

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: Schaefer 10J-403

Surface Location: Schaefer Pad Sec.10-T6N-R63W
North American Datum 1983 , US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4697.0

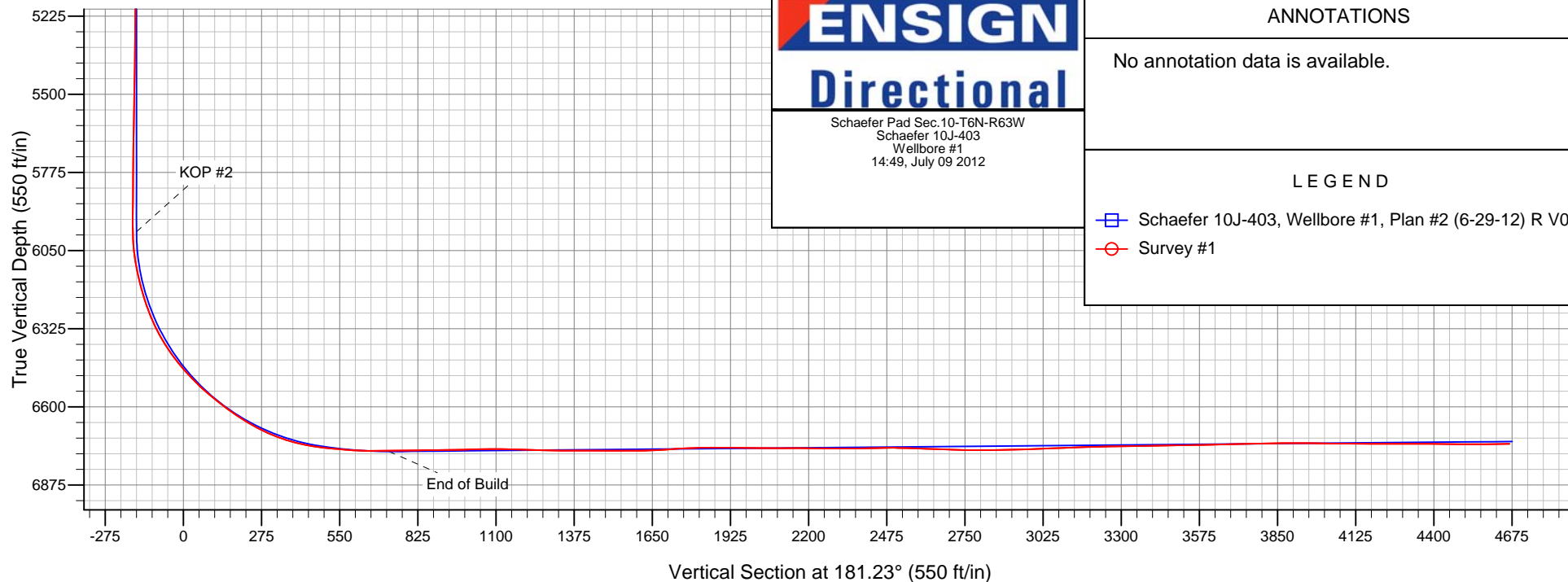
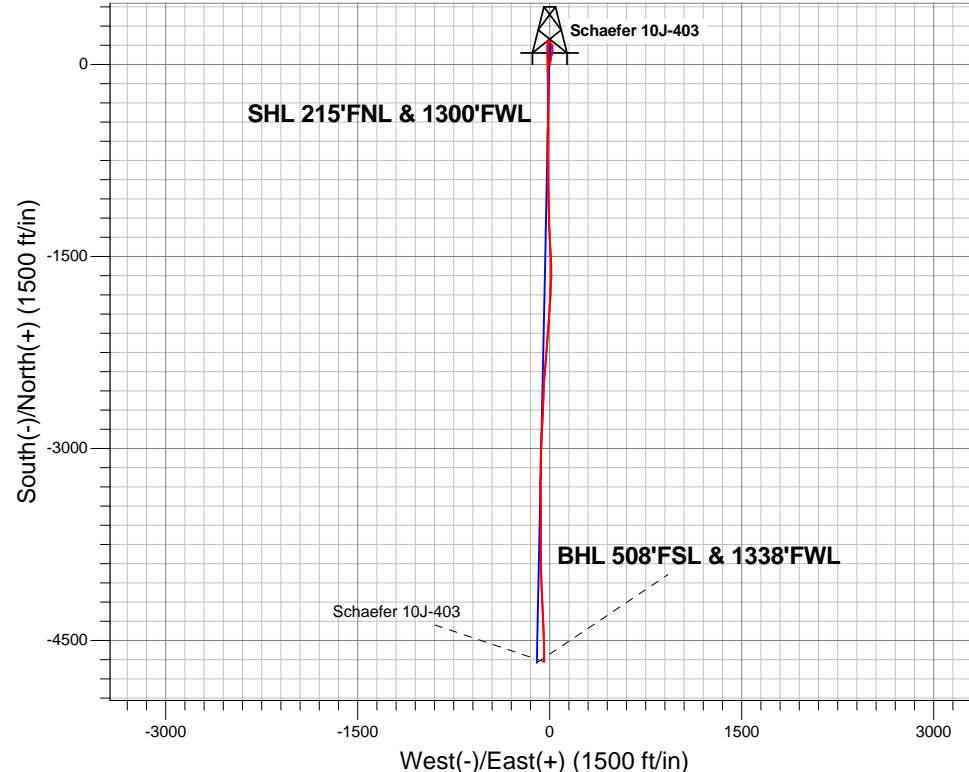
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1429741.12	3298213.27	40.508090	-104.427520	

RKB Engisn 32 -15' WELL @ 4712.0ft (RKB Engisn 32 -15')

FINAL SURVEY

Projected Bottom Hole Location
11273'MD 6731'TVD 4666'S & 42'W of SHL

90.60 degree Incl @ 179.30 degree AZM



Schaefer Pad Sec.10-T6N-R63W
Schaefer 10J-403
Wellbore #1
14:49, July 09 2012

ANNOTATIONS

No annotation data is available.

LEGEND

- Schaefer 10J-403, Wellbore #1, Plan #2 (6-29-12) R V0
- Survey #1



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.10-T6N-R63W

Schaefer Pad Sec.10-T6N-R63W

Schaefer 10J-403

Wellbore #1

Survey: Survey #1

Standard Survey Report

09 July, 2012

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schaefer 10J-403
Project:	SEC.10-T6N-R63W	TVD Reference:	WELL @ 4712.0ft (RKB Ensign 32 -15')
Site:	Schaefer Pad Sec.10-T6N-R63W	MD Reference:	WELL @ 4712.0ft (RKB Ensign 32 -15')
Well:	Schaefer 10J-403	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.10-T6N-R63W, 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		Schaefer Pad Sec.10-T6N-R63W			
Site Position:		Northing:	1,429,803.09ft	Latitude:	40.508260
From:	Lat/Long	Easting:	3,298,215.30ft	Longitude:	-104.427510
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.69 °

Well	Schaefer 10J-403					
Well Position	+N-S	0.0 ft	Northing:	1,429,741.12 ft	Latitude:	40.508090
	+E-W	0.0 ft	Easting:	3,298,213.27 ft	Longitude:	-104.427520
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,697.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/29/2012	8.55	67.16	53,115

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 (°)	
	0.0	0.0	0.0	181.23	

Survey Program	Date 7/9/2012				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
114.0	11,273.0	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	
1.0	0.00	119.30	1.0	0.0	0.0	0.0	0.26	0.26	0.00	
SECTION LINE 215°N OF SHL										
1.8	0.00	119.30	1.8	0.0	0.0	0.0	0.26	0.26	0.00	
HARDLINE SHL 460°FNL										
7.4	0.02	119.30	7.4	0.0	0.0	0.0	0.26	0.26	0.00	
HARDLINE BHL 460°FSL										
114.0	0.30	119.30	114.0	-0.1	0.3	0.1	0.26	0.26	0.00	
204.0	0.40	60.90	204.0	-0.1	0.7	0.1	0.39	0.11	-64.89	
296.0	0.50	88.00	296.0	0.1	1.4	-0.1	0.25	0.11	29.46	
388.0	0.20	99.90	388.0	0.0	2.0	-0.1	0.33	-0.33	12.93	
479.0	0.40	82.00	479.0	0.1	2.5	-0.1	0.24	0.22	-19.67	

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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)
571.0	0.40	56.50	571.0	0.3	3.0	-0.4	0.19	0.00	-27.72
663.0	0.20	119.40	663.0	0.4	3.4	-0.5	0.39	-0.22	68.37
755.0	0.40	244.70	755.0	0.2	3.3	-0.2	0.59	0.22	136.20
847.0	0.60	224.50	847.0	-0.3	2.7	0.3	0.29	0.22	-21.96
945.0	1.10	212.70	945.0	-1.5	1.8	1.4	0.54	0.51	-12.04
1,038.0	0.30	286.20	1,038.0	-2.2	1.1	2.1	1.13	-0.86	79.03
1,130.0	1.10	7.20	1,130.0	-1.2	1.0	1.2	1.19	0.87	88.04
1,222.0	2.30	0.60	1,221.9	1.5	1.1	-1.5	1.32	1.30	-7.17
1,315.0	3.60	7.20	1,314.8	6.3	1.5	-6.3	1.44	1.40	7.10
1,408.0	4.80	14.40	1,407.5	12.9	2.8	-13.0	1.41	1.29	7.74
1,501.0	4.80	12.80	1,500.2	20.5	4.6	-20.6	0.14	0.00	-1.72
1,593.0	4.40	10.00	1,591.9	27.7	6.1	-27.9	0.50	-0.43	-3.04
1,686.0	3.60	9.80	1,684.7	34.1	7.2	-34.3	0.86	-0.86	-0.22
1,780.0	3.80	8.40	1,778.5	40.1	8.2	-40.3	0.23	0.21	-1.49
1,872.0	4.30	8.10	1,870.3	46.5	9.1	-46.7	0.54	0.54	-0.33
1,965.0	4.40	13.20	1,963.0	53.5	10.4	-53.7	0.43	0.11	5.48
2,058.0	4.70	8.30	2,055.7	60.7	11.8	-61.0	0.53	0.32	-5.27
2,151.0	5.10	18.70	2,148.4	68.4	13.7	-68.7	1.05	0.43	11.18
2,244.0	4.60	22.20	2,241.0	75.8	16.4	-76.1	0.62	-0.54	3.76
2,338.0	4.20	9.70	2,334.8	82.7	18.4	-83.0	1.10	-0.43	-13.30
2,431.0	3.60	10.00	2,427.5	88.9	19.5	-89.3	0.65	-0.65	0.32
2,524.0	3.90	2.20	2,520.3	94.9	20.1	-95.3	0.64	0.32	-8.39
2,617.0	3.40	3.70	2,613.2	100.8	20.4	-101.2	0.55	-0.54	1.61
2,710.0	3.70	358.70	2,706.0	106.6	20.5	-107.0	0.46	0.32	-5.38
2,803.0	4.50	358.70	2,798.7	113.2	20.4	-113.6	0.86	0.86	0.00
2,896.0	4.50	357.10	2,891.5	120.5	20.1	-120.9	0.13	0.00	-1.72
2,989.0	4.10	356.00	2,984.2	127.5	19.7	-127.9	0.44	-0.43	-1.18
3,082.0	3.50	359.80	3,077.0	133.6	19.4	-134.0	0.70	-0.65	4.09
3,176.0	3.30	1.50	3,170.8	139.2	19.5	-139.6	0.24	-0.21	1.81
3,269.0	2.50	7.50	3,263.7	143.9	19.8	-144.3	0.92	-0.86	6.45
3,362.0	1.20	353.70	3,356.7	146.9	20.0	-147.3	1.47	-1.40	-14.84
3,455.0	2.50	328.10	3,449.6	149.6	18.8	-149.9	1.62	1.40	-27.53
3,547.0	2.80	327.50	3,541.5	153.2	16.5	-153.5	0.33	0.33	-0.65
3,640.0	3.50	325.10	3,634.4	157.4	13.7	-157.7	0.77	0.75	-2.58
3,733.0	4.00	329.10	3,727.2	162.5	10.4	-162.7	0.61	0.54	4.30
3,827.0	4.40	329.10	3,820.9	168.4	6.9	-168.5	0.43	0.43	0.00
3,920.0	3.40	333.90	3,913.7	174.0	3.8	-174.0	1.13	-1.08	5.16
4,015.0	1.80	317.80	4,008.6	177.6	1.6	-177.6	1.84	-1.68	-16.95
4,105.0	2.10	310.00	4,098.5	179.7	-0.6	-179.7	0.44	0.33	-8.67
4,199.0	1.80	304.30	4,192.5	181.6	-3.2	-181.5	0.38	-0.32	-6.06
4,292.0	1.30	241.70	4,285.5	182.0	-5.3	-181.8	1.79	-0.54	-67.31
4,385.0	1.10	162.10	4,378.4	180.6	-6.0	-180.5	1.66	-0.22	-85.59
4,478.0	1.50	188.70	4,471.4	178.6	-5.9	-178.4	0.77	0.43	28.60
4,572.0	1.30	195.50	4,565.4	176.3	-6.3	-176.1	0.28	-0.21	7.23
4,665.0	1.10	179.90	4,658.4	174.4	-6.6	-174.2	0.41	-0.22	-16.77
4,759.0	1.00	180.20	4,752.4	172.7	-6.6	-172.5	0.11	-0.11	0.32
4,852.0	0.90	199.10	4,845.3	171.2	-6.9	-171.0	0.35	-0.11	20.32
4,945.0	0.70	208.00	4,938.3	170.0	-7.4	-169.8	0.25	-0.22	9.57
5,038.0	0.50	248.50	5,031.3	169.3	-8.0	-169.1	0.49	-0.22	43.55
5,131.0	0.40	314.10	5,124.3	169.4	-8.6	-169.2	0.53	-0.11	70.54
5,225.0	0.60	280.40	5,218.3	169.7	-9.3	-169.5	0.37	0.21	-35.85
5,317.0	0.40	309.60	5,310.3	170.0	-10.1	-169.8	0.35	-0.22	31.74
5,410.0	1.10	325.40	5,403.3	171.0	-10.8	-170.7	0.78	0.75	16.99

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Survey									
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5,503.0	1.50	348.60	5,496.3	172.9	-11.6	-172.6	0.70	0.43	24.95
5,597.0	1.00	324.90	5,590.3	174.8	-12.3	-174.5	0.75	-0.53	-25.21
5,690.0	1.10	308.80	5,683.3	176.0	-13.4	-175.7	0.33	0.11	-17.31
5,783.0	1.00	312.80	5,776.2	177.1	-14.7	-176.8	0.13	-0.11	4.30
5,875.0	0.90	310.40	5,868.2	178.1	-15.9	-177.7	0.12	-0.11	-2.61
5,938.0	0.60	269.70	5,931.2	178.4	-16.6	-178.1	0.94	-0.48	-64.60
5,969.0	0.60	260.40	5,962.2	178.4	-16.9	-178.0	0.31	0.00	-30.00
6,000.0	1.40	202.70	5,993.2	178.0	-17.2	-177.6	3.85	2.58	-186.13
6,031.0	3.80	181.00	6,024.2	176.7	-17.4	-176.3	8.23	7.74	-70.00
6,062.0	6.50	175.20	6,055.1	173.9	-17.2	-173.5	8.86	8.71	-18.71
6,093.0	9.20	175.00	6,085.8	169.7	-16.9	-169.3	8.71	8.71	-0.65
6,124.0	11.20	177.00	6,116.3	164.2	-16.5	-163.8	6.55	6.45	6.45
6,155.0	13.10	180.40	6,146.6	157.7	-16.4	-157.3	6.55	6.13	10.97
6,186.0	14.90	181.00	6,176.6	150.2	-16.5	-149.8	5.83	5.81	1.94
6,217.0	16.80	181.60	6,206.5	141.7	-16.7	-141.3	6.15	6.13	1.94
6,248.0	18.70	180.90	6,236.0	132.3	-16.9	-131.9	6.17	6.13	-2.26
6,279.0	21.00	180.70	6,265.1	121.7	-17.0	-121.3	7.42	7.42	-0.65
6,310.0	23.50	179.70	6,293.8	110.0	-17.0	-109.6	8.16	8.06	-3.23
6,341.0	26.00	178.90	6,322.0	97.0	-16.9	-96.6	8.14	8.06	-2.58
6,372.0	28.60	178.80	6,349.5	82.8	-16.6	-82.4	8.39	8.39	-0.32
6,404.0	31.40	179.50	6,377.2	66.8	-16.4	-66.5	8.82	8.75	2.19
6,434.0	34.30	180.10	6,402.4	50.5	-16.3	-50.2	9.73	9.67	2.00
6,465.0	37.30	180.90	6,427.6	32.4	-16.5	-32.1	9.79	9.68	2.58
6,496.0	40.40	180.10	6,451.7	13.0	-16.6	-12.6	10.13	10.00	-2.58
6,528.0	41.80	179.30	6,475.8	-8.1	-16.5	8.4	4.67	4.38	-2.50
6,558.0	43.60	178.90	6,497.9	-28.4	-16.2	28.7	6.07	6.00	-1.33
6,590.0	45.60	178.00	6,520.7	-50.9	-15.6	51.2	6.55	6.25	-2.81
6,621.0	48.00	178.10	6,541.9	-73.4	-14.8	73.7	7.75	7.74	0.32
6,651.0	50.40	178.30	6,561.5	-96.1	-14.1	96.4	8.02	8.00	0.67
6,683.0	52.10	178.80	6,581.5	-121.1	-13.5	121.3	5.45	5.31	1.56
6,714.0	53.20	179.40	6,600.3	-145.7	-13.1	146.0	3.87	3.55	1.94
6,745.0	54.50	180.10	6,618.6	-170.8	-13.0	171.0	4.57	4.19	2.26
6,776.0	56.40	180.70	6,636.2	-196.3	-13.2	196.5	6.33	6.13	1.94
6,807.0	58.70	180.10	6,652.8	-222.4	-13.3	222.7	7.60	7.42	-1.94
6,838.0	61.50	180.00	6,668.3	-249.3	-13.4	249.5	9.04	9.03	-0.32
6,869.0	63.80	179.90	6,682.5	-276.9	-13.3	277.1	7.42	7.42	-0.32
6,900.0	66.50	179.60	6,695.5	-305.0	-13.2	305.2	8.75	8.71	-0.97
6,931.0	69.90	180.20	6,707.1	-333.8	-13.2	334.0	11.11	10.97	1.94
6,962.0	72.40	179.80	6,717.1	-363.1	-13.2	363.3	8.16	8.06	-1.29
6,993.0	75.40	180.10	6,725.7	-392.9	-13.1	393.1	9.72	9.68	0.97
7,024.0	78.30	179.90	6,732.7	-423.1	-13.1	423.2	9.38	9.35	-0.65
7,055.0	80.70	179.70	6,738.4	-453.5	-13.0	453.7	7.77	7.74	-0.65
7,086.0	83.10	181.00	6,742.7	-484.2	-13.2	484.4	8.78	7.74	4.19
7,117.0	84.50	181.60	6,746.1	-515.0	-13.9	515.2	4.91	4.52	1.94
7,148.0	85.50	181.30	6,748.8	-545.9	-14.7	546.1	3.37	3.23	-0.97
7,179.0	85.50	181.50	6,751.2	-576.8	-15.5	577.0	0.64	0.00	0.65
7,210.0	86.50	180.50	6,753.4	-607.7	-16.0	607.9	4.56	3.23	-3.23
7,269.0	89.80	179.40	6,755.3	-666.7	-16.0	666.9	5.90	5.59	-1.86
7,301.0	90.40	179.00	6,755.2	-698.7	-15.5	698.8	2.25	1.88	-1.25
7,333.0	91.60	180.30	6,754.7	-730.7	-15.3	730.8	5.53	3.75	4.06
7,364.0	91.90	179.60	6,753.7	-761.7	-15.3	761.8	2.46	0.97	-2.26
7,396.0	90.60	179.00	6,753.0	-793.6	-14.9	793.8	4.47	-4.06	-1.88
7,428.0	90.40	179.50	6,752.7	-825.6	-14.5	825.8	1.68	-0.63	1.56

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7,460.0	90.50	178.40	6,752.5	-857.6	-13.9	857.7	3.45	0.31	-3.44
7,492.0	90.70	178.40	6,752.2	-889.6	-13.0	889.7	0.63	0.63	0.00
7,524.0	90.80	178.00	6,751.7	-921.6	-12.0	921.6	1.29	0.31	-1.25
7,556.0	90.90	177.70	6,751.3	-953.6	-10.8	953.6	0.99	0.31	-0.94
7,588.0	91.30	178.80	6,750.6	-985.6	-9.8	985.5	3.66	1.25	3.44
7,620.0	91.70	179.20	6,749.8	-1,017.5	-9.3	1,017.5	1.77	1.25	1.25
7,652.0	90.90	180.20	6,749.1	-1,049.5	-9.1	1,049.5	4.00	-2.50	3.13
7,684.0	90.90	179.30	6,748.6	-1,081.5	-8.9	1,081.5	2.81	0.00	-2.81
7,716.0	89.50	178.90	6,748.5	-1,113.5	-8.4	1,113.4	4.55	-4.38	-1.25
7,747.0	88.40	178.10	6,749.0	-1,144.5	-7.6	1,144.4	4.39	-3.55	-2.58
7,779.0	88.00	177.60	6,750.0	-1,176.5	-6.4	1,176.3	2.00	-1.25	-1.56
7,811.0	88.30	177.40	6,751.1	-1,208.4	-5.0	1,208.2	1.13	0.94	-0.63
7,843.0	88.30	178.80	6,752.0	-1,240.4	-4.0	1,240.2	4.37	0.00	4.38
7,875.0	88.20	176.60	6,753.0	-1,272.3	-2.7	1,272.1	6.88	-0.31	-6.88
7,907.0	89.40	177.00	6,753.7	-1,304.3	-0.9	1,304.0	3.95	3.75	1.25
7,939.0	89.70	177.10	6,753.9	-1,336.2	0.7	1,335.9	0.99	0.94	0.31
7,971.0	89.90	177.30	6,754.0	-1,368.2	2.3	1,367.8	0.88	0.63	0.63
8,003.0	89.90	177.30	6,754.1	-1,400.2	3.8	1,399.8	0.00	0.00	0.00
8,035.0	90.30	177.70	6,754.0	-1,432.1	5.2	1,431.7	1.77	1.25	1.25
8,067.0	89.80	176.10	6,754.0	-1,464.1	6.9	1,463.6	5.24	-1.56	-5.00
8,099.0	89.70	177.00	6,754.1	-1,496.0	8.9	1,495.5	2.83	-0.31	2.81
8,131.0	89.70	176.90	6,754.3	-1,528.0	10.6	1,527.4	0.31	0.00	-0.31
8,162.0	89.70	178.20	6,754.5	-1,559.0	11.9	1,558.3	4.19	0.00	4.19
8,194.0	90.00	179.00	6,754.6	-1,590.9	12.7	1,590.3	2.67	0.94	2.50
8,226.0	91.00	179.40	6,754.3	-1,622.9	13.1	1,622.3	3.37	3.13	1.25
8,258.0	93.40	180.90	6,753.1	-1,654.9	13.0	1,654.2	8.84	7.50	4.69
8,290.0	94.20	183.60	6,750.9	-1,686.8	11.8	1,686.2	8.78	2.50	8.44
8,322.0	94.20	183.20	6,748.6	-1,718.7	9.9	1,718.1	1.25	0.00	-1.25
8,354.0	92.80	182.80	6,746.6	-1,750.6	8.2	1,750.0	4.55	-4.38	-1.25
8,386.0	92.50	182.90	6,745.2	-1,782.5	6.6	1,781.9	0.99	-0.94	0.31
8,418.0	91.20	183.00	6,744.1	-1,814.4	5.0	1,813.9	4.07	-4.06	0.31
8,450.0	90.90	183.30	6,743.5	-1,846.4	3.2	1,845.9	1.33	-0.94	0.94
8,482.0	89.60	183.70	6,743.4	-1,878.3	1.3	1,877.9	4.25	-4.06	1.25
8,513.0	89.40	183.10	6,743.7	-1,909.3	-0.6	1,908.8	2.04	-0.65	-1.94
8,544.0	89.20	184.10	6,744.0	-1,940.2	-2.5	1,939.8	3.29	-0.65	3.23
8,576.0	89.10	183.60	6,744.5	-1,972.1	-4.7	1,971.8	1.59	-0.31	-1.56
8,608.0	89.60	183.90	6,744.9	-2,004.0	-6.8	2,003.7	1.82	1.56	0.94
8,640.0	89.50	184.60	6,745.1	-2,036.0	-9.1	2,035.7	2.21	-0.31	2.19
8,672.0	90.00	183.30	6,745.3	-2,067.9	-11.3	2,067.7	4.35	1.56	-4.06
8,703.0	90.20	184.10	6,745.2	-2,098.8	-13.3	2,098.6	2.66	0.65	2.58
8,735.0	90.20	184.50	6,745.1	-2,130.7	-15.7	2,130.6	1.25	0.00	1.25
8,768.0	89.20	183.80	6,745.3	-2,163.6	-18.1	2,163.5	3.70	-3.03	-2.12
8,800.0	89.10	184.40	6,745.8	-2,195.6	-20.4	2,195.5	1.90	-0.31	1.88
8,832.0	89.20	183.70	6,746.2	-2,227.5	-22.7	2,227.4	2.21	0.31	-2.19
8,864.0	89.50	184.50	6,746.6	-2,259.4	-25.0	2,259.4	2.67	0.94	2.50
8,896.0	89.40	185.30	6,746.9	-2,291.3	-27.7	2,291.3	2.52	-0.31	2.50
8,928.0	90.00	185.30	6,747.1	-2,323.1	-30.6	2,323.3	1.88	1.88	0.00
8,960.0	91.20	185.70	6,746.7	-2,355.0	-33.7	2,355.2	3.95	3.75	1.25
8,992.0	90.90	185.30	6,746.1	-2,386.8	-36.8	2,387.1	1.56	-0.94	-1.25
9,024.0	91.30	184.40	6,745.5	-2,418.7	-39.5	2,419.0	3.08	1.25	-2.81
9,056.0	91.50	184.40	6,744.8	-2,450.6	-41.9	2,450.9	0.63	0.63	0.00
9,089.0	90.20	184.30	6,744.3	-2,483.5	-44.4	2,483.9	3.95	-3.94	-0.30
9,120.0	89.10	182.90	6,744.5	-2,514.4	-46.4	2,514.9	5.74	-3.55	-4.52
9,153.0	88.40	182.30	6,745.2	-2,547.4	-47.9	2,547.8	2.79	-2.12	-1.82

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schaefer 10J-403
Project:	SEC.10-T6N-R63W	TVD Reference:	WELL @ 4712.0ft (RKB Ensign 32 -15')
Site:	Schaefer Pad Sec.10-T6N-R63W	MD Reference:	WELL @ 4712.0ft (RKB Ensign 32 -15')
Well:	Schaefer 10J-403	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)
9,185.0	88.00	182.30	6,746.2	-2,579.4	-49.2	2,579.8	1.25	-1.25	0.00
9,217.0	87.90	181.90	6,747.3	-2,611.3	-50.3	2,611.8	1.29	-0.31	-1.25
9,248.0	88.00	181.00	6,748.4	-2,642.3	-51.1	2,642.8	2.92	0.32	-2.90
9,281.0	87.90	181.00	6,749.6	-2,675.3	-51.7	2,675.8	0.30	-0.30	0.00
9,313.0	87.90	182.10	6,750.8	-2,707.2	-52.6	2,707.7	3.44	0.00	3.44
9,344.0	88.70	182.30	6,751.7	-2,738.2	-53.8	2,738.7	2.66	2.58	0.65
9,376.0	89.60	182.90	6,752.2	-2,770.2	-55.2	2,770.7	3.38	2.81	1.88
9,408.0	89.80	183.05	6,752.3	-2,802.1	-56.9	2,802.7	0.78	0.63	0.47
9,440.0	89.80	182.90	6,752.5	-2,834.1	-58.5	2,834.7	0.47	0.00	-0.47
9,471.0	90.50	183.80	6,752.4	-2,865.0	-60.3	2,865.6	3.68	2.26	2.90
9,503.0	91.80	183.50	6,751.7	-2,896.9	-62.4	2,897.6	4.17	4.06	-0.94
9,536.0	92.20	183.40	6,750.6	-2,929.9	-64.4	2,930.6	1.25	1.21	-0.30
9,567.0	92.30	183.00	6,749.4	-2,960.8	-66.1	2,961.5	1.33	0.32	-1.29
9,599.0	92.50	181.60	6,748.0	-2,992.7	-67.4	2,993.5	4.42	0.63	-4.38
9,631.0	91.90	181.50	6,746.8	-3,024.7	-68.2	3,025.5	1.90	-1.88	-0.31
9,663.0	91.70	181.30	6,745.8	-3,056.7	-69.0	3,057.4	0.88	-0.63	-0.63
9,695.0	92.10	180.60	6,744.7	-3,088.6	-69.5	3,089.4	2.52	1.25	-2.19
9,727.0	91.60	180.30	6,743.7	-3,120.6	-69.8	3,121.4	1.82	-1.56	-0.94
9,758.0	92.10	180.20	6,742.7	-3,151.6	-69.9	3,152.4	1.64	1.61	-0.32
9,789.0	92.00	179.80	6,741.6	-3,182.6	-69.9	3,183.4	1.33	-0.32	-1.29
9,821.0	91.70	180.70	6,740.6	-3,214.6	-70.1	3,215.3	2.96	-0.94	2.81
9,853.0	91.80	181.60	6,739.6	-3,246.6	-70.7	3,247.3	2.83	0.31	2.81
9,885.0	90.80	180.90	6,738.9	-3,278.5	-71.4	3,279.3	3.81	-3.13	-2.19
9,917.0	90.50	179.40	6,738.5	-3,310.5	-71.5	3,311.3	4.78	-0.94	-4.69
9,949.0	90.80	178.70	6,738.1	-3,342.5	-71.0	3,343.3	2.38	0.94	-2.19
9,981.0	90.70	179.80	6,737.7	-3,374.5	-70.5	3,375.3	3.45	-0.31	3.44
10,012.0	90.90	179.50	6,737.3	-3,405.5	-70.4	3,406.2	1.16	0.65	-0.97
10,045.0	91.10	178.80	6,736.7	-3,438.5	-69.9	3,439.2	2.21	0.61	-2.12
10,077.0	91.10	178.90	6,736.1	-3,470.5	-69.2	3,471.2	0.31	0.00	0.31
10,108.0	90.90	179.20	6,735.5	-3,501.5	-68.7	3,502.2	1.16	-0.65	0.97
10,140.0	90.90	180.40	6,735.0	-3,533.5	-68.6	3,534.1	3.75	0.00	3.75
10,172.0	91.20	180.80	6,734.5	-3,565.5	-68.9	3,566.1	1.56	0.94	1.25
10,204.0	91.20	179.60	6,733.8	-3,597.5	-69.0	3,598.1	3.75	0.00	-3.75
10,236.0	91.30	180.60	6,733.1	-3,629.5	-69.1	3,630.1	3.14	0.31	3.13
10,267.0	91.40	180.50	6,732.4	-3,660.5	-69.4	3,661.1	0.46	0.32	-0.32
10,298.0	91.50	179.90	6,731.6	-3,691.4	-69.5	3,692.1	1.96	0.32	-1.94
10,331.0	91.50	180.60	6,730.7	-3,724.4	-69.7	3,725.1	2.12	0.00	2.12
10,362.0	91.50	180.00	6,729.9	-3,755.4	-69.8	3,756.1	1.93	0.00	-1.94
10,395.0	91.50	179.70	6,729.0	-3,788.4	-69.7	3,789.0	0.91	0.00	-0.91
10,426.0	91.60	179.20	6,728.2	-3,819.4	-69.4	3,820.0	1.64	0.32	-1.61
10,457.0	90.10	178.90	6,727.7	-3,850.4	-68.9	3,851.0	4.93	-4.84	-0.97
10,489.0	89.70	179.40	6,727.8	-3,882.4	-68.4	3,883.0	2.00	-1.25	1.56
10,520.0	89.70	178.70	6,728.0	-3,913.4	-67.9	3,913.9	2.26	0.00	-2.26
10,553.0	89.70	179.00	6,728.1	-3,946.4	-67.3	3,946.9	0.91	0.00	0.91
10,584.0	89.40	178.20	6,728.4	-3,977.4	-66.5	3,977.9	2.76	-0.97	-2.58
10,617.0	89.40	178.10	6,728.7	-4,010.3	-65.4	4,010.8	0.30	0.00	-0.30
10,648.0	89.40	177.50	6,729.0	-4,041.3	-64.3	4,041.8	1.94	0.00	-1.94
10,680.0	89.40	177.30	6,729.4	-4,073.3	-62.8	4,073.7	0.62	0.00	-0.63
10,712.0	89.50	177.90	6,729.7	-4,105.3	-61.5	4,105.6	1.90	0.31	1.88
10,744.0	89.50	177.20	6,730.0	-4,137.2	-60.1	4,137.6	2.19	0.00	-2.19
10,776.0	89.70	177.30	6,730.2	-4,169.2	-58.6	4,169.5	0.70	0.63	0.31
10,807.0	90.00	177.30	6,730.3	-4,200.1	-57.1	4,200.4	0.97	0.97	0.00
10,839.0	90.20	177.70	6,730.2	-4,232.1	-55.7	4,232.3	1.40	0.63	1.25

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schaefer 10J-403
Project:	SEC.10-T6N-R63W	TVD Reference:	WELL @ 4712.0ft (RKB Engisn 32 -15')
Site:	Schaefer Pad Sec.10-T6N-R63W	MD Reference:	WELL @ 4712.0ft (RKB Engisn 32 -15')
Well:	Schaefer 10J-403	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)
10,871.0	90.10	178.10	6,730.1	-4,264.1	-54.5	4,264.3	1.29	-0.31	1.25
10,903.0	90.20	178.00	6,730.0	-4,296.1	-53.4	4,296.2	0.44	0.31	-0.31
10,934.0	89.90	176.50	6,730.0	-4,327.0	-52.0	4,327.2	4.93	-0.97	-4.84
10,966.0	89.20	177.80	6,730.3	-4,359.0	-50.4	4,359.1	4.61	-2.19	4.06
10,998.0	89.50	177.00	6,730.6	-4,391.0	-48.9	4,391.0	2.67	0.94	-2.50
11,030.0	89.40	177.00	6,730.9	-4,422.9	-47.2	4,422.9	0.31	-0.31	0.00
11,062.0	89.30	178.70	6,731.3	-4,454.9	-46.0	4,454.9	5.32	-0.31	5.31
11,094.0	89.50	178.80	6,731.6	-4,486.9	-45.3	4,486.8	0.70	0.63	0.31
11,126.0	90.10	178.90	6,731.7	-4,518.9	-44.7	4,518.8	1.90	1.88	0.31
11,158.0	90.20	178.70	6,731.7	-4,550.9	-44.0	4,550.8	0.70	0.31	-0.63
11,190.0	90.50	178.90	6,731.5	-4,582.9	-43.4	4,582.7	1.13	0.94	0.63
11,222.0	90.60	179.30	6,731.2	-4,614.9	-42.9	4,614.7	1.29	0.31	1.25
11,273.0	90.60	179.30	6,730.6	-4,665.9	-42.2	4,665.7	0.00	0.00	0.00
BHL 500'FSL & 1280'FWL									

Checked By: _____	Approved By: _____	Date: _____
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