

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Waste Management 2L-441**

Surface Location: Waste Management 2IL-HZ Pad Sec.2-T2N-R64W

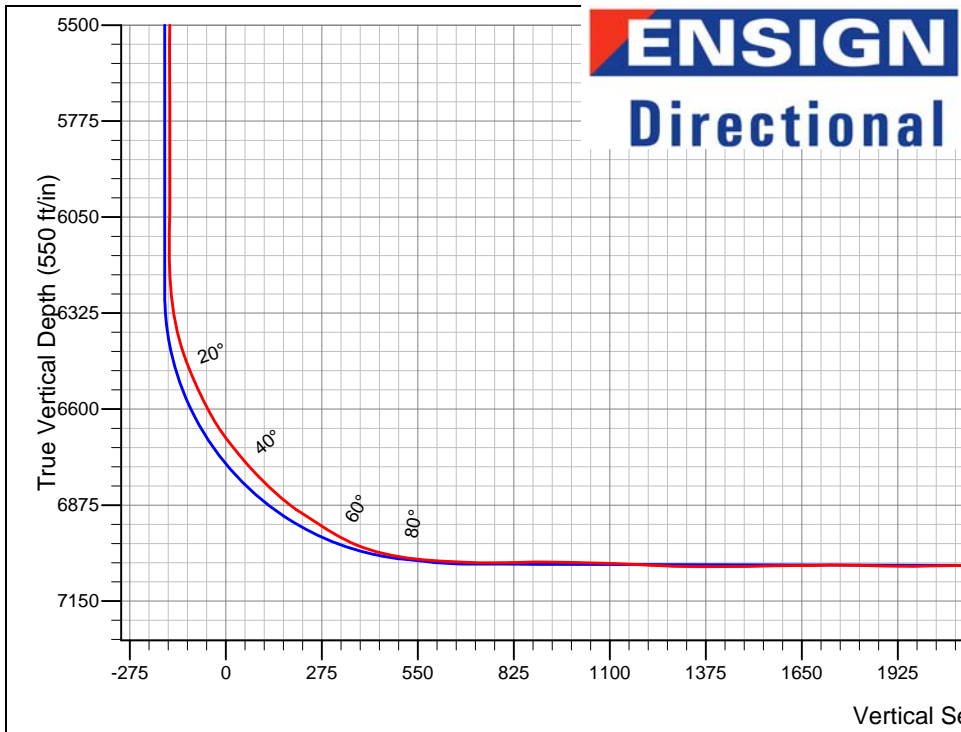
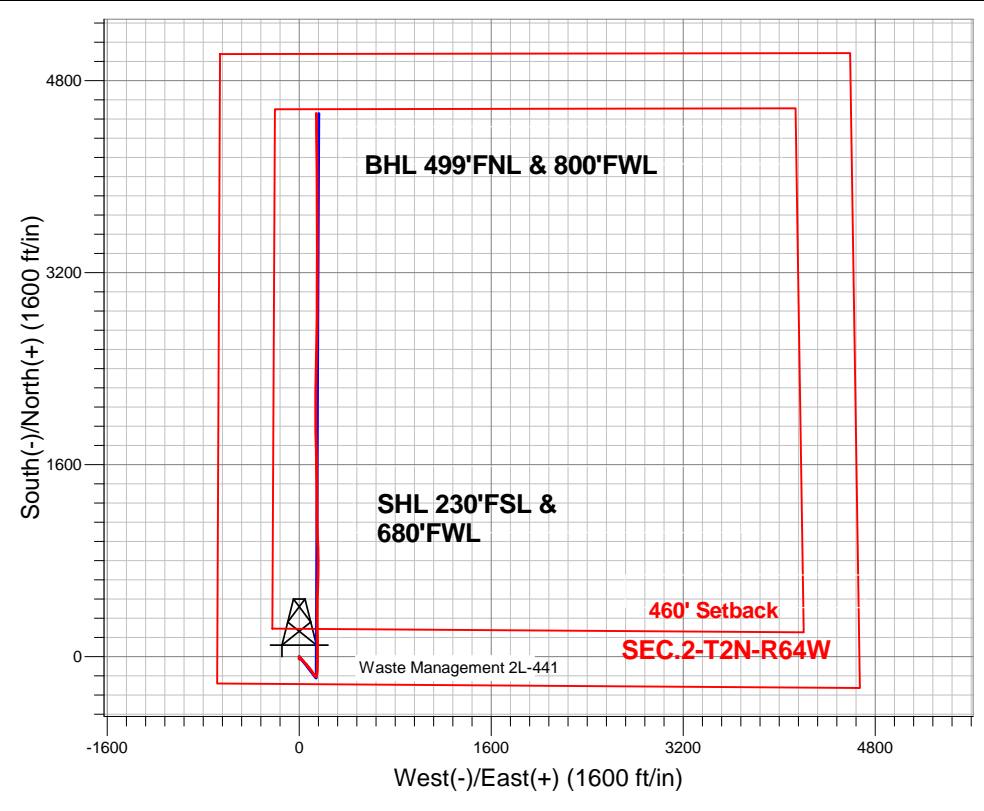
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4939.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1302932.66	3272262.49	40.160840	-104.525850	

RKB - 15' WELL @ 4954.0ft (RKB - 15')

FINAL SURVEY

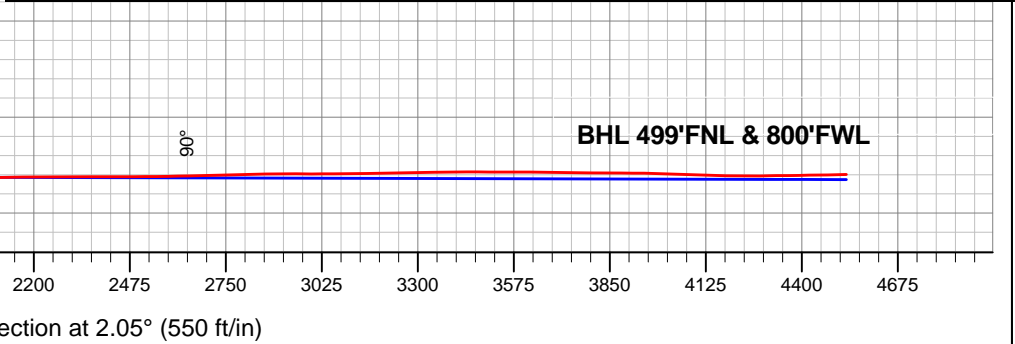
Projected Bottom Hole Location
11379'MD 7039'TVD 4526'N & 142'E
of SHL 91.30 degree Incl @ 358.80
degree AZM



Waste Management 2IL-HZ Pad Sec.2-T2N-R64W
Waste Management 2L-441
Wellbore #1
9:28, June 25 2013

ANNOTATIONS
No annotation data is available.

LEGEND
+ Waste Management 2L-441, Wellbore #1, Plan #1 (6-12-13)R V0
+ Wellbore #1





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.2-T2N-R64W

Waste Management 2IL-HZ Pad Sec.2-T2N-R64W

Waste Management 2L-441

Wellbore #1

Design: Wellbore #1

Standard Survey Report

25 June, 2013



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2L-441
Project:	SEC.2-T2N-R64W	TVD Reference:	WELL @ 4954.0ft (RKB - 15')
Site:	Waste Management 2IL-HZ Pad Sec.2-T2N-R64W	MD Reference:	WELL @ 4954.0ft (RKB - 15')
Well:	Waste Management 2L-441	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.2-T2N-R64W, 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	Waste Management 2IL-HZ Pad Sec.2-T2N-R64W				
Site Position:		Northing:	1,302,936.01 ft	Latitude:	40.160850
From:	Lat/Long	Easting:	3,272,234.50 ft	Longitude:	-104.525950
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.63 °

Well	Waste Management 2L-441					
Well Position	+N-S	0.0 ft	Northing:	1,302,932.66 ft	Latitude:	40.160840
	+E-W	0.0 ft	Easting:	3,272,262.49 ft	Longitude:	-104.525850
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,939.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/12/2013	8.45	66.83	52,820

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	2.05	

Survey Program	Date 6/25/2013				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
119.0	11,379.0	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	
119.0	0.90	196.40	119.0	-0.9	-0.3	-0.9	0.76	0.76	0.00	
209.0	1.50	204.30	209.0	-2.6	-0.9	-2.7	0.69	0.67	8.78	
300.0	1.00	186.90	300.0	-4.5	-1.5	-4.6	0.68	-0.55	-19.12	
423.0	0.60	137.00	422.9	-6.1	-1.2	-6.1	0.62	-0.33	-40.57	
549.0	1.60	118.90	548.9	-7.4	0.8	-7.4	0.83	0.79	-14.37	
674.0	1.10	130.70	673.9	-9.0	3.2	-8.9	0.46	-0.40	9.44	
798.0	0.60	196.80	797.9	-10.4	3.9	-10.3	0.82	-0.40	53.31	
896.0	0.60	190.60	895.9	-11.4	3.7	-11.3	0.07	0.00	-6.33	
968.0	0.40	193.70	967.9	-12.0	3.5	-11.9	0.28	-0.28	4.31	
1,092.0	0.40	174.90	1,091.9	-12.9	3.5	-12.7	0.11	0.00	-15.16	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2L-441
Project:	SEC.2-T2N-R64W	TVD Reference:	WELL @ 4954.0ft (RKB - 15')
Site:	Waste Management 2IL-HZ Pad Sec.2-T2N-R64W	MD Reference:	WELL @ 4954.0ft (RKB - 15')
Well:	Waste Management 2L-441	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)	
1,248.0	0.20	195.80	1,247.9	-13.7	3.5	-13.5	0.14	-0.13	13.40	
1,401.0	0.20	264.60	1,400.9	-14.0	3.1	-13.8	0.15	0.00	44.97	
1,554.0	0.40	230.10	1,553.9	-14.3	2.4	-14.2	0.17	0.13	-22.55	
1,707.0	0.60	208.10	1,706.8	-15.4	1.7	-15.3	0.18	0.13	-14.38	
1,860.0	0.80	200.80	1,859.8	-17.1	0.9	-17.0	0.14	0.13	-4.77	
2,018.0	0.70	228.90	2,017.8	-18.8	-0.2	-18.7	0.24	-0.06	17.78	
2,177.0	0.60	242.60	2,176.8	-19.8	-1.7	-19.8	0.12	-0.06	8.62	
2,430.0	0.40	41.10	2,429.8	-19.7	-2.3	-19.8	0.39	-0.08	62.65	
2,590.0	0.80	61.40	2,589.8	-18.8	-0.9	-18.8	0.28	0.25	12.69	
2,749.0	0.80	70.10	2,748.8	-17.9	1.1	-17.8	0.08	0.00	5.47	
2,907.0	1.00	57.10	2,906.8	-16.7	3.3	-16.6	0.18	0.13	-8.23	
2,971.0	1.00	54.50	2,970.8	-16.1	4.2	-15.9	0.07	0.00	-4.06	
3,034.0	1.20	113.00	3,033.7	-16.0	5.3	-15.8	1.73	0.32	92.86	
3,098.0	2.10	127.30	3,097.7	-17.0	6.8	-16.8	1.54	1.41	22.34	
3,161.0	4.00	120.40	3,160.6	-18.8	9.6	-18.5	3.07	3.02	-10.95	
3,257.0	5.80	123.20	3,256.3	-23.2	16.6	-22.6	1.89	1.88	2.92	
3,384.0	5.50	132.70	3,382.7	-30.8	26.4	-29.8	0.77	-0.24	7.48	
3,511.0	4.70	142.40	3,509.2	-39.1	34.1	-37.8	0.92	-0.63	7.64	
3,606.0	5.50	139.10	3,603.8	-45.6	39.4	-44.1	0.90	0.84	-3.47	
3,701.0	6.20	133.80	3,698.3	-52.6	46.1	-50.9	0.93	0.74	-5.58	
3,796.0	4.70	128.50	3,792.9	-58.6	52.8	-56.6	1.66	-1.58	-5.58	
3,891.0	4.70	141.30	3,887.5	-64.0	58.3	-61.9	1.10	0.00	13.47	
3,986.0	6.60	142.70	3,982.1	-71.4	64.1	-69.1	2.01	2.00	1.47	
4,081.0	6.60	141.50	4,076.4	-80.0	70.8	-77.4	0.15	0.00	-1.26	
4,176.0	6.20	138.90	4,170.9	-88.2	77.5	-85.3	0.52	-0.42	-2.74	
4,271.0	6.90	142.20	4,265.2	-96.5	84.4	-93.4	0.84	0.74	3.47	
4,366.0	6.80	146.10	4,359.6	-105.7	91.0	-102.4	0.50	-0.11	4.11	
4,461.0	6.30	144.90	4,453.9	-114.6	97.2	-111.1	0.55	-0.53	-1.26	
4,557.0	5.60	144.90	4,549.4	-122.8	102.9	-119.0	0.73	-0.73	0.00	
4,652.0	5.50	146.60	4,644.0	-130.4	108.1	-126.4	0.20	-0.11	1.79	
4,748.0	5.40	146.60	4,739.5	-138.0	113.1	-133.8	0.10	-0.10	0.00	
4,843.0	5.00	146.40	4,834.1	-145.2	117.8	-140.9	0.42	-0.42	-0.21	
4,938.0	3.10	130.10	4,928.9	-150.3	122.1	-145.8	2.32	-2.00	-17.16	
5,033.0	2.20	122.90	5,023.8	-152.9	125.6	-148.3	1.01	-0.95	-7.58	
5,160.0	2.90	139.40	5,150.7	-156.7	129.7	-151.9	0.79	0.55	12.99	
5,287.0	2.80	146.80	5,277.5	-161.7	133.5	-156.8	0.30	-0.08	5.83	
5,414.0	0.70	188.30	5,404.5	-165.1	135.1	-160.1	1.83	-1.65	32.68	
5,573.0	0.10	302.40	5,563.5	-166.0	134.9	-161.0	0.47	-0.38	71.76	
5,731.0	0.40	70.10	5,721.5	-165.7	135.3	-160.8	0.30	0.19	80.82	
5,889.0	0.70	82.60	5,879.4	-165.4	136.7	-160.4	0.20	0.19	7.91	
6,048.0	0.60	105.00	6,038.4	-165.5	138.5	-160.4	0.17	-0.06	14.09	
6,143.0	0.80	137.30	6,133.4	-166.1	139.4	-161.0	0.46	0.21	34.00	
6,174.0	0.60	127.60	6,164.4	-166.4	139.7	-161.2	0.75	-0.65	-31.29	
6,207.0	1.30	41.00	6,197.4	-166.2	140.1	-161.1	4.24	2.12	-262.42	
6,239.0	3.30	28.70	6,229.4	-165.1	140.8	-159.9	6.40	6.25	-38.44	
6,270.0	5.60	11.60	6,260.3	-162.8	141.5	-157.7	8.49	7.42	-55.16	
6,302.0	8.00	11.10	6,292.1	-159.1	142.2	-153.9	7.50	7.50	-1.56	
6,334.0	9.20	12.30	6,323.7	-154.4	143.2	-149.2	3.79	3.75	3.75	
6,365.0	11.00	11.80	6,354.2	-149.1	144.3	-143.8	5.81	5.81	-1.61	
6,397.0	13.80	11.30	6,385.5	-142.4	145.7	-137.1	8.76	8.75	-1.56	
6,429.0	16.50	9.50	6,416.4	-134.2	147.2	-128.8	8.56	8.44	-5.63	
6,461.0	19.00	6.30	6,446.8	-124.5	148.5	-119.1	8.38	7.81	-10.00	
6,492.0	21.30	3.70	6,475.9	-113.9	149.5	-108.4	7.96	7.42	-8.39	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2L-441
Project:	SEC.2-T2N-R64W	TVD Reference:	WELL @ 4954.0ft (RKB - 15')
Site:	Waste Management 2IL-HZ Pad Sec.2-T2N-R64W	MD Reference:	WELL @ 4954.0ft (RKB - 15')
Well:	Waste Management 2L-441	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)
6,524.0	23.20	0.50	6,505.6	-101.8	149.9	-96.3	7.04	5.94	-10.00
6,556.0	24.40	1.10	6,534.8	-88.8	150.1	-83.4	3.83	3.75	1.88
6,588.0	26.20	1.80	6,563.8	-75.2	150.4	-69.7	5.70	5.63	2.19
6,619.0	26.90	1.60	6,591.5	-61.3	150.8	-55.9	2.28	2.26	-0.65
6,651.0	29.10	1.20	6,619.8	-46.3	151.2	-40.9	6.90	6.88	-1.25
6,683.0	32.50	0.70	6,647.2	-29.9	151.5	-24.5	10.66	10.63	-1.56
6,714.0	35.90	0.40	6,672.9	-12.5	151.6	-7.1	10.98	10.97	-0.97
6,746.0	38.40	359.70	6,698.4	6.8	151.6	12.2	7.92	7.81	-2.19
6,777.0	38.70	0.90	6,722.6	26.1	151.7	31.6	2.60	0.97	3.87
6,809.0	40.40	0.50	6,747.3	46.5	152.0	51.9	5.37	5.31	-1.25
6,841.0	42.40	359.10	6,771.3	67.7	151.9	73.1	6.89	6.25	-4.38
6,872.0	44.80	358.60	6,793.7	89.0	151.5	94.4	7.82	7.74	-1.61
6,904.0	46.10	359.50	6,816.2	111.8	151.1	117.2	4.53	4.06	2.81
6,936.0	47.00	0.00	6,838.2	135.1	151.0	140.4	3.03	2.81	1.56
6,968.0	50.10	359.30	6,859.4	159.1	150.9	164.4	9.83	9.69	-2.19
6,999.0	54.00	359.00	6,878.4	183.5	150.5	188.8	12.60	12.58	-0.97
7,031.0	57.10	359.00	6,896.5	209.9	150.0	215.1	9.69	9.69	0.00
7,063.0	56.60	358.60	6,914.0	236.7	149.5	241.9	1.88	-1.56	-1.25
7,094.0	57.30	359.00	6,930.9	262.6	148.9	267.8	2.50	2.26	1.29
7,126.0	58.50	359.00	6,948.0	289.7	148.5	294.9	3.75	3.75	0.00
7,158.0	60.70	359.50	6,964.1	317.3	148.1	322.4	7.01	6.88	1.56
7,189.0	64.60	359.80	6,978.4	344.9	147.9	349.9	12.61	12.58	0.97
7,221.0	68.40	0.50	6,991.1	374.2	148.0	379.3	12.04	11.88	2.19
7,253.0	72.30	0.70	7,001.9	404.3	148.3	409.4	12.20	12.19	0.63
7,284.0	75.20	1.10	7,010.6	434.1	148.8	439.1	9.44	9.35	1.29
7,316.0	78.10	1.10	7,018.0	465.2	149.4	470.3	9.06	9.06	0.00
7,343.0	80.50	1.40	7,023.0	491.7	150.0	496.8	8.96	8.89	1.11
7,376.0	83.40	1.60	7,027.6	524.4	150.8	529.5	8.81	8.79	0.61
7,406.0	84.70	1.80	7,030.7	554.2	151.7	559.3	4.38	4.33	0.67
7,436.0	85.10	1.20	7,033.4	584.1	152.5	589.2	2.40	1.33	-2.00
7,466.0	86.00	1.60	7,035.7	614.0	153.2	619.1	3.28	3.00	1.33
7,496.0	87.20	1.80	7,037.5	643.9	154.1	649.0	4.05	4.00	0.67
7,526.0	88.00	1.90	7,038.7	673.9	155.1	679.0	2.69	2.67	0.33
7,557.0	88.40	1.40	7,039.7	704.9	156.0	710.0	2.06	1.29	-1.61
7,589.0	89.50	0.90	7,040.3	736.8	156.6	742.0	3.78	3.44	-1.56
7,620.0	90.50	0.00	7,040.3	767.8	156.9	773.0	4.34	3.23	-2.90
7,653.0	91.30	359.30	7,039.8	800.8	156.7	805.9	3.22	2.42	-2.12
7,684.0	91.10	358.60	7,039.1	831.8	156.1	836.9	2.35	-0.65	-2.26
7,716.0	91.10	358.80	7,038.5	863.8	155.4	868.8	0.62	0.00	0.63
7,748.0	90.00	358.10	7,038.2	895.8	154.5	900.8	4.07	-3.44	-2.19
7,779.0	89.40	357.70	7,038.4	926.8	153.4	931.7	2.33	-1.94	-1.29
7,811.0	88.70	358.10	7,038.9	958.8	152.2	963.6	2.52	-2.19	1.25
7,843.0	88.70	358.40	7,039.6	990.7	151.2	995.5	0.94	0.00	0.94
7,875.0	89.20	358.10	7,040.2	1,022.7	150.2	1,027.4	1.82	1.56	-0.94
7,907.0	89.20	358.10	7,040.7	1,054.7	149.2	1,059.4	0.00	0.00	0.00
7,938.0	88.30	359.10	7,041.3	1,085.7	148.4	1,090.3	4.34	-2.90	3.23
7,970.0	86.80	359.10	7,042.7	1,117.6	147.9	1,122.2	4.69	-4.69	0.00
8,002.0	86.90	359.10	7,044.5	1,149.6	147.4	1,154.1	0.31	0.31	0.00
8,034.0	87.40	359.10	7,046.0	1,181.5	146.9	1,186.0	1.56	1.56	0.00
8,066.0	87.60	359.00	7,047.4	1,213.5	146.4	1,218.0	0.70	0.63	-0.31
8,097.0	87.60	359.00	7,048.7	1,244.5	145.8	1,248.9	0.00	0.00	0.00
8,129.0	88.10	359.30	7,049.9	1,276.4	145.4	1,280.8	1.82	1.56	0.94

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2L-441
Project:	SEC.2-T2N-R64W	TVD Reference:	WELL @ 4954.0ft (RKB - 15')
Site:	Waste Management 2IL-HZ Pad Sec.2-T2N-R64W	MD Reference:	WELL @ 4954.0ft (RKB - 15')
Well:	Waste Management 2L-441	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)	
8,161.0	89.10	359.70	7,050.7	1,308.4	145.1	1,312.8	3.37	3.13	1.25	
8,193.0	89.60	359.80	7,051.1	1,340.4	144.9	1,344.8	1.59	1.56	0.31	
8,224.0	90.00	0.20	7,051.2	1,371.4	144.9	1,375.7	1.82	1.29	1.29	
8,256.0	89.80	0.20	7,051.3	1,403.4	145.1	1,407.7	0.63	-0.63	0.00	
8,288.0	89.70	359.50	7,051.4	1,435.4	145.0	1,439.7	2.21	-0.31	-2.19	
8,320.0	91.20	359.70	7,051.1	1,467.4	144.7	1,471.7	4.73	4.69	0.63	
8,351.0	91.70	359.80	7,050.4	1,498.4	144.6	1,502.6	1.64	1.61	0.32	
8,383.0	91.30	359.50	7,049.5	1,530.4	144.4	1,534.6	1.56	-1.25	-0.94	
8,415.0	90.70	359.50	7,049.0	1,562.4	144.1	1,566.6	1.88	-1.88	0.00	
8,447.0	90.70	359.70	7,048.6	1,594.4	143.9	1,598.5	0.62	0.00	0.63	
8,478.0	90.50	359.30	7,048.2	1,625.4	143.6	1,629.5	1.44	-0.65	-1.29	
8,510.0	90.70	358.80	7,047.9	1,657.4	143.1	1,661.5	1.68	0.63	-1.56	
8,542.0	90.60	358.80	7,047.5	1,689.4	142.4	1,693.4	0.31	-0.31	0.00	
8,574.0	90.60	359.00	7,047.2	1,721.4	141.8	1,725.3	0.62	0.00	0.63	
8,606.0	90.40	359.10	7,046.9	1,753.4	141.3	1,757.3	0.70	-0.63	0.31	
8,638.0	89.40	358.80	7,047.0	1,785.4	140.7	1,789.3	3.26	-3.13	-0.94	
8,669.0	88.50	359.00	7,047.6	1,816.4	140.1	1,820.2	2.97	-2.90	0.65	
8,701.0	88.00	357.70	7,048.5	1,848.3	139.2	1,852.1	4.35	-1.56	-4.06	
8,732.0	88.50	357.60	7,049.5	1,879.3	137.9	1,883.0	1.64	1.61	-0.32	
8,764.0	89.20	357.90	7,050.1	1,911.3	136.7	1,914.9	2.38	2.19	0.94	
8,796.0	89.90	358.80	7,050.4	1,943.2	135.7	1,946.8	3.56	2.19	2.81	
8,827.0	90.60	359.50	7,050.2	1,974.2	135.3	1,977.8	3.19	2.26	2.26	
8,859.0	90.90	359.30	7,049.8	2,006.2	135.0	2,009.8	1.13	0.94	-0.63	
8,891.0	91.20	0.20	7,049.2	2,038.2	134.8	2,041.7	2.96	0.94	2.81	
8,923.0	91.80	0.40	7,048.4	2,070.2	135.0	2,073.7	1.98	1.88	0.63	
8,954.0	91.10	0.50	7,047.6	2,101.2	135.2	2,104.7	2.28	-2.26	0.32	
8,987.0	90.70	1.10	7,047.1	2,134.2	135.7	2,137.7	2.18	-1.21	1.82	
9,019.0	90.40	1.40	7,046.8	2,166.2	136.4	2,169.7	1.33	-0.94	0.94	
9,050.0	89.90	1.40	7,046.7	2,197.2	137.1	2,200.7	1.61	-1.61	0.00	
9,082.0	89.90	1.10	7,046.8	2,229.2	137.8	2,232.7	0.94	0.00	-0.94	
9,114.0	90.80	0.20	7,046.6	2,261.2	138.2	2,264.7	3.98	2.81	-2.81	
9,146.0	90.80	0.50	7,046.1	2,293.2	138.4	2,296.6	0.94	0.00	0.94	
9,178.0	90.70	0.90	7,045.7	2,325.2	138.8	2,328.6	1.29	-0.31	1.25	
9,209.0	90.20	1.20	7,045.5	2,356.1	139.4	2,359.6	1.88	-1.61	0.97	
9,241.0	89.40	1.40	7,045.6	2,388.1	140.1	2,391.6	2.58	-2.50	0.63	
9,273.0	89.90	1.60	7,045.8	2,420.1	140.9	2,423.6	1.68	1.56	0.63	
9,304.0	90.10	1.80	7,045.8	2,451.1	141.8	2,454.6	0.91	0.65	0.65	
9,336.0	90.30	1.60	7,045.7	2,483.1	142.8	2,486.6	0.88	0.63	-0.63	
9,368.0	90.50	1.40	7,045.4	2,515.1	143.6	2,518.6	0.88	0.63	-0.63	
9,400.0	90.80	0.90	7,045.1	2,547.1	144.3	2,550.6	1.82	0.94	-1.56	
9,432.0	90.80	0.90	7,044.6	2,579.1	144.8	2,582.6	0.00	0.00	0.00	
9,463.0	90.80	0.70	7,044.2	2,610.1	145.2	2,613.6	0.65	0.00	-0.65	
9,495.0	91.10	0.40	7,043.7	2,642.1	145.5	2,645.6	1.33	0.94	-0.94	
9,527.0	91.20	0.20	7,043.0	2,674.1	145.7	2,677.6	0.70	0.31	-0.63	
9,559.0	91.60	0.20	7,042.2	2,706.0	145.8	2,709.5	1.25	1.25	0.00	
9,590.0	92.20	0.20	7,041.2	2,737.0	145.9	2,740.5	1.94	1.94	0.00	
9,622.0	92.20	0.50	7,040.0	2,769.0	146.1	2,772.5	0.94	0.00	0.94	
9,654.0	91.50	0.50	7,038.9	2,801.0	146.4	2,804.4	2.19	-2.19	0.00	
9,686.0	91.10	0.50	7,038.2	2,833.0	146.7	2,836.4	1.25	-1.25	0.00	
9,717.0	90.40	0.00	7,037.8	2,864.0	146.8	2,867.4	2.77	-2.26	-1.61	
9,750.0	89.90	1.40	7,037.7	2,897.0	147.2	2,900.4	4.50	-1.52	4.24	
9,781.0	89.80	0.40	7,037.8	2,928.0	147.7	2,931.4	3.24	-0.32	-3.23	
9,813.0	89.90	0.70	7,037.9	2,960.0	148.0	2,963.4	0.99	0.31	0.94	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2L-441
Project:	SEC.2-T2N-R64W	TVD Reference:	WELL @ 4954.0ft (RKB - 15')
Site:	Waste Management 2IL-HZ Pad Sec.2-T2N-R64W	MD Reference:	WELL @ 4954.0ft (RKB - 15')
Well:	Waste Management 2L-441	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)	
9,845.0	90.10	0.90	7,037.9	2,992.0	148.4	2,995.4	0.88	0.63	0.63	
9,877.0	90.30	0.70	7,037.8	3,024.0	148.9	3,027.3	0.88	0.63	-0.63	
9,909.0	90.30	0.40	7,037.6	3,056.0	149.2	3,059.3	0.94	0.00	-0.94	
9,940.0	90.50	0.40	7,037.4	3,086.9	149.4	3,090.3	0.65	0.65	0.00	
9,972.0	90.80	0.50	7,037.0	3,118.9	149.7	3,122.3	0.99	0.94	0.31	
10,004.0	90.80	0.40	7,036.6	3,150.9	149.9	3,154.3	0.31	0.00	-0.31	
10,036.0	91.10	0.20	7,036.1	3,182.9	150.1	3,186.3	1.13	0.94	-0.63	
10,068.0	91.20	0.40	7,035.4	3,214.9	150.2	3,218.2	0.70	0.31	0.63	
10,099.0	91.10	0.20	7,034.8	3,245.9	150.4	3,249.2	0.72	-0.32	-0.65	
10,131.0	90.90	0.00	7,034.2	3,277.9	150.5	3,281.2	0.88	-0.63	-0.63	
10,163.0	90.70	359.50	7,033.8	3,309.9	150.3	3,313.2	1.68	-0.63	-1.56	
10,194.0	90.80	359.50	7,033.4	3,340.9	150.0	3,344.1	0.32	0.32	0.00	
10,226.0	91.00	0.00	7,032.9	3,372.9	149.9	3,376.1	1.68	0.63	1.56	
10,258.0	91.00	359.50	7,032.3	3,404.9	149.8	3,408.1	1.56	0.00	-1.56	
10,290.0	90.20	0.20	7,032.0	3,436.9	149.7	3,440.1	3.32	-2.50	2.19	
10,322.0	89.20	0.40	7,032.1	3,468.9	149.9	3,472.0	3.19	-3.13	0.63	
10,354.0	89.40	0.70	7,032.5	3,500.9	150.2	3,504.0	1.13	0.63	0.94	
10,385.0	89.90	0.40	7,032.7	3,531.9	150.5	3,535.0	1.88	1.61	-0.97	
10,417.0	90.50	359.80	7,032.6	3,563.9	150.5	3,567.0	2.65	1.88	-1.88	
10,449.0	90.30	0.20	7,032.4	3,595.9	150.5	3,599.0	1.40	-0.63	1.25	
10,481.0	89.50	359.50	7,032.4	3,627.9	150.4	3,631.0	3.32	-2.50	-2.19	
10,513.0	88.90	0.00	7,032.9	3,659.9	150.3	3,662.9	2.44	-1.88	1.56	
10,545.0	89.10	359.80	7,033.5	3,691.9	150.2	3,694.9	0.88	0.63	-0.63	
10,576.0	89.40	0.00	7,033.9	3,722.9	150.2	3,725.9	1.16	0.97	0.65	
10,608.0	89.40	359.10	7,034.2	3,754.9	149.9	3,757.8	2.81	0.00	-2.81	
10,639.0	89.30	359.10	7,034.5	3,785.9	149.4	3,788.8	0.32	-0.32	0.00	
10,671.0	89.70	358.60	7,034.8	3,817.9	148.8	3,820.7	2.00	1.25	-1.56	
10,703.0	89.40	358.80	7,035.1	3,849.9	148.1	3,852.7	1.13	-0.94	0.63	
10,734.0	89.30	358.80	7,035.4	3,880.8	147.4	3,883.6	0.32	-0.32	0.00	
10,766.0	89.50	359.50	7,035.8	3,912.8	146.9	3,915.6	2.27	0.63	2.19	
10,799.0	89.40	359.50	7,036.1	3,945.8	146.7	3,948.6	0.30	-0.30	0.00	
10,830.0	88.90	359.80	7,036.5	3,976.8	146.5	3,979.5	1.88	-1.61	0.97	
10,861.0	88.20	0.50	7,037.3	4,007.8	146.6	4,010.5	3.19	-2.26	2.26	
10,893.0	87.70	0.20	7,038.5	4,039.8	146.7	4,042.5	1.82	-1.56	-0.94	
10,925.0	87.80	359.70	7,039.7	4,071.8	146.7	4,074.4	1.59	0.31	-1.56	
10,956.0	87.90	359.70	7,040.9	4,102.8	146.6	4,105.4	0.32	0.32	0.00	
10,988.0	88.00	359.50	7,042.0	4,134.7	146.3	4,137.3	0.70	0.31	-0.63	
11,020.0	88.80	359.70	7,042.9	4,166.7	146.1	4,169.3	2.58	2.50	0.63	
11,052.0	89.60	0.20	7,043.4	4,198.7	146.1	4,201.3	2.95	2.50	1.56	
11,083.0	90.00	359.30	7,043.5	4,229.7	145.9	4,232.2	3.18	1.29	-2.90	
11,115.0	90.30	359.50	7,043.4	4,261.7	145.6	4,264.2	1.13	0.94	0.63	
11,146.0	90.60	359.70	7,043.2	4,292.7	145.4	4,295.2	1.16	0.97	0.65	
11,178.0	91.00	359.10	7,042.7	4,324.7	145.1	4,327.1	2.25	1.25	-1.88	
11,210.0	90.60	359.50	7,042.3	4,356.7	144.7	4,359.1	1.77	-1.25	1.25	
11,242.0	90.50	359.10	7,042.0	4,388.7	144.3	4,391.0	1.29	-0.31	-1.25	
11,273.0	90.90	359.50	7,041.6	4,419.7	143.9	4,422.0	1.82	1.29	1.29	
11,325.0	91.30	358.80	7,040.6	4,471.7	143.1	4,473.9	1.55	0.77	-1.35	
11,377.2	91.30	358.80	7,039.4	4,523.8	142.0	4,526.0	0.00	0.00	0.00	
BHL 500'FNL, 820'FWL										
11,379.0	91.30	358.80	7,039.4	4,525.6	142.0	4,527.8	0.00	0.00	0.00	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2L-441
Project:	SEC.2-T2N-R64W	TVD Reference:	WELL @ 4954.0ft (RKB - 15')
Site:	Waste Management 2IL-HZ Pad Sec.2-T2N-R64W	MD Reference:	WELL @ 4954.0ft (RKB - 15')
Well:	Waste Management 2L-441	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------