

PETROLEUM DEVELOPMENT CORP Weld County CO

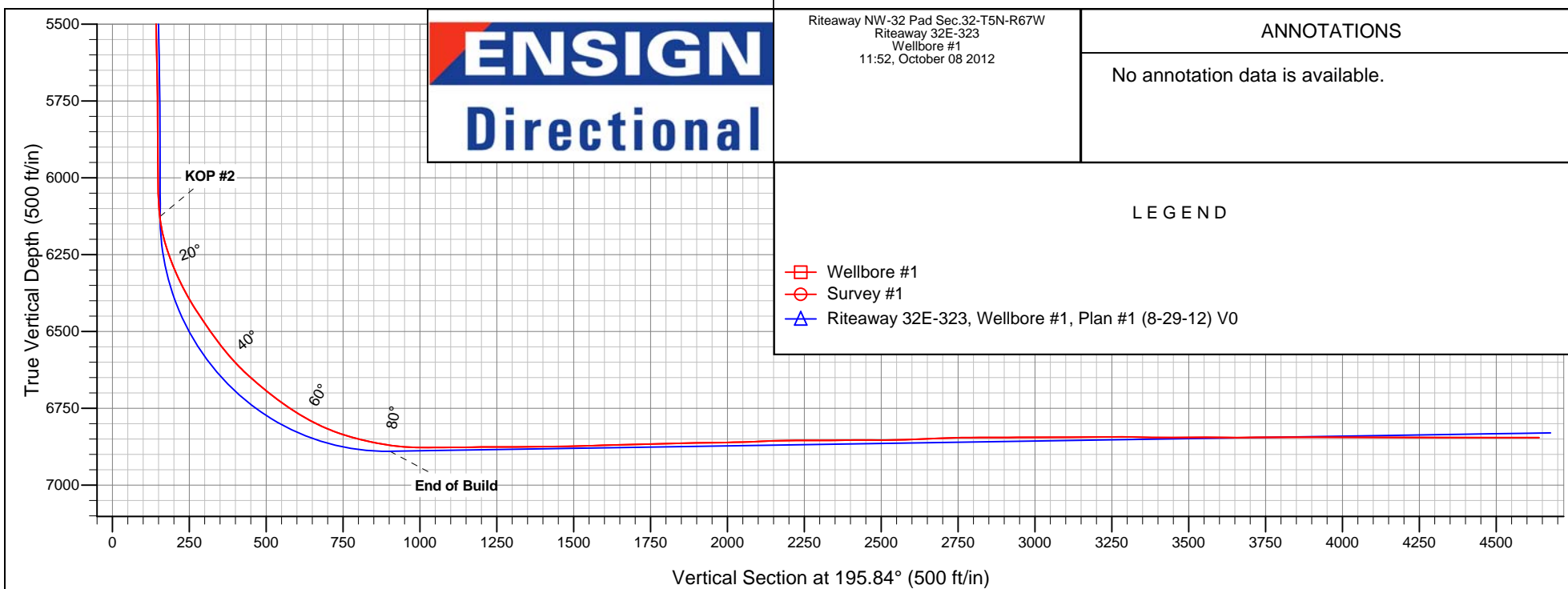
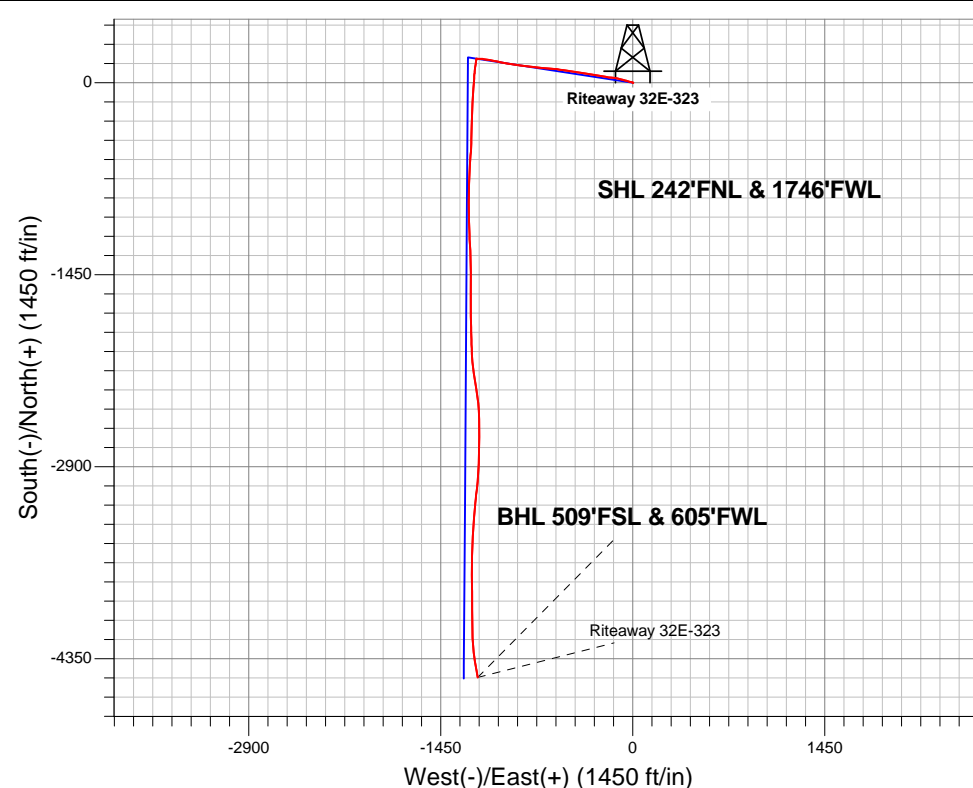
Well Name: Riteaway 32E-323

Surface Location: Riteaway NW-32 Pad Sec.32-T5N-R67W
North American Datum 1983 , US State Plane 1983 Colorado Northern Zone
Ground Elevation: 4794.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1375525.78	3161553.90	40.362770	-104.920250	
		Original Well Elev		WELL @ 4809.0ft (Original Well Elev)		

FINAL SURVEY

Projected Bottom Hole Location
11321'MD 6846'TVD 4490'S & 1171'W of SHL
90.00 degree Incl @ 168.00 degree AZM





Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T5N-R67W

Riteaway NW-32 Pad Sec.32-T5N-R67W

Riteaway 32E-323

Wellbore #1

Survey: Survey #1

Standard Survey Report

08 October, 2012

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Riteaway 32E-323
Project:	SEC.32-T5N-R67W	TVD Reference:	WELL @ 4809.0ft (Original Well Elev)
Site:	Riteaway NW-32 Pad Sec.32-T5N-R67W	MD Reference:	WELL @ 4809.0ft (Original Well Elev)
Well:	Riteaway 32E-323	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.32-T5N-R67W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site		Riteaway NW-32 Pad Sec.32-T5N-R67W			
Site Position:		Northing:	1,375,525.79ft	Latitude:	40.362770
From:	Lat/Long	Easting:	3,161,553.90ft	Longitude:	-104.920250
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.37 °

Well	Riteaway 32E-323					
Well Position	+N-S	0.0 ft	Northing:	1,375,525.78 ft	Latitude:	40.362770
	+E-W	0.0 ft	Easting:	3,161,553.90 ft	Longitude:	-104.920250
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,794.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/28/2012	8.77	66.95	52,960

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N-S (ft)	+E-W (ft)	Direction (°)	
	6,830.0	0.0	0.0	195.84	

Survey Program	Date	10/8/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
176.0	11,321.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

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	
SECTION LINE 242°N OF SHL										
0.9	0.00	109.40	0.9	0.0	0.0	0.0	0.40	0.40	0.00	
HARDLINE SHL 460°FNL										
2.6	0.01	109.40	2.6	0.0	0.0	0.0	0.40	0.40	0.00	
HARDLINE BHL 460°FSL, 460°FWL										
176.0	0.70	109.40	176.0	-0.4	1.0	0.1	0.40	0.40	0.00	
268.0	0.80	103.70	268.0	-0.7	2.2	0.1	0.14	0.11	-6.20	
358.0	1.30	304.50	358.0	-0.3	1.9	-0.3	2.30	0.56	-176.89	
450.0	4.80	290.50	449.8	1.7	-2.5	-0.9	3.86	3.80	-15.22	
542.0	6.80	287.70	541.4	4.7	-11.3	-1.4	2.19	2.17	-3.04	
634.0	8.70	286.90	632.5	8.4	-23.2	-1.7	2.07	2.07	-0.87	

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Well:	Riteaway 32E-323	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

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)
726.0	9.00	284.30	723.4	12.2	-36.8	-1.6	0.54	0.33	-2.83
817.0	9.20	284.10	813.3	15.7	-50.8	-1.2	0.22	0.22	-0.22
877.0	9.20	284.80	872.5	18.1	-60.0	-1.0	0.19	0.00	1.17
944.0	9.60	283.80	938.6	20.8	-70.6	-0.7	0.64	0.60	-1.49
1,035.0	10.50	286.80	1,028.2	25.0	-86.0	-0.6	1.14	0.99	3.30
1,127.0	11.10	284.60	1,118.6	29.6	-102.6	-0.5	0.79	0.65	-2.39
1,220.0	12.20	280.40	1,209.7	33.7	-120.9	0.6	1.49	1.18	-4.52
1,315.0	12.30	277.60	1,302.5	36.8	-140.8	3.0	0.63	0.11	-2.95
1,411.0	12.90	274.90	1,396.2	39.1	-161.6	6.5	0.88	0.63	-2.81
1,507.0	13.30	278.00	1,489.7	41.5	-183.2	10.0	0.84	0.42	3.23
1,602.0	13.10	279.20	1,582.2	44.8	-204.7	12.8	0.36	-0.21	1.26
1,696.0	13.30	278.40	1,673.7	48.1	-225.9	15.4	0.29	0.21	-0.85
1,791.0	13.30	279.10	1,766.2	51.4	-247.5	18.1	0.17	0.00	0.74
1,887.0	12.70	283.44	1,859.7	55.6	-268.6	19.8	1.19	-0.63	4.52
1,982.0	12.80	281.20	1,952.4	60.1	-289.1	21.1	0.53	0.11	-2.36
2,077.0	12.60	278.10	2,045.0	63.6	-309.7	23.4	0.75	-0.21	-3.26
2,172.0	13.50	276.80	2,137.6	66.3	-331.0	26.5	1.00	0.95	-1.37
2,268.0	15.20	279.00	2,230.6	69.6	-354.5	29.8	1.86	1.77	2.29
2,364.0	16.70	278.30	2,322.9	73.6	-380.6	33.1	1.58	1.56	-0.73
2,459.0	16.20	278.00	2,414.0	77.4	-407.2	36.7	0.53	-0.53	-0.32
2,554.0	15.70	278.10	2,505.3	81.1	-433.1	40.2	0.53	-0.53	0.11
2,648.0	15.30	279.90	2,595.9	85.0	-457.9	43.2	0.67	-0.43	1.91
2,743.0	15.40	278.80	2,687.5	89.1	-482.7	46.1	0.32	0.11	-1.16
2,837.0	13.80	279.40	2,778.5	92.8	-506.1	48.9	1.71	-1.70	0.64
2,933.0	13.70	277.70	2,871.7	96.2	-528.7	51.7	0.43	-0.10	-1.77
3,027.0	13.90	279.40	2,963.0	99.5	-550.8	54.6	0.48	0.21	1.81
3,123.0	13.80	278.50	3,056.2	103.1	-573.5	57.3	0.25	-0.10	-0.94
3,219.0	13.10	273.20	3,149.6	105.4	-595.7	61.2	1.48	-0.73	-5.52
3,314.0	14.10	273.10	3,241.9	106.6	-618.0	66.1	1.05	1.05	-0.11
3,410.0	15.00	274.60	3,334.9	108.3	-642.1	71.1	1.02	0.94	1.56
3,505.0	16.90	275.40	3,426.2	110.6	-668.1	76.0	2.01	2.00	0.84
3,600.0	18.30	275.60	3,516.7	113.3	-696.7	81.2	1.48	1.47	0.21
3,696.0	19.40	276.10	3,607.6	116.5	-727.5	86.5	1.16	1.15	0.52
3,791.0	18.60	276.80	3,697.4	120.0	-758.3	91.6	0.88	-0.84	0.74
3,887.0	16.70	277.00	3,788.9	123.4	-787.2	96.1	1.98	-1.98	0.21
3,982.0	16.60	276.40	3,879.9	126.6	-814.2	100.4	0.21	-0.11	-0.63
4,077.0	16.40	277.40	3,971.0	129.9	-841.0	104.6	0.37	-0.21	1.05
4,173.0	16.60	276.50	4,063.0	133.2	-868.0	108.8	0.34	0.21	-0.94
4,266.0	17.20	277.90	4,152.0	136.6	-894.9	112.9	0.78	0.65	1.51
4,362.0	15.60	279.70	4,244.1	140.7	-921.7	116.2	1.75	-1.67	1.88
4,457.0	15.20	281.30	4,335.7	145.3	-946.5	118.6	0.61	-0.42	1.68
4,552.0	15.50	280.60	4,427.3	150.0	-971.1	120.7	0.37	0.32	-0.74
4,647.0	15.50	281.00	4,518.9	154.8	-996.1	123.0	0.11	0.00	0.42
4,742.0	14.80	282.80	4,610.6	159.9	-1,020.4	124.7	0.89	-0.74	1.89
4,838.0	13.40	279.90	4,703.7	164.5	-1,043.3	126.5	1.63	-1.46	-3.02
4,932.0	12.50	280.30	4,795.3	168.2	-1,064.0	128.6	0.96	-0.96	0.43
5,028.0	11.60	278.90	4,889.2	171.6	-1,083.8	130.8	0.99	-0.94	-1.46
5,123.0	10.00	279.40	4,982.5	174.4	-1,101.4	132.8	1.69	-1.68	0.53
5,218.0	8.70	279.70	5,076.2	177.0	-1,116.6	134.5	1.37	-1.37	0.32
5,313.0	6.90	278.10	5,170.3	179.0	-1,129.3	136.1	1.91	-1.89	-1.68
5,409.0	5.80	275.70	5,265.7	180.3	-1,139.9	137.7	1.18	-1.15	-2.50
5,504.0	4.40	271.60	5,360.4	180.9	-1,148.3	139.4	1.52	-1.47	-4.32
5,599.0	4.10	265.70	5,455.1	180.7	-1,155.3	141.5	0.56	-0.32	-6.21

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Design:	Wellbore #1	Database:	Landmark

Survey									
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5,694.0	3.20	267.80	5,549.9	180.3	-1,161.3	143.5	0.96	-0.95	2.21
5,789.0	3.90	271.60	5,644.7	180.3	-1,167.2	145.1	0.78	0.74	4.00
5,884.0	3.20	272.50	5,739.5	180.5	-1,173.1	146.5	0.74	-0.74	0.95
5,979.0	2.60	277.10	5,834.4	180.9	-1,177.9	147.5	0.68	-0.63	4.84
6,074.0	1.30	293.10	5,929.4	181.6	-1,181.0	147.6	1.47	-1.37	16.84
6,168.0	1.40	183.80	6,023.4	180.9	-1,182.1	148.6	2.34	0.11	-116.28
6,202.0	2.30	176.80	6,057.3	179.8	-1,182.1	149.7	2.72	2.65	-20.59
6,234.0	3.20	177.40	6,089.3	178.3	-1,182.0	151.1	2.81	2.81	1.88
6,266.0	5.80	184.20	6,121.2	175.8	-1,182.1	153.6	8.28	8.13	21.25
6,297.0	9.60	189.00	6,151.9	171.6	-1,182.6	157.7	12.42	12.26	15.48
6,329.0	13.20	190.80	6,183.3	165.4	-1,183.7	164.0	11.30	11.25	5.63
6,361.0	16.40	190.10	6,214.2	157.4	-1,185.2	172.1	10.02	10.00	-2.19
6,392.0	18.80	188.90	6,243.8	148.1	-1,186.7	181.4	7.83	7.74	-3.87
6,424.0	21.30	187.20	6,273.8	137.3	-1,188.2	192.3	8.02	7.81	-5.31
6,456.0	23.50	188.10	6,303.4	125.2	-1,189.9	204.4	6.96	6.88	2.81
6,488.0	25.50	188.50	6,332.5	112.1	-1,191.8	217.5	6.27	6.25	1.25
6,519.0	27.50	186.20	6,360.3	98.3	-1,193.5	231.2	7.25	6.45	-7.42
6,551.0	30.00	185.40	6,388.3	83.0	-1,195.1	246.3	7.90	7.81	-2.50
6,583.0	32.30	184.20	6,415.7	66.5	-1,196.5	262.6	7.44	7.19	-3.75
6,615.0	34.20	183.80	6,442.5	49.0	-1,197.7	279.8	5.98	5.94	-1.25
6,646.0	34.40	183.90	6,468.1	31.6	-1,198.9	296.8	0.67	0.65	0.32
6,678.0	35.40	183.10	6,494.3	13.3	-1,200.0	314.7	3.44	3.13	-2.50
6,709.0	37.30	181.90	6,519.3	-5.0	-1,200.8	332.6	6.54	6.13	-3.87
6,741.0	38.10	183.80	6,544.6	-24.6	-1,201.7	351.7	4.41	2.50	5.94
6,772.0	39.90	185.50	6,568.7	-44.0	-1,203.3	370.8	6.75	5.81	5.48
6,804.0	42.80	185.40	6,592.7	-65.1	-1,205.3	391.6	9.06	9.06	-0.31
6,836.0	45.20	184.50	6,615.7	-87.2	-1,207.3	413.4	7.75	7.50	-2.81
6,867.0	47.30	184.20	6,637.2	-109.5	-1,209.0	435.4	6.81	6.77	-0.97
6,899.0	49.20	183.60	6,658.5	-133.3	-1,210.6	458.7	6.10	5.94	-1.88
6,930.0	51.00	183.70	6,678.4	-157.1	-1,212.1	482.0	5.81	5.81	0.32
6,962.0	53.00	183.00	6,698.1	-182.3	-1,213.6	506.6	6.48	6.25	-2.19
6,994.0	54.30	181.60	6,717.0	-208.0	-1,214.6	531.6	5.38	4.06	-4.38
7,025.0	54.90	181.30	6,735.0	-233.3	-1,215.2	556.1	2.09	1.94	-0.97
7,057.0	56.40	181.30	6,753.0	-259.7	-1,215.8	581.7	4.69	4.69	0.00
7,089.0	59.30	180.50	6,770.1	-286.8	-1,216.3	607.9	9.31	9.06	-2.50
7,121.0	62.40	180.80	6,785.6	-314.7	-1,216.6	634.8	9.72	9.69	0.94
7,152.0	64.70	180.80	6,799.4	-342.5	-1,217.0	661.6	7.42	7.42	0.00
7,184.0	66.80	181.60	6,812.6	-371.6	-1,217.6	689.9	6.95	6.56	2.50
7,215.0	69.50	181.80	6,824.1	-400.4	-1,218.4	717.8	8.73	8.71	0.65
7,245.0	72.00	181.80	6,834.0	-428.7	-1,219.3	745.2	8.33	8.33	0.00
7,276.0	74.20	182.60	6,843.0	-458.3	-1,220.5	774.1	7.51	7.10	2.58
7,306.0	76.40	183.00	6,850.6	-487.3	-1,221.9	802.3	7.45	7.33	1.33
7,337.0	77.50	183.30	6,857.6	-517.5	-1,223.5	831.8	3.67	3.55	0.97
7,367.0	79.30	183.80	6,863.7	-546.8	-1,225.4	860.5	6.22	6.00	1.67
7,398.0	81.10	184.20	6,869.0	-577.3	-1,227.5	890.4	5.94	5.81	1.29
7,428.0	83.60	183.80	6,872.9	-606.9	-1,229.6	919.5	8.44	8.33	-1.33
7,459.0	86.20	183.90	6,875.7	-637.7	-1,231.6	949.7	8.39	8.39	0.32
7,527.0	89.90	181.70	6,878.0	-705.6	-1,234.9	1,015.9	6.33	5.44	-3.24
7,559.0	90.30	181.70	6,878.0	-737.6	-1,235.9	1,046.9	1.25	1.25	0.00
7,591.0	90.60	182.30	6,877.7	-769.6	-1,237.0	1,078.0	2.10	0.94	1.88
7,622.0	90.50	181.00	6,877.4	-800.5	-1,237.9	1,108.0	4.21	-0.32	-4.19
7,654.0	90.40	181.20	6,877.2	-832.5	-1,238.5	1,139.0	0.70	-0.31	0.63
7,686.0	90.70	181.00	6,876.8	-864.5	-1,239.1	1,169.9	1.13	0.94	-0.63

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7,717.0	91.10	180.60	6,876.4	-895.5	-1,239.6	1,199.9	1.82	1.29	-1.29
7,749.0	89.60	178.90	6,876.2	-927.5	-1,239.4	1,230.6	7.08	-4.69	-5.31
7,781.0	89.80	179.40	6,876.3	-959.5	-1,239.0	1,261.3	1.68	0.63	1.56
7,813.0	90.50	179.10	6,876.3	-991.5	-1,238.5	1,291.9	2.38	2.19	-0.94
7,844.0	90.80	178.40	6,875.9	-1,022.5	-1,237.9	1,321.6	2.46	0.97	-2.26
7,876.0	90.40	177.90	6,875.6	-1,054.5	-1,236.8	1,352.0	2.00	-1.25	-1.56
7,908.0	90.00	178.00	6,875.5	-1,086.5	-1,235.7	1,382.5	1.29	-1.25	0.31
7,939.0	90.50	178.20	6,875.3	-1,117.4	-1,234.7	1,412.0	1.74	1.61	0.65
7,971.0	91.20	177.90	6,874.8	-1,149.4	-1,233.6	1,442.5	2.38	2.19	-0.94
8,003.0	91.30	177.80	6,874.1	-1,181.4	-1,232.4	1,472.9	0.44	0.31	-0.31
8,035.0	91.50	177.70	6,873.4	-1,213.4	-1,231.1	1,503.3	0.70	0.63	-0.31
8,066.0	91.70	177.60	6,872.5	-1,244.3	-1,229.8	1,532.8	0.72	0.65	-0.32
8,098.0	91.30	177.20	6,871.7	-1,276.3	-1,228.4	1,563.1	1.77	-1.25	-1.25
8,130.0	91.60	177.40	6,870.8	-1,308.2	-1,226.9	1,593.4	1.13	0.94	0.63
8,161.0	92.00	177.40	6,869.9	-1,339.2	-1,225.5	1,622.8	1.29	1.29	0.00
8,193.0	91.60	179.20	6,868.9	-1,371.1	-1,224.5	1,653.3	5.76	-1.25	5.63
8,225.0	91.00	179.70	6,868.1	-1,403.1	-1,224.2	1,684.0	2.44	-1.88	1.56
8,257.0	91.10	180.40	6,867.6	-1,435.1	-1,224.2	1,714.8	2.21	0.31	2.19
8,288.0	91.40	180.30	6,866.9	-1,466.1	-1,224.4	1,744.7	1.02	0.97	-0.32
8,320.0	91.80	180.30	6,866.0	-1,498.1	-1,224.6	1,775.5	1.25	1.25	0.00
8,352.0	91.40	180.20	6,865.1	-1,530.1	-1,224.7	1,806.3	1.29	-1.25	-0.31
8,383.0	91.80	179.30	6,864.2	-1,561.1	-1,224.6	1,836.1	3.18	1.29	-2.90
8,415.0	91.20	180.40	6,863.4	-1,593.1	-1,224.5	1,866.8	3.91	-1.88	3.44
8,447.0	90.40	180.90	6,862.9	-1,625.1	-1,224.9	1,897.7	2.95	-2.50	1.56
8,478.0	90.30	180.20	6,862.8	-1,656.1	-1,225.2	1,927.6	2.28	-0.32	-2.26
8,510.0	91.20	178.90	6,862.3	-1,688.1	-1,224.9	1,958.3	4.94	2.81	-4.06
8,542.0	91.20	179.40	6,861.7	-1,720.1	-1,224.5	1,989.0	1.56	0.00	1.56
8,574.0	91.40	179.40	6,860.9	-1,752.0	-1,224.1	2,019.6	0.63	0.63	0.00
8,605.0	91.80	179.20	6,860.1	-1,783.0	-1,223.7	2,049.3	1.44	1.29	-0.65
8,637.0	92.00	178.30	6,859.0	-1,815.0	-1,223.0	2,079.9	2.88	0.63	-2.81
8,669.0	92.40	177.90	6,857.8	-1,847.0	-1,222.0	2,110.4	1.77	1.25	-1.25
8,701.0	92.70	177.90	6,856.4	-1,878.9	-1,220.8	2,140.8	0.94	0.94	0.00
8,733.0	90.00	177.70	6,855.6	-1,910.9	-1,219.6	2,171.2	8.46	-8.44	-0.63
8,764.0	90.20	178.30	6,855.6	-1,941.9	-1,218.5	2,200.7	2.04	0.65	1.94
8,797.0	91.10	179.30	6,855.2	-1,974.8	-1,217.8	2,232.3	4.08	2.73	3.03
8,828.0	90.50	179.20	6,854.7	-2,005.8	-1,217.4	2,262.0	1.96	-1.94	-0.32
8,860.0	90.50	177.30	6,854.5	-2,037.8	-1,216.4	2,292.5	5.94	0.00	-5.94
8,892.0	90.40	175.60	6,854.2	-2,069.8	-1,214.5	2,322.7	5.32	-0.31	-5.31
8,924.0	90.00	175.20	6,854.1	-2,101.7	-1,211.9	2,352.6	1.77	-1.25	-1.25
8,955.0	90.30	174.30	6,854.0	-2,132.5	-1,209.0	2,381.6	3.06	0.97	-2.90
8,987.0	90.10	173.60	6,853.9	-2,164.3	-1,205.7	2,411.3	2.28	-0.63	-2.19
9,019.0	90.30	171.60	6,853.8	-2,196.1	-1,201.6	2,440.7	6.28	0.63	-6.25
9,050.0	90.50	171.30	6,853.6	-2,226.7	-1,196.9	2,468.9	1.16	0.65	-0.97
9,081.0	90.20	171.20	6,853.4	-2,257.4	-1,192.2	2,497.1	1.02	-0.97	-0.32
9,112.0	90.60	170.50	6,853.2	-2,288.0	-1,187.3	2,525.2	2.60	1.29	-2.26
9,144.0	90.00	170.00	6,853.0	-2,319.5	-1,181.9	2,554.0	2.44	-1.88	-1.56
9,176.0	91.30	171.50	6,852.6	-2,351.1	-1,176.7	2,583.0	6.20	4.06	4.69
9,207.0	92.70	171.50	6,851.6	-2,381.7	-1,172.2	2,611.2	4.52	4.52	0.00
9,239.0	93.00	174.20	6,850.0	-2,413.4	-1,168.2	2,640.7	8.48	0.94	8.44
9,271.0	92.30	176.10	6,848.5	-2,445.3	-1,165.5	2,670.6	6.32	-2.19	5.94
9,302.0	91.40	177.40	6,847.5	-2,476.2	-1,163.7	2,699.8	5.10	-2.90	4.19
9,334.0	91.80	177.30	6,846.6	-2,508.2	-1,162.2	2,730.2	1.29	1.25	-0.31
9,366.0	90.90	177.90	6,845.8	-2,540.1	-1,160.9	2,760.6	3.38	-2.81	1.88
9,398.0	90.00	179.50	6,845.6	-2,572.1	-1,160.2	2,791.1	5.74	-2.81	5.00

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Riteaway 32E-323
Project:	SEC.32-T5N-R67W	TVD Reference:	WELL @ 4809.0ft (Original Well Elev)
Site:	Riteaway NW-32 Pad Sec.32-T5N-R67W	MD Reference:	WELL @ 4809.0ft (Original Well Elev)
Well:	Riteaway 32E-323	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

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)
9,429.0	90.40	179.50	6,845.5	-2,603.1	-1,159.9	2,820.9	1.29	1.29	0.00
9,461.0	90.00	180.60	6,845.4	-2,635.1	-1,159.9	2,851.7	3.66	-1.25	3.44
9,493.0	90.30	180.10	6,845.3	-2,667.1	-1,160.1	2,882.5	1.82	0.94	-1.56
9,524.0	90.20	180.20	6,845.2	-2,698.1	-1,160.2	2,912.4	0.46	-0.32	0.32
9,556.0	90.70	179.70	6,844.9	-2,730.1	-1,160.2	2,943.1	2.21	1.56	-1.56
9,588.0	90.10	180.00	6,844.7	-2,762.1	-1,160.1	2,973.9	2.10	-1.88	0.94
9,620.0	90.10	181.20	6,844.6	-2,794.1	-1,160.4	3,004.8	3.75	0.00	3.75
9,651.0	90.50	182.30	6,844.5	-2,825.1	-1,161.4	3,034.8	3.78	1.29	3.55
9,683.0	90.30	183.60	6,844.2	-2,857.1	-1,163.0	3,066.0	4.11	-0.63	4.06
9,715.0	89.80	183.00	6,844.2	-2,889.0	-1,164.9	3,097.3	2.44	-1.56	-1.88
9,746.0	90.20	182.60	6,844.2	-2,920.0	-1,166.4	3,127.5	1.82	1.29	-1.29
9,778.0	90.20	184.20	6,844.1	-2,951.9	-1,168.3	3,158.7	5.00	0.00	5.00
9,810.0	90.30	185.30	6,844.0	-2,983.8	-1,170.9	3,190.1	3.45	0.31	3.44
9,842.0	90.80	185.30	6,843.7	-3,015.7	-1,173.9	3,221.6	1.56	1.56	0.00
9,873.0	90.60	185.40	6,843.3	-3,046.5	-1,176.8	3,252.0	0.72	-0.65	0.32
9,905.0	89.20	185.90	6,843.3	-3,078.4	-1,179.9	3,283.5	4.65	-4.38	1.56
9,937.0	88.70	185.90	6,843.9	-3,110.2	-1,183.2	3,315.1	1.56	-1.56	0.00
9,968.0	89.30	185.20	6,844.5	-3,141.0	-1,186.2	3,345.6	2.97	1.94	-2.26
10,000.0	89.30	185.80	6,844.8	-3,172.9	-1,189.3	3,377.0	1.87	0.00	1.88
10,032.0	89.00	185.20	6,845.3	-3,204.7	-1,192.3	3,408.5	2.10	-0.94	-1.88
10,064.0	89.90	185.50	6,845.6	-3,236.6	-1,195.3	3,440.0	2.96	2.81	0.94
10,095.0	91.20	185.10	6,845.3	-3,267.5	-1,198.2	3,470.4	4.39	4.19	-1.29
10,127.0	91.00	185.10	6,844.7	-3,299.3	-1,201.0	3,501.9	0.63	-0.63	0.00
10,159.0	89.70	183.50	6,844.5	-3,331.2	-1,203.4	3,533.2	6.44	-4.06	-5.00
10,190.0	89.10	183.00	6,844.8	-3,362.2	-1,205.2	3,563.5	2.52	-1.94	-1.61
10,222.0	89.50	183.00	6,845.2	-3,394.1	-1,206.9	3,594.7	1.25	1.25	0.00
10,254.0	89.60	182.60	6,845.5	-3,426.1	-1,208.4	3,625.9	1.29	0.31	-1.25
10,286.0	90.20	182.70	6,845.5	-3,458.1	-1,209.9	3,657.0	1.90	1.88	0.31
10,317.0	90.80	182.60	6,845.3	-3,489.0	-1,211.3	3,687.2	1.96	1.94	-0.32
10,349.0	91.30	182.30	6,844.7	-3,521.0	-1,212.7	3,718.3	1.82	1.56	-0.94
10,381.0	90.40	181.60	6,844.2	-3,553.0	-1,213.8	3,749.4	3.56	-2.81	-2.19
10,412.0	90.00	181.80	6,844.1	-3,584.0	-1,214.7	3,779.4	1.44	-1.29	0.65
10,444.0	90.00	180.70	6,844.1	-3,616.0	-1,215.4	3,810.4	3.44	0.00	-3.44
10,476.0	89.50	181.30	6,844.2	-3,647.9	-1,216.0	3,841.3	2.44	-1.56	1.88
10,507.0	89.80	181.20	6,844.4	-3,678.9	-1,216.7	3,871.3	1.02	0.97	-0.32
10,539.0	90.30	180.10	6,844.4	-3,710.9	-1,217.0	3,902.2	3.78	1.56	-3.44
10,571.0	90.00	178.60	6,844.3	-3,742.9	-1,216.7	3,932.9	4.78	-0.94	-4.69
10,603.0	89.80	179.20	6,844.4	-3,774.9	-1,216.0	3,963.5	1.98	-0.63	1.88
10,634.0	90.10	177.70	6,844.4	-3,805.9	-1,215.2	3,993.1	4.93	0.97	-4.84
10,666.0	90.50	178.40	6,844.2	-3,837.9	-1,214.1	4,023.6	2.52	1.25	2.19
10,698.0	89.90	178.90	6,844.1	-3,869.9	-1,213.4	4,054.1	2.44	-1.88	1.56
10,729.0	88.90	179.40	6,844.5	-3,900.9	-1,212.9	4,083.8	3.61	-3.23	1.61
10,761.0	88.90	180.80	6,845.1	-3,932.9	-1,213.0	4,114.6	4.37	0.00	4.38
10,793.0	89.90	180.90	6,845.4	-3,964.9	-1,213.4	4,145.5	3.14	3.13	0.31
10,825.0	90.50	179.90	6,845.3	-3,996.9	-1,213.7	4,176.4	3.64	1.88	-3.13
10,856.0	89.80	179.80	6,845.2	-4,027.9	-1,213.6	4,206.2	2.28	-2.26	-0.32
10,888.0	90.30	180.20	6,845.2	-4,059.9	-1,213.6	4,237.0	2.00	1.56	1.25
10,920.0	90.00	179.60	6,845.1	-4,091.9	-1,213.5	4,267.7	2.10	-0.94	-1.88
10,951.0	89.70	179.30	6,845.2	-4,122.9	-1,213.2	4,297.5	1.37	-0.97	-0.97
10,983.0	89.90	177.90	6,845.3	-4,154.9	-1,212.4	4,328.0	4.42	0.63	-4.38
11,015.0	90.10	176.80	6,845.3	-4,186.8	-1,211.0	4,358.4	3.49	0.63	-3.44
11,047.0	89.90	176.40	6,845.3	-4,218.8	-1,209.1	4,388.6	1.40	-0.63	-1.25
11,078.0	89.60	175.00	6,845.4	-4,249.7	-1,206.7	4,417.7	4.62	-0.97	-4.52

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Riteaway 32E-323
Project:	SEC.32-T5N-R67W	TVD Reference:	WELL @ 4809.0ft (Original Well Elev)
Site:	Riteaway NW-32 Pad Sec.32-T5N-R67W	MD Reference:	WELL @ 4809.0ft (Original Well Elev)
Well:	Riteaway 32E-323	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

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)
11,110.0	90.20	175.00	6,845.5	-4,281.6	-1,203.9	4,447.6	1.88	1.88	0.00
11,142.0	89.90	172.90	6,845.5	-4,313.4	-1,200.6	4,477.3	6.63	-0.94	-6.56
11,173.0	89.80	171.70	6,845.5	-4,344.1	-1,196.4	4,505.7	3.88	-0.32	-3.87
11,205.0	89.90	171.50	6,845.6	-4,375.8	-1,191.7	4,534.9	0.70	0.31	-0.63
11,237.0	90.10	171.10	6,845.6	-4,407.4	-1,186.9	4,564.0	1.40	0.63	-1.25
11,269.0	89.80	169.60	6,845.6	-4,438.9	-1,181.5	4,592.9	4.78	-0.94	-4.69
11,309.6	89.96	168.35	6,845.7	-4,478.8	-1,173.8	4,629.1	3.10	0.38	-3.08
BHL 500'FSL, 500'FWL									
11,321.0	90.00	168.00	6,845.7	-4,489.9	-1,171.4	4,639.2	3.10	0.38	-3.08

Wellbore Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
SECTION LINE 242'N	0.00	0.00	1.0	242.0	-1,286.0	1,375,759.36	3,160,266.40	40.363434	-104.924865
- hit/miss target									
- Shape									
- survey misses target center by 1308.6ft at 0.9ft MD (0.9 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			1.0	0.0	0.0	1,375,759.36	3,160,266.40		
Point 2			1.0	0.0	1,400.0	1,375,768.51	3,161,666.31		
HARDLINE BHL 460'f	0.00	0.00	1.0	-4,539.2	-1,316.6	1,370,978.27	3,160,267.06	40.350310	-104.924974
- survey misses target center by 4726.3ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			1.0	0.0	0.0	1,370,978.27	3,160,267.06		
Point 2			1.0	4,360.0	0.0	1,375,337.99	3,160,238.56		
Point 3			1.0	0.0	0.0	1,370,978.27	3,160,267.06		
Point 4			1.0	0.0	800.0	1,370,983.50	3,161,067.01		
HARDLINE SHL 460'f	0.00	0.00	1.0	-218.0	-1,286.0	1,375,299.39	3,160,269.41	40.362171	-104.924865
- survey misses target center by 1304.3ft at 0.9ft MD (0.9 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			1.0	0.0	0.0	1,375,299.39	3,160,269.41		
Point 2			1.0	0.0	1,400.0	1,375,308.54	3,161,669.32		
BHL 500'FSL, 500'FW	0.00	0.00	6,830.0	-4,499.2	-1,276.6	1,371,018.55	3,160,306.83	40.350420	-104.924830
- survey misses target center by 106.0ft at 11309.6ft MD (6845.7 TVD, -4478.8 N, -1173.8 E)									
- Point									

Checked By: _____	Approved By: _____	Date: _____
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