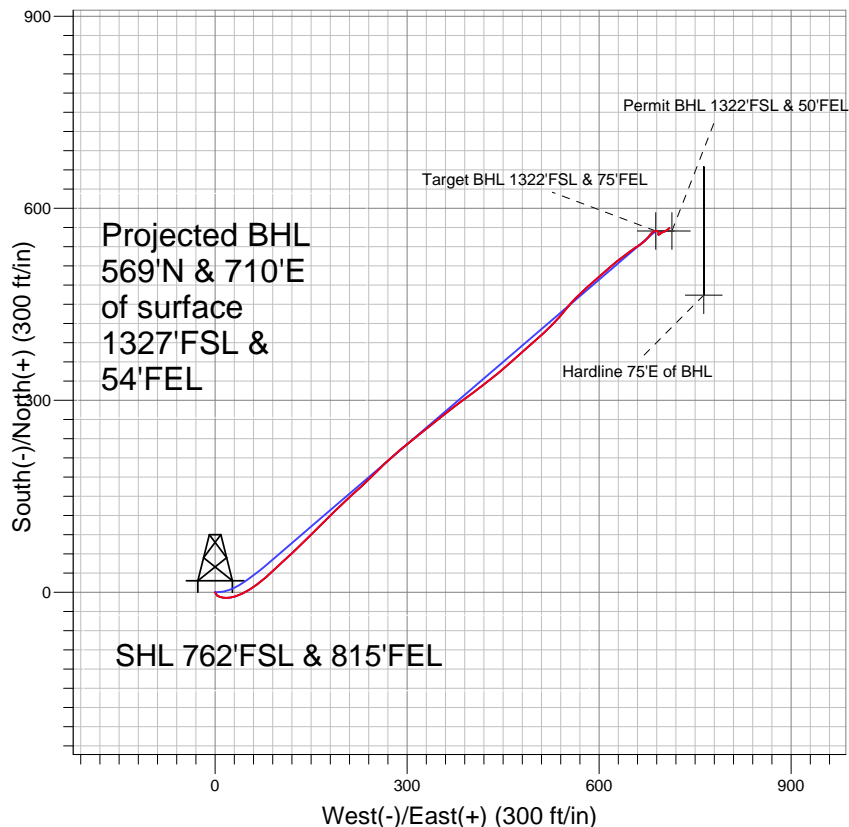
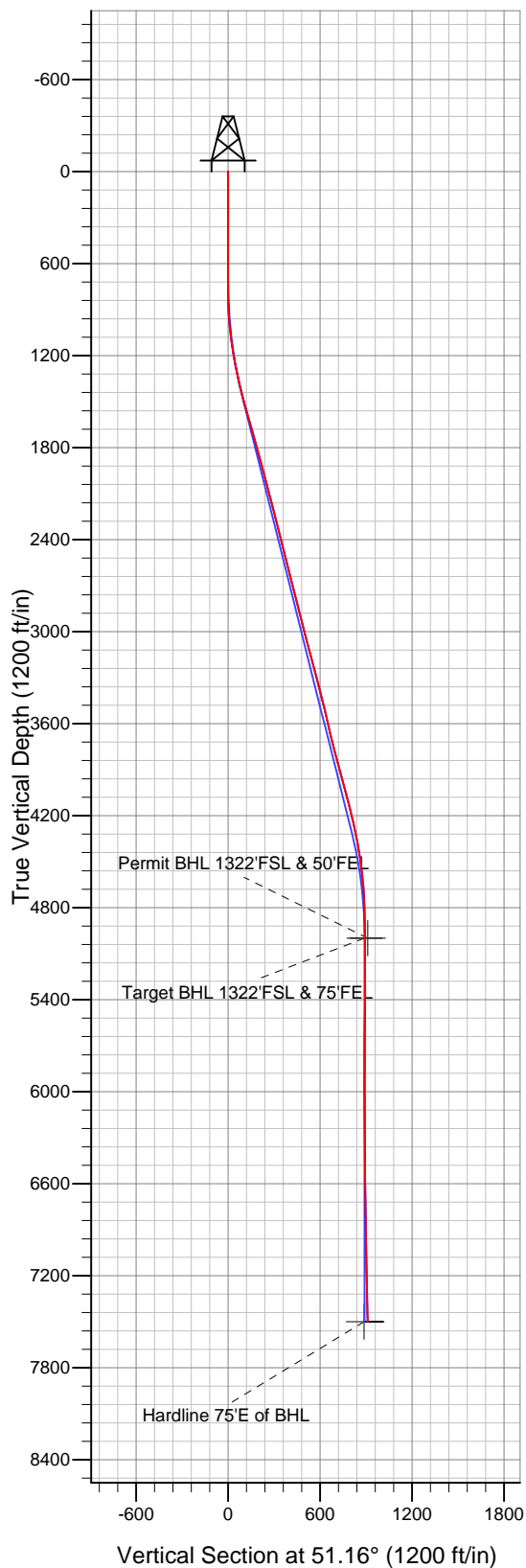


PETROLEUM DEVELOPMENT CORP Weld County CO



LEGEND

- Leffler 2XD, Wellbore #1, Plan#1 (7-1-10) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7609'MD & 7501'TVD @ 910' VS
1.3 deg Inc 48.3 deg AZ

Project: SEC.2-T6N-R66W
Site: Leffler 2XD Pad Sec.2-T6N-R66W
Well: Leffler 2XD
Plan: Wellbore #1



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.2-T6N-R66W

Leffler 2XD Pad Sec.2-T6N-R66W

Leffler 2XD

Wellbore #1

Survey: Survey #1

Standard Survey Report

18 January, 2011

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Leffler 2XD
Project:	SEC.2-T6N-R66W	TVD Reference:	WELL @ 4848.0ft (Original Well Elev)
Site:	Leffler 2XD Pad Sec.2-T6N-R66W	MD Reference:	WELL @ 4848.0ft (Original Well Elev)
Well:	Leffler 2XD	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.2-T6N-R66W, 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	Leffler 2XD Pad Sec.2-T6N-R66W				
Site Position:		Northing:	1,430,363.43ft	Latitude:	40° 30' 44.100 N
From:	Lat/Long	Easting:	3,211,854.20ft	Longitude:	104° 44' 17.016 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.49 °

Well	Leffler 2XD					
Well Position	+N-S	0.0 ft	Northing:	1,430,363.42 ft	Latitude:	40° 30' 44.100 N
	+E-W	0.0 ft	Easting:	3,211,854.20 ft	Longitude:	104° 44' 17.016 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,835.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/1/2010	8.99	67.18	53,294

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	51.16	

Survey Program	Date	1/18/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
698.0	7,609.0	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	
698.0	0.90	147.20	698.0	-4.6	3.0	-0.6	0.13	0.13	0.00	
791.0	2.20	113.20	790.9	-5.9	5.0	0.2	1.65	1.40	-36.56	
884.0	3.30	110.40	883.8	-7.6	9.2	2.4	1.19	1.18	-3.01	
978.0	5.90	91.50	977.5	-8.6	16.5	7.5	3.17	2.77	-20.11	
1,071.0	7.80	77.60	1,069.9	-7.4	27.5	16.8	2.70	2.04	-14.95	
1,164.0	9.50	64.30	1,161.8	-2.7	40.5	29.9	2.81	1.83	-14.30	
1,257.0	11.00	58.90	1,253.3	5.2	55.1	46.1	1.91	1.61	-5.81	
1,350.0	12.10	50.80	1,344.4	15.9	70.2	64.7	2.10	1.18	-8.71	
1,444.0	14.30	47.80	1,436.0	30.0	86.5	86.1	2.45	2.34	-3.19	
1,537.0	15.60	46.20	1,525.8	46.3	104.0	110.1	1.47	1.40	-1.72	
1,626.0	16.10	47.90	1,611.4	62.9	121.8	134.3	0.77	0.56	1.91	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Leffler 2XD
Project:	SEC.2-T6N-R66W	TVD Reference:	WELL @ 4848.0ft (Original Well Elev)
Site:	Leffler 2XD Pad Sec.2-T6N-R66W	MD Reference:	WELL @ 4848.0ft (Original Well Elev)
Well:	Leffler 2XD	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)
1,723.0	16.00	45.30	1,704.6	81.3	141.3	161.0	0.75	-0.10	-2.68
1,816.0	15.80	45.00	1,794.1	99.3	159.3	186.4	0.23	-0.22	-0.32
1,909.0	15.30	44.40	1,883.7	117.0	176.9	211.1	0.56	-0.54	-0.65
2,002.0	14.40	47.20	1,973.6	133.6	193.9	234.9	1.24	-0.97	3.01
2,095.0	14.70	47.80	2,063.6	149.4	211.2	258.2	0.36	0.32	0.65
2,189.0	14.50	46.80	2,154.6	165.5	228.6	281.8	0.34	-0.21	-1.06
2,281.0	13.70	45.50	2,243.8	181.0	244.7	304.1	0.94	-0.87	-1.41
2,375.0	15.40	46.90	2,334.8	197.3	261.8	327.7	1.85	1.81	1.49
2,467.0	14.50	46.00	2,423.7	213.7	279.0	351.3	1.01	-0.98	-0.98
2,560.0	13.80	51.90	2,513.8	228.6	296.1	374.0	1.72	-0.75	6.34
2,654.0	14.00	52.00	2,605.1	242.5	313.9	396.6	0.21	0.21	0.11
2,747.0	14.20	51.50	2,695.3	256.6	331.7	419.2	0.25	0.22	-0.54
2,840.0	14.10	50.60	2,785.5	270.8	349.4	442.0	0.26	-0.11	-0.97
2,934.0	14.40	52.40	2,876.6	285.2	367.5	465.1	0.57	0.32	1.91
3,027.0	14.80	52.70	2,966.6	299.5	386.1	488.5	0.44	0.43	0.32
3,120.0	14.30	54.10	3,056.6	313.4	404.8	511.9	0.66	-0.54	1.51
3,214.0	14.90	52.30	3,147.5	327.6	423.8	535.6	0.80	0.64	-1.91
3,307.0	15.30	50.00	3,237.3	342.8	442.7	559.8	0.77	0.43	-2.47
3,401.0	14.60	49.10	3,328.2	358.6	461.1	584.0	0.78	-0.74	-0.96
3,494.0	14.00	48.60	3,418.3	373.7	478.4	607.0	0.66	-0.65	-0.54
3,587.0	13.70	46.10	3,508.6	388.7	494.8	629.2	0.72	-0.32	-2.69
3,680.0	13.40	49.50	3,599.0	403.4	510.9	650.9	0.92	-0.32	3.66
3,773.0	13.70	44.60	3,689.4	418.2	526.8	672.6	1.28	0.32	-5.27
3,866.0	13.60	39.20	3,779.8	434.5	541.5	694.3	1.37	-0.11	-5.81
3,959.0	15.50	40.80	3,869.8	452.4	556.5	717.2	2.09	2.04	1.72
4,052.0	16.10	48.90	3,959.3	470.3	574.4	742.3	2.46	0.65	8.71
4,146.0	15.10	47.80	4,049.8	487.1	593.2	767.6	1.11	-1.06	-1.17
4,239.0	14.40	48.60	4,139.8	502.9	610.9	791.2	0.78	-0.75	0.86
4,332.0	13.00	52.00	4,230.1	517.0	627.8	813.2	1.74	-1.51	3.66
4,425.0	10.90	52.80	4,321.1	528.7	643.1	832.5	2.27	-2.26	0.86
4,518.0	10.00	56.80	4,412.5	538.5	656.8	849.3	1.24	-0.97	4.30
4,611.0	8.10	51.20	4,504.4	547.0	668.7	863.9	2.25	-2.04	-6.02
4,704.0	6.40	38.50	4,596.6	555.2	677.0	875.5	2.50	-1.83	-13.66
4,797.0	3.90	42.40	4,689.3	561.6	682.4	883.7	2.71	-2.69	4.19
4,890.0	2.60	81.40	4,782.1	564.2	686.6	888.6	2.68	-1.40	41.94
4,984.0	0.50	88.00	4,876.1	564.5	689.1	890.8	2.24	-2.23	7.02
5,107.9	0.50	88.80	5,000.0	564.6	690.2	891.7	0.01	0.00	0.65
Target BHL 1322'FSL & 75'FEL									
5,108.1	0.50	88.80	5,000.2	564.6	690.2	891.7	0.01	0.00	0.65
Permit BHL 1322'FSL & 50'FEL									
5,170.0	0.50	89.20	5,062.1	564.6	690.7	892.1	0.01	0.00	0.65
5,356.0	0.50	131.70	5,248.1	564.0	692.2	892.9	0.19	0.00	22.85
5,543.0	0.80	183.50	5,435.1	562.2	692.7	892.1	0.34	0.16	27.70
5,729.0	0.80	166.70	5,621.0	559.6	692.9	890.7	0.13	0.00	-9.03
5,915.0	0.10	253.30	5,807.0	558.3	693.1	890.0	0.43	-0.38	46.56
6,101.0	0.40	31.70	5,993.0	558.8	693.2	890.4	0.26	0.16	74.41
6,287.0	0.30	83.30	6,179.0	559.4	694.1	891.5	0.17	-0.05	27.74
6,473.0	0.20	91.90	6,365.0	559.5	694.9	892.1	0.06	-0.05	4.62
6,660.0	0.40	17.70	6,552.0	560.1	695.4	892.9	0.21	0.11	-39.68
6,846.0	0.90	53.50	6,738.0	561.6	696.8	894.9	0.33	0.27	19.25
7,033.0	1.30	78.90	6,925.0	562.9	700.0	898.3	0.33	0.21	13.58
7,219.0	1.10	56.60	7,110.9	564.3	703.6	901.9	0.27	-0.11	-11.99
7,406.0	1.20	54.70	7,297.9	566.4	706.7	905.6	0.06	0.05	-1.02

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Survey									
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7,561.0	1.30	48.30	7,452.9	568.5	709.3	909.0	0.11	0.06	-4.13
7,607.5	1.30	48.30	7,499.3	569.2	710.1	910.1	0.00	0.00	0.00
Hardline 75'E of BHL									
7,609.0	1.30	48.30	7,500.9	569.2	710.1	910.1	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
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