

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Alm 33W-314**

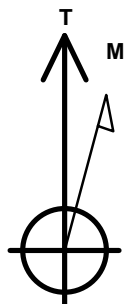
Surface Location: Alm 33V-HZ Pad South Sec.33-T7N-R65W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4790.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1438694.04	3233475.22	40.534580	-104.660020	

Original Well Elev WELL @ 4805.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BHL 2197'FNL & 500'FWL	7056.0	-859.4	-4428.2	Point



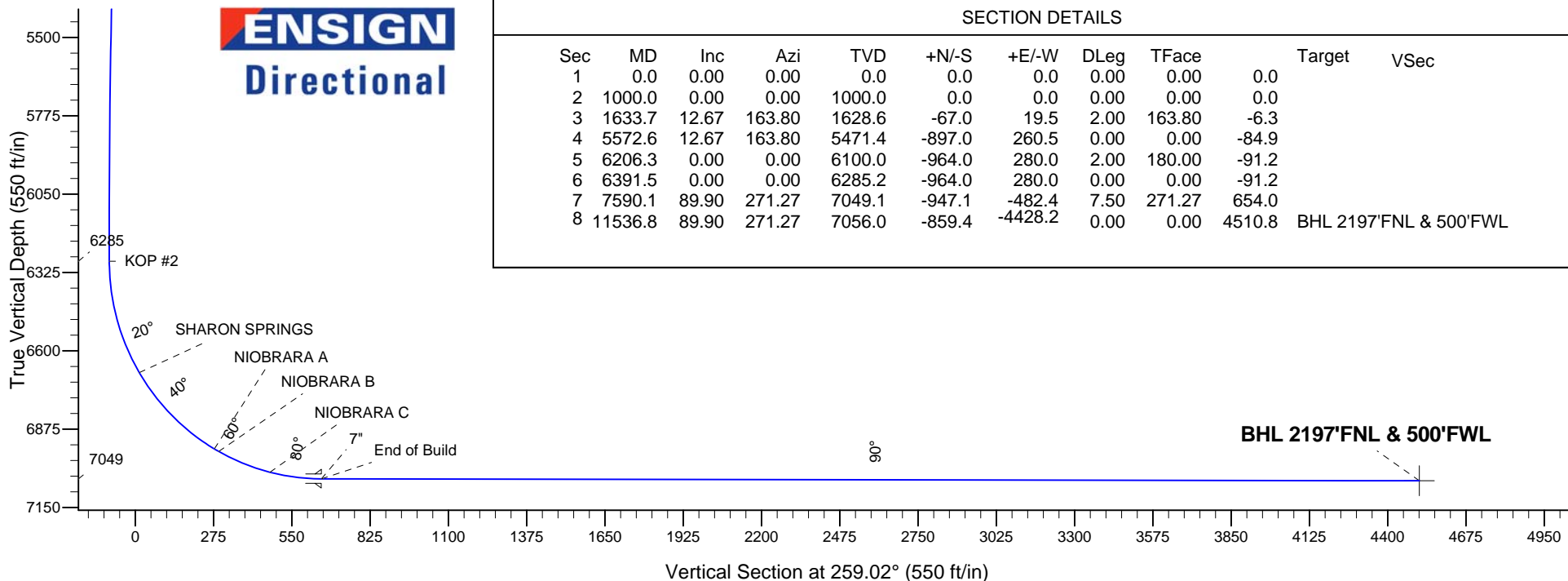
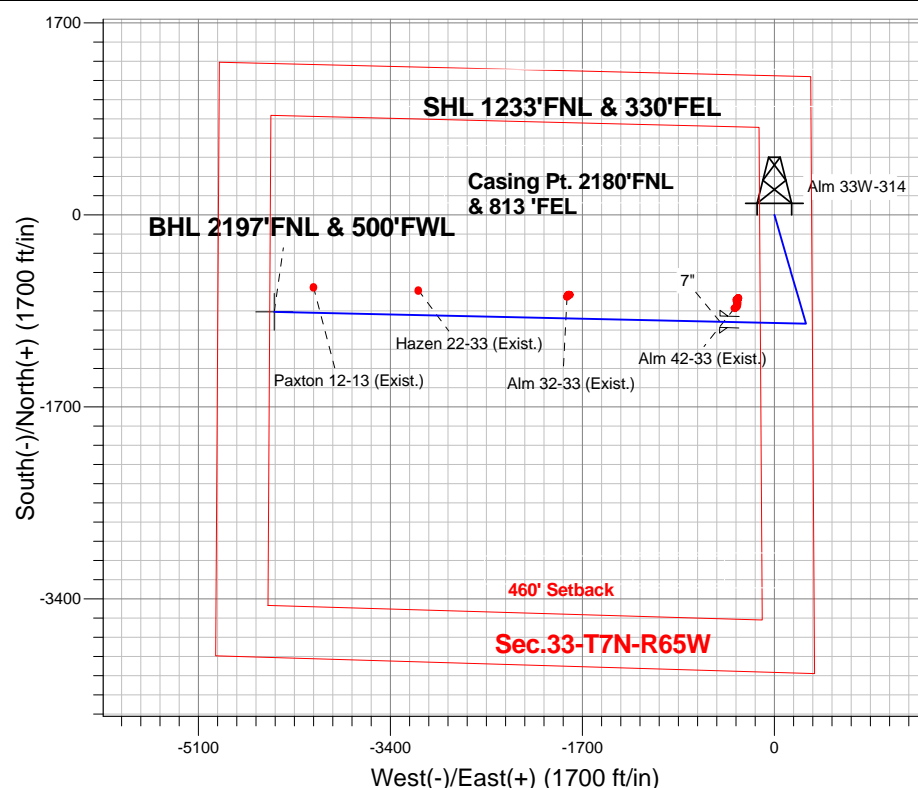
Azimuths to True North
 Magnetic North: 8.51°

Magnetic Field
 Strength: 52970.4snT
 Dip Angle: 67.10°
 Date: 10/3/2013
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP #1
6285.2	6391.5	KOP #2
7049.1	7590.1	End of Build

Alm 33V-HZ Pad South Sec.33-T7N-R65W
 Alm 33W-314
 Plan #2 (10-03-13)
 11:24, October 04 2013



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1633.7	12.67	163.80	1628.6	-67.0	19.5	2.00	163.80	-6.3	
4	5572.6	12.67	163.80	5471.4	-897.0	260.5	0.00	0.00	-84.9	
5	6206.3	0.00	0.00	6100.0	-964.0	280.0	2.00	180.00	-91.2	
6	6391.5	0.00	0.00	6285.2	-964.0	280.0	0.00	0.00	-91.2	
7	7590.1	89.90	271.27	7049.1	-947.1	-482.4	7.50	271.27	654.0	
8	11536.8	89.90	271.27	7056.0	-859.4	-4428.2	0.00	0.00	4510.8	BHL 2197'FNL & 500'FWL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.33-T7N-R65W

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

Alm 33W-314

Wellbore #1

Plan: Plan #2 (10-03-13)

Standard Planning Report

04 October, 2013

Database:	Landmark	Local Co-ordinate Reference:	Well Alm 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (10-03-13)		

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
From:	Lat/Long	Easting:	3,233,475.22 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.534580
		Longitude:	-104.660020
		Grid Convergence:	0.54 °

Well	Alm 33W-314		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	0.0 ft	Easting:
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40.534580
		Longitude:	-104.660020
		Ground Level:	4,790.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/3/2013	8.51	67.10	52,970

Design	Plan #2 (10-03-13)			
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	259.02

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,633.7	12.67	163.80	1,628.6	-67.0	19.5	2.00	2.00	0.00	163.80	
5,572.6	12.67	163.80	5,471.4	-897.0	260.5	0.00	0.00	0.00	0.00	
6,206.3	0.00	0.00	6,100.0	-964.0	280.0	2.00	-2.00	0.00	180.00	
6,391.5	0.00	0.00	6,285.2	-964.0	280.0	0.00	0.00	0.00	0.00	
7,590.1	89.90	271.27	7,049.1	-947.1	-482.4	7.50	7.50	0.00	271.27	
11,536.8	89.90	271.27	7,056.0	-859.4	-4,428.2	0.00	0.00	0.00	0.00	BHL 2197°FNL & 5C

Database:	Landmark	Local Co-ordinate Reference:	Well Alm 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (10-03-13)		

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
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	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
KOP #1									
1,100.0	2.00	163.80	1,100.0	-1.7	0.5	-0.2	2.00	2.00	0.00
1,200.0	4.00	163.80	1,199.8	-6.7	1.9	-0.6	2.00	2.00	0.00
1,300.0	6.00	163.80	1,299.5	-15.1	4.4	-1.4	2.00	2.00	0.00
1,400.0	8.00	163.80	1,398.7	-26.8	7.8	-2.5	2.00	2.00	0.00
1,500.0	10.00	163.80	1,497.5	-41.8	12.1	-4.0	2.00	2.00	0.00
1,600.0	12.00	163.80	1,595.6	-60.1	17.5	-5.7	2.00	2.00	0.00
1,633.7	12.67	163.80	1,628.6	-67.0	19.5	-6.3	2.00	2.00	0.00
1,700.0	12.67	163.80	1,693.2	-81.0	23.5	-7.7	0.00	0.00	0.00
1,800.0	12.67	163.80	1,790.8	-102.1	29.6	-9.7	0.00	0.00	0.00
1,900.0	12.67	163.80	1,888.4	-123.1	35.8	-11.7	0.00	0.00	0.00
2,000.0	12.67	163.80	1,985.9	-144.2	41.9	-13.6	0.00	0.00	0.00
2,100.0	12.67	163.80	2,083.5	-165.3	48.0	-15.6	0.00	0.00	0.00
2,200.0	12.67	163.80	2,181.0	-186.4	54.1	-17.6	0.00	0.00	0.00
2,300.0	12.67	163.80	2,278.6	-207.4	60.2	-19.6	0.00	0.00	0.00
2,400.0	12.67	163.80	2,376.2	-228.5	66.4	-21.6	0.00	0.00	0.00
2,500.0	12.67	163.80	2,473.7	-249.6	72.5	-23.6	0.00	0.00	0.00
2,600.0	12.67	163.80	2,571.3	-270.6	78.6	-25.6	0.00	0.00	0.00
2,700.0	12.67	163.80	2,668.9	-291.7	84.7	-27.6	0.00	0.00	0.00
2,800.0	12.67	163.80	2,766.4	-312.8	90.8	-29.6	0.00	0.00	0.00
2,900.0	12.67	163.80	2,864.0	-333.8	97.0	-31.6	0.00	0.00	0.00
3,000.0	12.67	163.80	2,961.6	-354.9	103.1	-33.6	0.00	0.00	0.00
3,100.0	12.67	163.80	3,059.1	-376.0	109.2	-35.6	0.00	0.00	0.00
3,200.0	12.67	163.80	3,156.7	-397.1	115.3	-37.6	0.00	0.00	0.00
3,300.0	12.67	163.80	3,254.2	-418.1	121.4	-39.6	0.00	0.00	0.00
3,400.0	12.67	163.80	3,351.8	-439.2	127.6	-41.6	0.00	0.00	0.00
3,500.0	12.67	163.80	3,449.4	-460.3	133.7	-43.5	0.00	0.00	0.00
3,600.0	12.67	163.80	3,546.9	-481.3	139.8	-45.5	0.00	0.00	0.00
3,700.0	12.67	163.80	3,644.5	-502.4	145.9	-47.5	0.00	0.00	0.00
3,787.6	12.67	163.80	3,730.0	-520.9	151.3	-49.3	0.00	0.00	0.00
PARKMAN									
3,800.0	12.67	163.80	3,742.1	-523.5	152.0	-49.5	0.00	0.00	0.00
3,900.0	12.67	163.80	3,839.6	-544.5	158.2	-51.5	0.00	0.00	0.00
4,000.0	12.67	163.80	3,937.2	-565.6	164.3	-53.5	0.00	0.00	0.00
4,100.0	12.67	163.80	4,034.7	-586.7	170.4	-55.5	0.00	0.00	0.00
4,166.9	12.67	163.80	4,100.0	-600.8	174.5	-56.8	0.00	0.00	0.00
SUSSEX									
4,200.0	12.67	163.80	4,132.3	-607.8	176.5	-57.5	0.00	0.00	0.00
4,300.0	12.67	163.80	4,229.9	-628.8	182.6	-59.5	0.00	0.00	0.00
4,400.0	12.67	163.80	4,327.4	-649.9	188.8	-61.5	0.00	0.00	0.00
4,500.0	12.67	163.80	4,425.0	-671.0	194.9	-63.5	0.00	0.00	0.00
4,600.0	12.67	163.80	4,522.6	-692.0	201.0	-65.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Alm 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (10-03-13)		

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)
4,700.0	12.67	163.80	4,620.1	-713.1	207.1	-67.5	0.00	0.00	0.00
4,800.0	12.67	163.80	4,717.7	-734.2	213.2	-69.5	0.00	0.00	0.00
4,900.0	12.67	163.80	4,815.3	-755.3	219.4	-71.5	0.00	0.00	0.00
5,000.0	12.67	163.80	4,912.8	-776.3	225.5	-73.5	0.00	0.00	0.00
5,089.4	12.67	163.80	5,000.0	-795.1	231.0	-75.2	0.00	0.00	0.00
SHANNON									
5,100.0	12.67	163.80	5,010.4	-797.4	231.6	-75.4	0.00	0.00	0.00
5,200.0	12.67	163.80	5,107.9	-818.5	237.7	-77.4	0.00	0.00	0.00
5,300.0	12.67	163.80	5,205.5	-839.5	243.8	-79.4	0.00	0.00	0.00
5,400.0	12.67	163.80	5,303.1	-860.6	250.0	-81.4	0.00	0.00	0.00
5,500.0	12.67	163.80	5,400.6	-881.7	256.1	-83.4	0.00	0.00	0.00
5,572.6	12.67	163.80	5,471.4	-897.0	260.5	-84.9	0.00	0.00	0.00
5,600.0	12.13	163.80	5,498.2	-902.6	262.2	-85.4	2.00	-2.00	0.00
5,700.0	10.13	163.80	5,596.3	-921.1	267.6	-87.2	2.00	-2.00	0.00
5,800.0	8.13	163.80	5,695.1	-936.4	272.0	-88.6	2.00	-2.00	0.00
5,900.0	6.13	163.80	5,794.3	-948.3	275.4	-89.7	2.00	-2.00	0.00
6,000.0	4.13	163.80	5,893.9	-956.9	277.9	-90.5	2.00	-2.00	0.00
6,100.0	2.13	163.80	5,993.7	-962.1	279.5	-91.0	2.00	-2.00	0.00
6,200.0	0.13	163.80	6,093.7	-964.0	280.0	-91.2	2.00	-2.00	0.00
6,206.3	0.00	0.00	6,100.0	-964.0	280.0	-91.2	2.00	-2.00	0.00
6,300.0	0.00	0.00	6,193.7	-964.0	280.0	-91.2	0.00	0.00	0.00
6,359.7	0.00	0.00	6,253.4	-964.0	280.0	-91.2	0.00	0.00	0.00
KOP #2									
6,391.5	0.00	0.00	6,285.2	-964.0	280.0	-91.2	0.00	0.00	0.00
6,400.0	0.64	271.27	6,293.7	-964.0	280.0	-91.2	7.50	7.50	0.00
6,500.0	8.14	271.27	6,393.3	-963.8	272.3	-83.7	7.50	7.50	0.00
6,600.0	15.64	271.27	6,491.1	-963.4	251.7	-63.6	7.50	7.50	0.00
6,700.0	23.14	271.27	6,585.4	-962.6	218.6	-31.1	7.50	7.50	0.00
6,800.0	30.64	271.27	6,674.5	-961.6	173.4	13.0	7.50	7.50	0.00
6,801.7	30.77	271.27	6,676.0	-961.6	172.5	13.9	7.50	7.50	0.00
SHARON SPRINGS									
6,900.0	38.14	271.27	6,757.0	-960.4	116.9	68.2	7.50	7.50	0.00
7,000.0	45.64	271.27	6,831.4	-958.9	50.2	133.4	7.50	7.50	0.00
7,100.0	53.14	271.27	6,896.4	-957.2	-25.6	207.5	7.50	7.50	0.00
7,186.0	59.59	271.27	6,944.0	-955.6	-97.1	277.4	7.50	7.50	0.00
NIORARA A									
7,200.0	60.64	271.27	6,951.0	-955.4	-109.3	289.3	7.50	7.50	0.00
7,204.1	60.95	271.27	6,953.0	-955.3	-112.9	292.8	7.50	7.50	0.00
NIORARA B									
7,300.0	68.14	271.27	6,994.2	-953.3	-199.4	377.4	7.50	7.50	0.00
7,400.0	75.64	271.27	7,025.2	-951.2	-294.3	470.2	7.50	7.50	0.00
7,403.1	75.87	271.27	7,026.0	-951.2	-297.3	473.1	7.50	7.50	0.00
NIORARA C									
7,500.0	83.14	271.27	7,043.6	-949.1	-392.5	566.2	7.50	7.50	0.00
7,561.7	87.77	271.27	7,048.5	-947.7	-454.0	626.2	7.50	7.50	0.00
End of Build - 7"									
7,590.1	89.90	271.27	7,049.1	-947.1	-482.4	654.0	7.50	7.50	0.00
7,600.0	89.90	271.27	7,049.1	-946.8	-492.3	663.7	0.00	0.00	0.00
7,700.0	89.90	271.27	7,049.3	-944.6	-592.3	761.4	0.00	0.00	0.00
7,800.0	89.90	271.27	7,049.5	-942.4	-692.2	859.1	0.00	0.00	0.00
7,900.0	89.90	271.27	7,049.7	-940.2	-792.2	956.8	0.00	0.00	0.00
8,000.0	89.90	271.27	7,049.8	-938.0	-892.2	1,054.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Alm 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (10-03-13)		

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)
8,100.0	89.90	271.27	7,050.0	-935.7	-992.2	1,152.3	0.00	0.00	0.00
8,200.0	89.90	271.27	7,050.2	-933.5	-1,092.1	1,250.0	0.00	0.00	0.00
8,300.0	89.90	271.27	7,050.4	-931.3	-1,192.1	1,347.7	0.00	0.00	0.00
8,400.0	89.90	271.27	7,050.5	-929.1	-1,292.1	1,445.4	0.00	0.00	0.00
8,500.0	89.90	271.27	7,050.7	-926.8	-1,392.1	1,543.2	0.00	0.00	0.00
8,600.0	89.90	271.27	7,050.9	-924.6	-1,492.0	1,640.9	0.00	0.00	0.00
8,700.0	89.90	271.27	7,051.0	-922.4	-1,592.0	1,738.6	0.00	0.00	0.00
8,800.0	89.90	271.27	7,051.2	-920.2	-1,692.0	1,836.3	0.00	0.00	0.00
8,900.0	89.90	271.27	7,051.4	-918.0	-1,792.0	1,934.0	0.00	0.00	0.00
9,000.0	89.90	271.27	7,051.6	-915.7	-1,891.9	2,031.8	0.00	0.00	0.00
9,100.0	89.90	271.27	7,051.7	-913.5	-1,991.9	2,129.5	0.00	0.00	0.00
9,200.0	89.90	271.27	7,051.9	-911.3	-2,091.9	2,227.2	0.00	0.00	0.00
9,300.0	89.90	271.27	7,052.1	-909.1	-2,191.9	2,324.9	0.00	0.00	0.00
9,400.0	89.90	271.27	7,052.3	-906.9	-2,291.8	2,422.6	0.00	0.00	0.00
9,500.0	89.90	271.27	7,052.4	-904.6	-2,391.8	2,520.4	0.00	0.00	0.00
9,600.0	89.90	271.27	7,052.6	-902.4	-2,491.8	2,618.1	0.00	0.00	0.00
9,700.0	89.90	271.27	7,052.8	-900.2	-2,591.8	2,715.8	0.00	0.00	0.00
9,800.0	89.90	271.27	7,053.0	-898.0	-2,691.7	2,813.5	0.00	0.00	0.00
9,900.0	89.90	271.27	7,053.1	-895.7	-2,791.7	2,911.2	0.00	0.00	0.00
10,000.0	89.90	271.27	7,053.3	-893.5	-2,891.7	3,009.0	0.00	0.00	0.00
10,100.0	89.90	271.27	7,053.5	-891.3	-2,991.7	3,106.7	0.00	0.00	0.00
10,200.0	89.90	271.27	7,053.7	-889.1	-3,091.6	3,204.4	0.00	0.00	0.00
10,300.0	89.90	271.27	7,053.8	-886.9	-3,191.6	3,302.1	0.00	0.00	0.00
10,400.0	89.90	271.27	7,054.0	-884.6	-3,291.6	3,399.8	0.00	0.00	0.00
10,500.0	89.90	271.27	7,054.2	-882.4	-3,391.6	3,497.6	0.00	0.00	0.00
10,600.0	89.90	271.27	7,054.4	-880.2	-3,491.5	3,595.3	0.00	0.00	0.00
10,700.0	89.90	271.27	7,054.5	-878.0	-3,591.5	3,693.0	0.00	0.00	0.00
10,800.0	89.90	271.27	7,054.7	-875.8	-3,691.5	3,790.7	0.00	0.00	0.00
10,900.0	89.90	271.27	7,054.9	-873.5	-3,791.5	3,888.5	0.00	0.00	0.00
11,000.0	89.90	271.27	7,055.1	-871.3	-3,891.4	3,986.2	0.00	0.00	0.00
11,100.0	89.90	271.27	7,055.2	-869.1	-3,991.4	4,083.9	0.00	0.00	0.00
11,200.0	89.90	271.27	7,055.4	-866.9	-4,091.4	4,181.6	0.00	0.00	0.00
11,300.0	89.90	271.27	7,055.6	-864.6	-4,191.4	4,279.3	0.00	0.00	0.00
11,400.0	89.90	271.27	7,055.8	-862.4	-4,291.3	4,377.1	0.00	0.00	0.00
11,500.0	89.90	271.27	7,055.9	-860.2	-4,391.3	4,474.8	0.00	0.00	0.00
11,536.8	89.90	271.27	7,056.0	-859.4	-4,428.2	4,510.8	0.00	0.00	0.00
BHL 2197'FNL & 500'FWL									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,561.7	7,048.5	7"	7	8-3/4

Database:	Landmark	Local Co-ordinate Reference:	Well Alm 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (10-03-13)		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,787.6	3,730.0	PARKMAN		0.00	
4,166.9	4,100.0	SUSSEX		0.00	
5,089.4	5,000.0	SHANNON		0.00	
6,801.7	6,676.0	SHARON SPRINGS		0.00	
7,186.0	6,944.0	NIOBRARA A		0.00	
7,204.1	6,953.0	NIOBRARA B		0.00	
7,403.1	7,026.0	NIOBRARA C		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,000.0	1,000.0	0.0	0.0	KOP #1
6,359.7	6,253.4	-964.0	280.0	KOP #2
7,561.7	7,048.5	-947.7	-454.0	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.33-T7N-R65W

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

Alm 33W-314

Wellbore #1

Plan #2 (10-03-13)

Anticollision Report

04 October, 2013



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (10-03-13)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	10/3/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,536.8	Plan #2 (10-03-13) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Alm 33V-HZ Pad North Sec.33-T7N-R65W						
Alm 32-33 (Exist) - Wellbore #1 - Wellbore #1	8,947.3	6,830.0	282.8	235.0	5.908	CC, ES
Alm 32-33 (Exist) - Wellbore #1 - Wellbore #1	9,000.0	6,830.0	287.7	238.8	5.888	SF
Alm 42-33 (Exist) - Wellbore #1 - Wellbore #1	7,463.3	7,024.1	122.3	85.8	3.346	CC, ES, SF
Hazen 22-33 (Exist) - Wellbore #1 - Wellbore #1	10,265.5	7,043.8	221.2	-12.2	0.948	Level 1, CC, ES, SF
Paxton 12-13 (Exist) - Wellbore #1 - Wellbore #1	11,194.4	7,050.4	229.8	-29.5	0.886	Level 1, CC
Paxton 12-13 (Exist) - Wellbore #1 - Wellbore #1	11,200.0	7,050.4	229.9	-29.6	0.886	Level 1, ES, SF
Alm 33V-HZ Pad South Sec.33-T7N-R65W						
Alm 33V-234 - Wellbore #1 - Plan #1 (06-03-13)	1,000.0	1,000.0	29.1	24.9	6.826	CC, ES
Alm 33V-234 - Wellbore #1 - Plan #1 (06-03-13)	11,536.8	11,430.9	458.0	204.2	1.805	SF
Alm 33V-404 - Wellbore #1 - Plan #1 (06-03-13)	1,000.0	1,001.0	58.3	54.0	13.643	CC, ES
Alm 33V-404 - Wellbore #1 - Plan #1 (06-03-13)	11,536.8	11,509.9	795.9	542.9	3.146	SF
Alm 33W-404 - Wellbore #1 - Plan #1 (06-03-13)	200.0	200.0	29.1	28.5	43.218	CC, ES
Alm 33W-404 - Wellbore #1 - Plan #1 (06-03-13)	11,536.8	11,658.2	349.5	109.6	1.457	Level 3, SF

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:		100-NS-GYRO-MS										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)				
8,000.0	7,049.8	6,830.0	6,829.7	33.1	13.4	42.13	-727.2	-1,835.4	988.6	957.9	30.76	32.135			
8,100.0	7,050.0	6,830.0	6,829.7	35.4	13.4	42.13	-727.2	-1,835.4	893.3	860.8	32.46	27.521			
8,200.0	7,050.2	6,830.0	6,829.7	37.9	13.4	42.13	-727.2	-1,835.4	799.1	764.9	34.19	23.370			
8,300.0	7,050.4	6,830.0	6,829.7	40.3	13.4	42.13	-727.2	-1,835.4	706.4	670.5	35.96	19.645			
8,400.0	7,050.5	6,830.0	6,829.7	42.8	13.4	42.13	-727.2	-1,835.4	616.1	578.3	37.75	16.319			
8,500.0	7,050.7	6,830.0	6,829.7	45.4	13.4	42.13	-727.2	-1,835.4	529.2	489.7	39.57	13.376			
8,600.0	7,050.9	6,830.0	6,829.7	48.0	13.4	42.13	-727.2	-1,835.4	447.9	406.5	41.40	10.819			
8,700.0	7,051.0	6,830.0	6,829.7	50.6	13.4	42.13	-727.2	-1,835.4	375.7	332.5	43.25	8.688			
8,800.0	7,051.2	6,830.0	6,829.7	53.2	13.4	42.13	-727.2	-1,835.4	318.9	273.8	45.11	7.070			
8,900.0	7,051.4	6,830.0	6,829.7	55.8	13.4	42.13	-727.2	-1,835.4	286.8	239.8	46.98	6.104			
8,947.3	7,051.5	6,830.0	6,829.7	57.1	13.4	42.13	-727.2	-1,835.4	282.8	235.0	47.87	5.908	CC, ES		
9,000.0	7,051.6	6,830.0	6,829.7	58.5	13.4	42.13	-727.2	-1,835.4	287.7	238.8	48.86	5.888	SF		
9,100.0	7,051.7	6,830.0	6,829.7	61.2	13.4	42.13	-727.2	-1,835.4	321.4	270.7	50.75	6.333			

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 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	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: 100-NS-GYRO-MS												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
9,200.0	7,051.9	6,830.0	6,829.7	63.9	13.4	42.13	-727.2	-1,835.4	379.3	326.6	52.65	7.204	
9,300.0	7,052.1	6,830.0	6,829.7	66.6	13.4	42.13	-727.2	-1,835.4	452.1	397.5	54.55	8.287	
9,400.0	7,052.3	6,830.0	6,829.7	69.3	13.4	42.13	-727.2	-1,835.4	533.8	477.3	56.46	9.454	
9,500.0	7,052.4	6,830.0	6,829.7	72.0	13.4	42.13	-727.2	-1,835.4	620.8	562.5	58.37	10.636	
9,600.0	7,052.6	6,830.0	6,829.7	74.7	13.4	42.13	-727.2	-1,835.4	711.3	651.0	60.29	11.799	
9,700.0	7,052.8	6,830.0	6,829.7	77.4	13.4	42.13	-727.2	-1,835.4	804.1	741.9	62.21	12.925	
9,800.0	7,053.0	6,830.0	6,829.7	80.1	13.4	42.13	-727.2	-1,835.4	898.4	834.2	64.13	14.008	
9,900.0	7,053.1	6,830.0	6,829.7	82.9	13.4	42.13	-727.2	-1,835.4	993.8	927.7	66.06	15.043	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	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: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-156.62	-156.62	-739.6	-319.7	805.9				
100.0	100.0	89.1	89.1	0.1	0.1	-156.62	-156.62	-739.2	-319.5	805.4	805.1	0.23	3,489.375	
200.0	200.0	188.9	188.9	0.3	0.4	-156.62	-156.62	-738.5	-319.3	804.6	803.9	0.71	1,139.778	
300.0	300.0	288.3	288.3	0.6	0.6	-156.62	-156.62	-737.9	-318.9	803.9	802.7	1.19	673.411	
400.0	400.0	387.6	387.6	0.8	0.9	-156.63	-156.63	-737.4	-318.6	803.3	801.6	1.68	477.761	
500.0	500.0	483.5	483.5	1.0	1.1	-156.62	-156.62	-737.0	-318.6	802.9	800.8	2.09	383.839	
512.6	512.6	495.5	495.5	1.0	1.1	-156.62	-156.62	-737.0	-318.6	802.9	800.8	2.14	374.818	
600.0	600.0	582.2	582.2	1.2	1.2	-156.61	-156.61	-737.0	-318.8	803.0	800.5	2.44	328.937	
700.0	700.0	681.6	681.5	1.5	1.3	-156.59	-156.59	-737.0	-319.0	803.1	800.4	2.78	288.537	
800.0	800.0	782.0	782.0	1.7	1.5	-156.58	-156.58	-737.1	-319.3	803.3	800.1	3.16	253.989	
900.0	900.0	881.6	881.6	1.9	1.7	-156.56	-156.56	-737.2	-319.5	803.4	799.9	3.56	225.622	
1,000.0	1,000.0	980.9	980.9	2.1	1.8	-156.56	-156.56	-737.3	-319.7	803.7	799.7	3.95	203.672	
1,100.0	1,100.0	1,080.4	1,080.3	2.3	2.0	39.73	39.73	-737.6	-319.8	802.6	798.3	4.29	186.931	
1,200.0	1,199.8	1,179.2	1,179.2	2.5	2.1	40.01	40.01	-738.0	-319.9	799.0	794.4	4.62	172.859	
1,300.0	1,299.5	1,278.2	1,278.2	2.7	2.3	40.48	40.48	-738.5	-320.0	792.8	787.8	4.98	159.356	
1,400.0	1,398.7	1,378.0	1,378.0	2.9	2.5	41.17	41.17	-739.0	-320.2	784.1	778.7	5.37	146.034	
1,500.0	1,497.5	1,477.7	1,477.7	3.2	2.7	42.10	42.10	-739.3	-320.5	772.8	766.9	5.81	133.060	
1,600.0	1,595.6	1,575.5	1,575.5	3.5	2.9	43.26	43.26	-739.6	-320.8	759.0	752.7	6.27	120.979	
1,700.0	1,693.2	1,672.4	1,672.4	3.8	3.2	44.46	44.46	-739.9	-321.0	743.6	736.8	6.78	109.719	
1,800.0	1,790.8	1,769.9	1,769.9	4.2	3.4	45.66	45.66	-740.4	-321.3	728.4	721.1	7.32	99.549	
1,900.0	1,888.4	1,866.3	1,866.3	4.6	3.6	46.91	46.91	-740.7	-321.9	713.7	705.8	7.89	90.497	
2,000.0	1,985.9	1,961.8	1,961.8	5.0	3.9	48.20	48.20	-741.2	-322.5	699.5	691.0	8.47	82.583	
2,100.0	2,083.5	2,058.5	2,058.5	5.4	4.1	49.52	49.52	-742.3	-322.9	686.0	676.9	9.06	75.710	
2,200.0	2,181.0	2,155.9	2,155.8	5.8	4.3	50.85	50.85	-743.7	-323.0	672.9	663.3	9.66	69.671	
2,300.0	2,278.6	2,254.4	2,254.3	6.3	4.5	52.26	52.26	-745.0	-323.1	660.3	650.0	10.28	64.218	
2,400.0	2,376.2	2,352.7	2,352.6	6.7	4.8	53.76	53.76	-746.0	-323.5	647.9	637.0	10.94	59.240	
2,500.0	2,473.7	2,449.6	2,449.5	7.2	5.0	55.34	55.34	-746.6	-324.3	636.1	624.4	11.61	54.774	
2,600.0	2,571.3	2,546.9	2,546.8	7.6	5.2	57.01	57.01	-747.2	-325.4	624.8	612.5	12.30	50.791	
2,700.0	2,668.9	2,644.5	2,644.4	8.1	5.5	58.76	58.76	-747.6	-326.7	614.2	601.2	13.00	47.232	
2,800.0	2,766.4	2,742.1	2,742.0	8.5	5.7	60.59	60.59	-747.9	-328.2	604.1	590.4	13.71	44.054	
2,900.0	2,864.0	2,840.0	2,839.9	9.0	6.0	62.50	62.50	-748.0	-329.8	594.7	580.3	14.43	41.207	
3,000.0	2,961.6	2,936.8	2,936.7	9.4	6.2	64.46	64.46	-748.0	-331.4	586.0	570.8	15.16	38.656	
3,100.0	3,059.1	3,033.3	3,033.1	9.9	6.4	66.44	66.44	-748.3	-333.0	578.1	562.2	15.90	36.359	
3,200.0	3,156.7	3,130.8	3,130.7	10.4	6.7	68.44	68.44	-749.1	-334.4	571.2	554.5	16.66	34.287	
3,300.0	3,254.2	3,230.0	3,229.9	10.8	6.9	70.45	70.45	-750.3	-335.2	564.7	547.3	17.42	32.413	
3,400.0	3,351.8	3,327.9	3,327.7	11.3	7.2	72.47	72.47	-751.6	-335.9	558.9	540.7	18.18	30.739	
3,500.0	3,449.4	3,426.6	3,426.4	11.8	7.4	74.53	74.53	-752.9	-336.5	553.8	534.8	18.94	29.234	
3,600.0	3,546.9	3,526.3	3,526.1	12.3	7.6	76.64	76.64	-754.1	-336.7	549.1	529.4	19.69	27.880	
3,700.0	3,644.5	3,624.0	3,623.9	12.7	7.8	78.71	78.71	-755.5	-336.7	545.0	524.5	20.43	26.680	
3,800.0	3,742.1	3,722.3	3,722.1	13.2	8.1	80.80	80.80	-757.1	-336.6	541.6	520.5	21.15	25.606	
3,900.0	3,839.6	3,822.6	3,822.4	13.7	8.3	82.91	82.91	-759.0	-336.1	538.8	516.9	21.86	24.642	
4,000.0	3,937.2	3,923.1	3,922.9	14.1	8.4	84.99	84.99	-761.2	-334.9	536.1	513.6	22.55	23.778	
4,100.0	4,034.7	4,022.3	4,022.0	14.6	8.6	87.04	87.04	-763.4	-333.4	533.9	510.7	23.21	23.002	
4,200.0	4,132.3	4,121.0	4,120.6	15.1	8.8	89.10	89.10	-765.5	-331.7	532.2	508.3	23.86	22.304	
4,300.0	4,229.9	4,218.7	4,218.4	15.6	8.9	91.16	91.16	-767.5	-330.1	531.2	506.7	24.50	21.677	
4,355.7	4,284.2	4,272.3	4,271.9	15.8	9.0	92.29	92.29	-768.7	-329.2	531.0	506.2	24.86	21.360	
4,400.0	4,327.4	4,314.9	4,314.5	16.0	9.1	93.19	93.19	-769.6	-328.7	531.1	506.0	25.14	21.123	
4,500.0	4,425.0	4,412.0	4,411.5	16.5	9.3	95.21	95.21	-772.0	-327.5	532.0	506.3	25.79	20.632	
4,600.0	4,522.6	4,510.5	4,510.1	17.0	9.5	97.24	97.24	-774.5	-326.3	533.7	507.3	26.43	20.195	
4,700.0	4,620.1	4,607.9	4,607.4	17.5	9.7	99.25	99.25	-776.7	-325.1	536.1	509.0	27.05	19.815	
4,800.0	4,717.7	4,700.0	4,699.5	17.9	9.9	101.15	101.15	-778.9	-324.6	539.7	512.1	27.67	19.506	

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 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	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: 100-NS-GYRO-MS												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)			
4,900.0	4,815.3	4,794.0	4,793.5	18.4	10.2	103.03	-781.3	-325.0	545.0	516.7	28.30	19.256	
5,000.0	4,912.8	4,891.9	4,891.3	18.9	10.4	104.95	-783.9	-325.7	551.3	522.4	28.93	19.056	
5,100.0	5,010.4	4,989.8	4,989.2	19.4	10.7	106.83	-786.5	-326.5	558.2	528.7	29.55	18.895	
5,200.0	5,107.9	5,088.5	5,087.8	19.9	10.9	108.69	-788.9	-327.3	565.8	535.6	30.15	18.767	
5,300.0	5,205.5	5,185.6	5,184.9	20.3	11.2	110.48	-791.2	-328.0	573.9	543.1	30.73	18.674	
5,400.0	5,303.1	5,283.5	5,282.8	20.8	11.4	112.27	-793.3	-328.8	582.6	551.3	31.30	18.614	
5,500.0	5,400.6	5,382.2	5,381.5	21.3	11.7	114.03	-795.2	-329.5	591.9	560.1	31.86	18.581	
5,600.0	5,498.2	5,482.6	5,481.8	21.7	11.9	115.81	-797.1	-329.9	601.5	569.1	32.38	18.573	
5,700.0	5,596.3	5,586.8	5,586.0	22.1	12.2	117.42	-799.6	-329.9	609.7	576.9	32.79	18.593	
5,800.0	5,695.1	5,686.4	5,685.5	22.3	12.4	118.53	-803.2	-329.4	616.0	582.8	33.19	18.558	
5,900.0	5,794.3	5,781.2	5,780.3	22.6	12.7	119.25	-806.8	-329.3	621.1	587.5	33.59	18.492	
6,000.0	5,893.9	5,874.5	5,873.5	22.8	12.9	119.68	-810.1	-330.1	625.5	591.5	33.98	18.409	
6,100.0	5,993.7	5,971.7	5,970.7	22.9	13.2	119.87	-813.0	-331.7	629.1	594.7	34.37	18.303	
6,200.0	6,093.7	6,068.8	6,067.7	23.1	13.4	119.79	-815.7	-333.5	631.2	596.5	34.76	18.158	
6,300.0	6,193.7	6,166.5	6,165.3	23.2	13.7	-76.64	-817.8	-335.6	632.9	602.2	30.68	20.630	
6,400.0	6,293.7	6,264.3	6,263.1	23.3	13.9	11.88	-819.5	-338.0	634.8	599.3	35.52	17.870	
6,500.0	6,393.3	6,363.4	6,362.2	23.4	14.1	11.95	-820.7	-340.6	629.5	594.1	35.45	17.759	
6,600.0	6,491.1	6,461.0	6,459.8	23.4	14.3	12.54	-821.3	-343.0	611.6	576.9	34.77	17.592	
6,700.0	6,585.4	6,556.3	6,555.0	23.4	14.5	13.68	-821.9	-345.5	581.5	548.0	33.51	17.351	
6,800.0	6,674.5	6,648.8	6,647.5	23.4	14.8	15.60	-822.7	-347.7	539.4	507.6	31.74	16.993	
6,900.0	6,757.0	6,734.5	6,733.1	23.4	15.0	18.70	-823.6	-349.4	486.0	456.4	29.57	16.437	
7,000.0	6,831.4	6,810.9	6,809.5	23.4	15.2	23.69	-824.6	-350.7	422.9	395.6	27.28	15.499	
7,100.0	6,896.4	6,878.3	6,877.0	23.3	15.3	31.97	-825.5	-351.7	351.7	326.0	25.69	13.689	
7,200.0	6,951.0	6,934.5	6,933.1	23.3	15.5	45.50	-826.4	-352.4	275.2	248.7	26.55	10.364	
7,300.0	6,994.2	6,978.7	6,977.3	23.4	15.6	64.70	-827.0	-352.9	198.8	168.0	30.83	6.449	
7,400.0	7,025.2	7,010.5	7,009.1	23.6	15.7	83.28	-827.4	-353.2	137.1	102.1	35.00	3.917	
7,463.3	7,038.4	7,024.1	7,022.7	23.9	15.7	90.61	-827.6	-353.3	122.3	85.8	36.56	3.346	CC, ES, SF
7,500.0	7,043.6	7,029.6	7,028.2	24.1	15.7	92.76	-827.6	-353.4	127.6	90.4	37.23	3.427	
7,600.0	7,049.1	7,035.8	7,034.4	25.2	15.7	91.19	-827.7	-353.4	183.0	143.9	39.06	4.685	
7,700.0	7,049.3	7,036.8	7,035.4	26.8	15.7	91.64	-827.7	-353.4	265.9	224.9	41.08	6.473	
7,800.0	7,049.5	7,037.8	7,036.4	28.7	15.7	92.09	-827.7	-353.4	357.7	314.5	43.25	8.271	
7,900.0	7,049.7	7,038.7	7,037.3	30.8	15.7	92.54	-827.7	-353.5	453.0	407.5	45.52	9.951	
8,000.0	7,049.8	7,039.7	7,038.3	33.1	15.7	92.99	-827.7	-353.5	549.9	502.1	47.87	11.487	
8,100.0	7,050.0	7,040.6	7,039.2	35.4	15.7	93.43	-827.7	-353.5	647.8	597.5	50.29	12.881	
8,200.0	7,050.2	7,041.6	7,040.2	37.9	15.7	93.88	-827.7	-353.5	746.2	693.5	52.76	14.144	
8,300.0	7,050.4	7,042.5	7,041.1	40.3	15.8	94.32	-827.7	-353.5	845.0	789.8	55.27	15.290	
8,400.0	7,050.5	7,043.5	7,042.1	42.8	15.8	94.76	-827.7	-353.5	944.1	886.3	57.81	16.332	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	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-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,300.0	7,052.1	7,042.1	7,042.1	66.6	140.8	89.56	-666.5	-3,152.2	990.5	783.7	206.82	4.789	
9,400.0	7,052.3	7,042.3	7,042.3	69.3	140.8	89.61	-666.5	-3,152.2	893.3	683.8	209.55	4.263	
9,500.0	7,052.4	7,042.4	7,042.4	72.0	140.8	89.65	-666.5	-3,152.2	796.8	584.5	212.29	3.753	
9,600.0	7,052.6	7,042.6	7,042.6	74.7	140.9	89.70	-666.5	-3,152.2	701.3	486.3	215.03	3.261	
9,700.0	7,052.8	7,042.8	7,042.8	77.4	140.9	89.74	-666.5	-3,152.2	607.2	389.4	217.78	2.788	
9,800.0	7,053.0	7,043.0	7,043.0	80.1	140.9	89.79	-666.5	-3,152.2	515.4	294.8	220.53	2.337	
9,900.0	7,053.1	7,043.1	7,043.1	82.9	140.9	89.83	-666.5	-3,152.2	427.2	203.9	223.29	1.913	
10,000.0	7,053.3	7,043.3	7,043.3	85.6	140.9	89.88	-666.5	-3,152.2	345.6	119.5	226.05	1.529	
10,100.0	7,053.5	7,043.5	7,043.5	88.4	140.9	89.93	-666.5	-3,152.2	276.3	47.4	228.82	1.207 Level 2	
10,200.0	7,053.7	7,043.7	7,043.7	91.1	140.9	89.97	-666.5	-3,152.2	230.7	-0.9	231.59	0.996 Level 1	
10,265.5	7,053.8	7,043.8	7,043.8	92.9	140.9	90.00	-666.5	-3,152.2	221.2	-12.2	233.40	0.948 Level 1, CC, ES, SF	
10,300.0	7,053.8	7,043.8	7,043.8	93.9	140.9	90.02	-666.5	-3,152.2	223.9	-10.5	234.36	0.955 Level 1	
10,400.0	7,054.0	7,044.0	7,044.0	96.6	140.9	90.06	-666.5	-3,152.2	258.9	21.7	237.13	1.092 Level 2	
10,500.0	7,054.2	7,044.2	7,044.2	99.4	140.9	90.11	-666.5	-3,152.2	322.3	82.4	239.91	1.344 Level 3	
10,600.0	7,054.4	7,044.4	7,044.4	102.2	140.9	90.15	-666.5	-3,152.2	401.0	158.3	242.68	1.652	
10,700.0	7,054.5	7,044.5	7,044.5	104.9	140.9	90.20	-666.5	-3,152.2	487.5	242.1	245.46	1.986	
10,800.0	7,054.7	7,044.7	7,044.7	107.7	140.9	90.24	-666.5	-3,152.2	578.4	330.2	248.25	2.330	
10,900.0	7,054.9	7,044.9	7,044.9	110.5	140.9	90.29	-666.5	-3,152.2	671.9	420.9	251.03	2.677	
11,000.0	7,055.1	7,045.1	7,045.1	113.2	140.9	90.33	-666.5	-3,152.2	767.1	513.3	253.82	3.022	
11,100.0	7,055.2	7,045.2	7,045.2	116.0	140.9	90.38	-666.5	-3,152.2	863.3	606.7	256.60	3.364	
11,200.0	7,055.4	7,045.4	7,045.4	118.8	140.9	90.42	-666.5	-3,152.2	960.3	700.9	259.39	3.702	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	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-UNKNOWN													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)	Offset Wellbore Centre +E/-W (ft)						
10,300.0	7,053.8	7,048.8	7,048.8	93.9	141.0	89.61	-637.2	-4,080.7	923.4	689.0	234.44	3.939		
10,400.0	7,054.0	7,049.0	7,049.0	96.6	141.0	89.65	-637.2	-4,080.7	826.9	589.7	237.21	3.486		
10,500.0	7,054.2	7,049.2	7,049.2	99.4	141.0	89.70	-637.2	-4,080.7	731.4	491.4	239.99	3.048		
10,600.0	7,054.4	7,049.4	7,049.4	102.2	141.0	89.74	-637.2	-4,080.7	637.2	394.5	242.77	2.625		
10,700.0	7,054.5	7,049.5	7,049.5	104.9	141.0	89.78	-637.2	-4,080.7	545.2	299.6	245.55	2.220		
10,800.0	7,054.7	7,049.7	7,049.7	107.7	141.0	89.83	-637.2	-4,080.7	456.4	208.1	248.33	1.838		
10,900.0	7,054.9	7,049.9	7,049.9	110.5	141.0	89.87	-637.2	-4,080.7	373.5	122.3	251.12	1.487 Level 3		
11,000.0	7,055.1	7,050.1	7,050.1	113.2	141.0	89.92	-637.2	-4,080.7	301.0	47.1	253.91	1.185 Level 2		
11,100.0	7,055.2	7,050.2	7,050.2	116.0	141.0	89.96	-637.2	-4,080.7	248.4	-8.2	256.69	0.968 Level 1		
11,194.4	7,055.4	7,050.4	7,050.4	118.6	141.0	90.00	-637.2	-4,080.7	229.8	-29.5	259.33	0.886 Level 1, CC		
11,200.0	7,055.4	7,050.4	7,050.4	118.8	141.0	90.00	-637.2	-4,080.7	229.9	-29.6	259.48	0.886 Level 1, ES, SF		
11,300.0	7,055.6	7,050.6	7,050.6	121.6	141.0	90.05	-637.2	-4,080.7	252.9	-9.3	262.27	0.964 Level 1		
11,400.0	7,055.8	7,050.8	7,050.8	124.4	141.0	90.09	-637.2	-4,080.7	308.4	43.3	265.07	1.163 Level 2		
11,500.0	7,055.9	7,050.9	7,050.9	127.1	141.0	90.13	-637.2	-4,080.7	382.4	114.6	267.86	1.428 Level 3		
11,536.8	7,056.0	7,051.0	7,051.0	128.2	141.0	90.15	-637.2	-4,080.7	412.5	143.6	268.89	1.534		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33V-234 - Wellbore #1 - Plan #1 (06-03-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	29.1	0.0	29.1				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	0.00	29.1	0.0	29.1	28.9	0.22	129.689	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	0.00	29.1	0.0	29.1	28.5	0.67	43.230	
300.0	300.0	300.0	300.0	0.6	0.6	0.00	0.00	29.1	0.0	29.1	28.0	1.12	25.938	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	0.00	29.1	0.0	29.1	27.6	1.57	18.527	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	0.00	29.1	0.0	29.1	27.1	2.02	14.410	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	0.00	29.1	0.0	29.1	26.7	2.47	11.790	
700.0	700.0	700.0	700.0	1.5	1.5	0.00	0.00	29.1	0.0	29.1	26.2	2.92	9.976	
800.0	800.0	800.0	800.0	1.7	1.7	0.00	0.00	29.1	0.0	29.1	25.8	3.37	8.646	
900.0	900.0	900.0	900.0	1.9	1.9	0.00	0.00	29.1	0.0	29.1	25.3	3.82	7.629	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	0.00	29.1	0.0	29.1	24.9	4.27	6.826 CC, ES	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	-164.70		29.1	0.0	30.8	26.1	4.69	6.571	
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	-166.88		29.1	0.0	35.9	30.8	5.09	7.055	
1,300.0	1,299.5	1,300.9	1,300.8	2.7	2.8	-168.55		27.6	0.8	42.8	37.4	5.46	7.837	
1,400.0	1,398.7	1,402.1	1,402.0	2.9	3.0	-168.98		22.8	3.3	49.9	44.1	5.82	8.578	
1,500.0	1,497.5	1,503.6	1,503.0	3.2	3.2	-168.61		14.9	7.4	57.1	51.0	6.18	9.240	
1,600.0	1,595.6	1,605.3	1,604.0	3.5	3.4	-167.71		3.7	13.2	64.5	58.0	6.57	9.829	
1,700.0	1,693.2	1,705.2	1,702.8	3.8	3.6	-166.85		-9.0	19.8	72.7	65.7	6.99	10.408	
1,800.0	1,790.8	1,804.8	1,801.4	4.2	3.9	-166.21		-21.7	26.4	81.1	73.7	7.44	10.902	
1,900.0	1,888.4	1,904.4	1,900.0	4.6	4.2	-165.68		-34.4	33.0	89.5	81.6	7.91	11.319	
2,000.0	1,985.9	2,004.1	1,998.6	5.0	4.4	-165.25		-47.2	39.6	97.9	89.5	8.39	11.672	
2,100.0	2,083.5	2,103.7	2,097.2	5.4	4.7	-164.88		-59.9	46.2	106.3	97.4	8.88	11.973	
2,200.0	2,181.0	2,203.4	2,195.8	5.8	5.0	-164.57		-72.6	52.8	114.7	105.3	9.38	12.230	
2,300.0	2,278.6	2,303.0	2,294.4	6.3	5.3	-164.30		-85.3	59.4	123.1	113.2	9.89	12.451	
2,400.0	2,376.2	2,402.7	2,393.0	6.7	5.7	-164.06		-98.0	66.0	131.5	121.1	10.40	12.642	
2,500.0	2,473.7	2,502.3	2,491.6	7.2	6.0	-163.86		-110.8	72.5	139.9	129.0	10.93	12.808	
2,600.0	2,571.3	2,602.0	2,590.2	7.6	6.3	-163.67		-123.5	79.1	148.4	136.9	11.45	12.953	
2,700.0	2,668.9	2,701.6	2,688.9	8.1	6.6	-163.51		-136.2	85.7	156.8	144.8	11.99	13.081	
2,800.0	2,766.4	2,801.2	2,787.5	8.5	7.0	-163.36		-148.9	92.3	165.2	152.7	12.52	13.194	
2,900.0	2,864.0	2,900.9	2,886.1	9.0	7.3	-163.23		-161.7	98.9	173.6	160.6	13.06	13.294	
3,000.0	2,961.6	3,000.5	2,984.7	9.4	7.6	-163.11		-174.4	105.5	182.0	168.4	13.60	13.383	
3,100.0	3,059.1	3,100.2	3,083.3	9.9	8.0	-163.00		-187.1	112.1	190.5	176.3	14.15	13.462	
3,200.0	3,156.7	3,199.8	3,181.9	10.4	8.3	-162.90		-199.8	118.7	198.9	184.2	14.70	13.534	
3,300.0	3,254.2	3,299.5	3,280.5	10.8	8.7	-162.81		-212.5	125.3	207.3	192.1	15.24	13.598	
3,400.0	3,351.8	3,399.1	3,379.1	11.3	9.0	-162.72		-225.3	131.9	215.7	199.9	15.80	13.656	
3,500.0	3,449.4	3,498.8	3,477.7	11.8	9.3	-162.64		-238.0	138.5	224.1	207.8	16.35	13.709	
3,600.0	3,546.9	3,598.4	3,576.3	12.3	9.7	-162.57		-250.7	145.1	232.6	215.7	16.91	13.757	
3,700.0	3,644.5	3,698.0	3,674.9	12.7	10.0	-162.50		-263.4	151.7	241.0	223.5	17.46	13.801	
3,800.0	3,742.1	3,797.7	3,773.5	13.2	10.4	-162.44		-276.1	158.3	249.4	231.4	18.02	13.841	
3,900.0	3,839.6	3,897.3	3,872.2	13.7	10.7	-162.38		-288.9	164.9	257.8	239.3	18.58	13.878	
4,000.0	3,937.2	3,997.0	3,970.8	14.1	11.1	-162.32		-301.6	171.5	266.3	247.1	19.14	13.912	
4,100.0	4,034.7	4,096.6	4,069.4	14.6	11.4	-162.27		-314.3	178.1	274.7	255.0	19.70	13.943	
4,200.0	4,132.3	4,196.3	4,168.0	15.1	11.8	-162.22		-327.0	184.7	283.1	262.8	20.26	13.972	
4,300.0	4,229.9	4,295.9	4,266.6	15.6	12.1	-162.18		-339.7	191.3	291.5	270.7	20.83	13.998	
4,400.0	4,327.4	4,395.5	4,365.2	16.0	12.5	-162.13		-352.5	197.9	300.0	278.6	21.39	14.023	
4,500.0	4,425.0	4,495.2	4,463.8	16.5	12.8	-162.09		-365.2	204.5	308.4	286.4	21.96	14.046	
4,600.0	4,522.6	4,594.8	4,562.4	17.0	13.2	-162.05		-377.9	211.1	316.8	294.3	22.52	14.068	
4,700.0	4,620.1	4,694.5	4,661.0	17.5	13.5	-162.01		-390.6	217.7	325.2	302.1	23.09	14.088	
4,800.0	4,717.7	4,794.1	4,759.6	17.9	13.9	-161.98		-403.3	224.3	333.7	310.0	23.65	14.106	
4,900.0	4,815.3	4,893.8	4,858.2	18.4	14.2	-161.95		-416.1	230.9	342.1	317.9	24.22	14.124	
5,000.0	4,912.8	4,993.4	4,956.8	18.9	14.6	-161.91		-428.8	237.5	350.5	325.7	24.79	14.140	

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 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33V-234 - Wellbore #1 - Plan #1 (06-03-13)													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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,010.4	5,093.1	5,055.5	19.4	14.9	-161.88		-441.5	244.0	358.9	333.6	25.36	14.156	
5,200.0	5,107.9	5,192.7	5,154.1	19.9	15.3	-161.86		-454.2	250.6	367.4	341.4	25.92	14.170	
5,300.0	5,205.5	5,292.3	5,252.7	20.3	15.7	-161.83		-467.0	257.2	375.8	349.3	26.49	14.184	
5,400.0	5,303.1	5,392.0	5,351.3	20.8	16.0	-161.80		-479.7	263.8	384.2	357.2	27.06	14.197	
5,500.0	5,400.6	5,485.0	5,443.4	21.3	16.3	-161.82		-491.1	269.7	393.2	365.6	27.59	14.249	
5,600.0	5,498.2	5,573.5	5,531.4	21.7	16.5	-162.03		-499.6	274.2	404.5	376.5	28.05	14.420	
5,700.0	5,596.3	5,661.8	5,619.4	22.1	16.7	-162.36		-505.8	277.4	416.1	387.7	28.45	14.626	
5,800.0	5,695.1	5,749.7	5,707.2	22.3	16.9	-162.73		-509.5	279.3	427.1	398.3	28.79	14.832	
5,900.0	5,794.3	5,837.5	5,795.0	22.6	17.0	-163.12		-510.8	280.0	437.5	408.4	29.09	15.038	
6,000.0	5,893.9	5,936.4	5,893.9	22.8	17.1	-163.50		-510.9	280.0	446.0	416.7	29.37	15.189	
6,100.0	5,993.7	6,036.3	5,993.7	22.9	17.3	-163.72		-510.9	280.0	451.3	421.6	29.62	15.233	
6,200.0	6,093.7	6,136.2	6,093.7	23.1	17.4	-163.80		-510.9	280.0	453.1	423.3	29.88	15.167	
6,300.0	6,193.7	6,236.2	6,193.7	23.2	17.6	0.00		-510.9	280.0	453.1	413.5	39.66	11.426	
6,342.5	6,236.2	6,278.7	6,236.2	23.2	17.6	88.74		-510.9	280.0	453.1	422.8	30.36	14.925	
6,400.0	6,293.7	6,335.7	6,293.1	23.3	17.7	88.60		-510.8	279.0	453.2	422.6	30.52	14.847	
6,500.0	6,393.3	6,433.9	6,390.6	23.4	17.8	88.10		-510.6	267.6	453.3	422.6	30.67	14.778	
6,600.0	6,491.1	6,531.6	6,485.4	23.4	17.8	87.63		-510.0	243.9	453.4	422.7	30.72	14.759	
6,700.0	6,585.4	6,628.9	6,575.9	23.4	17.8	87.20		-509.2	208.6	453.6	422.9	30.73	14.763	
6,800.0	6,674.5	6,725.8	6,661.0	23.4	17.8	86.82		-508.2	162.2	453.8	423.0	30.76	14.751	
6,900.0	6,757.0	6,822.4	6,739.2	23.4	17.8	86.49		-506.9	105.7	454.0	423.0	30.95	14.667	
7,000.0	6,831.4	6,918.8	6,809.5	23.4	17.8	86.22		-505.4	39.9	454.1	422.7	31.43	14.449	
7,100.0	6,896.4	7,014.9	6,870.8	23.3	17.8	86.02		-503.7	-34.0	454.3	421.9	32.34	14.046	
7,200.0	6,951.0	7,110.8	6,922.3	23.3	17.7	85.88		-501.9	-114.8	454.4	420.6	33.81	13.440	
7,300.0	6,994.2	7,206.6	6,963.2	23.4	17.9	85.80		-499.9	-201.4	454.5	418.6	35.89	12.664	
7,400.0	7,025.2	7,302.4	6,993.0	23.6	19.2	85.80		-497.9	-292.4	454.5	416.0	38.57	11.784	
7,500.0	7,043.6	7,398.3	7,011.1	24.1	20.9	85.86		-495.7	-386.4	454.5	412.8	41.79	10.878	
7,582.2	7,049.5	7,477.1	7,017.1	24.9	22.4	85.91		-493.9	-465.0	454.6	409.8	44.75	10.158	
7,600.0	7,049.1	7,494.2	7,017.3	25.2	22.7	85.99		-493.5	-482.1	454.5	409.1	45.41	10.010	
7,700.0	7,049.3	7,594.1	7,017.1	26.8	24.8	85.93		-491.3	-581.9	454.6	405.2	49.45	9.193	
7,800.0	7,049.5	7,694.1	7,016.8	28.7	27.0	85.88		-489.0	-681.9	454.7	400.9	53.78	8.455	
7,900.0	7,049.7	7,794.1	7,016.5	30.8	29.3	85.82		-486.7	-781.8	454.8	396.4	58.32	7.797	
8,000.0	7,049.8	7,894.1	7,016.3	33.1	31.7	85.77		-484.5	-881.8	454.8	391.8	63.04	7.215	
8,100.0	7,050.0	7,994.1	7,016.0	35.4	34.1	85.72		-482.2	-981.8	454.9	387.0	67.89	6.701	
8,200.0	7,050.2	8,094.1	7,015.8	37.9	36.6	85.66		-479.9	-1,081.8	455.0	382.2	72.85	6.246	
8,300.0	7,050.4	8,194.1	7,015.5	40.3	39.1	85.61		-477.7	-1,181.7	455.1	377.2	77.90	5.842	
8,400.0	7,050.5	8,294.1	7,015.2	42.8	41.7	85.55		-475.4	-1,281.7	455.2	372.2	83.01	5.483	
8,500.0	7,050.7	8,394.1	7,015.0	45.4	44.3	85.50		-473.1	-1,381.7	455.3	367.1	88.19	5.162	
8,600.0	7,050.9	8,494.1	7,014.7	48.0	46.9	85.44		-470.8	-1,481.6	455.3	361.9	93.42	4.874	
8,700.0	7,051.0	8,594.1	7,014.4	50.6	49.6	85.39		-468.6	-1,581.6	455.4	356.7	98.68	4.615	
8,800.0	7,051.2	8,694.1	7,014.2	53.2	52.2	85.34		-466.3	-1,681.6	455.5	351.5	103.98	4.381	
8,900.0	7,051.4	8,794.1	7,013.9	55.8	54.9	85.28		-464.0	-1,781.6	455.6	346.3	109.31	4.168	
9,000.0	7,051.6	8,894.1	7,013.7	58.5	57.6	85.23		-461.8	-1,881.5	455.7	341.0	114.67	3.974	
9,100.0	7,051.7	8,994.1	7,013.4	61.2	60.3	85.17		-459.5	-1,981.5	455.8	335.7	120.04	3.797	
9,200.0	7,051.9	9,094.1	7,013.1	63.9	63.0	85.12		-457.2	-2,081.5	455.9	330.4	125.44	3.634	
9,300.0	7,052.1	9,194.1	7,012.9	66.6	65.7	85.07		-454.9	-2,181.5	455.9	325.1	130.85	3.484	
9,400.0	7,052.3	9,294.1	7,012.6	69.3	68.5	85.01		-452.7	-2,281.4	456.0	319.7	136.27	3.346	
9,500.0	7,052.4	9,394.1	7,012.4	72.0	71.2	84.96		-450.4	-2,381.4	456.1	314.4	141.71	3.219	
9,600.0	7,052.6	9,494.1	7,012.1	74.7	73.9	84.90		-448.1	-2,481.4	456.2	309.0	147.16	3.100	
9,700.0	7,052.8	9,594.0	7,011.8	77.4	76.7	84.85		-445.9	-2,581.3	456.3	303.7	152.62	2.990	
9,800.0	7,053.0	9,694.0	7,011.6	80.1	79.4	84.80		-443.6	-2,681.3	456.4	298.3	158.09	2.887	
9,900.0	7,053.1	9,794.0	7,011.3	82.9	82.2	84.74		-441.3	-2,781.3	456.5	292.9	163.56	2.791	

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 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33V-234 - Wellbore #1 - Plan #1 (06-03-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	7,053.3	9,894.0	7,011.0	85.6	84.9	84.69	-439.1	-2,881.3	456.6	287.5	169.04	2.701	
10,100.0	7,053.5	9,994.0	7,010.8	88.4	87.7	84.63	-436.8	-2,981.2	456.6	282.1	174.53	2.616	
10,200.0	7,053.7	10,094.0	7,010.5	91.1	90.5	84.58	-434.5	-3,081.2	456.7	276.7	180.02	2.537	
10,300.0	7,053.8	10,194.0	7,010.3	93.9	93.2	84.53	-432.2	-3,181.2	456.8	271.3	185.52	2.462	
10,400.0	7,054.0	10,294.0	7,010.0	96.6	96.0	84.47	-430.0	-3,281.2	456.9	265.9	191.02	2.392	
10,500.0	7,054.2	10,394.0	7,009.7	99.4	98.8	84.42	-427.7	-3,381.1	457.0	260.5	196.53	2.325	
10,600.0	7,054.4	10,494.0	7,009.5	102.2	101.5	84.36	-425.4	-3,481.1	457.1	255.1	202.04	2.262	
10,700.0	7,054.5	10,594.0	7,009.2	104.9	104.3	84.31	-423.2	-3,581.1	457.2	249.6	207.55	2.203	
10,800.0	7,054.7	10,694.0	7,008.9	107.7	107.1	84.26	-420.9	-3,681.0	457.3	244.2	213.06	2.146	
10,900.0	7,054.9	10,794.0	7,008.7	110.5	109.9	84.20	-418.6	-3,781.0	457.4	238.8	218.58	2.092	
11,000.0	7,055.1	10,894.0	7,008.4	113.2	112.7	84.15	-416.3	-3,881.0	457.5	233.4	224.10	2.041	
11,100.0	7,055.2	10,994.0	7,008.2	116.0	115.4	84.10	-414.1	-3,981.0	457.6	227.9	229.62	1.993	
11,200.0	7,055.4	11,094.0	7,007.9	118.8	118.2	84.04	-411.8	-4,080.9	457.7	222.5	235.14	1.946	
11,300.0	7,055.6	11,194.0	7,007.6	121.6	121.0	83.99	-409.5	-4,180.9	457.7	217.1	240.67	1.902	
11,400.0	7,055.8	11,294.0	7,007.4	124.4	123.8	83.93	-407.3	-4,280.9	457.8	211.7	246.19	1.860	
11,500.0	7,055.9	11,394.0	7,007.1	127.1	126.6	83.88	-405.0	-4,380.9	457.9	206.2	251.72	1.819	
11,536.8	7,056.0	11,430.9	7,007.0	128.2	127.6	83.86	-404.2	-4,417.7	458.0	204.2	253.75	1.805 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33V-404 - Wellbore #1 - Plan #1 (06-03-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	0.00	0.00	58.3	0.0	58.3	58.3	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	0.00	0.00	58.3	0.0	58.3	58.1	0.23	256.792	
200.0	200.0	201.0	201.0	0.3	0.3	0.00	0.00	58.3	0.0	58.3	57.6	0.68	86.166	
300.0	300.0	301.0	301.0	0.6	0.6	0.00	0.00	58.3	0.0	58.3	57.2	1.13	51.768	
400.0	400.0	401.0	401.0	0.8	0.8	0.00	0.00	58.3	0.0	58.3	56.7	1.58	36.999	
500.0	500.0	501.0	501.0	1.0	1.0	0.00	0.00	58.3	0.0	58.3	56.3	2.03	28.786	
600.0	600.0	601.0	601.0	1.2	1.2	0.00	0.00	58.3	0.0	58.3	55.8	2.47	23.557	
700.0	700.0	701.0	701.0	1.5	1.5	0.00	0.00	58.3	0.0	58.3	55.4	2.92	19.935	
800.0	800.0	801.0	801.0	1.7	1.7	0.00	0.00	58.3	0.0	58.3	54.9	3.37	17.279	
900.0	900.0	901.0	901.0	1.9	1.9	0.00	0.00	58.3	0.0	58.3	54.5	3.82	15.248	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	0.00	0.00	58.3	0.0	58.3	54.0	4.27	13.643 CC, ES	
1,100.0	1,100.0	1,101.0	1,101.0	2.3	2.4	-164.26	58.3	0.0	60.0	55.3	4.69	12.776		
1,200.0	1,199.8	1,200.8	1,200.8	2.5	2.6	-165.49	58.3	0.0	65.0	59.9	5.09	12.772		
1,300.0	1,299.5	1,300.5	1,300.5	2.7	2.8	-167.15	58.3	0.0	73.5	68.0	5.49	13.383		
1,400.0	1,398.7	1,399.7	1,399.7	2.9	3.0	-168.92	58.3	0.0	85.4	79.5	5.89	14.495		
1,500.0	1,497.5	1,498.5	1,498.5	3.2	3.3	-170.58	58.3	0.0	100.8	94.5	6.29	16.017		
1,600.0	1,595.6	1,596.6	1,596.6	3.5	3.5	-172.02	58.3	0.0	119.7	113.0	6.70	17.878		
1,700.0	1,693.2	1,694.2	1,694.2	3.8	3.7	-173.23	58.3	0.0	141.3	134.2	7.12	19.849		
1,800.0	1,790.8	1,791.8	1,791.8	4.2	3.9	-174.14	58.3	0.0	163.1	155.5	7.56	21.582		
1,900.0	1,888.4	1,894.1	1,894.1	4.6	4.1	-174.56	57.3	1.2	183.8	175.8	7.99	23.003		
2,000.0	1,985.9	1,997.9	1,997.8	5.0	4.3	-174.23	53.8	5.2	201.7	193.3	8.41	23.983		
2,100.0	2,083.5	2,102.6	2,102.1	5.4	4.5	-173.32	47.9	12.1	216.9	208.0	8.85	24.506		
2,200.0	2,181.0	2,205.8	2,204.5	5.8	4.7	-171.96	39.8	21.6	229.5	220.2	9.31	24.657		
2,300.0	2,278.6	2,304.9	2,302.7	6.3	5.0	-170.67	31.4	31.4	241.7	231.9	9.78	24.712		
2,400.0	2,376.2	2,404.0	2,401.0	6.7	5.2	-169.51	23.1	41.1	254.0	243.7	10.27	24.738		
2,500.0	2,473.7	2,503.1	2,499.3	7.2	5.4	-168.45	14.7	50.8	266.3	255.6	10.77	24.739		
2,600.0	2,571.3	2,602.3	2,597.6	7.6	5.7	-167.49	6.4	60.6	278.8	267.5	11.28	24.721		
2,700.0	2,668.9	2,701.4	2,695.9	8.1	6.0	-166.60	-1.9	70.3	291.3	279.5	11.80	24.686		
2,800.0	2,766.4	2,800.5	2,794.2	8.5	6.2	-165.79	-10.3	80.0	303.9	291.5	12.33	24.639		
2,900.0	2,864.0	2,899.6	2,892.5	9.0	6.5	-165.05	-18.6	89.7	316.5	303.6	12.87	24.582		
3,000.0	2,961.6	2,998.7	2,990.7	9.4	6.8	-164.36	-27.0	99.5	329.2	315.7	13.43	24.518		
3,100.0	3,059.1	3,097.8	3,089.0	9.9	7.1	-163.73	-35.3	109.2	341.9	327.9	13.98	24.449		
3,200.0	3,156.7	3,197.0	3,187.3	10.4	7.4	-163.14	-43.7	118.9	354.7	340.1	14.55	24.376		
3,300.0	3,254.2	3,296.1	3,285.6	10.8	7.7	-162.59	-52.0	128.7	367.5	352.3	15.12	24.300		
3,400.0	3,351.8	3,395.2	3,383.9	11.3	8.0	-162.07	-60.3	138.4	380.3	364.6	15.70	24.222		
3,500.0	3,449.4	3,494.3	3,482.2	11.8	8.3	-161.59	-68.7	148.1	393.1	376.9	16.28	24.144		
3,600.0	3,546.9	3,593.4	3,580.5	12.3	8.6	-161.15	-77.0	157.9	406.0	389.2	16.87	24.066		
3,700.0	3,644.5	3,692.6	3,678.7	12.7	8.9	-160.72	-85.4	167.6	418.9	401.5	17.46	23.989		
3,800.0	3,742.1	3,791.7	3,777.0	13.2	9.2	-160.33	-93.7	177.3	431.9	413.8	18.06	23.912		
3,900.0	3,839.6	3,890.8	3,875.3	13.7	9.5	-159.96	-102.0	187.1	444.8	426.1	18.66	23.836		
4,000.0	3,937.2	3,989.9	3,973.6	14.1	9.8	-159.60	-110.4	196.8	457.8	438.5	19.26	23.762		
4,100.0	4,034.7	4,089.0	4,071.9	14.6	10.1	-159.27	-118.7	206.5	470.7	450.9	19.87	23.689		
4,200.0	4,132.3	4,188.1	4,170.2	15.1	10.4	-158.96	-127.1	216.3	483.7	463.3	20.48	23.618		
4,300.0	4,229.9	4,287.3	4,268.5	15.6	10.7	-158.66	-135.4	226.0	496.7	475.7	21.09	23.549		
4,400.0	4,327.4	4,386.4	4,366.7	16.0	11.0	-158.37	-143.7	235.7	509.8	488.1	21.71	23.481		
4,500.0	4,425.0	4,485.5	4,465.0	16.5	11.4	-158.11	-152.1	245.4	522.8	500.5	22.33	23.415		
4,600.0	4,522.6	4,584.6	4,563.3	17.0	11.7	-157.85	-160.4	255.2	535.8	512.9	22.95	23.351		
4,700.0	4,620.1	4,680.5	4,658.5	17.5	12.0	-157.63	-168.4	264.5	549.0	525.4	23.55	23.313		
4,800.0	4,717.7	4,769.6	4,747.1	17.9	12.2	-157.61	-174.4	271.5	563.5	539.4	24.06	23.416		
4,900.0	4,815.3	4,858.2	4,835.4	18.4	12.4	-157.82	-178.6	276.4	579.8	555.2	24.53	23.633		
5,000.0	4,912.8	4,946.0	4,923.1	18.9	12.6	-158.24	-181.0	279.2	597.8	572.8	24.96	23.953		

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 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33V-404 - Wellbore #1 - Plan #1 (06-03-13)												Offset Site Error: 0.0 ft		
Survey Program: 0-MWDD												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)			
5,100.0	5,010.4	5,034.3	5,011.4	19.4	12.7	-158.84	-181.7	280.0	617.6	592.2	25.35	24.366		
5,200.0	5,107.9	5,131.8	5,108.9	19.9	12.9	-159.55	-181.7	280.0	638.2	612.4	25.73	24.800		
5,300.0	5,205.5	5,229.4	5,206.5	20.3	13.0	-160.21	-181.7	280.0	658.8	632.7	26.13	25.217		
5,400.0	5,303.1	5,327.0	5,304.1	20.8	13.2	-160.84	-181.7	280.0	679.6	653.0	26.52	25.621		
5,500.0	5,400.6	5,424.5	5,401.6	21.3	13.4	-161.42	-181.7	280.0	700.4	673.4	26.93	26.011		
5,600.0	5,498.2	5,522.1	5,499.2	21.7	13.6	-162.01	-181.7	280.0	721.1	693.8	27.34	26.375		
5,700.0	5,596.3	5,620.2	5,597.3	22.1	13.7	-162.58	-181.7	280.0	739.5	711.8	27.75	26.652		
5,800.0	5,695.1	5,719.0	5,696.1	22.3	13.9	-163.03	-181.7	280.0	754.7	726.6	28.14	26.823		
5,900.0	5,794.3	5,818.2	5,795.3	22.6	14.1	-163.37	-181.7	280.0	766.6	738.1	28.50	26.895		
6,000.0	5,893.9	5,917.8	5,894.9	22.8	14.3	-163.61	-181.7	280.0	775.2	746.3	28.85	26.872		
6,100.0	5,993.7	6,017.6	5,994.7	22.9	14.5	-163.75	-181.7	280.0	780.4	751.2	29.16	26.759		
6,200.0	6,093.7	6,117.6	6,094.7	23.1	14.7	-163.80	-181.7	280.0	782.3	752.8	29.47	26.549		
6,300.0	6,193.7	6,217.6	6,194.7	23.2	14.9	0.00	-181.7	280.0	782.3	745.6	36.73	21.298		
6,400.0	6,293.7	6,317.6	6,294.7	23.3	15.0	88.73	-181.7	280.0	782.3	752.1	30.19	25.916		
6,500.0	6,393.3	6,416.8	6,393.9	23.4	15.2	89.24	-181.7	279.3	782.2	751.6	30.55	25.601		
6,592.4	6,483.8	6,507.9	6,484.4	23.4	15.3	89.91	-181.5	269.9	782.1	751.3	30.81	25.389		
6,600.0	6,491.1	6,515.5	6,491.9	23.4	15.3	89.96	-181.4	268.6	782.1	751.3	30.82	25.374		
6,700.0	6,585.4	6,615.4	6,589.0	23.4	15.4	90.69	-180.9	245.0	782.2	751.2	31.00	25.234		
6,800.0	6,674.5	6,716.8	6,683.4	23.4	15.5	91.41	-180.0	208.4	782.4	751.3	31.13	25.133		
6,900.0	6,757.0	6,819.5	6,773.2	23.4	15.5	92.11	-178.9	158.9	782.8	751.4	31.32	24.990		
7,000.0	6,831.4	6,923.5	6,856.7	23.4	15.6	92.77	-177.5	96.9	783.2	751.5	31.72	24.692		
7,100.0	6,896.4	7,028.9	6,931.9	23.3	15.7	93.39	-175.7	23.1	783.7	751.3	32.50	24.118		
7,200.0	6,951.0	7,135.6	6,996.9	23.3	16.3	93.96	-173.8	-61.3	784.3	750.5	33.83	23.182		
7,300.0	6,994.2	7,243.5	7,050.0	23.4	17.3	94.45	-171.6	-155.1	784.9	749.1	35.86	21.890		
7,400.0	7,025.2	7,352.4	7,089.7	23.6	18.7	94.86	-169.2	-256.4	785.5	746.9	38.61	20.344		
7,500.0	7,043.6	7,462.2	7,114.8	24.1	20.5	95.19	-166.8	-363.1	786.0	743.9	42.03	18.699		
7,600.0	7,049.1	7,565.8	7,126.7	25.2	22.4	95.59	-164.4	-466.1	786.6	740.8	45.83	17.163		
7,700.0	7,049.3	7,672.3	7,133.9	26.8	24.6	96.10	-161.9	-572.3	787.4	737.4	50.00	15.750		
7,800.0	7,049.5	7,773.2	7,135.1	28.7	26.8	96.17	-159.6	-673.1	787.6	733.3	54.32	14.499		
7,900.0	7,049.7	7,873.2	7,136.2	30.8	29.1	96.24	-157.2	-773.1	787.8	729.0	58.84	13.389		
8,000.0	7,049.8	7,973.2	7,137.3	33.1	31.5	96.30	-154.9	-873.0	788.0	724.5	63.53	12.404		
8,100.0	7,050.0	8,073.2	7,138.5	35.4	33.9	96.37	-152.6	-973.0	788.2	719.9	68.35	11.532		
8,200.0	7,050.2	8,173.2	7,139.6	37.9	36.4	96.44	-150.3	-1,073.0	788.4	715.2	73.28	10.759		
8,300.0	7,050.4	8,273.2	7,140.7	40.3	39.0	96.50	-147.9	-1,172.9	788.7	710.4	78.30	10.072		
8,400.0	7,050.5	8,373.2	7,141.8	42.8	41.6	96.57	-145.6	-1,272.9	788.9	705.5	83.39	9.460		
8,500.0	7,050.7	8,473.2	7,142.9	45.4	44.2	96.64	-143.3	-1,372.8	789.1	700.5	88.54	8.912		
8,600.0	7,050.9	8,573.2	7,144.0	48.0	46.8	96.71	-141.0	-1,472.8	789.3	695.5	93.73	8.420		
8,700.0	7,051.0	8,673.2	7,145.2	50.6	49.4	96.77	-138.7	-1,572.8	789.5	690.5	98.97	7.977		
8,800.0	7,051.2	8,773.2	7,146.3	53.2	52.1	96.84	-136.3	-1,672.7	789.7	685.5	104.24	7.576		
8,900.0	7,051.4	8,873.2	7,147.4	55.8	54.8	96.91	-134.0	-1,772.7	789.9	680.4	109.54	7.211		
9,000.0	7,051.6	8,973.2	7,148.5	58.5	57.5	96.97	-131.7	-1,872.7	790.1	675.3	114.87	6.879		
9,100.0	7,051.7	9,073.2	7,149.6	61.2	60.2	97.04	-129.4	-1,972.6	790.3	670.1	120.21	6.575		
9,200.0	7,051.9	9,173.2	7,150.7	63.9	62.9	97.11	-127.0	-2,072.6	790.6	665.0	125.58	6.295		
9,300.0	7,052.1	9,273.2	7,151.9	66.6	65.6	97.17	-124.7	-2,172.5	790.8	659.8	130.96	6.038		
9,400.0	7,052.3	9,373.2	7,153.0	69.3	68.3	97.24	-122.4	-2,272.5	791.0	654.6	136.35	5.801		
9,500.0	7,052.4	9,473.1	7,154.1	72.0	71.1	97.31	-120.1	-2,372.5	791.2	649.5	141.76	5.581		
9,600.0	7,052.6	9,573.1	7,155.2	74.7	73.8	97.38	-117.8	-2,472.4	791.4	644.3	147.17	5.378		
9,700.0	7,052.8	9,673.1	7,156.3	77.4	76.6	97.44	-115.4	-2,572.4	791.7	639.1	152.60	5.188		
9,800.0	7,053.0	9,773.1	7,157.4	80.1	79.3	97.51	-113.1	-2,672.4	791.9	633.9	158.03	5.011		
9,900.0	7,053.1	9,873.1	7,158.6	82.9	82.1	97.58	-110.8	-2,772.3	792.1	628.6	163.47	4.846		
10,000.0	7,053.3	9,973.1	7,159.7	85.6	84.8	97.64	-108.5	-2,872.3	792.3	623.4	168.92	4.691		

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 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33V-404 - Wellbore #1 - Plan #1 (06-03-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (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
10,100.0	7,053.5	10,073.1	7,160.8	88.4	87.6	97.71	-106.1	-2,972.2	792.6	618.2	174.37	4.545	
10,200.0	7,053.7	10,173.1	7,161.9	91.1	90.4	97.77	-103.8	-3,072.2	792.8	613.0	179.83	4.409	
10,300.0	7,053.8	10,273.1	7,163.0	93.9	93.1	97.84	-101.5	-3,172.2	793.0	607.7	185.29	4.280	
10,400.0	7,054.0	10,373.1	7,164.1	96.6	95.9	97.91	-99.2	-3,272.1	793.2	602.5	190.75	4.159	
10,500.0	7,054.2	10,473.1	7,165.3	99.4	98.7	97.97	-96.9	-3,372.1	793.5	597.3	196.22	4.044	
10,600.0	7,054.4	10,573.1	7,166.4	102.2	101.5	98.04	-94.5	-3,472.1	793.7	592.0	201.69	3.935	
10,700.0	7,054.5	10,673.1	7,167.5	104.9	104.2	98.11	-92.2	-3,572.0	793.9	586.8	207.16	3.833	
10,800.0	7,054.7	10,773.1	7,168.6	107.7	107.0	98.17	-89.9	-3,672.0	794.2	581.5	212.63	3.735	
10,900.0	7,054.9	10,873.1	7,169.7	110.5	109.8	98.24	-87.6	-3,771.9	794.4	576.3	218.11	3.642	
11,000.0	7,055.1	10,973.1	7,170.8	113.2	112.6	98.31	-85.2	-3,871.9	794.6	571.1	223.58	3.554	
11,100.0	7,055.2	11,073.1	7,172.0	116.0	115.4	98.37	-82.9	-3,971.9	794.9	565.8	229.06	3.470	
11,200.0	7,055.4	11,173.1	7,173.1	118.8	118.1	98.44	-80.6	-4,071.8	795.1	560.6	234.54	3.390	
11,300.0	7,055.6	11,273.1	7,174.2	121.6	120.9	98.50	-78.3	-4,171.8	795.4	555.3	240.02	3.314	
11,400.0	7,055.8	11,373.1	7,175.3	124.4	123.7	98.57	-76.0	-4,271.8	795.6	550.1	245.50	3.241	
11,500.0	7,055.9	11,473.1	7,176.4	127.1	126.5	98.64	-73.6	-4,371.7	795.8	544.9	250.98	3.171	
11,536.8	7,056.0	11,509.9	7,176.8	128.2	127.5	98.66	-72.8	-4,408.5	795.9	542.9	252.99	3.146 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Alm 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33W-404 - Wellbore #1 - Plan #1 (06-03-13)													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
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-180.00	-29.1	0.0	29.1				
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-180.00	-29.1	0.0	29.1	28.9	0.22	129.653	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-180.00	-29.1	0.0	29.1	28.5	0.67	43.218 CC, ES	
300.0	300.0	299.0	299.0	0.6	0.5	179.31	179.31	-30.8	0.4	30.8	29.7	1.10	28.016	
400.0	400.0	397.7	397.6	0.8	0.7	177.64	177.64	-35.8	1.5	35.9	34.4	1.53	23.438	
500.0	500.0	496.0	495.5	1.0	1.0	175.71	175.71	-44.1	3.3	44.4	42.4	1.98	22.409	
600.0	600.0	593.6	592.3	1.2	1.3	173.99	173.99	-55.5	5.8	56.3	53.9	2.44	23.049	
700.0	700.0	690.2	687.9	1.5	1.6	172.63	172.63	-70.0	9.0	71.6	68.7	2.92	24.568	
800.0	800.0	785.8	781.7	1.7	1.9	171.60	171.60	-87.4	12.9	90.2	86.8	3.40	26.577	
900.0	900.0	880.0	873.7	1.9	2.4	170.83	170.83	-107.6	17.4	112.1	108.2	3.88	28.863	
1,000.0	1,000.0	977.0	967.9	2.1	2.8	170.25	170.25	-130.0	22.3	135.7	131.4	4.38	30.994	
1,100.0	1,100.0	1,074.6	1,062.7	2.3	3.3	6.06	6.06	-152.5	27.3	157.7	153.0	4.74	33.260	
1,200.0	1,199.8	1,172.8	1,158.1	2.5	3.8	5.88	5.88	-175.3	32.4	176.3	171.1	5.17	34.127	
1,300.0	1,299.5	1,271.7	1,254.2	2.7	4.3	5.84	5.84	-198.1	37.4	191.4	185.8	5.60	34.167	
1,400.0	1,398.7	1,371.0	1,350.6	2.9	4.8	5.92	5.92	-221.1	42.5	203.1	197.1	6.05	33.566	
1,500.0	1,497.5	1,470.6	1,447.5	3.2	5.3	6.08	6.08	-244.1	47.6	211.4	204.9	6.51	32.465	
1,600.0	1,595.6	1,570.5	1,544.5	3.5	5.8	6.35	6.35	-267.2	52.7	216.2	209.2	6.98	30.977	
1,700.0	1,693.2	1,670.5	1,641.6	3.8	6.3	6.69	6.69	-290.3	57.9	218.3	210.8	7.47	29.218	
1,800.0	1,790.8	1,770.4	1,738.7	4.2	6.8	7.03	7.03	-313.4	63.0	220.2	212.2	7.98	27.593	
1,900.0	1,888.4	1,870.4	1,835.9	4.6	7.3	7.37	7.37	-336.5	68.1	222.1	213.6	8.50	26.141	
2,000.0	1,985.9	1,970.4	1,933.0	5.0	7.8	7.70	7.70	-359.6	73.2	224.0	215.0	9.02	24.837	
2,100.0	2,083.5	2,070.4	2,030.1	5.4	8.3	8.02	8.02	-382.8	78.3	226.0	216.4	9.55	23.662	
2,200.0	2,181.0	2,170.3	2,127.3	5.8	8.8	8.34	8.34	-405.9	83.5	227.9	217.8	10.08	22.599	
2,300.0	2,278.6	2,270.3	2,224.4	6.3	9.3	8.66	8.66	-429.0	88.6	229.9	219.2	10.62	21.634	
2,400.0	2,376.2	2,370.3	2,321.5	6.7	9.8	8.97	8.97	-452.1	93.7	231.8	220.6	11.17	20.755	
2,500.0	2,473.7	2,470.2	2,418.7	7.2	10.3	9.27	9.27	-475.2	98.8	233.8	222.0	11.72	19.952	
2,600.0	2,571.3	2,570.2	2,515.8	7.6	10.8	9.57	9.57	-498.3	103.9	235.7	223.5	12.27	19.214	
2,700.0	2,668.9	2,670.2	2,612.9	8.1	11.3	9.87	9.87	-521.4	109.1	237.7	224.9	12.82	18.536	
2,800.0	2,766.4	2,770.2	2,710.0	8.5	11.8	10.16	10.16	-544.6	114.2	239.7	226.3	13.38	17.909	
2,900.0	2,864.0	2,870.1	2,807.2	9.0	12.4	10.44	10.44	-567.7	119.3	241.7	227.7	13.94	17.330	
3,000.0	2,961.6	2,970.1	2,904.3	9.4	12.9	10.72	10.72	-590.8	124.4	243.6	229.1	14.51	16.792	
3,100.0	3,059.1	3,070.1	3,001.4	9.9	13.4	10.99	10.99	-613.9	129.5	245.6	230.6	15.08	16.292	
3,200.0	3,156.7	3,170.1	3,098.6	10.4	13.9	11.27	11.27	-637.0	134.7	247.6	232.0	15.65	15.825	
3,300.0	3,254.2	3,270.0	3,195.7	10.8	14.4	11.53	11.53	-660.1	139.8	249.6	233.4	16.22	15.389	
3,400.0	3,351.8	3,370.0	3,292.8	11.3	14.9	11.79	11.79	-683.2	144.9	251.7	234.9	16.80	14.981	
3,500.0	3,449.4	3,470.0	3,390.0	11.8	15.4	12.05	12.05	-706.3	150.0	253.7	236.3	17.38	14.598	
3,600.0	3,546.9	3,570.0	3,487.1	12.3	15.9	12.31	12.31	-729.5	155.1	255.7	237.7	17.96	14.238	
3,700.0	3,644.5	3,669.9	3,584.2	12.7	16.4	12.56	12.56	-752.6	160.3	257.7	239.2	18.54	13.899	
3,800.0	3,742.1	3,769.9	3,681.3	13.2	16.9	12.80	12.80	-775.7	165.4	259.8	240.6	19.13	13.579	
3,900.0	3,839.6	3,869.9	3,778.5	13.7	17.4	13.05	13.05	-798.8	170.5	261.8	242.1	19.72	13.277	
4,000.0	3,937.2	3,969.8	3,875.6	14.1	18.0	13.28	13.28	-821.9	175.6	263.8	243.5	20.31	12.991	
4,100.0	4,034.7	4,069.8	3,972.7	14.6	18.5	13.52	13.52	-845.0	180.7	265.9	245.0	20.90	12.720	
4,200.0	4,132.3	4,169.8	4,069.9	15.1	19.0	13.75	13.75	-868.1	185.9	267.9	246.4	21.50	12.463	
4,300.0	4,229.9	4,269.8	4,167.0	15.6	19.5	13.98	13.98	-891.2	191.0	270.0	247.9	22.10	12.218	
4,400.0	4,327.4	4,369.7	4,264.1	16.0	20.0	14.20	14.20	-914.4	196.1	272.0	249.3	22.70	11.986	
4,500.0	4,425.0	4,469.7	4,361.3	16.5	20.5	14.42	14.42	-937.5	201.2	274.1	250.8	23.30	11.765	
4,600.0	4,522.6	4,569.7	4,458.4	17.0	21.0	14.64	14.64	-960.6	206.3	276.2	252.3	23.90	11.554	
4,700.0	4,620.1	4,669.7	4,555.5	17.5	21.5	14.86	14.86	-983.7	211.5	278.2	253.7	24.51	11.352	
4,800.0	4,717.7	4,769.6	4,652.6	17.9	22.0	15.07	15.07	-1,006.8	216.6	280.3	255.2	25.12	11.160	
4,900.0	4,815.3	4,869.6	4,749.8	18.4	22.5	15.28	15.28	-1,029.9	221.7	282.4	256.7	25.73	10.976	
5,000.0	4,912.8	4,969.6	4,846.9	18.9	23.0	15.48	15.48	-1,053.0	226.8	284.5	258.1	26.34	10.800	

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 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design												Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33W-404 - Wellbore #1 - Plan #1 (06-03-13)		Offset Site Error:		0.0 ft
Survey Program: 0-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)						
5,100.0	5,010.4	5,069.5	4,944.0	19.4	23.6	15.68	-1,076.1	231.9	286.5	259.6	26.95	10.631				
5,200.0	5,107.9	5,169.5	5,041.2	19.9	24.1	15.88	-1,099.3	237.1	288.6	261.1	27.57	10.469				
5,300.0	5,205.5	5,269.5	5,138.3	20.3	24.6	16.08	-1,122.4	242.2	290.7	262.5	28.19	10.313				
5,400.0	5,303.1	5,369.5	5,235.4	20.8	25.1	16.27	-1,145.5	247.3	292.8	264.0	28.81	10.164				
5,500.0	5,400.6	5,469.4	5,332.5	21.3	25.6	16.46	-1,168.6	252.4	294.9	265.5	29.43	10.021				
5,600.0	5,498.2	5,569.4	5,429.7	21.7	26.1	16.65	-1,191.7	257.5	297.1	267.1	30.05	9.889				
5,700.0	5,596.3	5,669.9	5,527.3	22.1	26.6	16.71	-1,214.9	262.7	301.8	271.2	30.58	9.869				
5,800.0	5,695.1	5,781.3	5,636.0	22.3	27.0	16.68	-1,238.4	267.9	307.8	276.7	31.03	9.918				
5,900.0	5,794.3	5,892.9	5,745.9	22.6	27.3	16.62	-1,257.8	272.2	313.3	281.9	31.41	9.973				
6,000.0	5,893.9	6,004.8	5,856.7	22.8	27.6	16.53	-1,273.0	275.5	318.3	286.6	31.72	10.034				
6,100.0	5,993.7	6,116.9	5,968.3	22.9	27.8	16.42	-1,284.0	278.0	322.9	290.9	31.97	10.101				
6,200.0	6,093.7	6,229.3	6,080.4	23.1	28.0	16.29	-1,290.7	279.5	327.0	294.8	32.15	10.169				
6,300.0	6,193.7	6,341.8	6,192.9	23.2	28.1	-180.00	-1,293.1	280.0	329.1	278.6	50.54	6.513				
6,400.0	6,293.7	6,442.6	6,293.7	23.3	28.2	-91.28	-1,293.1	280.0	329.1	296.4	32.78	10.041				
6,500.0	6,393.3	6,542.9	6,394.0	23.4	28.3	-92.47	-1,293.1	279.3	329.4	296.6	32.79	10.045				
6,600.0	6,491.1	6,645.0	6,495.4	23.4	28.3	-94.14	-1,292.9	268.0	329.9	297.3	32.63	10.111				
6,700.0	6,585.4	6,748.5	6,595.7	23.4	28.4	-95.75	-1,292.3	242.9	330.7	298.3	32.45	10.191				
6,800.0	6,674.5	6,853.3	6,692.8	23.4	28.4	-97.25	-1,291.4	203.9	331.7	299.4	32.32	10.265				
6,900.0	6,757.0	6,959.4	6,784.8	23.4	28.3	-98.63	-1,290.2	151.2	332.8	300.5	32.32	10.299				
7,000.0	6,831.4	7,066.7	6,869.6	23.4	28.3	-99.85	-1,288.8	85.6	334.0	301.4	32.57	10.255				
7,100.0	6,896.4	7,175.1	6,945.0	23.3	28.3	-100.89	-1,287.0	7.8	335.0	301.8	33.20	10.090				
7,200.0	6,951.0	7,284.4	7,009.1	23.3	28.3	-101.74	-1,285.0	-80.6	336.0	301.6	34.37	9.776				
7,300.0	6,994.2	7,394.5	7,060.3	23.4	28.3	-102.37	-1,282.9	-177.9	336.8	300.6	36.14	9.319				
7,400.0	7,025.2	7,505.1	7,097.1	23.6	28.4	-102.76	-1,280.5	-282.0	337.3	298.7	38.56	8.746				
7,500.0	7,043.6	7,616.0	7,118.6	24.1	28.7	-102.93	-1,278.1	-390.7	337.4	295.9	41.58	8.115				
7,600.0	7,049.1	7,718.1	7,129.3	25.2	29.2	-103.70	-1,275.8	-492.3	338.6	293.8	44.74	7.568				
7,700.0	7,049.3	7,824.7	7,134.2	26.8	30.2	-104.47	-1,273.4	-598.7	339.6	291.1	48.50	7.002				
7,800.0	7,049.5	7,924.7	7,135.3	28.7	31.5	-104.63	-1,271.1	-698.7	339.8	287.2	52.60	6.461				
7,900.0	7,049.7	8,024.7	7,136.4	30.8	33.1	-104.78	-1,268.9	-798.6	340.0	283.1	56.90	5.976				
8,000.0	7,049.8	8,124.7	7,137.5	33.1	35.1	-104.94	-1,266.7	-898.6	340.3	278.9	61.38	5.544				
8,100.0	7,050.0	8,224.7	7,138.6	35.4	37.2	-105.09	-1,264.4	-998.6	340.5	274.5	65.99	5.160				
8,200.0	7,050.2	8,324.7	7,139.8	37.9	39.4	-105.25	-1,262.2	-1,098.5	340.7	270.0	70.71	4.818				
8,300.0	7,050.4	8,424.7	7,140.9	40.3	41.8	-105.40	-1,259.9	-1,198.5	340.9	265.4	75.51	4.515				
8,400.0	7,050.5	8,524.7	7,142.0	42.8	44.2	-105.55	-1,257.7	-1,298.5	341.2	260.8	80.38	4.244				
8,500.0	7,050.7	8,624.7	7,143.1	45.4	46.6	-105.71	-1,255.4	-1,398.4	341.4	256.1	85.30	4.002				
8,600.0	7,050.9	8,724.7	7,144.2	48.0	49.1	-105.86	-1,253.2	-1,498.4	341.6	251.3	90.27	3.784				
8,700.0	7,051.0	8,824.7	7,145.3	50.6	51.7	-106.01	-1,250.9	-1,598.3	341.9	246.6	95.27	3.588				
8,800.0	7,051.2	8,924.7	7,146.5	53.2	54.2	-106.17	-1,248.7	-1,698.3	342.1	241.8	100.31	3.410				
8,900.0	7,051.4	9,024.7	7,147.6	55.8	56.8	-106.32	-1,246.4	-1,798.3	342.3	237.0	105.36	3.249				
9,000.0	7,051.6	9,124.7	7,148.7	58.5	59.4	-106.47	-1,244.2	-1,898.2	342.6	232.1	110.44	3.102				
9,100.0	7,051.7	9,224.7	7,149.8	61.2	62.1	-106.62	-1,241.9	-1,998.2	342.8	227.3	115.53	2.967				
9,200.0	7,051.9	9,324.7	7,150.9	63.9	64.7	-106.78	-1,239.7	-2,098.2	343.1	222.4	120.63	2.844				
9,300.0	7,052.1	9,424.6	7,152.1	66.6	67.4	-106.93	-1,237.5	-2,198.1	343.3	217.6	125.74	2.730				
9,400.0	7,052.3	9,524.6	7,153.2	69.3	70.0	-107.08	-1,235.2	-2,298.1	343.6	212.7	130.86	2.625				
9,500.0	7,052.4	9,624.6	7,154.3	72.0	72.7	-107.23	-1,233.0	-2,398.1	343.8	207.8	135.99	2.528				
9,600.0	7,052.6	9,724.6	7,155.4	74.7	75.4	-107.38	-1,230.7	-2,498.0	344.1	203.0	141.12	2.438				
9,700.0	7,052.8	9,824.6	7,156.5	77.4	78.1	-107.53	-1,228.5	-2,598.0	344.3	198.1	146.25	2.354				
9,800.0	7,053.0	9,924.6	7,157.6	80.1	80.8	-107.68	-1,226.2	-2,698.0	344.6	193.2	151.38	2.276				
9,900.0	7,053.1	10,024.6	7,158.8	82.9	83.6	-107.83	-1,224.0	-2,797.9	344.9	188.3	156.51	2.203				
10,000.0	7,053.3	10,124.6	7,159.9	85.6	86.3	-107.98	-1,221.7	-2,897.9	345.1	183.5	161.64	2.135				
10,100.0	7,053.5	10,224.6	7,161.0	88.4	89.0	-108.13	-1,219.5	-2,997.8	345.4	178.6	166.77	2.071				

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 33W-314
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 33W-314	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Alm 33V-HZ Pad South Sec.33-T7N-R65W - Alm 33W-404 - Wellbore #1 - Plan #1 (06-03-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
10,200.0	7,053.7	10,324.6	7,162.1	91.1	91.7	-108.28	-1,217.2	-3,097.8	345.7	173.8	171.90	2.011	
10,300.0	7,053.8	10,424.6	7,163.2	93.9	94.5	-108.43	-1,215.0	-3,197.8	345.9	168.9	177.02	1.954	
10,400.0	7,054.0	10,524.6	7,164.3	96.6	97.2	-108.58	-1,212.7	-3,297.7	346.2	164.1	182.14	1.901	
10,500.0	7,054.2	10,624.6	7,165.5	99.4	100.0	-108.73	-1,210.5	-3,397.7	346.5	159.2	187.26	1.850	
10,600.0	7,054.4	10,724.6	7,166.6	102.2	102.7	-108.88	-1,208.2	-3,497.7	346.8	154.4	192.37	1.803	
10,700.0	7,054.5	10,824.6	7,167.7	104.9	105.5	-109.03	-1,206.0	-3,597.6	347.0	149.6	197.47	1.757	
10,800.0	7,054.7	10,924.6	7,168.8	107.7	108.2	-109.18	-1,203.8	-3,697.6	347.3	144.8	202.57	1.715	
10,900.0	7,054.9	11,024.6	7,169.9	110.5	111.0	-109.33	-1,201.5	-3,797.6	347.6	140.0	207.67	1.674	
11,000.0	7,055.1	11,124.6	7,171.0	113.2	113.7	-109.47	-1,199.3	-3,897.5	347.9	135.2	212.75	1.635	
11,100.0	7,055.2	11,224.6	7,172.2	116.0	116.5	-109.62	-1,197.0	-3,997.5	348.2	130.4	217.83	1.598	
11,200.0	7,055.4	11,324.6	7,173.3	118.8	119.3	-109.77	-1,194.8	-4,097.5	348.5	125.6	222.91	1.563	
11,300.0	7,055.6	11,424.6	7,174.4	121.6	122.0	-109.91	-1,192.5	-4,197.4	348.8	120.8	227.97	1.530	
11,400.0	7,055.8	11,524.6	7,175.5	124.4	124.8	-110.06	-1,190.3	-4,297.4	349.1	116.1	233.03	1.498 Level 3	
11,500.0	7,055.9	11,624.5	7,176.6	127.1	127.6	-110.21	-1,188.0	-4,397.3	349.4	111.3	238.08	1.467 Level 3	
11,536.8	7,056.0	11,658.2	7,177.0	128.2	128.5	-110.26	-1,187.3	-4,431.0	349.5	109.6	239.87	1.457 Level 3, SF	

Reference Depths are relative to WELL @ 4805.0ft (Original Well Elev)Coordinates are relative to: Alm 33W-314
Offset Depths are relative to Offset DatumCoordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 °Grid Convergence at Surface is: 0.54°



Reference Depths are relative to WELL @ 4805.0ft (Original Well Elev)Coordinates are relative to: Alm 33W-314
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: 0.54°

