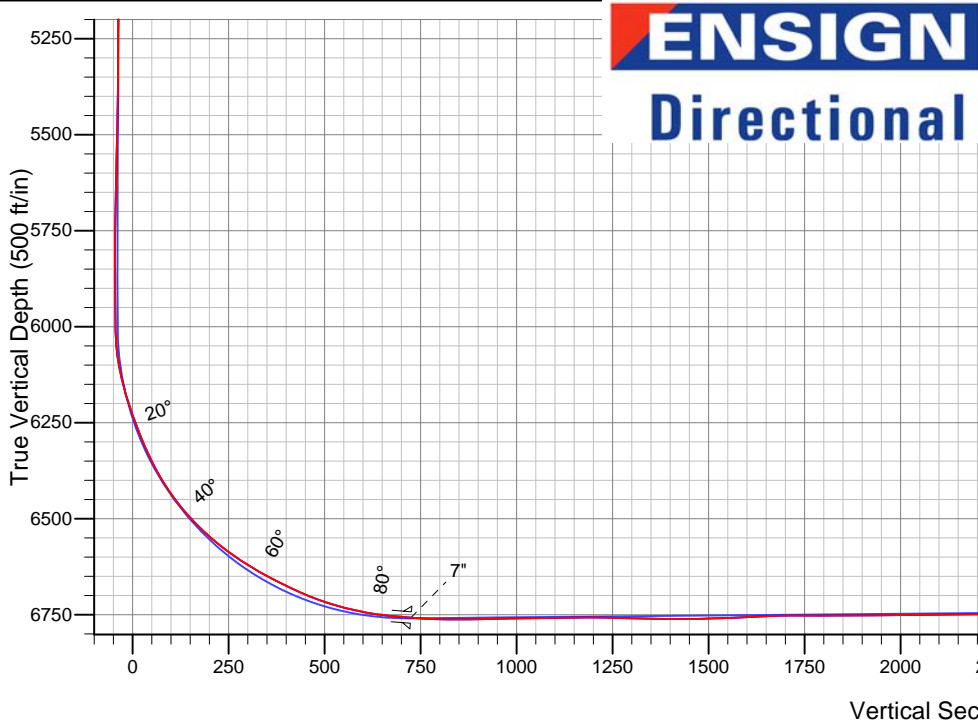
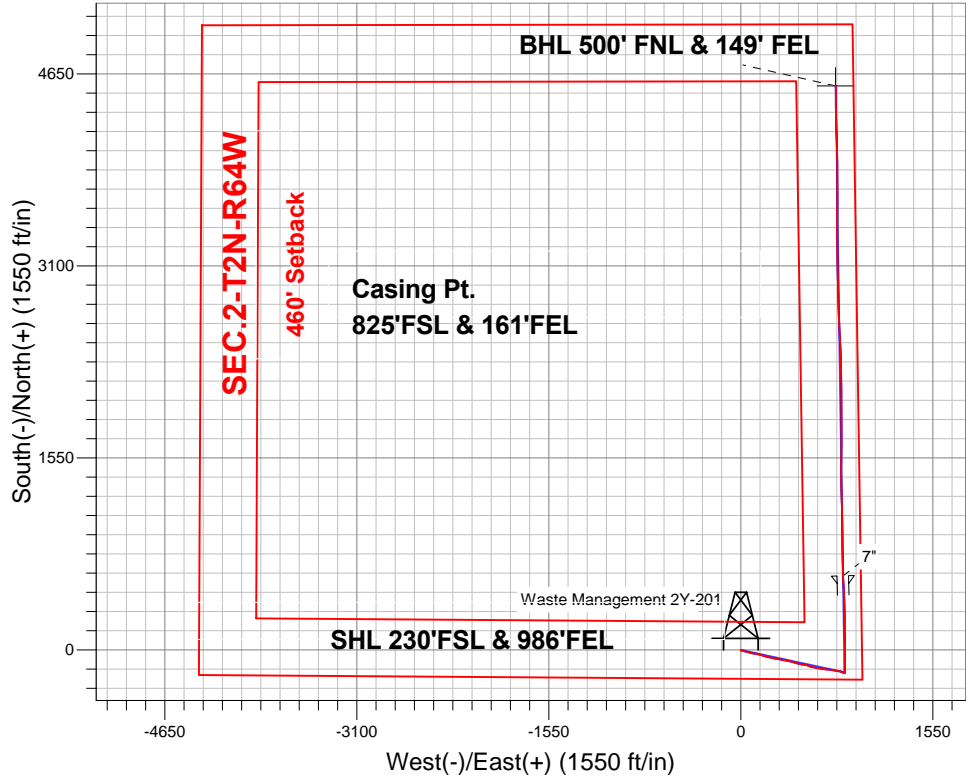


PETROLEUM DEVELOPMENT CORP Weld County CO

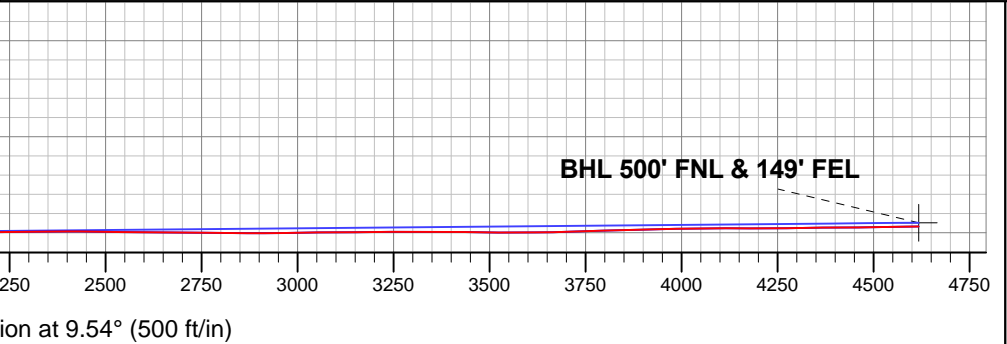
Well Name: **Waste Management 2Y-201**
Surface Location: Waste Management 2T-HZ1 Pad Sec.2-T2N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4894.0
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1302951.61 3275951.82 40.160780 -104.512650
RKB - 23' WELL @ 4917.0ft (RKB - 23')

FINAL SURVEY

Projected Bottom Hole Location
11229'MD 6734'TVD 4553'N & 767'E of SHL
91.1 degree Incl @ 359.8 degree AZM



Waste Management 2T-HZ1 Pad Sec.2-T2N-R64W Waste Management 2Y-201 Wellbore #1 10:48, September 30 2013	ANNOTATIONS
	No annotation data is available.
LEGEND	
✕ Waste Management 2Y-201, Wellbore #1, Plan #1 (9-16-13)R V0	
□ Wellbore #1	
○ Survey #1	





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.2-T2N-R64W

Waste Management 2T-HZ1 Pad Sec.2-T2N-R64W

Waste Management 2Y-201

Wellbore #1

Survey: Survey #1

Standard Survey Report

30 September, 2013

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2Y-201
Project:	SEC.2-T2N-R64W	TVD Reference:	WELL @ 4917.0ft (RKB - 23')
Site:	Waste Management 2T-HZ1 Pad Sec.2-T2N-R64W	MD Reference:	WELL @ 4917.0ft (RKB - 23')
Well:	Waste Management 2Y-201	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 2T-HZ1 Pad Sec.2-T2N-R64W				
Site Position:		Northing:	1,302,951.63ft	Latitude:	40.160780
From:	Lat/Long	Easting:	3,275,951.82ft	Longitude:	-104.512650
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.64 °

Well	Waste Management 2Y-201					
Well Position	+N/-S	0.0 ft	Northing:	1,302,951.61 ft	Latitude:	40.160780
	+E/-W	0.0 ft	Easting:	3,275,951.82 ft	Longitude:	-104.512650
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,894.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/25/2013	8.42	66.83	52,809

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	9.54	

Survey Program	Date 9/30/2013				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
168.0	11,229.0	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
168.0	0.40	215.70	168.0	-0.5	-0.3	-0.5	0.24	0.24	0.00
258.0	1.10	132.10	258.0	-1.3	0.1	-1.3	1.25	0.78	-92.89
348.0	2.50	111.30	347.9	-2.6	2.6	-2.1	1.69	1.56	-23.11
440.0	4.40	105.00	439.8	-4.2	7.9	-2.9	2.10	2.07	-6.85
530.0	6.60	106.20	529.4	-6.6	16.2	-3.8	2.45	2.44	1.33
620.0	8.60	105.50	618.6	-9.8	27.6	-5.1	2.22	2.22	-0.78
711.0	8.40	105.50	708.6	-13.4	40.6	-6.5	0.22	-0.22	0.00
803.0	9.60	103.60	799.4	-17.0	54.5	-7.7	1.34	1.30	-2.07
894.0	9.20	103.80	889.2	-20.5	69.0	-8.8	0.44	-0.44	0.22
985.0	9.20	103.00	979.0	-23.9	83.1	-9.8	0.14	0.00	-0.88

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2Y-201
Project:	SEC.2-T2N-R64W	TVD Reference:	WELL @ 4917.0ft (RKB - 23')
Site:	Waste Management 2T-HZ1 Pad Sec.2-T2N-R64W	MD Reference:	WELL @ 4917.0ft (RKB - 23')
Well:	Waste Management 2Y-201	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)
1,083.0	9.50	101.80	1,075.7	-27.3	98.7	-10.6	0.37	0.31	-1.22
1,178.0	9.60	99.70	1,169.4	-30.3	114.1	-10.9	0.38	0.11	-2.21
1,274.0	9.20	96.50	1,264.1	-32.5	129.7	-10.5	0.69	-0.42	-3.33
1,369.0	9.30	107.80	1,357.9	-35.7	144.5	-11.2	1.91	0.11	11.89
1,464.0	8.20	104.60	1,451.8	-39.7	158.4	-12.9	1.27	-1.16	-3.37
1,559.0	9.40	107.60	1,545.7	-43.8	172.3	-14.6	1.35	1.26	3.16
1,654.0	9.30	107.20	1,639.4	-48.4	187.1	-16.7	0.13	-0.11	-0.42
1,749.0	9.80	106.50	1,733.1	-53.0	202.1	-18.7	0.54	0.53	-0.74
1,845.0	9.70	104.40	1,827.7	-57.3	217.8	-20.4	0.38	-0.10	-2.19
1,940.0	10.20	101.40	1,921.3	-61.0	233.8	-21.3	0.76	0.53	-3.16
2,035.0	9.80	101.40	2,014.8	-64.2	250.0	-21.9	0.42	-0.42	0.00
2,130.0	10.40	100.40	2,108.4	-67.4	266.3	-22.3	0.66	0.63	-1.05
2,225.0	9.90	99.30	2,201.9	-70.2	282.8	-22.4	0.56	-0.53	-1.16
2,321.0	9.50	99.00	2,296.5	-72.8	298.8	-22.3	0.42	-0.42	-0.31
2,416.0	9.80	97.90	2,390.2	-75.1	314.5	-21.9	0.37	0.32	-1.16
2,511.0	10.00	103.00	2,483.7	-78.1	330.6	-22.2	0.95	0.21	5.37
2,606.0	9.60	100.40	2,577.4	-81.4	346.4	-22.8	0.63	-0.42	-2.74
2,702.0	9.70	103.70	2,672.0	-84.8	362.2	-23.5	0.59	0.10	3.44
2,797.0	8.90	99.30	2,765.8	-87.8	377.2	-24.1	1.13	-0.84	-4.63
2,892.0	9.90	106.50	2,859.5	-91.3	392.3	-25.0	1.62	1.05	7.58
2,987.0	9.90	104.40	2,953.1	-95.7	408.0	-26.7	0.38	0.00	-2.21
3,082.0	9.80	104.10	3,046.7	-99.7	423.8	-28.1	0.12	-0.11	-0.32
3,177.0	9.80	104.60	3,140.3	-103.7	439.4	-29.4	0.09	0.00	0.53
3,272.0	9.20	103.50	3,234.0	-107.5	454.6	-30.6	0.66	-0.63	-1.16
3,368.0	8.50	101.30	3,328.8	-110.7	469.0	-31.4	0.81	-0.73	-2.29
3,463.0	7.00	107.40	3,423.0	-113.8	481.5	-32.4	1.80	-1.58	6.42
3,558.0	6.80	99.70	3,517.3	-116.5	492.5	-33.2	1.00	-0.21	-8.11
3,653.0	6.50	91.80	3,611.6	-117.6	503.4	-32.5	1.01	-0.32	-8.32
3,748.0	7.90	98.60	3,705.9	-118.7	515.3	-31.7	1.72	1.47	7.16
3,844.0	10.20	108.50	3,800.7	-122.4	529.9	-32.9	2.88	2.40	10.31
3,939.0	10.30	110.40	3,894.2	-128.1	545.8	-35.8	0.37	0.11	2.00
4,034.0	11.00	109.50	3,987.5	-134.0	562.3	-39.0	0.76	0.74	-0.95
4,129.0	9.90	100.90	4,081.0	-138.6	578.9	-40.7	2.01	-1.16	-9.05
4,224.0	9.50	102.70	4,174.6	-141.9	594.5	-41.3	0.53	-0.42	1.89
4,320.0	8.80	98.10	4,269.4	-144.7	609.5	-41.6	1.05	-0.73	-4.79
4,415.0	9.90	99.70	4,363.1	-147.1	624.8	-41.4	1.19	1.16	1.68
4,510.0	9.70	100.40	4,456.7	-149.9	640.7	-41.6	0.25	-0.21	0.74
4,605.0	9.50	97.40	4,550.4	-152.3	656.3	-41.4	0.57	-0.21	-3.16
4,701.0	10.40	99.20	4,645.0	-154.7	672.8	-41.0	0.99	0.94	1.88
4,796.0	9.60	94.80	4,738.5	-156.8	689.1	-40.3	1.16	-0.84	-4.63
4,891.0	10.60	99.20	4,832.1	-158.8	705.6	-39.6	1.33	1.05	4.63
4,986.0	9.70	95.60	4,925.6	-161.0	722.2	-39.0	1.16	-0.95	-3.79
5,081.0	10.60	95.60	5,019.1	-162.6	738.9	-37.9	0.95	0.95	0.00
5,177.0	10.50	100.40	5,113.5	-165.1	756.3	-37.4	0.92	-0.10	5.00
5,272.0	9.80	101.30	5,207.0	-168.2	772.7	-37.8	0.76	-0.74	0.95
5,367.0	8.90	97.40	5,300.7	-170.8	787.9	-37.7	1.16	-0.95	-4.11
5,462.0	7.30	105.80	5,394.8	-173.4	801.0	-38.1	2.09	-1.68	8.84
5,557.0	6.40	111.10	5,489.1	-176.9	811.8	-39.8	1.16	-0.95	5.58
5,653.0	4.70	120.10	5,584.6	-180.8	820.2	-42.3	1.98	-1.77	9.38
5,748.0	3.20	114.60	5,679.4	-183.9	826.0	-44.4	1.63	-1.58	-5.79
5,843.0	3.10	108.50	5,774.3	-185.8	830.8	-45.4	0.37	-0.11	-6.42
5,938.0	1.40	76.70	5,869.2	-186.3	834.4	-45.4	2.16	-1.79	-33.47
5,985.0	1.40	84.90	5,916.2	-186.1	835.5	-45.0	0.43	0.00	17.45

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2Y-201
Project:	SEC.2-T2N-R64W	TVD Reference:	WELL @ 4917.0ft (RKB - 23')
Site:	Waste Management 2T-HZ1 Pad Sec.2-T2N-R64W	MD Reference:	WELL @ 4917.0ft (RKB - 23')
Well:	Waste Management 2Y-201	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)
6,033.0	1.30	97.90	5,964.2	-186.2	836.6	-44.9	0.67	-0.21	27.08
6,080.0	1.80	37.10	6,011.1	-185.7	837.6	-44.2	3.46	1.06	-129.36
6,129.0	5.70	8.50	6,060.0	-182.6	838.4	-41.1	8.59	7.96	-58.37
6,176.0	11.30	1.60	6,106.5	-175.7	838.9	-34.2	12.09	11.91	-14.68
6,224.0	14.50	3.20	6,153.3	-165.0	839.4	-23.5	6.71	6.67	3.33
6,271.0	17.90	3.00	6,198.4	-151.9	840.1	-10.5	7.24	7.23	-0.43
6,319.0	20.40	1.20	6,243.8	-136.2	840.6	5.1	5.35	5.21	-3.75
6,366.0	22.60	355.60	6,287.5	-119.0	840.1	22.0	6.40	4.68	-11.91
6,414.0	25.90	357.20	6,331.2	-99.3	838.9	41.2	7.01	6.88	3.33
6,461.0	28.40	0.90	6,373.1	-77.9	838.6	62.2	6.42	5.32	7.87
6,510.0	32.60	1.90	6,415.3	-53.0	839.2	86.9	8.63	8.57	2.04
6,557.0	37.50	1.60	6,453.7	-26.1	840.0	113.6	10.43	10.43	-0.64
6,605.0	42.50	1.80	6,490.5	4.8	840.9	144.1	10.42	10.42	0.42
6,655.0	46.70	359.70	6,526.1	39.9	841.4	178.8	8.90	8.40	-4.20
6,700.0	49.60	0.70	6,556.1	73.4	841.5	211.9	6.65	6.44	2.22
6,747.0	53.90	358.80	6,585.2	110.3	841.3	248.3	9.68	9.15	-4.04
6,795.0	58.00	359.30	6,612.1	150.0	840.6	287.4	8.59	8.54	1.04
6,842.0	60.40	359.00	6,636.1	190.4	840.0	327.1	5.14	5.11	-0.64
6,890.0	62.90	359.70	6,658.9	232.6	839.6	368.6	5.36	5.21	1.46
6,937.0	64.90	358.40	6,679.6	274.8	838.9	410.1	4.93	4.26	-2.77
6,986.0	67.60	357.20	6,699.3	319.6	837.1	454.0	5.95	5.51	-2.45
7,033.0	71.80	358.30	6,715.6	363.7	835.4	497.2	9.20	8.94	2.34
7,081.0	75.20	357.60	6,729.3	409.7	833.8	542.3	7.22	7.08	-1.46
7,128.0	77.80	356.70	6,740.2	455.3	831.5	586.9	5.84	5.53	-1.91
7,190.0	83.40	357.00	6,750.4	516.4	828.1	646.5	9.04	9.03	0.48
7,240.0	85.30	357.24	6,755.3	566.1	825.6	695.1	3.83	3.80	0.48
7,269.0	85.20	358.40	6,757.7	594.9	824.5	723.4	4.00	-0.34	4.00
7,270.9	85.28	358.43	6,757.8	596.8	824.5	725.3	4.61	4.35	1.53
7"									
7,361.0	89.20	359.80	6,762.2	686.8	823.1	813.8	4.61	4.35	1.52
7,452.0	91.10	358.60	6,761.9	777.8	821.8	903.3	2.47	2.09	-1.32
7,547.0	91.50	359.10	6,759.8	872.7	819.9	996.6	0.67	0.42	0.53
7,642.0	90.60	359.50	6,758.1	967.7	818.8	1,090.1	1.04	-0.95	0.42
7,738.0	90.10	358.80	6,757.5	1,063.7	817.3	1,184.5	0.90	-0.52	-0.73
7,833.0	88.50	359.10	6,758.6	1,158.7	815.6	1,277.9	1.71	-1.68	0.32
7,928.0	88.80	358.40	6,760.9	1,253.6	813.5	1,371.2	0.80	0.32	-0.74
8,023.0	90.90	359.50	6,761.1	1,348.6	811.8	1,464.5	2.50	2.21	1.16
8,118.0	92.80	359.10	6,758.0	1,443.5	810.6	1,558.0	2.04	2.00	-0.42
8,214.0	92.20	0.70	6,753.9	1,539.4	810.5	1,652.5	1.78	-0.63	1.67
8,309.0	89.80	1.40	6,752.2	1,634.4	812.2	1,746.5	2.63	-2.53	0.74
8,404.0	90.20	0.00	6,752.2	1,729.4	813.4	1,840.3	1.53	0.42	-1.47
8,499.0	90.50	359.50	6,751.6	1,824.4	812.9	1,933.9	0.61	0.32	-0.53
8,594.0	90.80	0.00	6,750.5	1,919.4	812.5	2,027.5	0.61	0.32	0.53
8,690.0	90.50	359.60	6,749.5	2,015.4	812.2	2,122.1	0.52	-0.31	-0.42
8,785.0	90.50	358.80	6,748.6	2,110.4	810.9	2,215.6	0.84	0.00	-0.84
8,880.0	90.70	358.90	6,747.6	2,205.3	809.0	2,308.9	0.24	0.21	0.11
8,975.0	90.50	359.50	6,746.6	2,300.3	807.6	2,402.4	0.67	-0.21	0.63
9,070.0	88.60	357.30	6,747.4	2,395.3	805.0	2,495.6	3.06	-2.00	-2.32
9,165.0	89.00	357.50	6,749.4	2,490.2	800.7	2,588.4	0.47	0.42	0.21
9,261.0	90.40	358.00	6,749.9	2,586.1	796.9	2,682.4	1.55	1.46	0.52
9,356.0	89.10	357.90	6,750.3	2,681.0	793.5	2,775.5	1.37	-1.37	-0.11
9,451.0	89.60	357.30	6,751.4	2,775.9	789.5	2,868.4	0.82	0.53	-0.63

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Waste Management 2Y-201
Project:	SEC.2-T2N-R64W	TVD Reference:	WELL @ 4917.0ft (RKB - 23')
Site:	Waste Management 2T-HZ1 Pad Sec.2-T2N-R64W	MD Reference:	WELL @ 4917.0ft (RKB - 23')
Well:	Waste Management 2Y-201	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)	
9,546.0	91.10	357.20	6,750.8	2,870.8	785.0	2,961.2	1.58	1.58	-0.11	
9,642.0	90.70	0.20	6,749.3	2,966.8	782.8	3,055.5	3.15	-0.42	3.13	
9,737.0	89.80	358.80	6,748.9	3,061.7	782.0	3,149.0	1.75	-0.95	-1.47	
9,832.0	91.20	359.50	6,748.0	3,156.7	780.6	3,242.5	1.65	1.47	0.74	
9,927.0	89.30	358.80	6,747.6	3,251.7	779.1	3,335.9	2.13	-2.00	-0.74	
10,023.0	89.20	359.10	6,748.9	3,347.7	777.4	3,430.3	0.33	-0.10	0.31	
10,118.0	90.00	0.50	6,749.5	3,442.7	777.1	3,523.9	1.70	0.84	1.47	
10,213.0	90.20	0.00	6,749.4	3,537.7	777.5	3,617.6	0.57	0.21	-0.53	
10,309.0	91.60	1.00	6,747.9	3,633.7	778.3	3,712.4	1.79	1.46	1.04	
10,403.0	91.90	0.90	6,745.0	3,727.6	779.9	3,805.3	0.34	0.32	-0.11	
10,499.0	92.00	359.80	6,741.7	3,823.5	780.4	3,900.0	1.15	0.10	-1.15	
10,594.0	90.20	358.40	6,739.9	3,918.5	779.0	3,993.4	2.40	-1.89	-1.47	
10,689.0	90.70	358.20	6,739.2	4,013.5	776.1	4,086.6	0.57	0.53	-0.21	
10,784.0	90.00	358.40	6,738.6	4,108.4	773.3	4,179.8	0.77	-0.74	0.21	
10,880.0	90.60	358.40	6,738.1	4,204.4	770.6	4,274.0	0.63	0.63	0.00	
10,975.0	90.70	359.10	6,737.0	4,299.4	768.6	4,367.3	0.74	0.11	0.74	
11,070.0	90.40	359.50	6,736.1	4,394.3	767.4	4,460.8	0.53	-0.32	0.42	
11,172.0	91.10	359.80	6,734.7	4,496.3	766.8	4,561.2	0.75	0.69	0.29	
11,229.0	91.10	359.80	6,733.7	4,553.3	766.6	4,617.4	0.00	0.00	0.00	
BHL 500' FNL & 150' FEL										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,270.9	6,757.8	7"	7	7-1/2	

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