

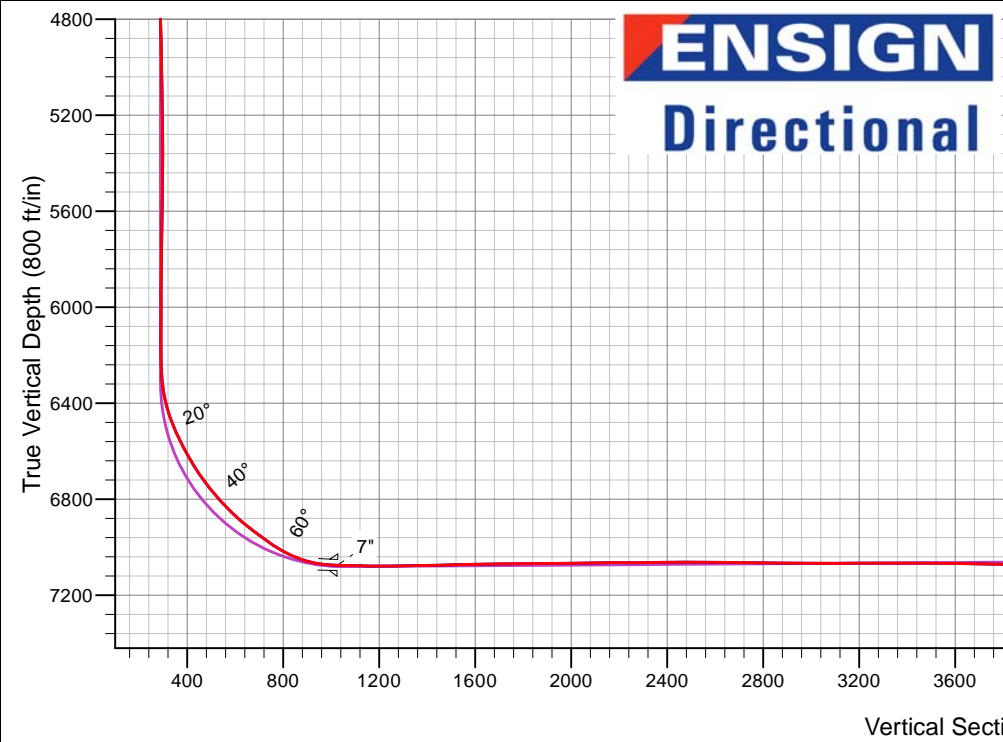
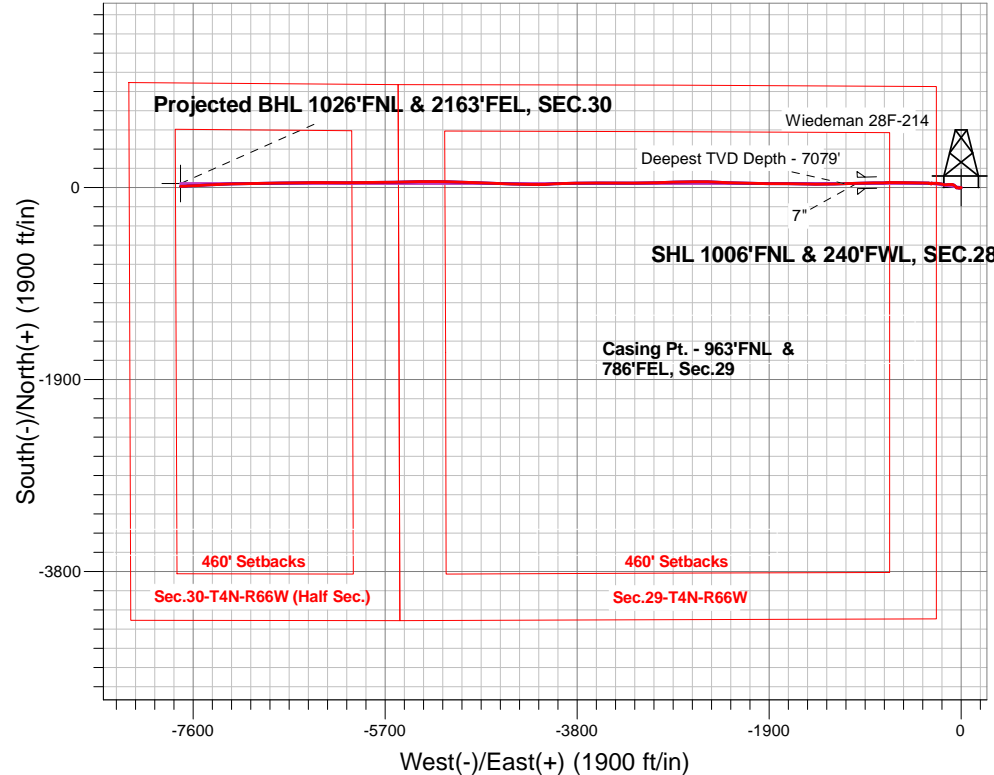
# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Wiedeman 28F-214**

Surface Location: Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W  
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone  
 Ground Elevation: 4763.0  
 +N/-S+E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.01348218.68 3197776.66 40.287090 -104.791050  
 Ensign Rig #121 RKB - 13.5'WELL @ 4776.5ft (Ensign Rig #121 RKB - 13.5')

## FINAL SURVEY

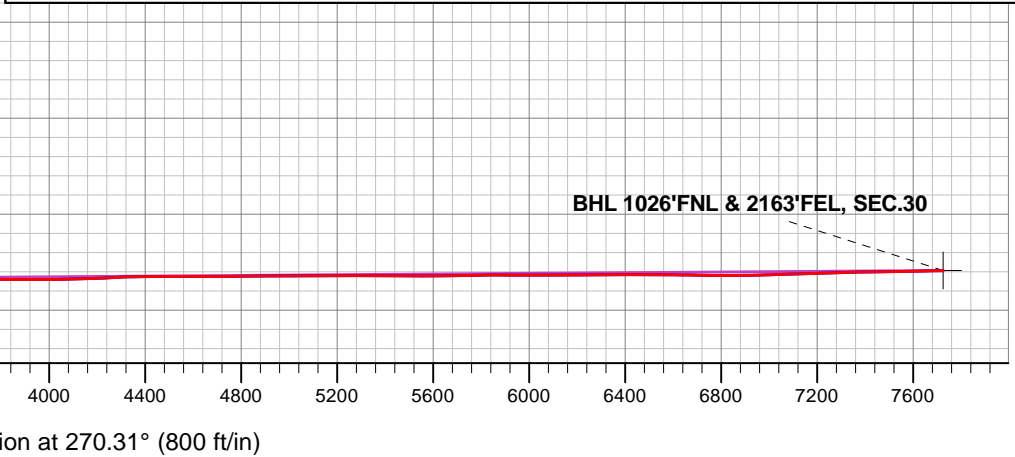
**Projected Bottom Hole Location**  
**14162'MD 7035TVD 12'N & 7725'W of SHL**  
**91.4 degree Incl @ 267 degree AZM**



Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W  
 Wiedeman 28F-214  
 Wellbore #1  
 5:24, September 22 2015

ANNOTATIONS		
TVD	MD	Annotation
7079.0	7590.0	Deepest TVD Depth - 7079'

LEGEND	
	Wiedeman 28F-214, Wellbore #1, Plan #2 (9-11-15)R V0
	Wellbore #1
	Survey #1





# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.28-T4N-R66W**

**Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W**

**Wiedeman 28F-214**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**22 September, 2015**



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Wiedeman 28F-214
<b>Project:</b>	SEC.28-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4776.5ft (Ensign Rig #121 RKB - 13.5')
<b>Site:</b>	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	<b>MD Reference:</b>	WELL @ 4776.5ft (Ensign Rig #121 RKB - 13.5')
<b>Well:</b>	Wiedeman 28F-214	<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>	US_EDM

<b>Project</b>	SEC.28-T4N-R66W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W				
<b>Site Position:</b>		<b>Northing:</b>	1,348,277.01 usft	<b>Latitude:</b>	40.287250
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,197,776.20 usft	<b>Longitude:</b>	-104.791050
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.46 °

<b>Well</b>	Wiedeman 28F-214					
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,348,218.68 usft	<b>Latitude:</b>	40.287090
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	3,197,776.66 usft	<b>Longitude:</b>	-104.791050
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	4,763.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	9/11/2015	8.30	66.81	52,623

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	270.31	

<b>Survey Program</b>	<b>Date</b>	9/22/2015			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
167.0	14,162.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
1.0	0.00	238.70	1.0	0.0	0.0	0.0	0.48	0.48	0.00	
<b>SHL 1006'FNL &amp; 240'FWL, SEC.28</b>										
27.2	0.13	238.70	27.2	0.0	0.0	0.0	0.48	0.48	0.00	
<b>50' N/S Hardline (28F-214)</b>										
167.0	0.80	238.70	167.0	-0.6	-1.0	1.0	0.48	0.48	0.00	
261.0	1.10	247.20	261.0	-1.3	-2.4	2.4	0.35	0.32	9.04	
354.0	1.20	236.50	354.0	-2.2	-4.0	4.0	0.25	0.11	-11.51	
449.0	1.40	251.80	448.9	-3.1	-6.0	5.9	0.42	0.21	16.11	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Wiedeman 28F-214
<b>Project:</b>	SEC.28-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4776.5ft (Ensign Rig #121 RKB - 13.5')
<b>Site:</b>	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	<b>MD Reference:</b>	WELL @ 4776.5ft (Ensign Rig #121 RKB - 13.5')
<b>Well:</b>	Wiedeman 28F-214	<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>	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
542.0	1.10	263.50	541.9	-3.5	-7.9	7.9	0.42	-0.32	12.58	
636.0	1.40	255.60	635.9	-3.9	-9.9	9.9	0.37	0.32	-8.40	
729.0	1.80	259.30	728.9	-4.5	-12.5	12.4	0.44	0.43	3.98	
822.0	1.80	266.90	821.8	-4.8	-15.4	15.3	0.26	0.00	8.17	
865.0	1.90	263.50	864.8	-5.0	-16.7	16.7	0.35	0.23	-7.91	
1,003.0	1.80	278.10	1,002.7	-4.9	-21.2	21.1	0.35	-0.07	10.58	
1,096.0	1.50	280.20	1,095.7	-4.5	-23.8	23.8	0.33	-0.32	2.26	
1,190.0	1.50	277.40	1,189.6	-4.1	-26.2	26.2	0.08	0.00	-2.98	
1,283.0	1.50	275.80	1,282.6	-3.8	-28.7	28.6	0.05	0.00	-1.72	
1,377.0	1.50	275.70	1,376.6	-3.6	-31.1	31.1	0.00	0.00	-0.11	
1,470.0	1.70	273.20	1,469.5	-3.4	-33.7	33.7	0.23	0.22	-2.69	
1,563.0	1.90	268.80	1,562.5	-3.3	-36.6	36.6	0.26	0.22	-4.73	
1,656.0	1.80	269.30	1,655.5	-3.4	-39.6	39.6	0.11	-0.11	0.54	
1,749.0	1.40	260.00	1,748.4	-3.6	-42.2	42.2	0.51	-0.43	-10.00	
1,843.0	1.40	267.90	1,842.4	-3.8	-44.5	44.4	0.21	0.00	8.40	
1,937.0	1.20	265.60	1,936.4	-4.0	-46.6	46.6	0.22	-0.21	-2.45	
2,035.0	0.90	256.70	2,034.3	-4.2	-48.4	48.3	0.35	-0.31	-9.08	
2,130.0	1.30	38.20	2,129.3	-3.5	-48.4	48.4	2.19	0.42	148.95	
2,226.0	2.10	342.80	2,225.3	-1.0	-48.3	48.3	1.80	0.83	-57.71	
2,322.0	3.30	325.80	2,321.2	3.0	-50.4	50.4	1.49	1.25	-17.71	
2,417.0	2.90	326.50	2,416.1	7.2	-53.2	53.3	0.42	-0.42	0.74	
2,513.0	3.90	317.10	2,511.9	11.6	-56.8	56.8	1.19	1.04	-9.79	
2,608.0	5.00	312.90	2,606.6	16.8	-62.0	62.1	1.21	1.16	-4.42	
2,704.0	6.30	303.10	2,702.1	22.5	-69.5	69.6	1.68	1.35	-10.21	
2,800.0	7.50	292.00	2,797.4	27.8	-79.7	79.9	1.86	1.25	-11.56	
2,895.0	6.30	275.70	2,891.8	30.6	-90.6	90.8	2.41	-1.26	-17.16	
2,991.0	7.90	273.00	2,987.0	31.5	-102.5	102.6	1.70	1.67	-2.81	
3,086.0	7.70	267.40	3,081.1	31.5	-115.4	115.5	0.83	-0.21	-5.89	
3,182.0	7.30	263.90	3,176.3	30.6	-127.8	128.0	0.63	-0.42	-3.65	
3,277.0	6.60	263.50	3,270.6	29.3	-139.3	139.4	0.74	-0.74	-0.42	
3,372.0	6.20	259.70	3,365.0	27.8	-149.7	149.9	0.61	-0.42	-4.00	
3,468.0	6.80	273.90	3,460.4	27.3	-160.5	160.7	1.78	0.63	14.79	
3,563.0	6.10	286.60	3,554.8	29.1	-171.0	171.1	1.67	-0.74	13.37	
3,659.0	7.50	283.90	3,650.1	32.0	-181.9	182.1	1.50	1.46	-2.81	
3,754.0	6.90	283.00	3,744.4	34.8	-193.5	193.7	0.64	-0.63	-0.95	
3,849.0	7.00	279.40	3,838.7	37.0	-204.8	205.0	0.47	0.11	-3.79	
3,945.0	6.90	280.40	3,934.0	39.0	-216.2	216.4	0.16	-0.10	1.04	
4,040.0	6.60	275.80	4,028.3	40.6	-227.3	227.5	0.65	-0.32	-4.84	
4,136.0	6.20	273.90	4,123.7	41.5	-237.9	238.1	0.47	-0.42	-1.98	
4,231.0	6.20	270.20	4,218.2	41.9	-248.2	248.4	0.42	0.00	-3.89	
4,327.0	6.30	272.00	4,313.6	42.1	-258.6	258.8	0.23	0.10	1.88	
4,422.0	6.10	274.80	4,408.1	42.7	-268.9	269.1	0.38	-0.21	2.95	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Wiedeman 28F-214
<b>Project:</b>	SEC.28-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4776.5ft (Ensign Rig #121 RKB - 13.5')
<b>Site:</b>	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	<b>MD Reference:</b>	WELL @ 4776.5ft (Ensign Rig #121 RKB - 13.5')
<b>Well:</b>	Wiedeman 28F-214	<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>	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,518.0	4.60	265.30	4,503.6	42.8	-277.8	278.0	1.81	-1.56	-9.90	
4,613.0	2.60	265.60	4,598.4	42.3	-283.7	284.0	2.11	-2.11	0.32	
4,708.0	1.00	251.90	4,693.4	41.9	-286.7	286.9	1.73	-1.68	-14.42	
4,804.0	1.50	267.90	4,789.4	41.6	-288.7	288.9	0.63	0.52	16.67	
4,899.0	1.40	260.70	4,884.3	41.4	-291.1	291.3	0.22	-0.11	-7.58	
4,995.0	1.10	257.40	4,980.3	41.0	-293.2	293.4	0.32	-0.31	-3.44	
5,090.0	1.10	243.10	5,075.3	40.4	-294.9	295.1	0.29	0.00	-15.05	
5,185.0	1.20	228.70	5,170.3	39.3	-296.4	296.6	0.32	0.11	-15.16	
5,281.0	1.70	217.30	5,266.3	37.5	-298.0	298.2	0.60	0.52	-11.88	
5,376.0	0.60	109.20	5,361.2	36.2	-298.4	298.6	2.07	-1.16	-113.79	
5,472.0	0.70	93.70	5,457.2	36.0	-297.4	297.6	0.21	0.10	-16.15	
5,567.0	0.70	82.00	5,552.2	36.1	-296.2	296.4	0.15	0.00	-12.32	
5,663.0	0.90	55.60	5,648.2	36.6	-295.0	295.2	0.43	0.21	-27.50	
5,758.0	1.00	62.40	5,743.2	37.4	-293.7	293.9	0.16	0.11	7.16	
5,853.0	1.00	44.50	5,838.2	38.4	-292.3	292.5	0.33	0.00	-18.84	
5,949.0	1.10	18.80	5,934.2	39.8	-291.5	291.7	0.50	0.10	-26.77	
6,044.0	1.00	5.80	6,029.2	41.5	-291.1	291.3	0.27	-0.11	-13.68	
6,140.0	0.90	7.40	6,125.1	43.1	-290.9	291.1	0.11	-0.10	1.67	
6,235.0	0.60	262.00	6,220.1	43.8	-291.3	291.5	1.27	-0.32	-110.95	
6,331.0	6.10	258.30	6,315.9	42.7	-296.8	297.0	5.73	5.73	-3.85	
6,426.0	14.80	275.80	6,409.3	42.9	-313.8	314.1	9.65	9.16	18.42	
6,521.0	22.50	273.40	6,499.2	45.2	-344.1	344.3	8.14	8.11	-2.53	
6,617.0	28.50	270.90	6,585.8	46.6	-385.4	385.6	6.35	6.25	-2.60	
6,664.0	29.60	271.30	6,626.9	47.1	-408.2	408.4	2.38	2.34	0.85	
6,712.0	31.90	269.20	6,668.2	47.2	-432.7	433.0	5.29	4.79	-4.38	
6,759.0	34.90	269.70	6,707.4	46.9	-458.6	458.9	6.41	6.38	1.06	
6,808.0	38.20	270.70	6,746.8	47.0	-487.8	488.0	6.84	6.73	2.04	
6,855.0	40.80	271.60	6,783.0	47.6	-517.7	517.9	5.66	5.53	1.91	
6,903.0	42.70	272.30	6,818.8	48.7	-549.6	549.9	4.08	3.96	1.46	
6,950.0	45.50	272.00	6,852.6	49.9	-582.3	582.6	5.97	5.96	-0.64	
6,998.0	49.20	269.50	6,885.1	50.4	-617.6	617.8	8.61	7.71	-5.21	
7,045.0	52.20	269.50	6,914.9	50.1	-653.9	654.2	6.38	6.38	0.00	
7,094.0	52.40	270.20	6,944.8	50.0	-692.7	693.0	1.20	0.41	1.43	
7,141.0	54.00	266.90	6,973.0	49.0	-730.3	730.6	6.57	3.40	-7.02	
7,189.0	58.30	266.70	6,999.7	46.8	-770.1	770.4	8.97	8.96	-0.42	
7,236.0	62.80	268.30	7,022.8	45.0	-811.0	811.2	10.02	9.57	3.40	
7,285.0	68.10	269.50	7,043.2	44.2	-855.5	855.8	11.04	10.82	2.45	
7,332.0	73.50	270.40	7,058.6	44.1	-899.9	900.1	11.63	11.49	1.91	
7,380.0	81.30	270.70	7,069.1	44.6	-946.7	946.9	16.26	16.25	0.63	
7,425.0	87.00	268.50	7,073.7	44.3	-991.5	991.7	13.57	12.67	-4.89	
7,460.0	87.49	268.37	7,075.4	43.3	-1,026.4	1,026.6	1.44	1.39	-0.36	

7"

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Wiedeman 28F-214
<b>Project:</b>	SEC.28-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4776.5ft (Ensign Rig #121 RKB - 13.5')
<b>Site:</b>	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	<b>MD Reference:</b>	WELL @ 4776.5ft (Ensign Rig #121 RKB - 13.5')
<b>Well:</b>	Wiedeman 28F-214	<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>	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
7,590.0	89.30	267.90	7,079.0	39.1	-1,156.3	1,156.5	1.44	1.39	-0.36	
<b>Deepest TVD Depth - 7079'</b>										
7,685.0	90.90	268.50	7,078.9	36.1	-1,251.2	1,251.4	1.80	1.68	0.63	
7,780.0	90.90	268.60	7,077.4	33.7	-1,346.2	1,346.4	0.11	0.00	0.11	
7,876.0	91.60	270.60	7,075.3	33.0	-1,442.2	1,442.3	2.21	0.73	2.08	
7,971.0	91.50	270.70	7,072.7	34.1	-1,537.1	1,537.3	0.15	-0.11	0.11	
8,064.0	90.80	271.60	7,070.8	36.0	-1,630.1	1,630.2	1.23	-0.75	0.97	
8,156.0	90.50	271.60	7,069.8	38.5	-1,722.0	1,722.2	0.33	-0.33	0.00	
8,248.0	90.00	270.60	7,069.4	40.3	-1,814.0	1,814.2	1.22	-0.54	-1.09	
8,340.0	90.70	269.70	7,068.8	40.5	-1,906.0	1,906.2	1.24	0.76	-0.98	
8,433.0	91.60	270.00	7,067.0	40.3	-1,999.0	1,999.2	1.02	0.97	0.32	
8,525.0	90.70	271.30	7,065.1	41.3	-2,091.0	2,091.2	1.72	-0.98	1.41	
8,617.0	89.80	272.30	7,064.7	44.2	-2,182.9	2,183.1	1.46	-0.98	1.09	
8,709.0	90.00	272.30	7,064.9	47.9	-2,274.8	2,275.1	0.22	0.22	0.00	
8,802.0	91.30	272.70	7,063.8	52.0	-2,367.7	2,368.0	1.46	1.40	0.43	
8,894.0	90.00	271.80	7,062.8	55.6	-2,459.7	2,459.9	1.72	-1.41	-0.98	
8,986.0	89.90	270.70	7,062.8	57.6	-2,551.6	2,551.9	1.20	-0.11	-1.20	
9,078.0	89.50	269.00	7,063.3	57.4	-2,643.6	2,643.9	1.90	-0.43	-1.85	
9,171.0	89.30	269.00	7,064.3	55.7	-2,736.6	2,736.9	0.22	-0.22	0.00	
9,263.0	88.60	268.80	7,066.0	54.0	-2,828.6	2,828.8	0.79	-0.76	-0.22	
9,355.0	89.40	268.30	7,067.6	51.6	-2,920.5	2,920.8	1.03	0.87	-0.54	
9,447.0	90.70	267.80	7,067.5	48.5	-3,012.5	3,012.7	1.51	1.41	-0.54	
9,540.0	89.70	268.30	7,067.2	45.3	-3,105.4	3,105.6	1.20	-1.08	0.54	
9,632.0	90.30	269.90	7,067.2	43.9	-3,197.4	3,197.6	1.86	0.65	1.74	
9,724.0	90.10	270.20	7,066.9	44.0	-3,289.4	3,289.6	0.39	-0.22	0.33	
9,817.0	90.00	270.90	7,066.8	44.9	-3,382.4	3,382.6	0.76	-0.11	0.75	
9,909.0	90.00	269.50	7,066.8	45.2	-3,474.4	3,474.6	1.52	0.00	-1.52	
10,001.0	89.30	269.90	7,067.4	44.7	-3,566.4	3,566.6	0.88	-0.76	0.43	
10,093.0	88.50	270.20	7,069.1	44.8	-3,658.4	3,658.6	0.93	-0.87	0.33	
10,185.0	89.20	269.50	7,071.0	44.6	-3,750.4	3,750.6	1.08	0.76	-0.76	
10,278.0	89.50	268.60	7,072.0	43.0	-3,843.3	3,843.5	1.02	0.32	-0.97	
10,370.0	90.00	267.90	7,072.4	40.2	-3,935.3	3,935.5	0.94	0.54	-0.76	
10,465.0	90.30	266.90	7,072.2	35.9	-4,030.2	4,030.3	1.10	0.32	-1.05	
10,560.0	92.00	268.10	7,070.3	31.7	-4,125.1	4,125.2	2.19	1.79	1.26	
10,656.0	92.60	270.00	7,066.4	30.2	-4,221.0	4,221.1	2.07	0.63	1.98	
10,751.0	92.50	271.40	7,062.2	31.3	-4,315.9	4,316.0	1.48	-0.11	1.47	
10,847.0	89.80	272.30	7,060.3	34.4	-4,411.8	4,411.9	2.96	-2.81	0.94	
10,942.0	90.90	271.60	7,059.7	37.6	-4,506.8	4,506.9	1.37	1.16	-0.74	
11,038.0	89.30	272.50	7,059.5	41.1	-4,602.7	4,602.8	1.91	-1.67	0.94	
11,133.0	89.90	272.30	7,060.2	45.1	-4,697.6	4,697.8	0.67	0.63	-0.21	
11,228.0	90.40	271.80	7,059.9	48.5	-4,792.5	4,792.7	0.74	0.53	-0.53	
11,324.0	91.50	271.80	7,058.3	51.5	-4,888.5	4,888.7	1.15	1.15	0.00	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Wiedeman 28F-214
<b>Project:</b>	SEC.28-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4776.5ft (Ensign Rig #121 RKB - 13.5')
<b>Site:</b>	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	<b>MD Reference:</b>	WELL @ 4776.5ft (Ensign Rig #121 RKB - 13.5')
<b>Well:</b>	Wiedeman 28F-214	<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>	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
11,419.0	90.00	272.00	7,057.1	54.6	-4,983.4	4,983.6	1.59	-1.58	0.21	
11,515.0	89.40	271.30	7,057.6	57.4	-5,079.4	5,079.6	0.96	-0.63	-0.73	
11,610.0	90.70	270.90	7,057.5	59.2	-5,174.3	5,174.6	1.43	1.37	-0.42	
11,705.0	90.30	270.20	7,056.7	60.1	-5,269.3	5,269.6	0.85	-0.42	-0.74	
11,801.0	90.00	270.00	7,056.4	60.3	-5,365.3	5,365.6	0.38	-0.31	-0.21	
11,896.0	89.30	268.50	7,057.0	59.0	-5,460.3	5,460.6	1.74	-0.74	-1.58	
11,991.0	89.90	267.90	7,057.7	56.1	-5,555.3	5,555.5	0.89	0.63	-0.63	
12,087.0	91.10	267.60	7,056.8	52.3	-5,651.2	5,651.4	1.29	1.25	-0.31	
12,182.0	90.60	269.70	7,055.4	50.1	-5,746.2	5,746.3	2.27	-0.53	2.21	
12,278.0	90.70	269.20	7,054.3	49.1	-5,842.1	5,842.3	0.53	0.10	-0.52	
12,373.0	89.40	270.20	7,054.3	48.6	-5,937.1	5,937.3	1.73	-1.37	1.05	
12,469.0	90.10	270.40	7,054.7	49.1	-6,033.1	6,033.3	0.76	0.73	0.21	
12,564.0	90.50	270.40	7,054.2	49.8	-6,128.1	6,128.3	0.42	0.42	0.00	
12,660.0	89.90	270.40	7,053.8	50.5	-6,224.1	6,224.3	0.63	-0.63	0.00	
12,755.0	90.40	270.00	7,053.6	50.8	-6,319.1	6,319.3	0.67	0.53	-0.42	
12,850.0	91.00	269.30	7,052.4	50.2	-6,414.1	6,414.3	0.97	0.63	-0.74	
12,945.0	89.10	268.50	7,052.3	48.4	-6,509.1	6,509.3	2.17	-2.00	-0.84	
13,041.0	89.60	270.00	7,053.4	47.1	-6,605.1	6,605.2	1.65	0.52	1.56	
13,136.0	88.60	268.10	7,054.9	45.6	-6,700.0	6,700.2	2.26	-1.05	-2.00	
13,232.0	90.60	269.30	7,055.6	43.4	-6,796.0	6,796.1	2.43	2.08	1.25	
13,327.0	90.00	269.30	7,055.1	42.2	-6,891.0	6,891.1	0.63	-0.63	0.00	
13,422.0	91.80	269.20	7,053.6	41.0	-6,986.0	6,986.1	1.90	1.89	-0.11	
13,517.0	91.90	268.10	7,050.5	38.8	-7,080.9	7,081.0	1.16	0.11	-1.16	
13,612.0	92.00	269.30	7,047.3	36.6	-7,175.8	7,175.9	1.27	0.11	1.26	
13,707.0	91.50	268.50	7,044.4	34.8	-7,270.8	7,270.8	0.99	-0.53	-0.84	
13,803.0	91.50	267.00	7,041.9	31.0	-7,366.7	7,366.7	1.56	0.00	-1.56	
13,898.0	90.40	266.20	7,040.3	25.4	-7,461.5	7,461.5	1.43	-1.16	-0.84	
13,993.0	91.20	267.40	7,039.0	20.1	-7,556.3	7,556.3	1.52	0.84	1.26	
14,089.0	91.20	267.20	7,037.0	15.5	-7,652.2	7,652.2	0.21	0.00	-0.21	
14,107.0	91.40	267.00	7,036.6	14.6	-7,670.2	7,670.1	1.57	1.11	-1.11	
14,160.5	91.40	267.00	7,035.3	11.8	-7,723.6	7,723.5	0.00	0.00	0.00	
<b>BHL 996'FNL &amp; 2163'FEL, SEC.30</b>										
14,162.0	91.40	267.00	7,035.2	11.8	-7,725.1	7,725.0	0.00	0.00	0.00	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Wiedeman 28F-214
<b>Project:</b>	SEC.28-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4776.5ft (Ensign Rig #121 RKB - 13.5')
<b>Site:</b>	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	<b>MD Reference:</b>	WELL @ 4776.5ft (Ensign Rig #121 RKB - 13.5')
<b>Well:</b>	Wiedeman 28F-214	<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>	US_EDM

Design Targets										
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)			
- Shape										
SHL 1006'FNL & 240'FM - survey hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,348,218.72	3,197,776.66	40.287090	-104.791050	
BHL 996'FNL & 2163'FE - survey misses target center by 29.5ft at 14160.5ft MD (7035.3 TVD, 11.8 N, -7723.6 E) - Point	0.00	0.00	7,035.0	41.3	-7,725.1	1,348,198.24	3,190,051.80	40.287200	-104.818740	

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)		Name	Casing Diameter (")	Hole Diameter (")	
7,460.0	7,075.4	7"		7	7-1/2	

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
7,590.0	7,079.0	39.1	-1,156.3	Deepest TVD Depth - 7079'	

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