	0.0	29.1	26.7	2.47	11.788	
700.0	700.0	700.0	700.0	1.5	1.5	180.00		-29.1	0.0	29.1	26.2	2.92	9.975	
800.0	800.0	800.0	800.0	1.7	1.7	180.00		-29.1	0.0	29.1	25.8	3.37	8.645	
900.0	900.0	900.0	900.0	1.9	1.9	180.00		-29.1	0.0	29.1	25.3	3.82	7.628	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	180.00		-29.1	0.0	29.1	24.9	4.27	6.825 CC, ES	
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.3	179.11		-30.8	0.5	30.8	26.1	4.69	6.568	
1,200.0	1,200.0	1,197.8	1,197.6	2.6	2.5	176.95		-35.7	1.9	35.8	30.7	5.09	7.035	
1,300.0	1,300.0	1,296.2	1,295.7	2.8	2.7	22.66		-43.8	4.3	42.6	37.2	5.47	7.793	
1,400.0	1,399.8	1,394.4	1,393.2	3.0	2.9	22.18		-55.2	7.6	49.6	43.8	5.83	8.506	
1,500.0	1,499.5	1,492.4	1,489.9	3.2	3.2	22.46		-69.7	11.8	56.7	50.5	6.21	9.139	
1,600.0	1,598.7	1,590.1	1,585.9	3.4	3.4	23.26		-87.3	16.9	64.0	57.4	6.60	9.697	
1,700.0	1,697.7	1,688.8	1,682.3	3.6	3.8	24.12		-107.8	22.8	72.0	65.0	7.03	10.252	
1,800.0	1,796.6	1,788.4	1,779.5	3.9	4.1	24.78		-128.8	28.9	80.4	72.9	7.48	10.756	
1,900.0	1,895.6	1,888.1	1,876.7	4.1	4.5	25.31		-149.8	35.0	88.8	80.9	7.94	11.183	
2,000.0	1,994.5	1,987.7	1,973.9	4.4	4.9	25.75		-170.8	41.1	97.2	88.8	8.42	11.547	
2,100.0	2,093.5	2,087.3	2,071.1	4.7	5.3	26.13		-191.8	47.2	105.6	96.7	8.91	11.855	
2,200.0	2,192.5	2,187.0	2,168.4	5.0	5.8	26.44		-212.8	53.3	114.0	104.6	9.41	12.120	
2,300.0	2,291.4	2,286.6	2,265.6	5.3	6.2	26.71		-233.8	59.4	122.4	112.5	9.92	12.348	
2,400.0	2,390.4	2,386.3	2,362.8	5.7	6.7	26.95		-254.7	65.5	130.8	120.4	10.43	12.545	
2,500.0	2,489.4	2,485.9	2,460.0	6.0	7.1	27.16		-275.7	71.6	139.3	128.3	10.95	12.718	
2,600.0	2,588.3	2,585.6	2,557.2	6.3	7.5	27.35		-296.7	77.7	147.7	136.2	11.48	12.868	
2,700.0	2,687.3	2,685.2	2,654.4	6.6	8.0	27.51		-317.7	83.8	156.1	144.1	12.01	13.001	
2,800.0	2,786.2	2,784.9	2,751.7	7.0	8.5	27.66		-338.7	89.9	164.5	152.0	12.54	13.118	
2,900.0	2,885.2	2,884.5	2,848.9	7.3	8.9	27.79		-359.7	96.0	172.9	159.8	13.08	13.222	
3,000.0	2,984.2	2,984.1	2,946.1	7.6	9.4	27.92		-380.7	102.1	181.3	167.7	13.62	13.315	
3,100.0	3,083.1	3,083.8	3,043.3	8.0	9.8	28.03		-401.7	108.2	189.8	175.6	14.16	13.398	
3,200.0	3,182.1	3,183.4	3,140.5	8.3	10.3	28.13		-422.7	114.3	198.2	183.5	14.71	13.472	
3,300.0	3,281.0	3,283.1	3,237.7	8.7	10.8	28.22		-443.7	120.4	206.6	191.3	15.26	13.540	
3,400.0	3,380.0	3,382.7	3,334.9	9.0	11.2	28.31		-464.7	126.5	215.0	199.2	15.81	13.600	
3,500.0	3,479.0	3,482.4	3,432.2	9.3	11.7	28.39		-485.7	132.6	223.4	207.1	16.36	13.656	
3,600.0	3,577.9	3,582.0	3,529.4	9.7	12.2	28.46		-506.7	138.7	231.9	215.0	16.92	13.706	
3,700.0	3,676.9	3,681.7	3,626.6	10.0	12.6	28.53		-527.7	144.8	240.3	222.8	17.47	13.752	
3,800.0	3,775.8	3,781.3	3,723.8	10.4	13.1	28.59		-548.7	150.9	248.7	230.7	18.03	13.794	
3,900.0	3,874.8	3,880.9	3,821.0	10.7	13.6	28.65		-569.7	157.0	257.1	238.6	18.59	13.833	
4,000.0	3,973.8	3,980.6	3,918.2	11.1	14.1	28.71		-590.7	163.1	265.6	246.4	19.15	13.868	
4,100.0	4,072.7	4,080.2	4,015.5	11.4	14.5	28.76		-611.7	169.2	274.0	254.3	19.71	13.901	
4,200.0	4,171.7	4,179.9	4,112.7	11.8	15.0	28.81		-632.7	175.3	282.4	262.1	20.27	13.932	
4,300.0	4,270.6	4,279.5	4,209.9	12.1	15.5	28.85		-653.7	181.4	290.8	270.0	20.83	13.960	
4,400.0	4,369.6	4,379.2	4,307.1	12.5	15.9	28.90		-674.7	187.5	299.3	277.9	21.40	13.986	
4,500.0	4,468.6	4,478.8	4,404.3	12.8	16.4	28.94		-695.7	193.6	307.7	285.7	21.96	14.010	
4,600.0	4,567.5	4,578.5	4,501.5	13.2	16.9	28.98		-716.6	199.7	316.1	293.6	22.53	14.033	
4,700.0	4,666.5	4,678.1	4,598.8	13.6	17.4	29.02		-737.6	205.8	324.5	301.4	23.09	14.054	
4,800.0	4,765.4	4,777.7	4,696.0	13.9	17.8	29.05		-758.6	211.9	333.0	309.3	23.66	14.074	
4,900.0	4,864.4	4,877.4	4,793.2	14.3	18.3	29.08		-779.6	218.0	341.4	317.2	24.22	14.093	
5,000.0	4,963.4	4,977.0	4,890.4	14.6	18.8	29.12		-800.6	224.1	349.8	325.0	24.79	14.110	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33V-234
Project:	SEC.33-T7N-R65W	TVD Reference:	WELL @ 4805.0ft (Original Well Elev)
Reference Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Alm 33V-234	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 (03-07-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33W-214 - Wellbore #1 - Plan #1 (03-17-13)													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	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,100.0	5,062.3	5,076.7	4,987.6	15.0	19.3	29.15	-821.6	230.2	358.2	332.9	25.36	14.127		
5,200.0	5,161.3	5,176.3	5,084.8	15.3	19.7	29.18	-842.6	236.3	366.7	340.7	25.93	14.142		
5,300.0	5,260.2	5,276.0	5,182.1	15.7	20.2	29.20	-863.6	242.4	375.1	348.6	26.50	14.156		
5,400.0	5,359.2	5,375.6	5,279.3	16.0	20.7	29.23	-884.6	248.5	383.5	356.5	27.07	14.170		
5,500.0	5,458.3	5,475.2	5,376.4	16.4	21.2	29.26	-905.6	254.6	392.7	365.1	27.60	14.227		
5,600.0	5,557.8	5,574.7	5,473.5	16.6	21.6	29.11	-926.6	260.7	404.8	376.8	28.05	14.433		
5,700.0	5,657.5	5,689.5	5,586.0	16.8	22.0	28.78	-948.5	267.0	418.0	389.6	28.42	14.708		
5,800.0	5,757.5	5,805.0	5,700.0	16.9	22.4	28.39	-966.2	272.2	430.4	401.7	28.72	14.985		
5,900.0	5,857.5	5,921.3	5,815.4	17.1	22.6	-179.48	-979.5	276.0	441.6	403.0	38.54	11.456		
6,000.0	5,957.5	6,038.4	5,932.2	17.2	22.8	-179.82	-988.4	278.6	449.1	410.2	38.94	11.533		
6,100.0	6,057.5	6,156.2	6,049.9	17.4	23.0	-179.98	-992.7	279.9	452.8	413.5	39.28	11.527		
6,200.0	6,157.5	6,263.8	6,157.5	17.5	23.2	-180.00	-993.1	280.0	453.1	413.6	39.57	11.453		
6,265.0	6,222.5	6,328.7	6,222.5	17.6	23.2	-91.32	-993.1	280.0	453.1	422.8	30.31	14.950		
6,300.0	6,257.5	6,363.8	6,257.5	17.6	23.3	-91.30	-993.1	280.0	453.1	422.7	30.43	14.892		
6,400.0	6,357.2	6,465.1	6,358.5	17.8	23.3	-91.29	-993.0	272.7	453.1	422.5	30.68	14.768		
6,500.0	6,455.1	6,566.5	6,457.6	17.8	23.4	-91.25	-992.5	252.2	453.2	422.3	30.82	14.703		
6,600.0	6,549.5	6,667.7	6,553.1	17.8	23.4	-91.20	-991.8	218.7	453.2	422.3	30.88	14.674		
6,700.0	6,638.9	6,768.9	6,643.3	17.8	23.4	-91.12	-990.8	173.0	453.2	422.2	30.94	14.644		
6,800.0	6,721.7	6,870.0	6,726.6	17.8	23.4	-91.03	-989.5	115.8	453.2	422.1	31.13	14.558		
6,900.0	6,796.5	6,971.0	6,801.5	17.8	23.3	-90.91	-988.0	48.2	453.2	421.6	31.59	14.347		
7,000.0	6,861.9	7,071.8	6,866.8	17.8	23.3	-90.78	-986.3	-28.5	453.2	420.7	32.48	13.952		
7,100.0	6,917.0	7,172.6	6,921.3	17.7	23.3	-90.64	-984.4	-113.1	453.3	419.3	33.96	13.346		
7,200.0	6,960.7	7,273.1	6,964.2	17.9	23.4	-90.48	-982.4	-204.0	453.3	417.2	36.09	12.560		
7,300.0	6,992.3	7,373.5	6,994.8	19.2	23.6	-90.32	-980.3	-299.5	453.3	414.5	38.87	11.663		
7,400.0	7,011.3	7,473.8	7,012.5	20.9	24.1	-90.16	-978.1	-398.1	453.4	411.2	42.21	10.741		
7,500.0	7,017.3	7,573.8	7,017.3	22.8	25.2	-90.00	-975.9	-497.9	453.4	407.4	45.97	9.864		
7,600.0	7,017.0	7,673.8	7,017.0	24.9	26.8	-90.00	-973.6	-597.9	453.5	403.4	50.06	9.059		
7,700.0	7,016.8	7,773.8	7,016.8	27.1	28.8	-90.00	-971.4	-697.9	453.5	399.1	54.41	8.335		
7,800.0	7,016.5	7,873.8	7,016.5	29.4	30.9	-90.00	-969.2	-797.8	453.6	394.6	58.98	7.690		
7,900.0	7,016.3	7,973.8	7,016.2	31.8	33.2	-90.00	-967.0	-897.8	453.6	389.9	63.72	7.119		
8,000.0	7,016.0	8,073.8	7,016.0	34.2	35.5	-90.00	-964.8	-997.8	453.7	385.1	68.59	6.614		
8,100.0	7,015.7	8,173.8	7,015.7	36.7	38.0	-90.00	-962.5	-1,097.8	453.7	380.1	73.57	6.167		
8,200.0	7,015.5	8,273.8	7,015.5	39.3	40.4	-90.00	-960.3	-1,197.7	453.8	375.1	78.64	5.770		
8,300.0	7,015.2	8,373.8	7,015.2	41.9	43.0	-90.00	-958.1	-1,297.7	453.8	370.0	83.78	5.416		
8,400.0	7,015.0	8,473.8	7,014.9	44.5	45.5	-90.00	-955.9	-1,397.7	453.9	364.9	88.98	5.101		
8,500.0	7,014.7	8,573.8	7,014.7	47.1	48.1	-90.00	-953.6	-1,497.7	453.9	359.7	94.23	4.817		
8,600.0	7,014.4	8,673.8	7,014.4	49.7	50.7	-90.00	-951.4	-1,597.6	454.0	354.4	99.52	4.561		
8,700.0	7,014.2	8,773.8	7,014.2	52.4	53.3	-90.00	-949.2	-1,697.6	454.0	349.2	104.85	4.330		
8,800.0	7,013.9	8,873.8	7,013.9	55.1	56.0	-90.00	-947.0	-1,797.6	454.1	343.8	110.20	4.120		
8,900.0	7,013.6	8,973.8	7,013.6	57.8	58.6	-90.00	-944.8	-1,897.6	454.1	338.5	115.58	3.929		
9,000.0	7,013.4	9,073.8	7,013.4	60.5	61.3	-90.00	-942.5	-1,997.5	454.2	333.2	120.99	3.754		
9,100.0	7,013.1	9,173.8	7,013.1	63.2	64.0	-90.00	-940.3	-2,097.5	454.2	327.8	126.41	3.593		
9,200.0	7,012.9	9,273.8	7,012.8	65.9	66.7	-90.00	-938.1	-2,197.5	454.2	322.4	131.85	3.445		
9,300.0	7,012.6	9,373.8	7,012.6	68.6	69.4	-90.00	-935.9	-2,297.5	454.3	317.0	137.31	3.309		
9,400.0	7,012.3	9,473.8	7,012.3	71.4	72.1	-90.00	-933.7	-2,397.4	454.3	311.6	142.78	3.182		
9,500.0	7,012.1	9,573.8	7,012.1	74.1	74.8	-90.00	-931.4	-2,497.4	454.4	306.1	148.26	3.065		
9,600.0	7,011.8	9,673.8	7,011.8	76.8	77.5	-90.00	-929.2	-2,597.4	454.4	300.7	153.75	2.956		
9,700.0	7,011.6	9,773.8	7,011.5	79.6	80.3	-90.00	-927.0	-2,697.4	454.5	295.2	159.25	2.854		
9,800.0	7,011.3	9,873.8	7,011.3	82.3	83.0	-90.00	-924.8	-2,797.3	454.5	289.8	164.76	2.759		
9,900.0	7,011.0	9,973.8	7,011.0	85.1	85.8	-90.00	-922.5	-2,897.3	454.6	284.3	170.28	2.670		
10,000.0	7,010.8	10,073.8	7,010.7	87.9	88.5	-90.00	-920.3	-2,997.3	454.6	278.8	175.80	2.586		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33V-234
Project:	SEC.33-T7N-R65W	TVD Reference:	WELL @ 4805.0ft (Original Well Elev)
Reference Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Alm 33V-234	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 (03-07-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33W-214 - Wellbore #1 - Plan #1 (03-17-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	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)	+E/-W (ft)					
10,100.0	7,010.5	10,173.8	7,010.5	90.6	91.3	-90.00	-918.1	-3,097.3	454.7	273.4	181.33	2.508	
10,200.0	7,010.2	10,273.8	7,010.2	93.4	94.0	-90.00	-915.9	-3,197.2	454.7	267.9	186.87	2.433	
10,300.0	7,010.0	10,373.8	7,010.0	96.2	96.8	-90.00	-913.7	-3,297.2	454.8	262.4	192.41	2.364	
10,400.0	7,009.7	10,473.8	7,009.7	98.9	99.5	-90.00	-911.4	-3,397.2	454.8	256.9	197.96	2.298	
10,500.0	7,009.5	10,573.8	7,009.4	101.7	102.3	-90.00	-909.2	-3,497.2	454.9	251.4	203.51	2.235	
10,600.0	7,009.2	10,673.8	7,009.2	104.5	105.1	-90.00	-907.0	-3,597.1	454.9	245.9	209.06	2.176	
10,700.0	7,008.9	10,773.8	7,008.9	107.3	107.8	-90.00	-904.8	-3,697.1	455.0	240.4	214.62	2.120	
10,800.0	7,008.7	10,873.8	7,008.7	110.0	110.6	-90.00	-902.6	-3,797.1	455.0	234.9	220.18	2.067	
10,900.0	7,008.4	10,973.8	7,008.4	112.8	113.4	-90.00	-900.3	-3,897.1	455.1	229.3	225.75	2.016	
11,000.0	7,008.1	11,073.8	7,008.1	115.6	116.2	-90.00	-898.1	-3,997.0	455.1	223.8	231.32	1.968	
11,100.0	7,007.9	11,173.8	7,007.9	118.4	118.9	-90.00	-895.9	-4,097.0	455.2	218.3	236.89	1.922	
11,200.0	7,007.6	11,273.8	7,007.6	121.2	121.7	-90.00	-893.7	-4,197.0	455.2	212.8	242.46	1.878	
11,300.0	7,007.4	11,373.8	7,007.3	124.0	124.5	-90.00	-891.5	-4,297.0	455.3	207.2	248.04	1.836	
11,400.0	7,007.1	11,473.8	7,007.1	126.8	127.3	-90.00	-889.2	-4,396.9	455.3	201.7	253.62	1.795	
11,416.3	7,007.1	11,490.1	7,007.0	127.2	127.7	-90.00	-888.9	-4,413.2	455.3	200.8	254.53	1.789	
11,438.5	7,007.0	11,505.1	7,007.0	127.8	128.1	-90.00	-888.5	-4,428.2	455.4	199.8	255.56	1.782 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33V-234
Project:	SEC.33-T7N-R65W	TVD Reference:	WELL @ 4805.0ft (Original Well Elev)
Reference Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Alm 33V-234	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 (03-07-13)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4805.0ft (Original Well Elev) Coordinates are relative to: Alm 33V-234
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.54°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33V-234
Project:	SEC.33-T7N-R65W	TVD Reference:	WELL @ 4805.0ft (Original Well Elev)
Reference Site:	Alm 33V-HZ Pad South Sec.33-T7N-R65W	MD Reference:	WELL @ 4805.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Alm 33V-234	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
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