

# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Leffler 26Q-421**

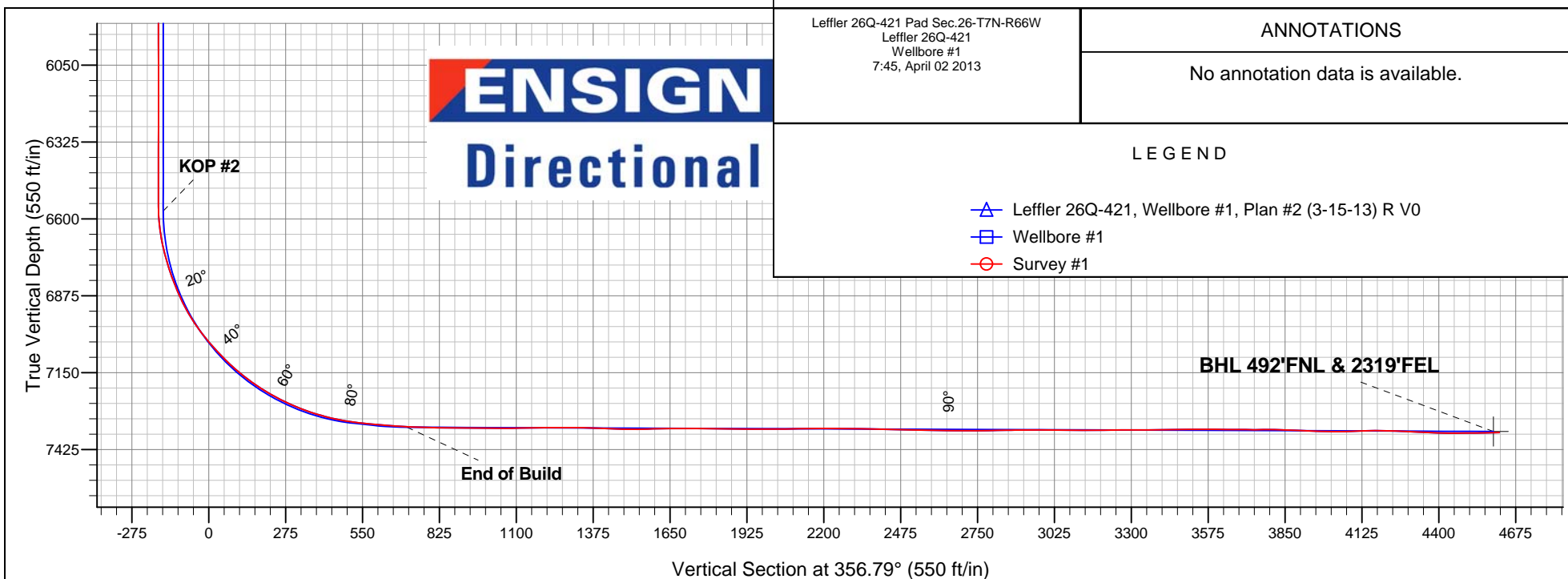
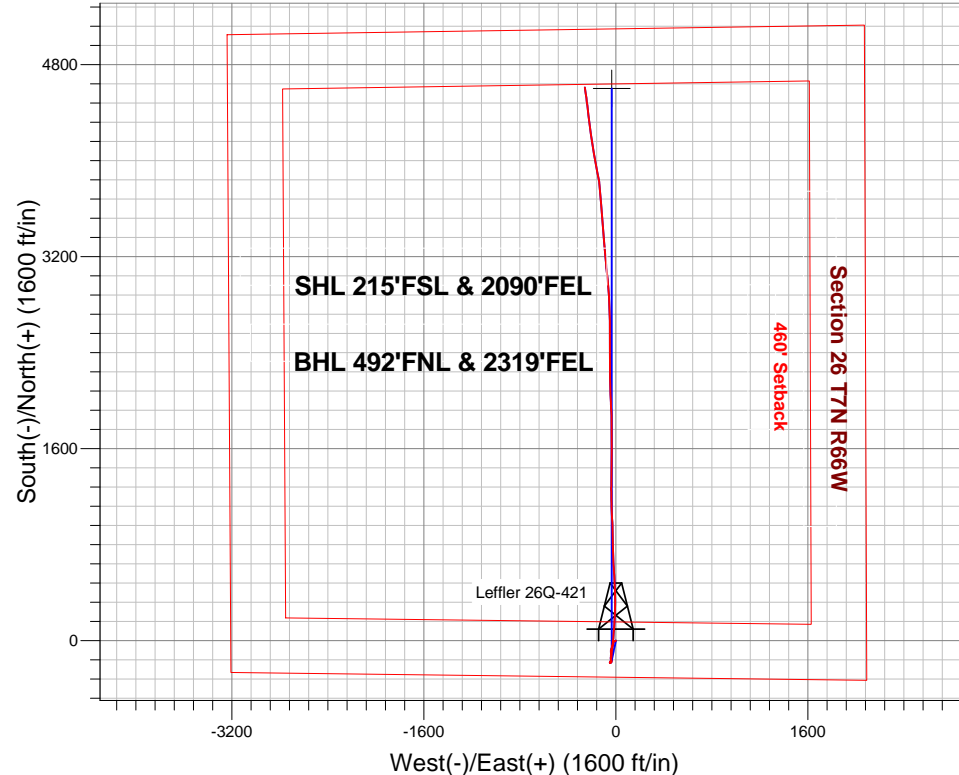
Surface Location: Leffler 26Q-421 Pad Sec.26-T7N-R66W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
Ground Elevation: 4865.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1440279.59	3210501.55	40.539500	-104.742620	

RKB Ensign 32' - 15' WELL @ 4880.0ft (RKB Ensign 32' - 15')

## FINAL SURVEY

Projected Bottom Hole Location  
11803' MD 7364' TVD 4609' N & 259' W of SHL  
90.8 degree Incl @ 352.1 degree AZM





# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.26-T7N-R66W**

**Leffler 26Q-421 Pad Sec.26-T7N-R66W**

**Leffler 26Q-421**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**02 April, 2013**

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)
Survey	0.0	0.00	0.00							
	181.0	0.20	217.20	181.0	-0.3	-0.2	-0.2	0.11	0.11	0.00
	272.0	0.20	158.90	272.0	-0.5	-0.2	-0.5	0.21	0.00	-64.07
	364.0	0.20	191.10	364.0	-0.8	-0.2	-0.8	0.12	0.00	35.00
	456.0	0.90	232.40	456.0	-1.4	-0.8	-1.4	0.83	0.76	44.89
	547.0	1.20	242.70	547.0	-2.3	-2.2	-2.2	0.39	0.33	11.32
	639.0	1.10	264.90	639.0	-2.8	-4.0	-2.6	0.49	-0.11	24.13
	731.0	1.10	258.60	730.9	-3.1	-5.7	-2.8	0.13	0.00	-6.85
	823.0	1.40	254.90	822.9	-3.5	-7.7	-3.1	0.34	0.33	-4.02
	974.0	2.20	238.90	973.8	-5.5	-11.9	-4.8	0.62	0.53	-10.60
	1,066.0	1.70	244.60	1,065.8	-7.0	-14.7	-6.2	0.58	-0.54	6.20
	1,158.0	1.90	215.30	1,157.7	-8.9	-16.8	-7.9	1.01	0.22	-31.85

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Leffler 26Q-421
<b>Project:</b>	SEC.26-T7N-R66W	<b>TVD Reference:</b>	WELL @ 4880.0ft (RKB Ensign 32' - 15')
<b>Site:</b>	Leffler 26Q-421 Pad Sec.26-T7N-R66W	<b>MD Reference:</b>	WELL @ 4880.0ft (RKB Ensign 32' - 15')
<b>Well:</b>	Leffler 26Q-421	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
1,252.0	3.30	198.20	1,251.7	-12.7	-18.5	-11.6	1.69	1.49	-18.19
1,347.0	3.70	196.90	1,346.5	-18.2	-20.3	-17.1	0.43	0.42	-1.37
1,442.0	4.00	200.90	1,441.3	-24.3	-22.3	-23.0	0.42	0.32	4.21
1,537.0	4.70	199.50	1,536.0	-31.0	-24.8	-29.6	0.75	0.74	-1.47
1,633.0	5.10	202.30	1,631.6	-38.7	-27.7	-37.1	0.49	0.42	2.92
1,728.0	4.80	198.60	1,726.3	-46.3	-30.6	-44.6	0.46	-0.32	-3.89
1,823.0	4.50	197.30	1,821.0	-53.7	-33.0	-51.7	0.33	-0.32	-1.37
1,918.0	4.20	200.90	1,915.7	-60.5	-35.3	-58.4	0.43	-0.32	3.79
2,013.0	3.90	196.70	2,010.5	-66.8	-37.5	-64.6	0.44	-0.32	-4.42
2,109.0	3.40	202.40	2,106.3	-72.6	-39.5	-70.3	0.64	-0.52	5.94
2,204.0	3.10	196.80	2,201.1	-77.6	-41.4	-75.2	0.46	-0.32	-5.89
2,299.0	2.60	180.50	2,296.0	-82.3	-42.1	-79.8	1.00	-0.53	-17.16
2,395.0	2.90	176.20	2,391.9	-86.9	-42.0	-84.4	0.38	0.31	-4.48
2,490.0	2.50	183.90	2,486.8	-91.3	-42.0	-88.8	0.57	-0.42	8.11
2,585.0	2.90	172.40	2,581.7	-95.8	-41.8	-93.3	0.71	0.42	-12.11
2,680.0	2.60	173.10	2,676.6	-100.3	-41.2	-97.8	0.32	-0.32	0.74
2,775.0	2.90	174.30	2,771.5	-104.8	-40.7	-102.4	0.32	0.32	1.26
2,870.0	3.50	181.40	2,866.3	-110.1	-40.5	-107.7	0.76	0.63	7.47
2,965.0	3.90	182.90	2,961.1	-116.2	-40.8	-113.8	0.43	0.42	1.58
3,061.0	4.00	188.40	3,056.9	-122.8	-41.4	-120.3	0.41	0.10	5.73
3,156.0	3.60	179.40	3,151.7	-129.1	-41.9	-126.5	0.75	-0.42	-9.47
3,251.0	3.60	184.80	3,246.5	-135.0	-42.1	-132.5	0.36	0.00	5.68
3,346.0	4.10	185.10	3,341.3	-141.4	-42.6	-138.8	0.53	0.53	0.32
3,441.0	4.20	178.30	3,436.0	-148.2	-42.8	-145.6	0.53	0.11	-7.16
3,536.0	3.10	169.10	3,530.8	-154.2	-42.3	-151.6	1.31	-1.16	-9.68
3,631.0	2.40	163.60	3,625.7	-158.7	-41.2	-156.1	0.79	-0.74	-5.79
3,726.0	2.00	150.00	3,720.6	-162.0	-39.8	-159.5	0.69	-0.42	-14.32
3,822.0	1.00	129.90	3,816.6	-164.0	-38.3	-161.6	1.16	-1.04	-20.94
3,917.0	0.70	145.30	3,911.6	-165.0	-37.4	-162.7	0.39	-0.32	16.21
4,012.0	0.50	162.30	4,006.6	-165.9	-36.9	-163.6	0.28	-0.21	17.89
4,107.0	0.60	153.70	4,101.6	-166.7	-36.6	-164.4	0.14	0.11	-9.05
4,203.0	0.70	167.20	4,197.6	-167.8	-36.2	-165.5	0.19	0.10	14.06
4,298.0	0.90	191.30	4,292.6	-169.0	-36.2	-166.8	0.41	0.21	25.37
4,393.0	1.00	208.50	4,387.6	-170.5	-36.8	-168.2	0.32	0.11	18.11
4,489.0	1.00	212.10	4,483.6	-172.0	-37.6	-169.6	0.07	0.00	3.75
4,584.0	1.00	196.20	4,578.5	-173.5	-38.3	-171.0	0.29	0.00	-16.74
4,679.0	1.30	182.40	4,673.5	-175.3	-38.6	-172.9	0.43	0.32	-14.53
4,774.0	1.30	163.90	4,768.5	-177.4	-38.3	-175.0	0.44	0.00	-19.47
4,869.0	1.00	205.10	4,863.5	-179.2	-38.4	-176.8	0.90	-0.32	43.37
4,965.0	0.90	216.00	4,959.5	-180.6	-39.2	-178.1	0.21	-0.10	11.35
5,152.0	0.90	250.90							
5,155.0	0.90	251.90	5,149.4	-182.3	-41.5	-179.7	0.52	0.00	33.33
5,245.0	0.90	257.90	5,239.4	-182.6	-42.8	-179.9	0.10	0.00	6.67
5,340.0	0.90	251.10	5,334.4	-183.0	-44.3	-180.3	0.11	0.00	-7.16
5,625.0	0.70	267.00	5,619.4	-183.8	-48.1	-180.9	0.10	-0.07	5.58
5,690.0	0.30	276.80	5,684.4	-183.8	-48.7	-180.8	0.63	-0.62	15.08
5,785.0	0.20	287.80	5,779.4	-183.8	-49.1	-180.7	0.12	-0.11	11.58
5,880.0	0.40	291.00	5,874.4	-183.6	-49.6	-180.5	0.21	0.21	3.37
5,975.0	0.60	317.30	5,969.4	-183.1	-50.2	-180.0	0.32	0.21	27.68
6,070.0	0.10	284.10	6,064.4	-182.7	-50.6	-179.6	0.55	-0.53	-34.95
6,166.0	0.20	116.70	6,160.4	-182.8	-50.6	-179.7	0.31	0.10	-174.38
6,260.0	0.80	102.20	6,254.4	-183.0	-49.8	-179.9	0.65	0.64	-15.43
6,355.0	1.20	97.90	6,349.4	-183.3	-48.1	-180.3	0.43	0.42	-4.53

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<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

Survey									
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6,450.0	0.40	64.50	6,444.4	-183.3	-46.8	-180.4	0.94	-0.84	-35.16
6,513.0	0.10	143.80	6,507.4	-183.2	-46.6	-180.3	0.63	-0.48	125.87
6,544.0	0.00	94.50	6,538.4	-183.2	-46.6	-180.3	0.32	-0.32	0.00
6,576.0	1.80	25.20	6,570.3	-182.8	-46.4	-179.9	5.63	5.63	0.00
6,608.0	4.60	17.40	6,602.3	-181.1	-45.8	-178.3	8.84	8.75	-24.38
6,640.0	7.50	10.20	6,634.1	-177.8	-45.0	-175.0	9.35	9.06	-22.50
6,671.0	10.30	11.30	6,664.7	-173.1	-44.1	-170.4	9.05	9.03	3.55
6,703.0	12.70	12.00	6,696.1	-166.9	-42.8	-164.2	7.51	7.50	2.19
6,735.0	14.80	10.70	6,727.2	-159.4	-41.3	-156.8	6.63	6.56	-4.06
6,767.0	16.90	9.40	6,758.0	-150.8	-39.8	-148.3	6.66	6.56	-4.06
6,798.0	18.90	6.50	6,787.5	-141.4	-38.5	-139.0	7.06	6.45	-9.35
6,830.0	21.00	4.60	6,817.5	-130.5	-37.5	-128.2	6.87	6.56	-5.94
6,862.0	23.00	5.30	6,847.2	-118.6	-36.4	-116.3	6.30	6.25	2.19
6,894.0	24.40	6.40	6,876.5	-105.8	-35.1	-103.6	4.59	4.38	3.44
6,926.0	27.00	7.00	6,905.3	-92.0	-33.5	-90.0	8.17	8.13	1.88
6,957.0	29.50	6.60	6,932.6	-77.4	-31.8	-75.5	8.09	8.06	-1.29
6,989.0	32.90	5.80	6,960.0	-60.9	-30.0	-59.2	10.70	10.63	-2.50
7,020.0	35.60	5.20	6,985.6	-43.6	-28.3	-41.9	8.78	8.71	-1.94
7,052.0	38.20	4.80	7,011.2	-24.4	-26.6	-22.9	8.16	8.13	-1.25
7,084.0	40.20	5.30	7,036.0	-4.3	-24.9	-2.9	6.33	6.25	1.56
7,116.0	42.10	5.00	7,060.1	16.7	-23.0	17.9	5.97	5.94	-0.94
7,148.0	43.80	4.70	7,083.5	38.4	-21.1	39.5	5.35	5.31	-0.94
7,179.0	45.80	4.60	7,105.5	60.2	-19.4	61.2	6.46	6.45	-0.32
7,211.0	48.20	5.10	7,127.3	83.5	-17.4	84.3	7.59	7.50	1.56
7,243.0	50.20	4.80	7,148.3	107.6	-15.3	108.3	6.29	6.25	-0.94
7,275.0	52.40	4.40	7,168.3	132.5	-13.3	133.1	6.94	6.88	-1.25
7,306.0	54.80	3.60	7,186.7	157.4	-11.6	157.8	8.02	7.74	-2.58
7,338.0	57.50	2.50	7,204.5	183.9	-10.1	184.2	8.91	8.44	-3.44
7,370.0	59.90	1.10	7,221.1	211.3	-9.3	211.5	8.38	7.50	-4.38
7,401.0	61.90	2.20	7,236.2	238.3	-8.5	238.4	7.16	6.45	3.55
7,433.0	63.90	2.40	7,250.8	266.8	-7.4	266.8	6.27	6.25	0.63
7,465.0	65.80	0.70	7,264.4	295.8	-6.6	295.7	7.64	5.94	-5.31
7,497.0	68.20	359.20	7,276.9	325.2	-6.6	325.1	8.65	7.50	-4.69
7,528.0	70.70	358.70	7,287.7	354.2	-7.1	354.1	8.20	8.06	-1.61
7,560.0	73.20	358.00	7,297.7	384.6	-8.0	384.5	8.08	7.81	-2.19
7,592.0	75.20	357.90	7,306.4	415.4	-9.1	415.3	6.26	6.25	-0.31
7,623.0	77.20	357.80	7,313.8	445.5	-10.3	445.4	6.46	6.45	-0.32
7,655.0	79.60	357.70	7,320.2	476.8	-11.5	476.7	7.51	7.50	-0.31
7,687.0	81.80	357.50	7,325.4	508.4	-12.8	508.3	6.90	6.88	-0.63
7,719.0	83.90	357.10	7,329.4	540.1	-14.3	540.0	6.68	6.56	-1.25
7,786.0	84.80	356.10	7,335.9	606.6	-18.3	606.7	2.00	1.34	-1.49
7,818.0	85.60	357.00	7,338.6	638.5	-20.2	638.6	3.76	2.50	2.81
7,850.0	86.50	357.50	7,340.8	670.4	-21.7	670.5	3.22	2.81	1.56
7,881.0	86.90	358.20	7,342.6	701.3	-22.9	701.5	2.60	1.29	2.26
7,913.0	87.30	358.60	7,344.2	733.2	-23.8	733.4	1.77	1.25	1.25
7,945.0	88.30	358.90	7,345.5	765.2	-24.5	765.4	3.26	3.13	0.94
7,977.0	88.60	358.50	7,346.3	797.2	-25.2	797.3	1.56	0.94	-1.25
8,008.0	88.90	358.10	7,347.0	828.2	-26.1	828.3	1.61	0.97	-1.29
8,040.0	89.10	358.30	7,347.6	860.1	-27.1	860.3	0.88	0.63	0.63
8,072.0	89.60	359.00	7,347.9	892.1	-27.9	892.3	2.69	1.56	2.19
8,103.0	89.80	358.80	7,348.1	923.1	-28.5	923.3	0.91	0.65	-0.65
8,135.0	90.00	357.70	7,348.1	955.1	-29.4	955.2	3.49	0.63	-3.44
8,167.0	90.20	357.90	7,348.1	987.1	-30.7	987.2	0.88	0.63	0.63
8,199.0	89.30	357.10	7,348.2	1,019.0	-32.1	1,019.2	3.76	-2.81	-2.50

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8,230.0	89.40	357.20	7,348.6	1,050.0	-33.6	1,050.2	0.46	0.32	0.32
8,262.0	90.80	357.80	7,348.5	1,082.0	-35.0	1,082.2	4.76	4.38	1.88
8,294.0	91.30	357.80	7,347.9	1,113.9	-36.2	1,114.2	1.56	1.56	0.00
8,325.0	91.10	358.40	7,347.3	1,144.9	-37.2	1,145.2	2.04	-0.65	1.94
8,357.0	90.90	358.50	7,346.7	1,176.9	-38.1	1,177.2	0.70	-0.63	0.31
8,389.0	90.70	359.30	7,346.3	1,208.9	-38.7	1,209.2	2.58	-0.63	2.50
8,420.0	90.10	359.40	7,346.1	1,239.9	-39.1	1,240.1	1.96	-1.94	0.32
8,452.0	89.50	0.00	7,346.2	1,271.9	-39.2	1,272.1	2.65	-1.88	1.88
8,484.0	90.30	2.60	7,346.2	1,303.9	-38.5	1,304.0	8.50	2.50	8.13
8,516.0	89.50	1.50	7,346.3	1,335.9	-37.4	1,335.9	4.25	-2.50	-3.44
8,547.0	87.30	0.10	7,347.2	1,366.8	-36.9	1,366.8	8.41	-7.10	-4.52
8,579.0	86.80	359.50	7,348.8	1,398.8	-37.1	1,398.7	2.44	-1.56	-1.88
8,611.0	87.90	0.10	7,350.3	1,430.8	-37.2	1,430.6	3.91	3.44	1.88
8,642.0	88.60	0.00	7,351.2	1,461.7	-37.1	1,461.5	2.28	2.26	-0.32
8,674.0	89.70	0.10	7,351.7	1,493.7	-37.1	1,493.5	3.45	3.44	0.31
8,706.0	90.50	0.70	7,351.6	1,525.7	-36.9	1,525.4	3.12	2.50	1.88
8,737.0	91.00	359.60	7,351.2	1,556.7	-36.8	1,556.4	3.90	1.61	-3.55
8,769.0	91.10	1.60	7,350.7	1,588.7	-36.5	1,588.3	6.26	0.31	6.25
8,801.0	91.20	1.40	7,350.0	1,620.7	-35.6	1,620.2	0.70	0.31	-0.63
8,833.0	91.30	0.80	7,349.3	1,652.7	-35.0	1,652.1	1.90	0.31	-1.88
8,864.0	89.90	359.90	7,349.0	1,683.7	-34.8	1,683.0	5.37	-4.52	-2.90
8,896.0	89.10	359.70	7,349.3	1,715.7	-34.9	1,715.0	2.58	-2.50	-0.63
8,928.0	89.10	359.60	7,349.8	1,747.7	-35.1	1,746.9	0.31	0.00	-0.31
8,960.0	89.80	359.20	7,350.1	1,779.7	-35.5	1,778.9	2.52	2.19	-1.25
8,991.0	89.80	359.30	7,350.2	1,810.7	-35.9	1,809.8	0.32	0.00	0.32
9,023.0	89.00	358.90	7,350.5	1,842.7	-36.4	1,841.8	2.80	-2.50	-1.25
9,055.0	89.40	357.60	7,351.0	1,874.7	-37.4	1,873.8	4.25	1.25	-4.06
9,086.0	89.80	358.00	7,351.2	1,905.6	-38.5	1,904.8	1.82	1.29	1.29
9,118.0	89.90	357.40	7,351.3	1,937.6	-39.8	1,936.8	1.90	0.31	-1.88
9,149.0	90.50	357.30	7,351.2	1,968.6	-41.3	1,967.8	1.96	1.94	-0.32
9,180.0	89.90	356.00	7,351.1	1,999.5	-43.1	1,998.8	4.62	-1.94	-4.19
9,212.0	89.50	356.70	7,351.2	2,031.5	-45.1	2,030.8	2.52	-1.25	2.19
9,244.0	91.10	358.70	7,351.1	2,063.4	-46.4	2,062.8	8.00	5.00	6.25
9,275.0	90.90	357.80	7,350.5	2,094.4	-47.3	2,093.8	2.97	-0.65	-2.90
9,307.0	90.80	359.50	7,350.0	2,126.4	-48.1	2,125.7	5.32	-0.31	5.31
9,338.0	91.40	359.80	7,349.4	2,157.4	-48.3	2,156.7	2.16	1.94	0.97
9,370.0	90.30	359.00	7,349.0	2,189.4	-48.6	2,188.7	4.25	-3.44	-2.50
9,402.0	89.60	0.30	7,349.0	2,221.4	-48.8	2,220.6	4.61	-2.19	4.06
9,433.0	88.80	359.60	7,349.4	2,252.4	-48.8	2,251.6	3.43	-2.58	-2.26
9,465.0	89.00	0.00	7,350.0	2,284.4	-49.0	2,283.5	1.40	0.63	1.25
9,497.0	89.60	0.00	7,350.4	2,316.4	-49.0	2,315.5	1.88	1.88	0.00
9,528.0	89.60	359.50	7,350.6	2,347.4	-49.1	2,346.4	1.61	0.00	-1.61
9,560.0	88.60	0.10	7,351.2	2,379.4	-49.2	2,378.4	3.64	-3.13	1.88
9,592.0	88.30	0.10	7,352.0	2,411.3	-49.1	2,410.3	0.94	-0.94	0.00
9,623.0	88.40	0.00	7,352.9	2,442.3	-49.1	2,441.2	0.46	0.32	-0.32
9,655.0	88.60	0.30	7,353.7	2,474.3	-49.0	2,473.2	1.13	0.63	0.94
9,687.0	88.10	359.00	7,354.7	2,506.3	-49.2	2,505.1	4.35	-1.56	-4.06
9,719.0	90.60	0.40	7,355.0	2,538.3	-49.4	2,537.1	8.95	7.81	4.38
9,751.0	89.00	359.00	7,355.1	2,570.3	-49.6	2,569.0	6.64	-5.00	-4.38
9,782.0	88.00	359.30	7,356.0	2,601.3	-50.0	2,600.0	3.37	-3.23	0.97
9,814.0	89.50	359.00	7,356.7	2,633.3	-50.5	2,632.0	4.78	4.69	-0.94
9,846.0	90.30	359.70	7,356.7	2,665.3	-50.9	2,663.9	3.32	2.50	2.19
9,878.0	89.50	358.10	7,356.8	2,697.3	-51.5	2,695.9	5.59	-2.50	-5.00

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Leffler 26Q-421
<b>Project:</b>	SEC.26-T7N-R66W	<b>TVD Reference:</b>	WELL @ 4880.0ft (RKB Ensign 32' - 15')
<b>Site:</b>	Leffler 26Q-421 Pad Sec.26-T7N-R66W	<b>MD Reference:</b>	WELL @ 4880.0ft (RKB Ensign 32' - 15')
<b>Well:</b>	Leffler 26Q-421	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
9,909.0	89.80	358.20	7,357.0	2,728.2	-52.5	2,726.9	1.02	0.97	0.32
9,940.0	90.60	358.00	7,356.8	2,759.2	-53.5	2,757.9	2.66	2.58	-0.65
9,972.0	90.80	357.20	7,356.5	2,791.2	-54.8	2,789.9	2.58	0.63	-2.50
10,004.0	90.60	358.40	7,356.1	2,823.2	-56.1	2,821.9	3.80	-0.63	3.75
10,036.0	90.50	356.30	7,355.8	2,855.1	-57.6	2,853.9	6.57	-0.31	-6.56
10,067.0	91.70	357.10	7,355.2	2,886.1	-59.3	2,884.9	4.65	3.87	2.58
10,099.0	90.40	355.00	7,354.6	2,918.0	-61.5	2,916.9	7.72	-4.06	-6.56
10,131.0	90.40	355.30	7,354.4	2,949.9	-64.3	2,948.8	0.94	0.00	0.94
10,162.0	89.40	355.00	7,354.4	2,980.8	-66.9	2,979.8	3.37	-3.23	-0.97
10,194.0	88.70	354.00	7,354.9	3,012.6	-69.9	3,011.8	3.81	-2.19	-3.13
10,225.0	89.20	354.20	7,355.5	3,043.4	-73.1	3,042.8	1.74	1.61	0.65
10,257.0	89.90	354.00	7,355.8	3,075.3	-76.4	3,074.7	2.28	2.19	-0.63
10,289.0	90.50	355.30	7,355.6	3,107.1	-79.4	3,106.7	4.47	1.88	4.06
10,320.0	89.70	354.80	7,355.6	3,138.0	-82.1	3,137.7	3.04	-2.58	-1.61
10,352.0	90.10	355.60	7,355.6	3,169.9	-84.7	3,169.7	2.80	1.25	2.50
10,383.0	91.10	355.40	7,355.3	3,200.8	-87.2	3,200.7	3.29	3.23	-0.65
10,415.0	90.80	354.30	7,354.8	3,232.7	-90.1	3,232.6	3.56	-0.94	-3.44
10,447.0	90.00	354.50	7,354.6	3,264.5	-93.2	3,264.6	2.58	-2.50	0.63
10,478.0	89.50	354.80	7,354.7	3,295.4	-96.1	3,295.6	1.88	-1.61	0.97
10,510.0	89.90	355.50	7,354.9	3,327.3	-98.8	3,327.6	2.52	1.25	2.19
10,542.0	90.30	354.60	7,354.8	3,359.1	-101.5	3,359.6	3.08	1.25	-2.81
10,573.0	91.80	354.70	7,354.2	3,390.0	-104.4	3,390.5	4.85	4.84	0.32
10,605.0	91.40	355.30	7,353.4	3,421.9	-107.2	3,422.5	2.25	-1.25	1.88
10,637.0	89.60	355.70	7,353.1	3,453.8	-109.7	3,454.5	5.76	-5.63	1.25
10,668.0	90.50	355.30	7,353.0	3,484.7	-112.2	3,485.5	3.18	2.90	-1.29
10,700.0	89.80	355.30	7,353.0	3,516.6	-114.8	3,517.5	2.19	-2.19	0.00
10,732.0	90.20	355.50	7,353.0	3,548.5	-117.3	3,549.5	1.40	1.25	0.63
10,763.0	89.90	355.70	7,352.9	3,579.4	-119.7	3,580.5	1.16	-0.97	0.65
10,796.0	89.30	356.10	7,353.2	3,612.3	-122.1	3,613.5	2.19	-1.82	1.21
10,828.0	89.80	356.60	7,353.4	3,644.2	-124.1	3,645.5	2.21	1.56	1.56
10,860.0	89.80	356.80	7,353.5	3,676.2	-126.0	3,677.5	0.62	0.00	0.63
10,891.0	89.80	355.10	7,353.6	3,707.1	-128.1	3,708.4	5.48	0.00	-5.48
10,923.0	90.00	355.40	7,353.7	3,739.0	-130.8	3,740.4	1.13	0.63	0.94
10,955.0	90.30	354.30	7,353.6	3,770.8	-133.7	3,772.4	3.56	0.94	-3.44
10,987.0	89.70	353.20	7,353.6	3,802.7	-137.2	3,804.4	3.92	-1.88	-3.44
11,018.0	88.80	351.20	7,354.0	3,833.4	-141.4	3,835.3	7.07	-2.90	-6.45
11,050.0	87.70	349.90	7,355.0	3,864.9	-146.6	3,867.1	5.32	-3.44	-4.06
11,082.0	87.10	348.00	7,356.4	3,896.3	-152.7	3,898.7	6.22	-1.88	-5.94
11,113.0	87.50	348.60	7,357.9	3,926.6	-159.0	3,929.4	2.32	1.29	1.94
11,145.0	88.10	348.10	7,359.1	3,957.9	-165.5	3,961.0	2.44	1.88	-1.56
11,177.0	88.70	348.50	7,360.0	3,989.3	-172.0	3,992.6	2.25	1.88	1.25
11,208.0	89.70	349.40	7,360.5	4,019.7	-177.9	4,023.3	4.34	3.23	2.90
11,240.0	91.10	350.10	7,360.2	4,051.2	-183.6	4,055.1	4.89	4.38	2.19
11,272.0	91.70	351.50	7,359.5	4,082.7	-188.7	4,086.9	4.76	1.88	4.38
11,304.0	92.00	351.70	7,358.4	4,114.4	-193.4	4,118.8	1.13	0.94	0.63
11,335.0	90.50	352.20	7,357.7	4,145.1	-197.7	4,149.6	5.10	-4.84	1.61
11,367.0	89.80	352.70	7,357.7	4,176.8	-201.9	4,181.5	2.69	-2.19	1.56
11,399.0	90.00	352.40	7,357.7	4,208.5	-206.1	4,213.5	1.13	0.63	-0.94
11,431.0	88.70	352.50	7,358.1	4,240.2	-210.3	4,245.4	4.07	-4.06	0.31
11,462.0	86.90	352.10	7,359.3	4,270.9	-214.4	4,276.2	5.95	-5.81	-1.29
11,494.0	86.50	351.50	7,361.1	4,302.6	-219.0	4,308.1	2.25	-1.25	-1.88
11,525.0	86.90	351.70	7,362.9	4,333.2	-223.5	4,338.9	1.44	1.29	0.65
11,557.0	87.40	352.30	7,364.5	4,364.8	-228.0	4,370.7	2.44	1.56	1.88



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Leffler 26Q-421
<b>Project:</b>	SEC.26-T7N-R66W	<b>TVD Reference:</b>	WELL @ 4880.0ft (RKB Ensign 32' - 15')
<b>Site:</b>	Leffler 26Q-421 Pad Sec.26-T7N-R66W	<b>MD Reference:</b>	WELL @ 4880.0ft (RKB Ensign 32' - 15')
<b>Well:</b>	Leffler 26Q-421	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
11,588.0	88.60	353.70	7,365.6	4,395.6	-231.7	4,401.6	5.95	3.87	4.52
11,620.0	89.70	353.50	7,366.0	4,427.4	-235.3	4,433.6	3.49	3.44	-0.63
11,652.0	90.40	353.10	7,366.0	4,459.1	-239.0	4,465.5	2.52	2.19	-1.25
11,684.0	90.80	352.80	7,365.7	4,490.9	-243.0	4,497.5	1.56	1.25	-0.94
11,716.0	90.80	353.00	7,365.2	4,522.7	-246.9	4,529.4	0.62	0.00	0.63
11,747.0	90.80	352.10	7,364.8	4,553.4	-250.9	4,560.3	2.90	0.00	-2.90
<b>BHL 500'FNL &amp; 2095'FEL</b>									
11,803.0	90.80	352.10	7,364.0	4,608.9	-258.6	4,616.1	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL 500'FNL & 2095'	0.00	0.00	7,360.0	4,600.9	-34.8	1,444,879.85	3,210,427.46	40.552129	-104.742745
- survey misses target center by 221.3ft at 11747.0ft MD (7364.8 TVD, 4553.4 N, -250.9 E)									
- Point									

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_