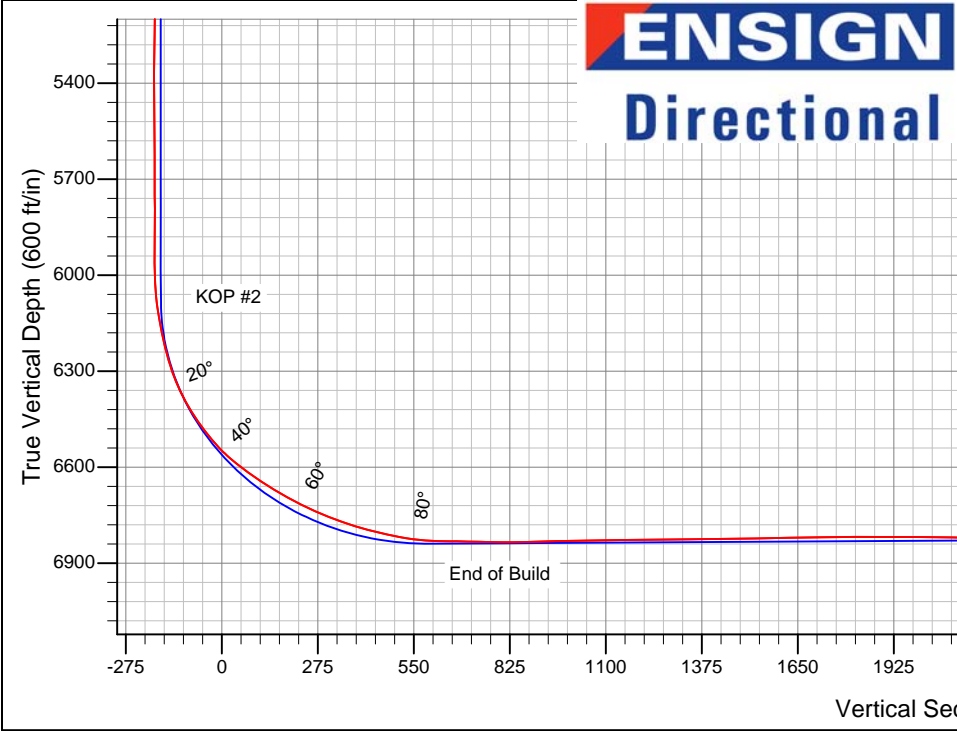
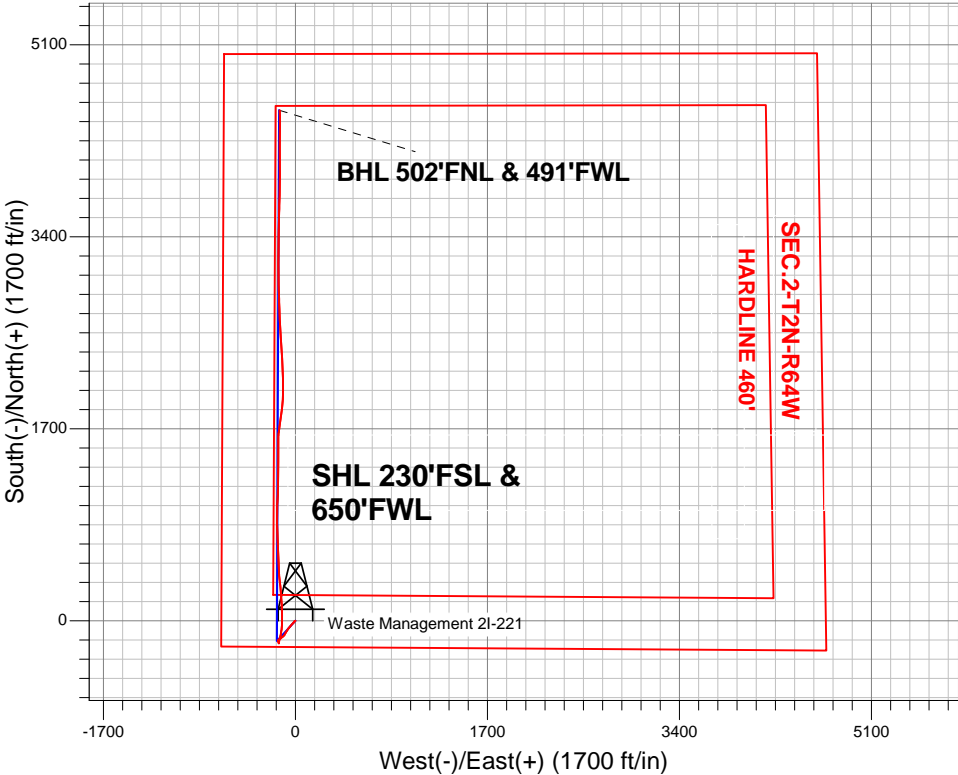


PETROLEUM DEVELOPMENT CORP Weld County CO

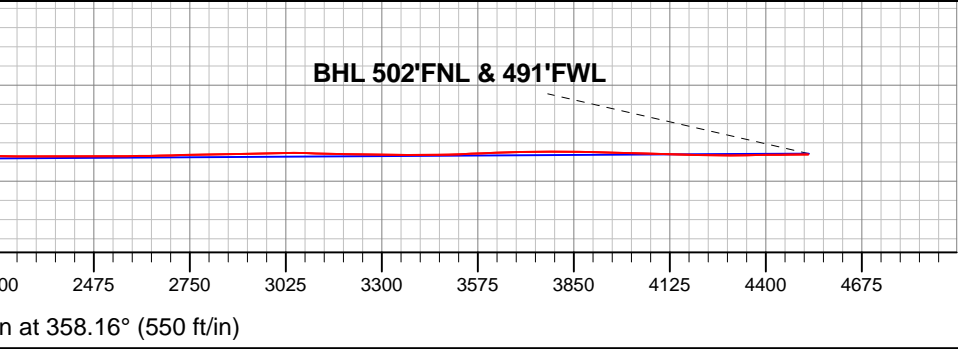
Well Name: **Waste Management 2I-221**
Surface Location: Waste Management 2IL-HZ Pad Sec.2-T2N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4939.0
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1302936.01 3272234.50 40.160850 -104.525950
RKB - 15' WELL @ 4954.0ft (RKB - 15')

FINAL SURVEY

Projected Bottom Hole Location
11210'MD 6816'TVD 4519'N &
140'W of SHL 90.90 degree Incl
@ 359.20 degree AZM



Waste Management 2IL-HZ Pad Sec.2-T2N-R64W Waste Management 2I-221 Wellbore #1 9:01, June 13 2013	ANNOTATIONS
	No annotation data is available.
LEGEND	
Waste Management 2I-221, Wellbore #1, Plan #1 (5-31-13) R V0	
Wellbore #1	
Survey #1	





Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.2-T2N-R64W

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

Waste Management 2I-221

Wellbore #1

Survey: Survey #1

Standard Survey Report

13 June, 2013

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2I-221
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 2I-221	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 2I-221					
Well Position	+N-S	0.0 ft	Northing:	1,302,936.01 ft	Latitude:	40.160850
	+E-W	0.0 ft	Easting:	3,272,234.50 ft	Longitude:	-104.525950
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	5/31/2013	8.45	66.83	52,824

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	358.16	

Survey Program	Date 6/13/2013				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
120.0	11,210.0	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
120.0	0.50	270.90	120.0	0.0	-0.5	0.0	0.42	0.42	0.00
209.0	0.50	255.50	209.0	-0.1	-1.3	0.0	0.15	0.00	-17.30
298.0	0.80	236.60	298.0	-0.5	-2.2	-0.5	0.41	0.34	-21.24
422.0	1.10	236.30	422.0	-1.7	-3.9	-1.5	0.24	0.24	-0.24
548.0	1.00	232.10	548.0	-3.0	-5.8	-2.8	0.10	-0.08	-3.33
673.0	0.90	230.50	672.9	-4.3	-7.4	-4.1	0.08	-0.08	-1.28
798.0	0.70	245.80	797.9	-5.2	-8.8	-5.0	0.23	-0.16	12.24
906.0	0.60	216.10	905.9	-6.0	-9.8	-5.6	0.32	-0.09	-27.50
964.0	0.90	217.00	963.9	-6.6	-10.2	-6.2	0.52	0.52	1.55
1,028.0	2.60	197.50	1,027.9	-8.4	-11.0	-8.0	2.78	2.66	-30.47

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2I-221
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 2I-221	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)
1,121.0	5.50	219.80	1,120.6	-13.8	-14.5	-13.3	3.49	3.12	23.98
1,247.0	5.70	223.00	1,246.0	-23.0	-22.6	-22.3	0.29	0.16	2.54
1,400.0	5.60	226.50	1,398.3	-33.7	-33.2	-32.6	0.23	-0.07	2.29
1,462.0	5.50	218.00	1,460.0	-38.1	-37.2	-36.9	1.33	-0.16	-13.71
1,583.0	5.50	214.50	1,580.5	-47.5	-44.1	-46.0	0.28	0.00	-2.89
1,737.0	5.80	230.90	1,733.7	-58.5	-54.3	-56.7	1.06	0.19	10.65
1,891.0	4.60	212.80	1,887.1	-68.6	-63.7	-66.5	1.31	-0.78	-11.75
2,050.0	5.30	206.40	2,045.5	-80.5	-70.4	-78.2	0.56	0.44	-4.03
2,208.0	4.00	211.40	2,203.0	-91.7	-76.5	-89.2	0.86	-0.82	3.16
2,367.0	4.10	214.00	2,361.6	-101.2	-82.6	-98.5	0.13	0.06	1.64
2,525.0	5.20	210.50	2,519.1	-112.0	-89.4	-109.1	0.72	0.70	-2.22
2,684.0	4.10	207.00	2,677.5	-123.3	-95.6	-120.2	0.71	-0.69	-2.20
2,842.0	3.80	225.20	2,835.2	-132.0	-101.9	-128.7	0.81	-0.19	11.52
2,969.0	5.00	231.20	2,961.8	-138.5	-109.2	-134.9	1.01	0.94	4.72
3,097.0	4.90	227.90	3,089.3	-145.6	-117.6	-141.8	0.24	-0.08	-2.58
3,223.0	4.80	233.10	3,214.9	-152.4	-125.8	-148.3	0.36	-0.08	4.13
3,350.0	4.00	230.20	3,341.5	-158.4	-133.4	-154.1	0.65	-0.63	-2.28
3,478.0	4.00	236.70	3,469.2	-163.7	-140.6	-159.1	0.35	0.00	5.08
3,604.0	3.20	239.30	3,594.9	-168.0	-147.3	-163.1	0.65	-0.63	2.06
3,731.0	3.10	231.00	3,721.7	-171.9	-153.0	-166.9	0.37	-0.08	-6.54
3,794.0	0.80	195.20	3,784.7	-173.4	-154.5	-168.4	3.96	-3.65	-56.83
3,921.0	1.00	150.20	3,911.7	-175.2	-154.1	-170.2	0.56	0.16	-35.43
4,048.0	0.80	170.90	4,038.7	-177.1	-153.5	-172.1	0.30	-0.16	16.30
4,175.0	0.70	145.10	4,165.6	-178.6	-152.9	-173.6	0.27	-0.08	-20.32
4,302.0	0.90	151.40	4,292.6	-180.1	-151.9	-175.1	0.17	0.16	4.96
4,429.0	1.20	165.10	4,419.6	-182.3	-151.1	-177.3	0.31	0.24	10.79
4,556.0	1.10	157.20	4,546.6	-184.7	-150.3	-179.7	0.15	-0.08	-6.22
4,683.0	1.90	174.30	4,673.5	-187.9	-149.6	-183.0	0.72	0.63	13.46
4,810.0	2.00	196.90	4,800.5	-192.1	-150.1	-187.2	0.61	0.08	17.80
4,905.0	0.40	122.40	4,895.5	-193.9	-150.3	-188.9	2.03	-1.68	-78.42
5,000.0	1.00	115.90	4,990.4	-194.4	-149.2	-189.5	0.64	0.63	-6.84
5,128.0	1.20	145.60	5,118.4	-196.0	-147.5	-191.2	0.47	0.16	23.20
5,255.0	0.30	164.60	5,245.4	-197.4	-146.6	-192.6	0.73	-0.71	14.96
5,381.0	0.90	195.90	5,371.4	-198.7	-146.8	-193.9	0.53	0.48	24.84
5,508.0	1.10	329.30	5,498.4	-198.6	-147.7	-193.7	1.45	0.16	105.04
5,635.0	0.20	328.80	5,625.4	-197.4	-148.5	-192.5	0.71	-0.71	-0.39
5,761.0	0.10	85.00	5,751.4	-197.2	-148.5	-192.3	0.21	-0.08	92.22
5,888.0	0.20	85.50	5,878.4	-197.1	-148.1	-192.3	0.08	0.08	0.39
5,951.0	0.30	86.70	5,941.4	-197.1	-147.9	-192.3	0.16	0.16	1.90
5,983.0	0.40	76.50	5,973.4	-197.1	-147.7	-192.2	0.37	0.31	-31.88
6,015.0	1.60	7.30	6,005.4	-196.6	-147.5	-191.8	4.70	3.75	-216.25
6,046.0	3.30	12.50	6,036.3	-195.3	-147.2	-190.5	5.52	5.48	16.77
6,078.0	5.30	11.50	6,068.3	-193.0	-146.8	-188.2	6.25	6.25	-3.13
6,110.0	7.40	13.25	6,100.1	-189.5	-146.0	-184.7	6.59	6.56	5.47
6,142.0	9.30	12.50	6,131.7	-185.0	-145.0	-180.2	5.95	5.94	-2.34
6,173.0	10.60	8.10	6,162.3	-179.7	-144.0	-175.0	4.86	4.19	-14.19
6,205.0	11.20	8.00	6,193.7	-173.7	-143.2	-169.0	1.88	1.88	-0.31
6,237.0	12.80	13.20	6,225.0	-167.2	-141.9	-162.5	6.03	5.00	16.25
6,268.0	14.90	16.40	6,255.1	-160.0	-140.0	-155.4	7.21	6.77	10.32
6,300.0	17.40	15.90	6,285.8	-151.5	-137.5	-147.0	7.82	7.81	-1.56
6,332.0	20.00	14.80	6,316.1	-141.6	-134.8	-137.2	8.20	8.13	-3.44
6,364.0	22.60	13.20	6,345.9	-130.3	-132.0	-126.0	8.32	8.13	-5.00
6,395.0	25.10	11.30	6,374.3	-118.1	-129.4	-113.8	8.44	8.06	-6.13

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2I-221
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 2I-221	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)
6,427.0	28.00	9.00	6,402.9	-104.0	-126.9	-99.8	9.61	9.06	-7.19
6,458.0	30.70	7.40	6,429.9	-88.9	-124.7	-84.9	9.07	8.71	-5.16
6,490.0	33.20	6.60	6,457.1	-72.1	-122.7	-68.2	7.92	7.81	-2.50
6,522.0	34.60	5.90	6,483.6	-54.4	-120.7	-50.5	4.54	4.38	-2.19
6,554.0	36.80	2.50	6,509.6	-35.8	-119.4	-31.9	9.26	6.88	-10.63
6,585.0	40.00	1.30	6,533.9	-16.5	-118.7	-12.7	10.60	10.32	-3.87
6,617.0	43.90	0.20	6,557.7	4.9	-118.5	8.7	12.40	12.19	-3.44
6,649.0	47.60	359.90	6,580.0	27.8	-118.4	31.6	11.58	11.56	-0.94
6,680.0	50.50	359.20	6,600.3	51.2	-118.6	55.0	9.51	9.35	-2.26
6,712.0	52.50	358.70	6,620.3	76.2	-119.1	80.0	6.37	6.25	-1.56
6,744.0	53.90	358.10	6,639.4	101.8	-119.8	105.6	4.63	4.38	-1.88
6,776.0	55.50	357.30	6,657.9	127.9	-120.9	131.7	5.40	5.00	-2.50
6,807.0	56.80	357.10	6,675.2	153.6	-122.1	157.5	4.23	4.19	-0.65
6,839.0	58.50	356.20	6,692.3	180.6	-123.7	184.5	5.82	5.31	-2.81
6,871.0	60.30	356.00	6,708.6	208.1	-125.6	212.0	5.65	5.63	-0.63
6,902.0	62.00	355.50	6,723.6	235.2	-127.6	239.2	5.66	5.48	-1.61
6,934.0	64.00	354.80	6,738.1	263.6	-130.0	267.6	6.55	6.25	-2.19
6,966.0	66.10	354.40	6,751.6	292.5	-132.7	296.6	6.66	6.56	-1.25
6,998.0	68.00	353.70	6,764.1	321.8	-135.8	326.0	6.27	5.94	-2.19
7,030.0	69.90	353.20	6,775.6	351.4	-139.2	355.7	6.11	5.94	-1.56
7,061.0	71.80	354.40	6,785.7	380.6	-142.3	384.9	7.14	6.13	3.87
7,093.0	73.60	356.00	6,795.2	411.0	-144.9	415.4	7.38	5.63	5.00
7,125.0	75.40	357.80	6,803.8	441.8	-146.6	446.3	7.81	5.63	5.63
7,157.0	76.60	358.70	6,811.5	472.8	-147.5	477.3	4.64	3.75	2.81
7,188.0	78.40	358.30	6,818.2	503.1	-148.3	507.6	5.94	5.81	-1.29
7,220.0	80.90	357.60	6,824.0	534.5	-149.4	539.1	8.10	7.81	-2.19
7,259.0	85.10	357.70	6,828.7	573.2	-151.0	577.8	10.77	10.77	0.26
7,307.0	89.00	357.70	6,831.2	621.1	-152.9	625.7	8.13	8.13	0.00
7,322.0	89.20	356.50	6,831.4	636.1	-153.7	640.7	8.11	1.33	-8.00
7,354.0	89.00	356.40	6,832.0	668.0	-155.7	672.7	0.70	-0.63	-0.31
7,386.0	88.60	357.10	6,832.6	699.9	-157.5	704.6	2.52	-1.25	2.19
7,418.0	88.50	357.30	6,833.4	731.9	-159.1	736.6	0.70	-0.31	0.63
7,449.0	88.50	358.00	6,834.2	762.9	-160.3	767.6	2.26	0.00	2.26
7,481.0	89.30	358.30	6,834.9	794.8	-161.4	799.6	2.67	2.50	0.94
7,513.0	90.50	358.70	6,834.9	826.8	-162.2	831.6	3.95	3.75	1.25
7,545.0	91.40	359.40	6,834.4	858.8	-162.7	863.6	3.56	2.81	2.19
7,576.0	92.20	359.90	6,833.4	889.8	-162.9	894.6	3.04	2.58	1.61
7,608.0	92.30	1.30	6,832.2	921.8	-162.6	926.5	4.38	0.31	4.38
7,640.0	92.20	1.60	6,830.9	953.7	-161.8	958.4	0.99	-0.31	0.94
7,672.0	91.80	1.80	6,829.8	985.7	-160.8	990.4	1.40	-1.25	0.63
7,703.0	90.90	2.00	6,829.0	1,016.7	-159.8	1,021.3	2.97	-2.90	0.65
7,735.0	90.40	1.80	6,828.7	1,048.7	-158.7	1,053.2	1.68	-1.56	-0.63
7,767.0	90.20	1.50	6,828.5	1,080.6	-157.8	1,085.2	1.13	-0.63	-0.94
7,799.0	90.50	1.30	6,828.3	1,112.6	-157.0	1,117.1	1.13	0.94	-0.63
7,831.0	90.40	1.50	6,828.1	1,144.6	-156.3	1,149.1	0.70	-0.31	0.63
7,862.0	90.60	1.50	6,827.8	1,175.6	-155.4	1,180.0	0.65	0.65	0.00
7,894.0	90.60	2.00	6,827.5	1,207.6	-154.5	1,211.9	1.56	0.00	1.56
7,926.0	90.70	0.10	6,827.1	1,239.6	-153.9	1,243.9	5.95	0.31	-5.94
7,958.0	90.80	0.60	6,826.7	1,271.6	-153.7	1,275.9	1.59	0.31	1.56
7,989.0	90.90	0.40	6,826.2	1,302.6	-153.4	1,306.8	0.72	0.32	-0.65
8,021.0	90.30	0.40	6,825.9	1,334.6	-153.2	1,338.8	1.88	-1.88	0.00
8,053.0	90.70	0.60	6,825.6	1,366.6	-152.9	1,370.8	1.40	1.25	0.63

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2I-221
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 2I-221	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)
8,085.0	91.90	1.30	6,824.9	1,398.6	-152.4	1,402.7	4.34	3.75	2.19
8,117.0	90.60	0.60	6,824.2	1,430.5	-151.9	1,434.7	4.61	-4.06	-2.19
8,149.0	90.70	359.90	6,823.8	1,462.5	-151.7	1,466.7	2.21	0.31	-2.19
8,180.0	91.80	0.90	6,823.1	1,493.5	-151.5	1,497.6	4.79	3.55	3.23
8,212.0	90.70	359.40	6,822.4	1,525.5	-151.4	1,529.6	5.81	-3.44	-4.69
8,244.0	91.00	359.50	6,822.0	1,557.5	-151.7	1,561.6	0.99	0.94	0.31
8,276.0	91.50	1.60	6,821.3	1,589.5	-151.4	1,593.6	6.74	1.56	6.56
8,307.0	90.60	359.90	6,820.7	1,620.5	-151.0	1,624.5	6.20	-2.90	-5.48
8,339.0	91.00	5.30	6,820.3	1,652.5	-149.6	1,656.4	16.92	1.25	16.88
8,371.0	91.30	9.40	6,819.6	1,684.2	-145.5	1,688.0	12.84	0.94	12.81
8,403.0	90.80	7.30	6,819.0	1,715.8	-140.8	1,719.5	6.74	-1.56	-6.56
8,436.0	90.80	8.00	6,818.6	1,748.5	-136.4	1,752.0	2.12	0.00	2.12
8,466.0	90.10	7.80	6,818.3	1,778.2	-132.3	1,781.6	2.43	-2.33	-0.67
8,498.0	90.30	7.40	6,818.2	1,810.0	-128.1	1,813.1	1.40	0.63	-1.25
8,529.0	89.50	6.40	6,818.3	1,840.7	-124.3	1,843.8	4.13	-2.58	-3.23
8,561.0	90.00	8.50	6,818.4	1,872.5	-120.2	1,875.4	6.75	1.56	6.56
8,593.0	90.10	5.50	6,818.4	1,904.2	-116.3	1,907.0	9.38	0.31	-9.38
8,625.0	90.40	5.00	6,818.2	1,936.1	-113.4	1,938.7	1.82	0.94	-1.56
8,656.0	89.60	2.20	6,818.2	1,967.0	-111.4	1,969.6	9.39	-2.58	-9.03
8,688.0	89.30	1.10	6,818.6	1,999.0	-110.5	2,001.5	3.56	-0.94	-3.44
8,720.0	89.30	0.20	6,818.9	2,031.0	-110.1	2,033.5	2.81	0.00	-2.81
8,752.0	89.10	0.10	6,819.4	2,063.0	-110.1	2,065.5	0.70	-0.63	-0.31
8,783.0	88.80	0.20	6,820.0	2,094.0	-110.0	2,096.5	1.02	-0.97	0.32
8,815.0	88.60	359.00	6,820.7	2,126.0	-110.2	2,128.4	3.80	-0.63	-3.75
8,847.0	88.90	358.50	6,821.4	2,158.0	-110.9	2,160.4	1.82	0.94	-1.56
8,878.0	88.80	358.30	6,822.0	2,189.0	-111.8	2,191.4	0.72	-0.32	-0.65
8,910.0	89.30	358.00	6,822.5	2,220.9	-112.8	2,223.4	1.82	1.56	-0.94
8,942.0	89.70	357.60	6,822.8	2,252.9	-114.0	2,255.4	1.77	1.25	-1.25
8,973.0	90.60	356.70	6,822.7	2,283.9	-115.6	2,286.4	4.11	2.90	-2.90
9,005.0	90.50	356.40	6,822.4	2,315.8	-117.5	2,318.4	0.99	-0.31	-0.94
9,037.0	90.20	356.00	6,822.2	2,347.7	-119.6	2,350.4	1.56	-0.94	-1.25
9,068.0	89.80	355.80	6,822.2	2,378.7	-121.8	2,381.3	1.44	-1.29	-0.65
9,100.0	89.20	355.80	6,822.5	2,410.6	-124.2	2,413.3	1.88	-1.88	0.00
9,131.0	89.60	356.20	6,822.8	2,441.5	-126.3	2,444.3	1.82	1.29	1.29
9,163.0	90.40	356.40	6,822.8	2,473.4	-128.4	2,476.3	2.58	2.50	0.63
9,195.0	90.70	356.70	6,822.5	2,505.4	-130.3	2,508.3	1.33	0.94	0.94
9,226.0	90.30	357.30	6,822.3	2,536.3	-131.9	2,539.3	2.33	-1.29	1.94
9,258.0	90.60	357.30	6,822.0	2,568.3	-133.5	2,571.2	0.94	0.94	0.00
9,290.0	90.60	357.40	6,821.7	2,600.3	-134.9	2,603.2	0.31	0.00	0.31
9,321.0	91.10	357.30	6,821.2	2,631.2	-136.4	2,634.2	1.64	1.61	-0.32
9,353.0	91.70	357.60	6,820.4	2,663.2	-137.8	2,666.2	2.10	1.88	0.94
9,385.0	91.80	358.30	6,819.5	2,695.1	-138.9	2,698.2	2.21	0.31	2.19
9,417.0	91.60	358.00	6,818.5	2,727.1	-140.0	2,730.2	1.13	-0.63	-0.94
9,449.0	91.60	357.80	6,817.6	2,759.1	-141.1	2,762.2	0.62	0.00	-0.63
9,481.0	91.00	357.60	6,816.9	2,791.0	-142.4	2,794.2	1.98	-1.88	-0.63
9,512.0	90.70	357.10	6,816.4	2,822.0	-143.9	2,825.2	1.88	-0.97	-1.61
9,544.0	90.40	357.60	6,816.1	2,854.0	-145.3	2,857.2	1.82	-0.94	1.56
9,576.0	91.10	358.00	6,815.7	2,885.9	-146.6	2,889.2	2.52	2.19	1.25
9,607.0	91.80	358.00	6,814.9	2,916.9	-147.6	2,920.1	2.26	2.26	0.00
9,639.0	91.80	358.70	6,813.9	2,948.9	-148.6	2,952.1	2.19	0.00	2.19
9,671.0	92.00	359.50	6,812.8	2,980.9	-149.1	2,984.1	2.58	0.63	2.50
9,703.0	90.70	359.90	6,812.1	3,012.9	-149.2	3,016.1	4.25	-4.06	1.25
9,735.0	89.20	359.90	6,812.1	3,044.8	-149.3	3,048.1	4.69	-4.69	0.00

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2I-221
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 2I-221	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)
9,767.0	88.70	359.90	6,812.7	3,076.8	-149.3	3,080.1	1.56	-1.56	0.00
9,798.0	88.70	359.70	6,813.4	3,107.8	-149.5	3,111.0	0.64	0.00	-0.65
9,830.0	88.50	359.20	6,814.2	3,139.8	-149.8	3,143.0	1.68	-0.63	-1.56
9,861.0	88.50	359.20	6,815.0	3,170.8	-150.2	3,174.0	0.00	0.00	0.00
9,893.0	88.40	359.70	6,815.9	3,202.8	-150.5	3,206.0	1.59	-0.31	1.56
9,925.0	88.90	0.40	6,816.6	3,234.8	-150.5	3,238.0	2.69	1.56	2.19
9,956.0	89.50	0.80	6,817.1	3,265.8	-150.1	3,268.9	2.33	1.94	1.29
9,988.0	89.50	0.60	6,817.3	3,297.8	-149.8	3,300.9	0.62	0.00	-0.63
10,020.0	89.30	0.60	6,817.7	3,329.8	-149.4	3,332.9	0.63	-0.63	0.00
10,052.0	89.10	0.60	6,818.1	3,361.8	-149.1	3,364.8	0.63	-0.63	0.00
10,083.0	89.30	0.20	6,818.6	3,392.8	-148.9	3,395.8	1.44	0.65	-1.29
10,115.0	90.40	0.80	6,818.6	3,424.8	-148.6	3,427.8	3.92	3.44	1.88
10,147.0	91.30	1.10	6,818.2	3,456.8	-148.1	3,459.7	2.96	2.81	0.94
10,179.0	92.00	1.30	6,817.2	3,488.7	-147.4	3,491.7	2.27	2.19	0.63
10,210.0	92.30	1.30	6,816.1	3,519.7	-146.7	3,522.6	0.97	0.97	0.00
10,242.0	93.20	1.60	6,814.5	3,551.7	-145.9	3,554.5	2.96	2.81	0.94
10,274.0	92.70	1.30	6,812.9	3,583.6	-145.1	3,586.4	1.82	-1.56	-0.94
10,306.0	92.20	1.60	6,811.5	3,615.6	-144.3	3,618.3	1.82	-1.56	0.94
10,337.0	92.10	1.60	6,810.4	3,646.5	-143.4	3,649.3	0.32	-0.32	0.00
10,369.0	90.70	1.50	6,809.6	3,678.5	-142.5	3,681.2	4.39	-4.38	-0.31
10,401.0	90.90	1.30	6,809.1	3,710.5	-141.8	3,713.1	0.88	0.63	-0.63
10,432.0	91.00	1.30	6,808.6	3,741.5	-141.0	3,744.1	0.32	0.32	0.00
10,464.0	91.00	1.10	6,808.1	3,773.5	-140.4	3,776.0	0.62	0.00	-0.63
10,496.0	90.00	1.10	6,807.8	3,805.5	-139.8	3,808.0	3.13	-3.13	0.00
10,528.0	89.00	0.80	6,808.1	3,837.5	-139.2	3,840.0	3.26	-3.13	-0.94
10,559.0	88.50	0.80	6,808.7	3,868.4	-138.8	3,870.9	1.61	-1.61	0.00
10,591.0	88.70	0.40	6,809.5	3,900.4	-138.5	3,902.9	1.40	0.63	-1.25
10,623.0	88.50	0.20	6,810.3	3,932.4	-138.3	3,934.8	0.88	-0.63	-0.63
10,654.0	88.60	0.10	6,811.1	3,963.4	-138.2	3,965.8	0.46	0.32	-0.32
10,686.0	88.30	0.20	6,812.0	3,995.4	-138.1	3,997.8	0.99	-0.94	0.31
10,718.0	88.30	359.90	6,812.9	4,027.4	-138.1	4,029.8	0.94	0.00	-0.94
10,750.0	88.30	359.00	6,813.9	4,059.4	-138.4	4,061.7	2.81	0.00	-2.81
10,781.0	87.90	359.70	6,814.9	4,090.4	-138.8	4,092.7	2.60	-1.29	2.26
10,813.0	87.90	359.50	6,816.1	4,122.3	-139.0	4,124.7	0.62	0.00	-0.63
10,845.0	88.10	359.40	6,817.2	4,154.3	-139.3	4,156.6	0.70	0.63	-0.31
10,877.0	88.00	359.50	6,818.3	4,186.3	-139.6	4,188.6	0.44	-0.31	0.31
10,908.0	89.60	0.60	6,818.9	4,217.3	-139.6	4,219.6	6.26	5.16	3.55
10,940.0	89.70	0.80	6,819.1	4,249.3	-139.2	4,251.6	0.70	0.31	0.63
10,972.0	89.80	0.80	6,819.2	4,281.3	-138.7	4,283.5	0.31	0.31	0.00
11,004.0	90.40	0.90	6,819.2	4,313.3	-138.3	4,315.5	1.90	1.88	0.31
11,035.0	90.60	0.40	6,818.9	4,344.3	-137.9	4,346.5	1.74	0.65	-1.61
11,067.0	90.80	359.90	6,818.5	4,376.3	-137.8	4,378.4	1.68	0.63	-1.56
11,099.0	90.80	359.70	6,818.1	4,408.3	-137.9	4,410.4	0.62	0.00	-0.63
11,130.0	90.50	359.40	6,817.7	4,439.3	-138.2	4,441.4	1.37	-0.97	-0.97
11,156.0	90.90	359.20	6,817.4	4,465.3	-138.5	4,467.4	1.72	1.54	-0.77
11,210.0	90.90	359.20	6,816.6	4,519.2	-139.3	4,521.4	0.00	0.00	0.00
BHL 500°FNL, 485°FWL									

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2I-221
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 2I-221	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Checked By: _____	Approved By: _____	Date: _____
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