

# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Waste Management 2L-221**

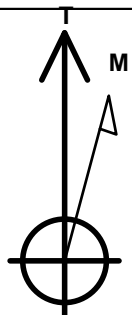
Surface Location: Waste Management 2Q-HZ Pad Sec.2-T2N-R64W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
Ground Elevation: 4934.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1302940.80	3273662.75	40.160820	-104.520840	

RKB - 15' WELL @ 4949.0ft (RKB - 15')

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BHL 500'FNL, 1825'FWL	7039.0	4531.9	-231.9	Point



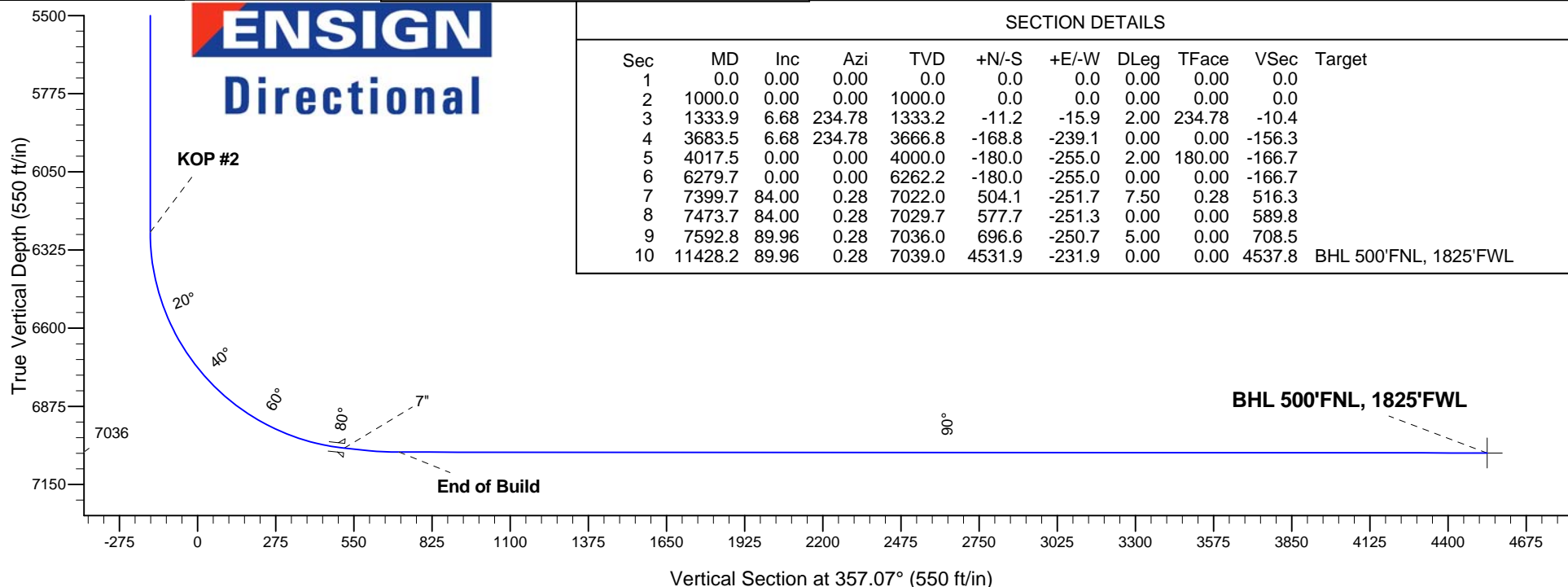
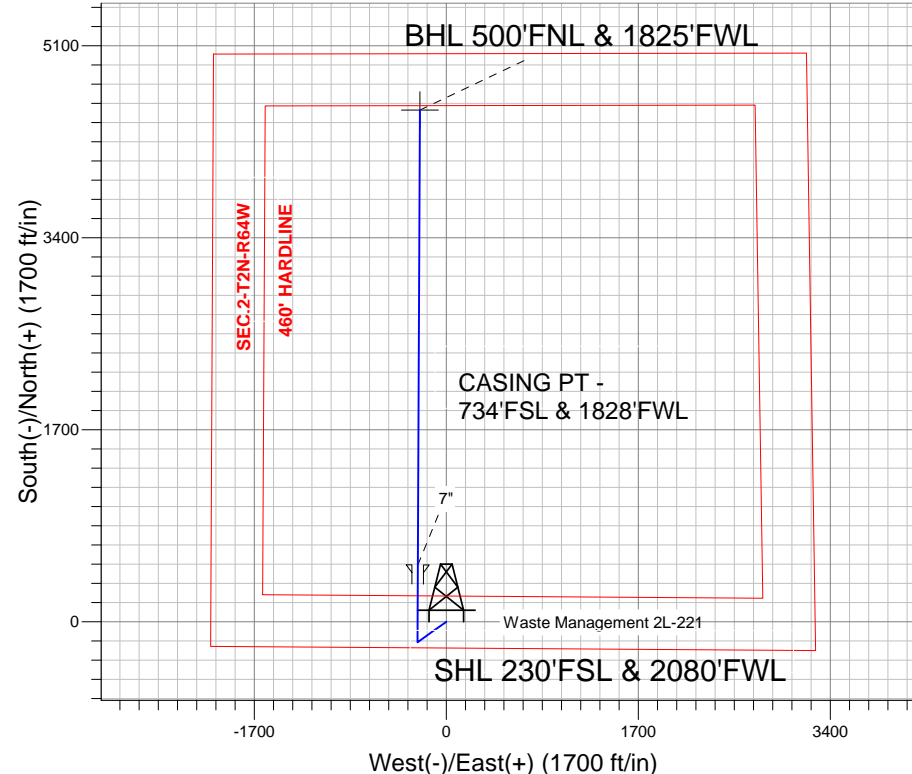
Azimuths to True North  
Magnetic North: 8.49°

Magnetic Field  
Strength: 52857.2snT  
Dip Angle: 66.84°  
Date: 2/6/2013  
Model: IGRF2010

Waste Management 2Q-HZ Pad Sec.2-T2N-R64W  
Waste Management 2L-221  
Plan #1 (2-06-13)  
7:39, February 08 2013

## ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP #1
6262.2	6279.7	KOP #2
7036.0	7592.8	End of Build





# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.2-T2N-R64W**

**Waste Management 2Q-HZ Pad Sec.2-T2N-R64W**

**Waste Management 2L-221**

**Wellbore #1**

**Plan: Plan #1 (2-06-13)**

## **Standard Planning Report**

**06 February, 2013**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2L-221
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Project:</b>	SEC.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Waste Management 2L-221	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-06-13)		

<b>Project</b>	SEC.2-T2N-R64W, 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

Site						Waste Management 2Q-HZ Pad Sec.2-T2N-R64W											
<b>Site Position:</b>						<b>Northing:</b>			1,302,940.51 ft			<b>Latitude:</b>			40.160820		
<b>From:</b>			Lat/Long			<b>Easting:</b>			3,273,634.80 ft			<b>Longitude:</b>			-104.520940		
<b>Position Uncertainty:</b>			0.0 ft			<b>Slot Radius:</b>			"			<b>Grid Convergence:</b>			0.63 °		

Well	Waste Management 2L-221					
Well Position	+N/-S	0.0 ft	Northing:	1,302,940.80 ft	Latitude:	40.160820
	+E/-W	28.0 ft	Easting:	3,273,662.75 ft	Longitude:	-104.520840
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,934.0 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	2/6/2013	8.49	66.84	52,857

<b>Design</b>	Plan #1 (2-06-13)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<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	357.07

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,333.9	6.68	234.78	1,333.2	-11.2	-15.9	2.00	2.00	0.00	234.78	
3,683.5	6.68	234.78	3,666.8	-168.8	-239.1	0.00	0.00	0.00	0.00	
4,017.5	0.00	0.00	4,000.0	-180.0	-255.0	2.00	-2.00	0.00	180.00	
6,279.7	0.00	0.00	6,262.2	-180.0	-255.0	0.00	0.00	0.00	0.00	
7,399.7	84.00	0.28	7,022.0	504.1	-251.7	7.50	7.50	0.00	0.28	
7,473.7	84.00	0.28	7,029.7	577.7	-251.3	0.00	0.00	0.00	0.00	
7,592.8	89.96	0.28	7,036.0	696.6	-250.7	5.00	5.00	0.00	0.00	
11,428.2	89.96	0.28	7,039.0	4,531.9	-231.9	0.00	0.00	0.00	0.00	BHL 500'FNL, 1825

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2L-221
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Project:</b>	SEC.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Waste Management 2L-221	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-06-13)		

Planned 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
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP #1</b>									
1,040.0	0.80	234.78	1,040.0	-0.2	-0.2	-0.1	2.00	2.00	0.00
1,080.0	1.60	234.78	1,080.0	-0.6	-0.9	-0.6	2.00	2.00	0.00
1,120.0	2.40	234.78	1,120.0	-1.4	-2.1	-1.3	2.00	2.00	0.00
1,160.0	3.20	234.78	1,159.9	-2.6	-3.6	-2.4	2.00	2.00	0.00
1,200.0	4.00	234.78	1,199.8	-4.0	-5.7	-3.7	2.00	2.00	0.00
1,240.0	4.80	234.78	1,239.7	-5.8	-8.2	-5.4	2.00	2.00	0.00
1,280.0	5.60	234.78	1,279.6	-7.9	-11.2	-7.3	2.00	2.00	0.00
1,320.0	6.40	234.78	1,319.3	-10.3	-14.6	-9.5	2.00	2.00	0.00
1,333.9	6.68	234.78	1,333.2	-11.2	-15.9	-10.4	2.00	2.00	0.00
1,360.0	6.68	234.78	1,359.1	-13.0	-18.4	-12.0	0.00	0.00	0.00
1,400.0	6.68	234.78	1,398.8	-15.6	-22.2	-14.5	0.00	0.00	0.00
1,440.0	6.68	234.78	1,438.5	-18.3	-26.0	-17.0	0.00	0.00	0.00
1,480.0	6.68	234.78	1,478.3	-21.0	-29.8	-19.5	0.00	0.00	0.00
1,520.0	6.68	234.78	1,518.0	-23.7	-33.6	-21.9	0.00	0.00	0.00
1,560.0	6.68	234.78	1,557.7	-26.4	-37.4	-24.4	0.00	0.00	0.00
1,600.0	6.68	234.78	1,597.4	-29.1	-41.2	-26.9	0.00	0.00	0.00
1,640.0	6.68	234.78	1,637.2	-31.7	-45.0	-29.4	0.00	0.00	0.00
1,680.0	6.68	234.78	1,676.9	-34.4	-48.8	-31.9	0.00	0.00	0.00
1,720.0	6.68	234.78	1,716.6	-37.1	-52.6	-34.4	0.00	0.00	0.00
1,760.0	6.68	234.78	1,756.4	-39.8	-56.4	-36.9	0.00	0.00	0.00
1,800.0	6.68	234.78	1,796.1	-42.5	-60.2	-39.3	0.00	0.00	0.00
1,840.0	6.68	234.78	1,835.8	-45.2	-64.0	-41.8	0.00	0.00	0.00
1,880.0	6.68	234.78	1,875.5	-47.8	-67.8	-44.3	0.00	0.00	0.00
1,920.0	6.68	234.78	1,915.3	-50.5	-71.6	-46.8	0.00	0.00	0.00
1,960.0	6.68	234.78	1,955.0	-53.2	-75.4	-49.3	0.00	0.00	0.00

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<b>Project:</b>	SEC.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Waste Management 2L-221	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-06-13)		

Planned 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)
2,000.0	6.68	234.78	1,994.7	-55.9	-79.2	-51.8	0.00	0.00	0.00
2,040.0	6.68	234.78	2,034.5	-58.6	-83.0	-54.2	0.00	0.00	0.00
2,080.0	6.68	234.78	2,074.2	-61.2	-86.8	-56.7	0.00	0.00	0.00
2,120.0	6.68	234.78	2,113.9	-63.9	-90.6	-59.2	0.00	0.00	0.00
2,160.0	6.68	234.78	2,153.6	-66.6	-94.4	-61.7	0.00	0.00	0.00
2,200.0	6.68	234.78	2,193.4	-69.3	-98.2	-64.2	0.00	0.00	0.00
2,240.0	6.68	234.78	2,233.1	-72.0	-102.0	-66.7	0.00	0.00	0.00
2,280.0	6.68	234.78	2,272.8	-74.7	-105.8	-69.2	0.00	0.00	0.00
2,320.0	6.68	234.78	2,312.6	-77.3	-109.6	-71.6	0.00	0.00	0.00
2,360.0	6.68	234.78	2,352.3	-80.0	-113.4	-74.1	0.00	0.00	0.00
2,400.0	6.68	234.78	2,392.0	-82.7	-117.2	-76.6	0.00	0.00	0.00
2,440.0	6.68	234.78	2,431.7	-85.4	-121.0	-79.1	0.00	0.00	0.00
2,480.0	6.68	234.78	2,471.5	-88.1	-124.8	-81.6	0.00	0.00	0.00
2,520.0	6.68	234.78	2,511.2	-90.8	-128.6	-84.1	0.00	0.00	0.00
2,560.0	6.68	234.78	2,550.9	-93.4	-132.4	-86.6	0.00	0.00	0.00
2,600.0	6.68	234.78	2,590.7	-96.1	-136.2	-89.0	0.00	0.00	0.00
2,640.0	6.68	234.78	2,630.4	-98.8	-140.0	-91.5	0.00	0.00	0.00
2,680.0	6.68	234.78	2,670.1	-101.5	-143.8	-94.0	0.00	0.00	0.00
2,720.0	6.68	234.78	2,709.8	-104.2	-147.6	-96.5	0.00	0.00	0.00
2,760.0	6.68	234.78	2,749.6	-106.9	-151.4	-99.0	0.00	0.00	0.00
2,800.0	6.68	234.78	2,789.3	-109.5	-155.2	-101.5	0.00	0.00	0.00
2,840.0	6.68	234.78	2,829.0	-112.2	-159.0	-103.9	0.00	0.00	0.00
2,880.0	6.68	234.78	2,868.8	-114.9	-162.8	-106.4	0.00	0.00	0.00
2,920.0	6.68	234.78	2,908.5	-117.6	-166.6	-108.9	0.00	0.00	0.00
2,960.0	6.68	234.78	2,948.2	-120.3	-170.4	-111.4	0.00	0.00	0.00
3,000.0	6.68	234.78	2,987.9	-122.9	-174.2	-113.9	0.00	0.00	0.00
3,040.0	6.68	234.78	3,027.7	-125.6	-178.0	-116.4	0.00	0.00	0.00
3,080.0	6.68	234.78	3,067.4	-128.3	-181.8	-118.9	0.00	0.00	0.00
3,120.0	6.68	234.78	3,107.1	-131.0	-185.6	-121.3	0.00	0.00	0.00
3,160.0	6.68	234.78	3,146.9	-133.7	-189.4	-123.8	0.00	0.00	0.00
3,200.0	6.68	234.78	3,186.6	-136.4	-193.2	-126.3	0.00	0.00	0.00
3,240.0	6.68	234.78	3,226.3	-139.0	-197.0	-128.8	0.00	0.00	0.00
3,280.0	6.68	234.78	3,266.0	-141.7	-200.8	-131.3	0.00	0.00	0.00
3,320.0	6.68	234.78	3,305.8	-144.4	-204.6	-133.8	0.00	0.00	0.00
3,360.0	6.68	234.78	3,345.5	-147.1	-208.4	-136.2	0.00	0.00	0.00
3,400.0	6.68	234.78	3,385.2	-149.8	-212.2	-138.7	0.00	0.00	0.00
3,440.0	6.68	234.78	3,425.0	-152.5	-216.0	-141.2	0.00	0.00	0.00
3,480.0	6.68	234.78	3,464.7	-155.1	-219.8	-143.7	0.00	0.00	0.00
3,520.0	6.68	234.78	3,504.4	-157.8	-223.6	-146.2	0.00	0.00	0.00
3,560.0	6.68	234.78	3,544.1	-160.5	-227.4	-148.7	0.00	0.00	0.00
3,600.0	6.68	234.78	3,583.9	-163.2	-231.2	-151.2	0.00	0.00	0.00
3,640.0	6.68	234.78	3,623.6	-165.9	-235.0	-153.6	0.00	0.00	0.00
3,680.0	6.68	234.78	3,663.3	-168.6	-238.8	-156.1	0.00	0.00	0.00
3,683.5	6.68	234.78	3,666.8	-168.8	-239.1	-156.3	0.00	0.00	0.00
3,720.0	5.95	234.78	3,703.1	-171.1	-242.4	-158.5	2.00	-2.00	0.00
3,760.0	5.15	234.78	3,742.9	-173.3	-245.6	-160.6	2.00	-2.00	0.00
3,800.0	4.35	234.78	3,782.8	-175.2	-248.3	-162.3	2.00	-2.00	0.00
3,840.0	3.55	234.78	3,822.7	-176.8	-250.5	-163.8	2.00	-2.00	0.00
3,880.0	2.75	234.78	3,862.6	-178.1	-252.3	-165.0	2.00	-2.00	0.00
3,920.0	1.95	234.78	3,902.6	-179.0	-253.6	-165.8	2.00	-2.00	0.00
3,960.0	1.15	234.78	3,942.5	-179.7	-254.5	-166.4	2.00	-2.00	0.00
4,000.0	0.35	234.78	3,982.5	-180.0	-255.0	-166.7	2.00	-2.00	0.00

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<b>Project:</b>	SEC.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Waste Management 2L-221	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-06-13)		

Planned 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)
4,017.5	0.00	0.00	4,000.0	-180.0	-255.0	-166.7	2.00	-2.00	0.00
4,040.0	0.00	0.00	4,022.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,080.0	0.00	0.00	4,062.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,120.0	0.00	0.00	4,102.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,160.0	0.00	0.00	4,142.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,200.0	0.00	0.00	4,182.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,240.0	0.00	0.00	4,222.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,280.0	0.00	0.00	4,262.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,320.0	0.00	0.00	4,302.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,360.0	0.00	0.00	4,342.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,400.0	0.00	0.00	4,382.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,440.0	0.00	0.00	4,422.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,480.0	0.00	0.00	4,462.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,520.0	0.00	0.00	4,502.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,560.0	0.00	0.00	4,542.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,600.0	0.00	0.00	4,582.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,640.0	0.00	0.00	4,622.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,680.0	0.00	0.00	4,662.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,720.0	0.00	0.00	4,702.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,760.0	0.00	0.00	4,742.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,800.0	0.00	0.00	4,782.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,840.0	0.00	0.00	4,822.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,880.0	0.00	0.00	4,862.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,920.0	0.00	0.00	4,902.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
4,960.0	0.00	0.00	4,942.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,000.0	0.00	0.00	4,982.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,040.0	0.00	0.00	5,022.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,080.0	0.00	0.00	5,062.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,120.0	0.00	0.00	5,102.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,160.0	0.00	0.00	5,142.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,200.0	0.00	0.00	5,182.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,240.0	0.00	0.00	5,222.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,280.0	0.00	0.00	5,262.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,320.0	0.00	0.00	5,302.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,360.0	0.00	0.00	5,342.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,400.0	0.00	0.00	5,382.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,440.0	0.00	0.00	5,422.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,480.0	0.00	0.00	5,462.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,520.0	0.00	0.00	5,502.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,560.0	0.00	0.00	5,542.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,600.0	0.00	0.00	5,582.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,640.0	0.00	0.00	5,622.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,680.0	0.00	0.00	5,662.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,720.0	0.00	0.00	5,702.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,760.0	0.00	0.00	5,742.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,800.0	0.00	0.00	5,782.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,840.0	0.00	0.00	5,822.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,880.0	0.00	0.00	5,862.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,920.0	0.00	0.00	5,902.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
5,960.0	0.00	0.00	5,942.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
6,000.0	0.00	0.00	5,982.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
6,040.0	0.00	0.00	6,022.5	-180.0	-255.0	-166.7	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2L-221
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Project:</b>	SEC.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Waste Management 2L-221	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-06-13)		

Planned 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)
6,080.0	0.00	0.00	6,062.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
6,120.0	0.00	0.00	6,102.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
6,160.0	0.00	0.00	6,142.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
6,200.0	0.00	0.00	6,182.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
6,240.0	0.00	0.00	6,222.5	-180.0	-255.0	-166.7	0.00	0.00	0.00
6,279.7	0.00	0.00	6,262.2	-180.0	-255.0	-166.7	0.00	0.00	0.00
<b>KOP #2</b>									
6,280.0	0.02	0.28	6,262.5	-180.0	-255.0	-166.7	7.50	7.50	0.00
6,320.0	3.02	0.28	6,302.5	-178.9	-255.0	-165.7	7.50	7.50	0.00
6,360.0	6.02	0.28	6,342.4	-175.8	-255.0	-162.5	7.50	7.50	0.00
6,400.0	9.02	0.28	6,382.0	-170.5	-255.0	-157.3	7.50	7.50	0.00
6,440.0	12.02	0.28	6,421.4	-163.2	-254.9	-150.0	7.50	7.50	0.00
6,480.0	15.02	0.28	6,460.3	-153.9	-254.9	-140.7	7.50	7.50	0.00
6,520.0	18.02	0.28	6,498.6	-142.5	-254.8	-129.3	7.50	7.50	0.00
6,560.0	21.02	0.28	6,536.3	-129.2	-254.8	-116.0	7.50	7.50	0.00
6,600.0	24.02	0.28	6,573.2	-113.8	-254.7	-100.7	7.50	7.50	0.00
6,640.0	27.02	0.28	6,609.3	-96.6	-254.6	-83.5	7.50	7.50	0.00
6,680.0	30.02	0.28	6,644.5	-77.5	-254.5	-64.4	7.50	7.50	0.00
6,720.0	33.02	0.28	6,678.6	-56.6	-254.4	-43.5	7.50	7.50	0.00
6,760.0	36.02	0.28	6,711.5	-33.9	-254.3	-20.9	7.50	7.50	0.00
6,800.0	39.02	0.28	6,743.2	-9.6	-254.2	3.4	7.50	7.50	0.00
6,840.0	42.02	0.28	6,773.6	16.4	-254.0	29.4	7.50	7.50	0.00
6,880.0	45.02	0.28	6,802.6	44.0	-253.9	56.9	7.50	7.50	0.00
6,920.0	48.02	0.28	6,830.2	73.0	-253.8	85.9	7.50	7.50	0.00
6,960.0	51.02	0.28	6,856.1	103.4	-253.6	116.2	7.50	7.50	0.00
7,000.0	54.02	0.28	6,880.5	135.1	-253.5	147.9	7.50	7.50	0.00
7,040.0	57.02	0.28	6,903.1	168.1	-253.3	180.8	7.50	7.50	0.00
7,080.0	60.02	0.28	6,924.0	202.2	-253.1	214.9	7.50	7.50	0.00
7,120.0	63.02	0.28	6,943.1	237.4	-253.0	250.0	7.50	7.50	0.00
7,160.0	66.02	0.28	6,960.3	273.5	-252.8	286.1	7.50	7.50	0.00
7,200.0	69.02	0.28	6,975.6	310.4	-252.6	323.0	7.50	7.50	0.00
7,240.0	72.02	0.28	6,988.9	348.2	-252.4	360.6	7.50	7.50	0.00
7,280.0	75.02	0.28	7,000.2	386.5	-252.2	398.9	7.50	7.50	0.00
7,320.0	78.02	0.28	7,009.6	425.4	-252.0	437.7	7.50	7.50	0.00
7,360.0	81.02	0.28	7,016.8	464.7	-251.8	477.0	7.50	7.50	0.00
7,399.7	84.00	0.28	7,022.0	504.1	-251.7	516.3	7.50	7.50	0.00
<b>7"</b>									
7,400.0	84.00	0.28	7,022.0	504.4	-251.7	516.6	0.06	0.06	0.00
7,440.0	84.00	0.28	7,026.2	544.2	-251.5	556.3	0.00	0.00	0.00
7,473.7	84.00	0.28	7,029.7	577.7	-251.3	589.8	0.00	0.00	0.00
7,480.0	84.31	0.28	7,030.4	583.9	-251.3	596.0	5.00	5.00	0.00
7,520.0	86.31	0.28	7,033.6	623.8	-251.1	635.8	5.00	5.00	0.00
7,560.0	88.31	0.28	7,035.5	663.8	-250.9	675.7	5.00	5.00	0.00
7,592.8	89.95	0.28	7,036.0	696.6	-250.7	708.5	5.00	5.00	0.00
<b>End of Build</b>									
7,600.0	89.96	0.28	7,036.0	703.8	-250.7	715.6	0.01	0.01	0.00
7,640.0	89.96	0.28	7,036.1	743.8	-250.5	755.6	0.00	0.00	0.00
7,680.0	89.96	0.28	7,036.1	783.8	-250.3	795.5	0.00	0.00	0.00
7,720.0	89.96	0.28	7,036.1	823.8	-250.1	835.5	0.00	0.00	0.00
7,760.0	89.96	0.28	7,036.1	863.8	-249.9	875.4	0.00	0.00	0.00
7,800.0	89.96	0.28	7,036.2	903.8	-249.7	915.3	0.00	0.00	0.00
7,840.0	89.96	0.28	7,036.2	943.8	-249.5	955.3	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2L-221
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Project:</b>	SEC.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Waste Management 2L-221	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-06-13)		

Planned 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)
7,880.0	89.96	0.28	7,036.2	983.8	-249.3	995.2	0.00	0.00	0.00
7,920.0	89.96	0.28	7,036.3	1,023.7	-249.1	1,035.1	0.00	0.00	0.00
7,960.0	89.96	0.28	7,036.3	1,063.7	-248.9	1,075.1	0.00	0.00	0.00
8,000.0	89.96	0.28	7,036.3	1,103.7	-248.7	1,115.0	0.00	0.00	0.00
8,040.0	89.96	0.28	7,036.4	1,143.7	-248.5	1,155.0	0.00	0.00	0.00
8,080.0	89.96	0.28	7,036.4	1,183.7	-248.3	1,194.9	0.00	0.00	0.00
8,120.0	89.96	0.28	7,036.4	1,223.7	-248.1	1,234.8	0.00	0.00	0.00
8,160.0	89.96	0.28	7,036.5	1,263.7	-247.9	1,274.8	0.00	0.00	0.00
8,200.0	89.96	0.28	7,036.5	1,303.7	-247.7	1,314.7	0.00	0.00	0.00
8,240.0	89.96	0.28	7,036.5	1,343.7	-247.5	1,354.6	0.00	0.00	0.00
8,280.0	89.96	0.28	7,036.6	1,383.7	-247.4	1,394.6	0.00	0.00	0.00
8,320.0	89.96	0.28	7,036.6	1,423.7	-247.2	1,434.5	0.00	0.00	0.00
8,360.0	89.96	0.28	7,036.6	1,463.7	-247.0	1,474.5	0.00	0.00	0.00
8,400.0	89.96	0.28	7,036.6	1,503.7	-246.8	1,514.4	0.00	0.00	0.00
8,440.0	89.96	0.28	7,036.7	1,543.7	-246.6	1,554.3	0.00	0.00	0.00
8,480.0	89.96	0.28	7,036.7	1,583.7	-246.4	1,594.3	0.00	0.00	0.00
8,520.0	89.96	0.28	7,036.7	1,623.7	-246.2	1,634.2	0.00	0.00	0.00
8,560.0	89.96	0.28	7,036.8	1,663.7	-246.0	1,674.1	0.00	0.00	0.00
8,600.0	89.96	0.28	7,036.8	1,703.7	-245.8	1,714.1	0.00	0.00	0.00
8,640.0	89.96	0.28	7,036.8	1,743.7	-245.6	1,754.0	0.00	0.00	0.00
8,680.0	89.96	0.28	7,036.9	1,783.7	-245.4	1,794.0	0.00	0.00	0.00
8,720.0	89.96	0.28	7,036.9	1,823.7	-245.2	1,833.9	0.00	0.00	0.00
8,760.0	89.96	0.28	7,036.9	1,863.7	-245.0	1,873.8	0.00	0.00	0.00
8,800.0	89.96	0.28	7,037.0	1,903.7	-244.8	1,913.8	0.00	0.00	0.00
8,840.0	89.96	0.28	7,037.0	1,943.7	-244.6	1,953.7	0.00	0.00	0.00
8,880.0	89.96	0.28	7,037.0	1,983.7	-244.4	1,993.6	0.00	0.00	0.00
8,920.0	89.96	0.28	7,037.0	2,023.7	-244.2	2,033.6	0.00	0.00	0.00
8,960.0	89.96	0.28	7,037.1	2,063.7	-244.0	2,073.5	0.00	0.00	0.00
9,000.0	89.96	0.28	7,037.1	2,103.7	-243.8	2,113.4	0.00	0.00	0.00
9,040.0	89.96	0.28	7,037.1	2,143.7	-243.6	2,153.4	0.00	0.00	0.00
9,080.0	89.96	0.28	7,037.2	2,183.7	-243.4	2,193.3	0.00	0.00	0.00
9,120.0	89.96	0.28	7,037.2	2,223.7	-243.2	2,233.3	0.00	0.00	0.00
9,160.0	89.96	0.28	7,037.2	2,263.7	-243.0	2,273.2	0.00	0.00	0.00
9,200.0	89.96	0.28	7,037.3	2,303.7	-242.9	2,313.1	0.00	0.00	0.00
9,240.0	89.96	0.28	7,037.3	2,343.7	-242.7	2,353.1	0.00	0.00	0.00
9,280.0	89.96	0.28	7,037.3	2,383.7	-242.5	2,393.0	0.00	0.00	0.00
9,320.0	89.96	0.28	7,037.4	2,423.7	-242.3	2,432.9	0.00	0.00	0.00
9,360.0	89.96	0.28	7,037.4	2,463.7	-242.1	2,472.9	0.00	0.00	0.00
9,400.0	89.96	0.28	7,037.4	2,503.7	-241.9	2,512.8	0.00	0.00	0.00
9,440.0	89.96	0.28	7,037.5	2,543.7	-241.7	2,552.8	0.00	0.00	0.00
9,480.0	89.96	0.28	7,037.5	2,583.7	-241.5	2,592.7	0.00	0.00	0.00
9,520.0	89.96	0.28	7,037.5	2,623.7	-241.3	2,632.6	0.00	0.00	0.00
9,560.0	89.96	0.28	7,037.5	2,663.7	-241.1	2,672.6	0.00	0.00	0.00
9,600.0	89.96	0.28	7,037.6	2,703.7	-240.9	2,712.5	0.00	0.00	0.00
9,640.0	89.96	0.28	7,037.6	2,743.7	-240.7	2,752.4	0.00	0.00	0.00
9,680.0	89.96	0.28	7,037.6	2,783.7	-240.5	2,792.4	0.00	0.00	0.00
9,720.0	89.96	0.28	7,037.7	2,823.7	-240.3	2,832.3	0.00	0.00	0.00
9,760.0	89.96	0.28	7,037.7	2,863.7	-240.1	2,872.3	0.00	0.00	0.00
9,800.0	89.96	0.28	7,037.7	2,903.7	-239.9	2,912.2	0.00	0.00	0.00
9,840.0	89.96	0.28	7,037.8	2,943.7	-239.7	2,952.1	0.00	0.00	0.00
9,880.0	89.96	0.28	7,037.8	2,983.7	-239.5	2,992.1	0.00	0.00	0.00
9,920.0	89.96	0.28	7,037.8	3,023.7	-239.3	3,032.0	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2L-221
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Project:</b>	SEC.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Waste Management 2L-221	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-06-13)		

Planned 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)
9,960.0	89.96	0.28	7,037.9	3,063.7	-239.1	3,071.9	0.00	0.00	0.00
10,000.0	89.96	0.28	7,037.9	3,103.7	-238.9	3,111.9	0.00	0.00	0.00
10,040.0	89.96	0.28	7,037.9	3,143.7	-238.7	3,151.8	0.00	0.00	0.00
10,080.0	89.96	0.28	7,038.0	3,183.7	-238.5	3,191.8	0.00	0.00	0.00
10,120.0	89.96	0.28	7,038.0	3,223.7	-238.3	3,231.7	0.00	0.00	0.00
10,160.0	89.96	0.28	7,038.0	3,263.7	-238.2	3,271.6	0.00	0.00	0.00
10,200.0	89.96	0.28	7,038.0	3,303.7	-238.0	3,311.6	0.00	0.00	0.00
10,240.0	89.96	0.28	7,038.1	3,343.7	-237.8	3,351.5	0.00	0.00	0.00
10,280.0	89.96	0.28	7,038.1	3,383.7	-237.6	3,391.4	0.00	0.00	0.00
10,320.0	89.96	0.28	7,038.1	3,423.7	-237.4	3,431.4	0.00	0.00	0.00
10,360.0	89.96	0.28	7,038.2	3,463.7	-237.2	3,471.3	0.00	0.00	0.00
10,400.0	89.96	0.28	7,038.2	3,503.7	-237.0	3,511.3	0.00	0.00	0.00
10,440.0	89.96	0.28	7,038.2	3,543.7	-236.8	3,551.2	0.00	0.00	0.00
10,480.0	89.96	0.28	7,038.3	3,583.7	-236.6	3,591.1	0.00	0.00	0.00
10,520.0	89.96	0.28	7,038.3	3,623.7	-236.4	3,631.1	0.00	0.00	0.00
10,560.0	89.96	0.28	7,038.3	3,663.7	-236.2	3,671.0	0.00	0.00	0.00
10,600.0	89.96	0.28	7,038.4	3,703.7	-236.0	3,710.9	0.00	0.00	0.00
10,640.0	89.96	0.28	7,038.4	3,743.7	-235.8	3,750.9	0.00	0.00	0.00
10,680.0	89.96	0.28	7,038.4	3,783.7	-235.6	3,790.8	0.00	0.00	0.00
10,720.0	89.96	0.28	7,038.4	3,823.7	-235.4	3,830.8	0.00	0.00	0.00
10,760.0	89.96	0.28	7,038.5	3,863.7	-235.2	3,870.7	0.00	0.00	0.00
10,800.0	89.96	0.28	7,038.5	3,903.7	-235.0	3,910.6	0.00	0.00	0.00
10,840.0	89.96	0.28	7,038.5	3,943.7	-234.8	3,950.6	0.00	0.00	0.00
10,880.0	89.96	0.28	7,038.6	3,983.7	-234.6	3,990.5	0.00	0.00	0.00
10,920.0	89.96	0.28	7,038.6	4,023.7	-234.4	4,030.4	0.00	0.00	0.00
10,960.0	89.96	0.28	7,038.6	4,063.7	-234.2	4,070.4	0.00	0.00	0.00
11,000.0	89.96	0.28	7,038.7	4,103.7	-234.0	4,110.3	0.00	0.00	0.00
11,040.0	89.96	0.28	7,038.7	4,143.7	-233.8	4,150.2	0.00	0.00	0.00
11,080.0	89.96	0.28	7,038.7	4,183.7	-233.7	4,190.2	0.00	0.00	0.00
11,120.0	89.96	0.28	7,038.8	4,223.7	-233.5	4,230.1	0.00	0.00	0.00
11,160.0	89.96	0.28	7,038.8	4,263.7	-233.3	4,270.1	0.00	0.00	0.00
11,200.0	89.96	0.28	7,038.8	4,303.7	-233.1	4,310.0	0.00	0.00	0.00
11,240.0	89.96	0.28	7,038.9	4,343.7	-232.9	4,349.9	0.00	0.00	0.00
11,280.0	89.96	0.28	7,038.9	4,383.7	-232.7	4,389.9	0.00	0.00	0.00
11,320.0	89.96	0.28	7,038.9	4,423.7	-232.5	4,429.8	0.00	0.00	0.00
11,360.0	89.96	0.28	7,038.9	4,463.7	-232.3	4,469.7	0.00	0.00	0.00
11,400.0	89.96	0.28	7,039.0	4,503.7	-232.1	4,509.7	0.00	0.00	0.00
11,428.2	89.96	0.28	7,039.0	4,531.9	-231.9	4,537.8	0.00	0.00	0.00
BHL 500'FNL, 1825'FWL									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,399.7	7,022.0	7"	7	8-3/4	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2L-221
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Project:</b>	SEC.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Waste Management 2L-221	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-06-13)		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,000.0	1,000.0	0.0	0.0	KOP #1	
6,279.7	6,262.2	-180.0	-255.0	KOP #2	
7,592.8	7,036.0	696.6	-250.7	End of Build	



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.2-T2N-R64W**

**Waste Management 2Q-HZ Pad Sec.2-T2N-R64W**

**Waste Management 2L-221**

**Wellbore #1**

**Plan #1 (2-06-13)**

## **Anticollision Report**

**06 February, 2013**



Waste Management 2Q-HZ Pad Sec.2-T2N-R64W - Waste Management 2L-401 - Wellbore #1 - Plan #													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
2,000.0	1,994.7	1,990.8	1,979.9	4.6	5.7	33.86	-58.4	-209.7	131.4	122.5	8.94	14.709		
2,100.0	2,094.0	2,090.7	2,079.1	4.9	6.0	35.21	-62.0	-220.9	133.1	123.7	9.46	14.070		
2,200.0	2,193.4	2,190.7	2,178.4	5.1	6.3	36.53	-65.6	-232.1	134.9	124.9	9.99	13.494		
2,300.0	2,292.7	2,290.6	2,277.6	5.4	6.6	37.81	-69.2	-243.3	136.7	126.1	10.54	12.973		
2,400.0	2,392.0	2,390.5	2,376.9	5.7	7.0	39.06	-72.8	-254.5	138.6	127.5	11.09	12.500		
2,500.0	2,491.3	2,490.5	2,476.1	6.0	7.3	40.28	-76.4	-265.7	140.5	128.9	11.64	12.069		
2,600.0	2,590.7	2,590.4	2,575.3	6.3	7.6	41.46	-80.0	-277.0	142.5	130.3	12.21	11.676		
2,700.0	2,690.0	2,690.3	2,674.6	6.6	7.9	42.61	-83.6	-288.2	144.6	131.8	12.78	11.316		
2,800.0	2,789.3	2,790.3	2,773.8	7.0	8.2	43.72	-87.2	-299.4	146.7	133.4	13.35	10.986		
2,900.0	2,888.6	2,890.2	2,873.1	7.3	8.6	44.80	-90.8	-310.6	148.9	135.0	13.94	10.683		
3,000.0	2,987.9	2,990.2	2,972.3	7.6	8.9	45.85	-94.4	-321.8	151.1	136.6	14.53	10.404		
3,100.0	3,087.3	3,090.1	3,071.6	7.9	9.2	46.87	-98.0	-333.0	153.4	138.3	15.12	10.146		
3,200.0	3,186.6	3,190.0	3,170.8	8.2	9.5	47.86	-101.6	-344.2	155.7	140.0	15.72	9.908		
3,300.0	3,285.9	3,290.0	3,270.0	8.5	9.8	48.82	-105.2	-355.4	158.1	141.8	16.32	9.687		
3,400.0	3,385.2	3,389.9	3,369.3	8.8	10.1	49.76	-108.8	-366.6	160.5	143.6	16.93	9.483		
3,500.0	3,484.5	3,489.8	3,468.5	9.1	10.5	50.66	-112.4	-377.8	163.0	145.4	17.54	9.293		
3,600.0	3,583.9	3,589.8	3,567.8	9.4	10.8	51.54	-116.0	-389.0	165.5	147.3	18.15	9.116		
3,700.0	3,683.2	3,689.7	3,667.0	9.7	11.1	52.38	-119.6	-400.2	168.0	149.3	18.76	8.956		
3,800.0	3,782.8	3,789.6	3,766.2	10.0	11.4	52.65	-123.2	-411.4	172.0	152.7	19.26	8.932		
3,900.0	3,882.6	3,889.4	3,865.3	10.2	11.7	52.05	-126.8	-422.5	178.1	158.4	19.66	9.057		
4,000.0	3,982.5	3,989.0	3,964.2	10.3	12.1	50.69	-130.4	-433.7	186.4	166.4	19.99	9.326		
4,100.0	4,082.5	4,088.3	4,062.8	10.5	12.4	-76.37	-134.0	-444.8	196.3	176.1	20.26	9.689		
4,200.0	4,182.5	4,187.6	4,161.4	10.7	12.7	-78.08	-137.6	-456.0	206.5	185.9	20.57	10.037		
4,300.0	4,282.5	4,286.9	4,260.0	10.8	13.0	-79.62	-141.1	-467.1	216.8	195.9	20.89	10.376		
4,400.0	4,382.5	4,386.2	4,358.6	11.0	13.3	-81.02	-144.7	-478.2	227.3	206.0	21.23	10.706		
4,500.0	4,482.5	4,485.5	4,457.2	11.2	13.7	-82.29	-148.3	-489.4	237.8	216.3	21.57	11.027		
4,600.0	4,582.5	4,584.8	4,555.9	11.4	14.0	-83.46	-151.9	-500.5	248.5	226.6	21.92	11.337		
4,700.0	4,682.5	4,684.1	4,654.5	11.5	14.3	-84.53	-155.4	-511.6	259.3	237.0	22.28	11.637		
4,800.0	4,782.5	4,783.4	4,753.1	11.7	14.6	-85.52	-159.0	-522.7	270.2	247.5	22.65	11.927		
4,900.0	4,882.5	4,882.7	4,851.7	11.9	14.9	-86.43	-162.6	-533.9	281.1	258.1	23.03	12.207		
5,000.0	4,982.5	4,982.0	4,950.3	12.1	15.2	-87.27	-166.2	-545.0	292.1	268.7	23.41	12.478		
5,100.0	5,082.5	5,081.3	5,048.9	12.3	15.6	-88.05	-169.8	-556.1	303.2	279.4	23.80	12.739		
5,200.0	5,182.5	5,180.6	5,147.5	12.4	15.9	-88.78	-173.3	-567.3	314.3	290.1	24.19	12.992		
5,300.0	5,282.5	5,290.0	5,256.4	12.6	16.1	-89.43	-176.8	-578.1	324.1	299.6	24.55	13.202		
5,400.0	5,382.5	5,402.0	5,368.1	12.8	16.3	-89.84	-179.1	-585.1	330.4	305.5	24.92	13.259		
5,500.0	5,482.5	5,514.3	5,480.4	13.0	16.5	-89.99	-180.0	-587.9	332.9	307.6	25.29	13.163		
5,600.0	5,582.5	5,616.5	5,582.5	13.2	16.7	-90.00	-180.0	-588.0	333.0	307.3	25.67	12.969		
5,700.0	5,682.5	5,716.5	5,682.5	13.4	16.8	-90.00	-180.0	-588.0	333.0	306.9	26.05	12.782		
5,800.0	5,782.5	5,816.5	5,782.5	13.6	16.9	-90.00	-180.0	-588.0	333.0	306.5	26.43	12.599		
5,900.0	5,882.5	5,916.5	5,882.5	13.8	17.1	-90.00	-180.0	-588.0	333.0	306.1	26.81	12.420		
6,000.0	5,982.5	6,016.5	5,982.5	14.0	17.2	-90.00	-180.0	-588.0	333.0	305.8	27.19	12.245		
6,100.0	6,082.5	6,116.5	6,082.5	14.2	17.4	-90.00	-180.0	-588.0	333.0	305.4	27.58	12.074		
6,200.0	6,182.5	6,216.5	6,182.6	14.4	17.5	-89.98	-179.9	-588.0	333.0	305.0	27.96	11.907		
6,235.7	6,218.2	6,252.2	6,218.2	14.4	17.6	-90.05	-178.5	-587.9	332.9	304.8	28.13	11.838		
6,300.0	6,282.5	6,315.9	6,281.6	14.6	17.7	-88.91	-171.8	-587.9	333.0	304.6	28.42	11.718		
6,400.0	6,382.0	6,413.7	6,377.1	14.7	17.8	-86.89	-151.4	-587.8	333.5	304.6	28.83	11.568		
6,500.0	6,479.5	6,510.0	6,467.9	14.9	17.8	-84.95	-119.6	-587.7	334.3	305.2	29.14	11.472		
6,600.0	6,573.2	6,605.0	6,552.9	15.0	17.9	-83.10	-77.2	-587.5	335.5	306.1	29.38	11.418		
6,700.0	6,661.7	6,700.0	6,631.9	15.0	17.9	-81.37	-24.6	-587.3	336.9	307.3	29.59	11.384		
6,800.0	6,743.2	6,791.7	6,701.5	15.1	18.0	-79.83	35.1	-587.0	338.4	308.6	29.83	11.343		
6,900.0	6,816.6	6,883.6	6,763.5	15.2	18.1	-78.45	102.8	-586.7	340.0	309.8	30.21	11.255		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2L-221
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2L-221	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (2-06-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Waste Management 2Q-HZ Pad Sec.2-T2N-R64W - Waste Management 2L-401 - Wellbore #1 - Plan #													Offset Site Error:	0.0ft
Survey Program: 0-MWD													Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
7,000.0	6,880.5	6,974.7	6,816.5	15.4	18.2	-77.27	176.9	-586.4	341.6	310.8	30.76	11.103		
7,100.0	6,933.8	7,065.2	6,860.1	15.8	18.4	-76.28	256.1	-586.0	343.0	311.4	31.61	10.850		
7,200.0	6,975.6	7,155.2	6,893.9	16.5	18.8	-75.51	339.5	-585.7	344.2	311.4	32.81	10.491		
7,300.0	7,005.2	7,244.8	6,917.5	17.3	19.4	-74.97	425.9	-585.3	345.1	310.7	34.38	10.038		
7,400.0	7,022.0	7,334.2	6,930.9	18.3	20.2	-74.64	514.2	-584.9	345.6	309.3	36.31	9.519		
7,500.0	7,032.2	7,424.6	6,933.9	19.5	21.1	-73.64	604.5	-584.5	347.5	309.2	38.33	9.068		
7,600.0	7,036.0	7,524.5	6,933.1	20.7	22.2	-72.84	704.4	-584.1	348.9	308.2	40.76	8.560		
7,700.0	7,036.1	7,624.5	6,932.2	22.1	23.5	-72.70	804.3	-583.6	349.2	305.9	43.32	8.061		
7,800.0	7,036.2	7,724.5	6,931.4	23.5	24.8	-72.56	904.3	-583.2	349.6	303.5	46.03	7.594		
7,900.0	7,036.3	7,824.5	6,930.6	25.0	26.3	-72.42	1,004.3	-582.8	349.9	301.0	48.86	7.161		
8,000.0	7,036.3	7,924.5	6,929.7	26.5	27.7	-72.28	1,104.3	-582.3	350.2	298.4	51.79	6.762		
8,100.0	7,036.4	8,024.4	6,928.9	28.1	29.3	-72.14	1,204.3	-581.9	350.6	295.7	54.81	6.396		
8,200.0	7,036.5	8,124.4	6,928.0	29.7	30.8	-72.00	1,304.3	-581.4	350.9	293.0	57.89	6.061		
8,300.0	7,036.6	8,224.4	6,927.2	31.4	32.5	-71.86	1,404.3	-581.0	351.2	290.2	61.03	5.754		
8,400.0	7,036.6	8,324.4	6,926.4	33.1	34.1	-71.72	1,504.3	-580.6	351.5	287.3	64.22	5.474		
8,500.0	7,036.7	8,424.4	6,925.5	34.8	35.8	-71.58	1,604.3	-580.1	351.9	284.4	67.45	5.217		
8,600.0	7,036.8	8,524.4	6,924.7	36.5	37.5	-71.44	1,704.3	-579.7	352.2	281.5	70.72	4.981		
8,700.0	7,036.9	8,624.4	6,923.9	38.3	39.2	-71.30	1,804.3	-579.3	352.6	278.6	74.01	4.764		
8,800.0	7,037.0	8,724.4	6,923.0	40.0	40.9	-71.16	1,904.2	-578.8	352.9	275.6	77.33	4.564		
8,900.0	7,037.0	8,824.4	6,922.2	41.8	42.7	-71.03	2,004.2	-578.4	353.3	272.6	80.67	4.379		
9,000.0	7,037.1	8,924.4	6,921.3	43.6	44.4	-70.89	2,104.2	-577.9	353.6	269.6	84.03	4.208		
9,100.0	7,037.2	9,024.4	6,920.5	45.4	46.2	-70.75	2,204.2	-577.5	353.9	266.6	87.40	4.050		
9,200.0	7,037.3	9,124.4	6,919.7	47.2	48.0	-70.61	2,304.2	-577.1	354.3	263.5	90.78	3.903		
9,300.0	7,037.3	9,224.4	6,918.8	49.0	49.8	-70.48	2,404.2	-576.6	354.7	260.5	94.18	3.766		
9,400.0	7,037.4	9,324.4	6,918.0	50.8	51.6	-70.34	2,504.2	-576.2	355.0	257.4	97.58	3.638		
9,500.0	7,037.5	9,424.4	6,917.1	52.7	53.4	-70.20	2,604.2	-575.7	355.4	254.4	100.99	3.519		
9,600.0	7,037.6	9,524.4	6,916.3	54.5	55.2	-70.07	2,704.2	-575.3	355.7	251.3	104.41	3.407		
9,700.0	7,037.7	9,624.4	6,915.5	56.3	57.0	-69.93	2,804.2	-574.9	356.1	248.3	107.83	3.302		
9,800.0	7,037.7	9,724.4	6,914.6	58.2	58.8	-69.80	2,904.2	-574.4	356.4	245.2	111.25	3.204		
9,900.0	7,037.8	9,824.4	6,913.8	60.0	60.7	-69.66	3,004.2	-574.0	356.8	242.1	114.68	3.111		
10,000.0	7,037.9	9,924.4	6,913.0	61.9	62.5	-69.53	3,104.1	-573.6	357.2	239.1	118.11	3.024		
10,100.0	7,038.0	10,024.4	6,912.1	63.8	64.4	-69.39	3,204.1	-573.1	357.5	236.0	121.54	2.942		
10,200.0	7,038.0	10,124.4	6,911.3	65.6	66.2	-69.26	3,304.1	-572.7	357.9	232.9	124.97	2.864		
10,300.0	7,038.1	10,224.4	6,910.4	67.5	68.1	-69.12	3,404.1	-572.2	358.3	229.9	128.41	2.790		
10,400.0	7,038.2	10,324.4	6,909.6	69.3	69.9	-68.99	3,504.1	-571.8	358.7	226.8	131.84	2.721		
10,500.0	7,038.3	10,424.4	6,908.8	71.2	71.8	-68.86	3,604.1	-571.4	359.0	223.8	135.27	2.654		
10,600.0	7,038.4	10,524.3	6,907.9	73.1	73.6	-68.72	3,704.1	-570.9	359.4	220.7	138.70	2.591		
10,700.0	7,038.4	10,624.3	6,907.1	75.0	75.5	-68.59	3,804.1	-570.5	359.8	217.7	142.13	2.532		
10,800.0	7,038.5	10,724.3	6,906.3	76.8	77.4	-68.46	3,904.1	-570.0	360.2	214.6	145.55	2.475		
10,900.0	7,038.6	10,824.3	6,905.4	78.7	79.2	-68.33	4,004.1	-569.6	360.6	211.6	148.98	2.420		
11,000.0	7,038.7	10,924.3	6,904.6	80.6	81.1	-68.19	4,104.1	-569.2	361.0	208.6	152.40	2.368		
11,100.0	7,038.7	11,024.3	6,903.7	82.5	83.0	-68.06	4,204.0	-568.7	361.3	205.5	155.82	2.319		
11,200.0	7,038.8	11,124.3	6,902.9	84.4	84.9	-67.93	4,304.0	-568.3	361.7	202.5	159.24	2.272		
11,300.0	7,038.9	11,224.3	6,902.1	86.3	86.7	-67.80	4,404.0	-567.9	362.1	199.5	162.65	2.226		
11,400.0	7,039.0	11,324.3	6,901.2	88.1	88.6	-67.67	4,504.0	-567.4	362.5	196.5	166.06	2.183		
11,428.2	7,039.0	11,352.2	6,901.0	88.7	89.1	-67.63	4,531.9	-567.3	362.6	195.6	167.02	2.171 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2L-221
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2L-221	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (2-06-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Waste Management 2Q-HZ Pad Sec.2-T2N-R64W - Waste Management 2Q-201 - Wellbore #1 - Plan #										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	61.5	61.5					
100.0	100.0	98.0	98.0	0.1	0.1	90.01	0.0	61.5	61.5	61.3	0.22	276.337		
200.0	200.0	198.0	198.0	0.3	0.3	90.01	0.0	61.5	61.5	60.8	0.67	91.805		
300.0	300.0	298.0	298.0	0.6	0.6	90.01	0.0	61.5	61.5	60.4	1.12	54.935		
400.0	400.0	398.0	398.0	0.8	0.8	90.01	0.0	61.5	61.5	59.9	1.57	39.195		
500.0	500.0	498.0	498.0	1.0	1.0	90.01	0.0	61.5	61.5	59.5	2.02	30.465		
600.0	600.0	598.0	598.0	1.2	1.2	90.01	0.0	61.5	61.5	59.0	2.47	24.916		
700.0	700.0	698.0	698.0	1.5	1.5	90.01	0.0	61.5	61.5	58.6	2.92	21.077		
800.0	800.0	798.0	798.0	1.7	1.7	90.01	0.0	61.5	61.5	58.1	3.37	18.263		
900.0	900.0	898.0	898.0	1.9	1.9	90.01	0.0	61.5	61.5	57.7	3.82	16.112		
1,000.0	1,000.0	998.0	998.0	2.1	2.1	90.01	0.0	61.5	61.5	57.2	4.27	14.414 CC, ES		
1,100.0	1,100.0	1,096.1	1,096.1	2.3	2.3	-144.97	-0.7	62.9	64.4	59.7	4.67	13.788		
1,200.0	1,199.8	1,193.6	1,193.5	2.5	2.5	-145.41	-3.0	67.3	73.2	68.1	5.04	14.504		
1,300.0	1,299.5	1,290.1	1,289.6	2.7	2.7	-145.91	-6.6	74.6	87.8	82.4	5.43	16.158		
1,400.0	1,398.8	1,387.9	1,386.8	3.0	2.9	-146.57	-11.4	83.9	106.6	100.8	5.84	18.252		
1,500.0	1,498.1	1,486.0	1,484.4	3.2	3.2	-147.12	-16.1	93.3	125.6	119.4	6.26	20.067		
1,600.0	1,597.4	1,584.2	1,582.0	3.5	3.4	-147.53	-20.9	102.6	144.7	138.0	6.69	21.614		
1,700.0	1,696.8	1,682.4	1,679.6	3.7	3.7	-147.84	-25.6	112.0	163.7	156.6	7.14	22.938		
1,800.0	1,796.1	1,780.5	1,777.2	4.0	3.9	-148.09	-30.4	121.4	182.8	175.2	7.59	24.078		
1,900.0	1,895.4	1,878.7	1,874.8	4.3	4.2	-148.29	-35.2	130.8	201.8	193.8	8.05	25.063		
2,000.0	1,994.7	1,976.9	1,972.4	4.6	4.5	-148.45	-39.9	140.2	220.9	212.3	8.52	25.927		
2,100.0	2,094.0	2,075.0	2,070.0	4.9	4.7	-148.59	-44.7	149.6	239.9	230.9	8.99	26.683		
2,200.0	2,193.4	2,173.2	2,167.6	5.1	5.0	-148.71	-49.4	159.0	259.0	249.5	9.47	27.350		
2,300.0	2,292.7	2,271.4	2,265.2	5.4	5.3	-148.81	-54.2	168.3	278.0	268.1	9.95	27.943		
2,400.0	2,392.0	2,369.5	2,362.8	5.7	5.6	-148.90	-58.9	177.7	297.1	286.7	10.43	28.472		
2,500.0	2,491.3	2,467.7	2,460.4	6.0	5.9	-148.98	-63.7	187.1	316.2	305.2	10.92	28.946		
2,600.0	2,590.7	2,565.9	2,558.0	6.3	6.1	-149.05	-68.5	196.5	335.2	323.8	11.41	29.373		
2,700.0	2,690.0	2,664.0	2,655.6	6.6	6.4	-149.11	-73.2	205.9	354.3	342.4	11.90	29.759		
2,800.0	2,789.3	2,762.2	2,753.2	7.0	6.7	-149.17	-78.0	215.3	373.3	360.9	12.40	30.109		
2,900.0	2,888.6	2,860.4	2,850.8	7.3	7.0	-149.22	-82.7	224.6	392.4	379.5	12.90	30.429		
3,000.0	2,987.9	2,958.5	2,948.4	7.6	7.3	-149.26	-87.5	234.0	411.5	398.1	13.39	30.721		
3,100.0	3,087.3	3,056.7	3,046.0	7.9	7.6	-149.30	-92.3	243.4	430.5	416.6	13.89	30.990		
3,200.0	3,186.6	3,154.9	3,143.6	8.2	7.9	-149.34	-97.0	252.8	449.6	435.2	14.39	31.237		
3,300.0	3,285.9	3,253.0	3,241.2	8.5	8.2	-149.38	-101.8	262.2	468.6	453.7	14.89	31.465		
3,400.0	3,385.2	3,351.2	3,338.8	8.8	8.5	-149.41	-106.5	271.6	487.7	472.3	15.40	31.676		
3,500.0	3,484.5	3,449.3	3,436.4	9.1	8.8	-149.44	-111.3	281.0	506.8	490.9	15.90	31.872		
3,600.0	3,583.9	3,547.5	3,534.0	9.4	9.0	-149.47	-116.0	290.3	525.8	509.4	16.40	32.054		
3,700.0	3,683.2	3,645.7	3,631.6	9.7	9.3	-149.52	-120.8	299.7	544.9	527.9	16.91	32.217		
3,800.0	3,782.8	3,744.2	3,729.6	10.0	9.6	-149.60	-125.6	309.1	561.9	544.6	17.39	32.306		
3,900.0	3,882.6	3,843.2	3,828.0	10.2	9.9	-149.48	-130.4	318.6	576.1	558.2	17.86	32.259		
4,000.0	3,982.5	3,942.4	3,926.7	10.3	10.2	-149.16	-135.2	328.1	587.2	568.9	18.30	32.091		
4,100.0	4,082.5	4,041.9	4,025.5	10.5	10.5	86.14	-140.0	337.6	596.5	577.7	18.74	31.830		
4,200.0	4,182.5	4,141.3	4,124.4	10.7	10.8	86.66	-144.8	347.1	605.7	586.6	19.18	31.585		
4,300.0	4,282.5	4,240.7	4,223.2	10.8	11.1	87.16	-149.6	356.6	615.0	595.4	19.62	31.354		
4,400.0	4,382.5	4,340.1	4,322.1	11.0	11.4	87.65	-154.5	366.1	624.4	604.3	20.05	31.134		
4,500.0	4,482.5	4,439.6	4,420.9	11.2	11.7	88.12	-159.3	375.6	633.8	613.3	20.49	30.925		
4,600.0	4,582.5	4,539.0	4,519.8	11.4	12.0	88.58	-164.1	385.1	643.2	622.3	20.93	30.726		
4,700.0	4,682.5	4,638.4	4,618.6	11.5	12.3	89.02	-168.9	394.6	652.7	631.3	21.37	30.537		
4,800.0	4,782.5	4,744.2	4,723.8	11.7	12.6	89.48	-174.0	404.6	662.1	640.2	21.82	30.343		
4,900.0	4,882.5	4,869.9	4,849.2	11.9	12.9	89.85	-178.2	412.9	668.7	646.4	22.26	30.040		
5,000.0	4,982.5	4,996.2	4,975.4	12.1	13.1	90.00	-180.0	416.4	671.4	648.7	22.68	29.609		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Waste Management 2Q-HZ Pad Sec.2-T2N-R64W - Waste Management 2Q-201 - Wellbore #1 - Plan #													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,100.0	5,082.5	5,101.3	5,080.5	12.3	13.3	90.00	-180.0	416.5	671.5	648.4	23.07	29.111		
5,200.0	5,182.5	5,201.3	5,180.5	12.4	13.5	90.00	-180.0	416.5	671.5	648.0	23.45	28.637		
5,300.0	5,282.5	5,301.3	5,280.5	12.6	13.6	90.00	-180.0	416.5	671.5	647.7	23.83	28.176		
5,400.0	5,382.5	5,401.3	5,380.5	12.8	13.8	90.00	-180.0	416.5	671.5	647.3	24.22	27.727		
5,500.0	5,482.5	5,501.3	5,480.5	13.0	14.0	90.00	-180.0	416.5	671.5	646.9	24.61	27.289		
5,600.0	5,582.5	5,601.3	5,580.5	13.2	14.1	90.00	-180.0	416.5	671.5	646.5	25.00	26.863		
5,700.0	5,682.5	5,701.3	5,680.5	13.4	14.3	90.00	-180.0	416.5	671.5	646.1	25.39	26.448		
5,800.0	5,782.5	5,801.3	5,780.5	13.6	14.5	90.00	-180.0	416.5	671.5	645.7	25.78	26.044		
5,900.0	5,882.5	5,901.3	5,880.5	13.8	14.7	90.00	-180.0	416.5	671.5	645.3	26.18	25.650		
6,000.0	5,982.5	6,001.3	5,980.5	14.0	14.9	90.00	-180.0	416.5	671.5	644.9	26.58	25.267		
6,100.0	6,082.5	6,101.3	6,080.5	14.2	15.0	90.00	-180.0	416.5	671.5	644.5	26.98	24.893		
6,200.0	6,182.5	6,201.3	6,180.5	14.4	15.2	90.00	-180.0	416.5	671.5	644.1	27.38	24.528		
6,300.0	6,282.5	6,301.3	6,280.5	14.6	15.4	89.72	-179.7	416.5	671.5	643.7	27.77	24.177		
6,400.0	6,382.0	6,400.9	6,379.6	14.7	15.5	89.70	-170.3	416.5	671.5	643.4	28.11	23.891		
6,500.0	6,479.5	6,500.5	6,476.6	14.9	15.7	89.68	-148.1	416.6	671.5	643.1	28.36	23.679		
6,600.0	6,573.2	6,600.0	6,569.8	15.0	15.8	89.67	-113.6	416.8	671.4	642.9	28.57	23.505		
6,700.0	6,661.7	6,699.6	6,657.9	15.0	15.8	89.67	-67.1	417.0	671.4	642.6	28.79	23.322		
6,800.0	6,743.2	6,799.1	6,739.1	15.1	15.9	89.67	-9.7	417.2	671.4	642.3	29.10	23.069		
6,900.0	6,816.6	6,898.7	6,812.1	15.2	16.0	89.68	57.8	417.5	671.3	641.7	29.59	22.690		
7,000.0	6,880.5	6,998.2	6,875.8	15.4	16.1	89.69	134.3	417.8	671.3	641.0	30.32	22.142		
7,100.0	6,933.8	7,097.8	6,929.0	15.8	16.4	89.71	218.4	418.2	671.2	639.9	31.35	21.409		
7,200.0	6,975.6	7,197.4	6,970.8	16.5	16.9	89.74	308.7	418.5	671.1	638.4	32.73	20.508		
7,300.0	7,005.2	7,297.1	7,000.6	17.3	17.8	89.76	403.7	418.9	671.1	636.6	34.44	19.486		
7,400.0	7,022.0	7,396.7	7,017.7	18.3	18.8	89.80	501.8	419.3	671.0	634.6	36.46	18.405		
7,500.0	7,032.2	7,496.7	7,027.9	19.5	19.9	89.80	601.2	419.8	670.9	632.2	38.75	17.316		
7,600.0	7,036.0	7,596.5	7,032.0	20.7	21.2	89.82	701.0	420.2	670.9	629.6	41.25	16.263		
7,700.0	7,036.1	7,696.5	7,032.0	22.1	22.5	89.82	801.0	420.6	670.8	626.8	43.94	15.266		
7,800.0	7,036.2	7,796.5	7,032.0	23.5	23.9	89.81	901.0	421.0	670.7	623.9	46.79	14.335		
7,900.0	7,036.3	7,896.5	7,032.0	25.0	25.4	89.80	1,001.0	421.4	670.6	620.9	49.77	13.475		
8,000.0	7,036.3	7,996.5	7,032.0	26.5	26.9	89.80	1,101.0	421.8	670.6	617.7	52.86	12.685		
8,100.0	7,036.4	8,096.5	7,032.0	28.1	28.5	89.79	1,201.0	422.2	670.5	614.4	56.04	11.964		
8,200.0	7,036.5	8,196.5	7,032.0	29.7	30.1	89.79	1,301.0	422.6	670.4	611.1	59.30	11.305		
8,300.0	7,036.6	8,296.5	7,032.0	31.4	31.7	89.78	1,401.0	423.1	670.3	607.7	62.63	10.703		
8,400.0	7,036.6	8,396.5	7,032.0	33.1	33.4	89.77	1,501.0	423.5	670.2	604.2	66.01	10.154		
8,500.0	7,036.7	8,496.5	7,032.0	34.8	35.1	89.77	1,601.0	423.9	670.2	600.7	69.43	9.652		
8,600.0	7,036.8	8,596.5	7,032.0	36.5	36.8	89.76	1,701.0	424.3	670.1	597.2	72.90	9.192		
8,700.0	7,036.9	8,696.5	7,032.0	38.3	38.6	89.75	1,801.0	424.7	670.0	593.6	76.40	8.769		
8,800.0	7,037.0	8,796.5	7,032.0	40.0	40.3	89.75	1,901.0	425.1	669.9	590.0	79.94	8.381		
8,900.0	7,037.0	8,896.5	7,032.0	41.8	42.1	89.74	2,001.0	425.5	669.9	586.4	83.50	8.023		
9,000.0	7,037.1	8,996.5	7,032.0	43.6	43.9	89.73	2,101.0	425.9	669.8	582.7	87.08	7.692		
9,100.0	7,037.2	9,096.5	7,032.0	45.4	45.7	89.73	2,201.0	426.4	669.7	579.0	90.68	7.385		
9,200.0	7,037.3	9,196.5	7,032.0	47.2	47.5	89.72	2,301.0	426.8	669.6	575.3	94.30	7.101		
9,300.0	7,037.3	9,296.5	7,032.0	49.0	49.3	89.71	2,401.0	427.2	669.6	571.6	97.94	6.836		
9,400.0	7,037.4	9,396.5	7,032.0	50.8	51.1	89.71	2,501.0	427.6	669.5	567.9	101.59	6.590		
9,500.0	7,037.5	9,496.5	7,032.0	52.7	52.9	89.70	2,601.0	428.0	669.4	564.1	105.26	6.360		
9,600.0	7,037.6	9,596.5	7,032.0	54.5	54.7	89.69	2,701.0	428.4	669.3	560.4	108.93	6.144		
9,700.0	7,037.7	9,696.5	7,032.0	56.3	56.6	89.69	2,801.0	428.8	669.2	556.6	112.62	5.943		
9,800.0	7,037.7	9,796.5	7,032.0	58.2	58.4	89.68	2,901.0	429.2	669.2	552.9	116.32	5.753		
9,900.0	7,037.8	9,896.5	7,032.0	60.0	60.3	89.67	3,001.0	429.7	669.1	549.1	120.02	5.575		
10,000.0	7,037.9	9,996.5	7,032.0	61.9	62.1	89.67	3,101.0	430.1	669.0	545.3	123.73	5.407		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2L-221
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2L-221	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (2-06-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Waste Management 2Q-HZ Pad Sec.2-T2N-R64W - Waste Management 2Q-201 - Wellbore #1 - Plan #													Offset Site Error: 0.0 ft
Survey Program: 0-MWD													Offset Well Error: 0.0 ft
Reference	Offset	Semi Major Axis		Distance									Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
10,100.0	7,038.0	10,096.5	7,032.0	63.8	64.0	89.66	3,201.0	430.5	668.9	541.5	127.45	5.249	
10,200.0	7,038.0	10,196.5	7,032.0	65.6	65.8	89.65	3,301.0	430.9	668.9	537.7	131.18	5.099	
10,300.0	7,038.1	10,296.5	7,032.0	67.5	67.7	89.65	3,401.0	431.3	668.8	533.9	134.91	4.957	
10,400.0	7,038.2	10,396.5	7,032.0	69.3	69.6	89.64	3,501.0	431.7	668.7	530.1	138.65	4.823	
10,500.0	7,038.3	10,496.5	7,032.0	71.2	71.4	89.63	3,601.0	432.1	668.6	526.2	142.39	4.696	
10,600.0	7,038.4	10,596.5	7,032.0	73.1	73.3	89.63	3,701.0	432.5	668.6	522.4	146.14	4.575	
10,700.0	7,038.4	10,696.5	7,032.0	75.0	75.2	89.62	3,801.0	432.9	668.5	518.6	149.89	4.460	
10,800.0	7,038.5	10,796.5	7,032.0	76.8	77.0	89.61	3,901.0	433.4	668.4	514.8	153.65	4.350	
10,900.0	7,038.6	10,896.5	7,032.0	78.7	78.9	89.61	4,001.0	433.8	668.3	510.9	157.41	4.246	
11,000.0	7,038.7	10,996.5	7,032.0	80.6	80.8	89.60	4,101.0	434.2	668.2	507.1	161.17	4.146	
11,100.0	7,038.7	11,096.5	7,032.0	82.5	82.7	89.59	4,201.0	434.6	668.2	503.2	164.94	4.051	
11,200.0	7,038.8	11,196.5	7,032.0	84.4	84.6	89.59	4,301.0	435.0	668.1	499.4	168.71	3.960	
11,300.0	7,038.9	11,296.5	7,032.0	86.3	86.4	89.58	4,401.0	435.4	668.0	495.5	172.48	3.873	
11,400.0	7,039.0	11,396.5	7,032.0	88.1	88.3	89.57	4,501.0	435.8	667.9	491.7	176.25	3.790	
11,428.2	7,039.0	11,424.7	7,032.0	88.7	88.8	89.57	4,529.1	435.9	667.9	490.6	177.32	3.767 SF	

Offset Design				Waste Management 2Q-HZ Pad Sec.2-T2N-R64W - Waste Management 2Q-441 - Wellbore #1 - Plan #										Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
0.0	0.0	0.0	0.0	0.0	0.0	89.98	0.0	30.7	30.8						
100.0	100.0	99.0	99.0	0.1	0.1	89.98	0.0	30.7	30.7	30.5	0.22	137.475			
200.0	200.0	199.0	199.0	0.3	0.3	89.98	0.0	30.7	30.7	30.1	0.67	45.749			
300.0	300.0	299.0	299.0	0.6	0.6	89.98	0.0	30.7	30.7	29.6	1.12	27.413			
400.0	400.0	399.0	399.0	0.8	0.8	89.98	0.0	30.7	30.7	29.2	1.57	19.569			
500.0	500.0	499.0	499.0	1.0	1.0	89.98	0.0	30.7	30.7	28.7	2.02	15.216			
600.0	600.0	599.0	599.0	1.2	1.2	89.98	0.0	30.7	30.7	28.3	2.47	12.447			
700.0	700.0	699.0	699.0	1.5	1.5	89.98	0.0	30.7	30.7	27.8	2.92	10.530			
800.0	800.0	799.0	799.0	1.7	1.7	89.98	0.0	30.7	30.7	27.4	3.37	9.125			
900.0	900.0	899.0	899.0	1.9	1.9	89.98	0.0	30.7	30.7	26.9	3.82	8.051			
1,000.0	1,000.0	999.0	999.0	2.1	2.1	89.98	0.0	30.7	30.7	26.5	4.27	7.203 CC, ES			
1,100.0	1,100.0	1,099.0	1,099.0	2.3	2.4	-146.57	0.0	30.7	32.2	27.5	4.69	6.856			
1,200.0	1,199.8	1,198.8	1,198.8	2.5	2.6	-151.04	0.0	30.7	36.7	31.6	5.10	7.188			
1,300.0	1,299.5	1,298.5	1,298.5	2.7	2.8	-156.41	0.0	30.7	44.5	39.0	5.51	8.074			
1,400.0	1,398.8	1,397.8	1,397.8	3.0	3.0	-161.14	0.0	30.7	55.2	49.2	5.93	9.305			
1,500.0	1,498.1	1,497.1	1,497.1	3.2	3.3	-164.39	0.0	30.7	66.3	59.9	6.36	10.430			
1,600.0	1,597.4	1,596.4	1,596.4	3.5	3.5	-166.70	0.0	30.7	77.6	70.8	6.79	11.427			
1,700.0	1,696.8	1,695.8	1,695.8	3.7	3.7	-168.43	0.0	30.7	88.9	81.7	7.22	12.312			
1,800.0	1,796.1	1,795.1	1,795.1	4.0	3.9	-169.76	0.0	30.7	100.3	92.7	7.66	13.098			
1,900.0	1,895.4	1,894.4	1,894.4	4.3	4.1	-170.82	0.0	30.7	111.8	103.7	8.10	13.801			
2,000.0	1,994.7	1,993.7	1,993.7	4.6	4.4	-171.68	0.0	30.7	123.3	114.8	8.54	14.430			
2,100.0	2,094.0	2,093.0	2,093.0	4.9	4.6	-172.40	0.0	30.7	134.8	125.8	8.99	14.997			
2,200.0	2,193.4	2,192.4	2,192.4	5.1	4.8	-173.00	0.0	30.7	146.4	136.9	9.44	15.510			
2,300.0	2,292.7	2,291.7	2,291.7	5.4	5.0	-173.51	0.0	30.7	157.9	148.0	9.88	15.975			
2,400.0	2,392.0	2,391.0	2,391.0	5.7	5.3	-173.96	0.0	30.7	169.5	159.1	10.33	16.400			
2,500.0	2,491.3	2,490.3	2,490.3	6.0	5.5	-174.34	0.0	30.7	181.0	170.3	10.78	16.788			
2,600.0	2,590.7	2,589.7	2,589.7	6.3	5.7	-174.68	0.0	30.7	192.6	181.4	11.24	17.144			
2,700.0	2,690.0	2,689.0	2,689.0	6.6	5.9	-174.99	0.0	30.7	204.2	192.5	11.69	17.472			
2,800.0	2,789.3	2,788.3	2,788.3	7.0	6.2	-175.26	0.0	30.7	215.8	203.7	12.14	17.775			
2,900.0	2,888.6	2,887.6	2,887.6	7.3	6.4	-175.50	0.0	30.7	227.4	214.8	12.59	18.055			
3,000.0	2,987.9	2,986.9	2,986.9	7.6	6.6	-175.72	0.0	30.7	239.0	225.9	13.05	18.315			
3,100.0	3,087.3	3,088.3	3,088.3	7.9	6.8	-175.62	-1.3	31.1	250.2	236.7	13.48	18.559			
3,200.0	3,186.6	3,190.1	3,189.9	8.2	7.0	-174.77	-6.1	32.4	260.6	246.7	13.89	18.754			
3,300.0	3,285.9	3,291.6	3,291.1	8.5	7.2	-173.24	-14.3	34.7	270.1	255.8	14.31	18.875			
3,400.0	3,385.2	3,391.3	3,390.2	8.8	7.3	-171.33	-24.8	37.6	279.4	264.7	14.74	18.951			
3,500.0	3,484.5	3,490.4	3,488.7	9.1	7.5	-169.54	-35.3	40.6	288.9	273.7	15.19	19.026			
3,600.0	3,583.9	3,589.6	3,587.3	9.4	7.7	-167.86	-45.8	43.5	298.7	283.1	15.64	19.099			
3,700.0	3,683.2	3,688.7	3,685.8	9.7	7.9	-166.29	-56.4	46.4	308.7	292.6	16.11	19.165			
3,800.0	3,782.8	3,788.0	3,784.5	10.0	8.1	-164.75	-66.9	49.3	316.7	300.1	16.56	19.124			
3,900.0	3,882.6	3,887.4	3,883.3	10.2	8.3	-163.09	-77.5	52.3	321.6	304.6	17.00	18.914			
4,000.0	3,982.5	3,986.9	3,982.2	10.3	8.6	-161.28	-88.1	55.2	323.5	306.1	17.44	18.553			
4,100.0	4,082.5	4,086.3	4,080.9	10.5	8.8	75.44	-98.6	58.2	323.5	305.7	17.89	18.090			
4,200.0	4,182.5	4,185.7	4,179.7	10.7	9.0	77.38	-109.2	61.1	323.9	305.6	18.35	17.655			
4,300.0	4,282.5	4,285.1	4,278.5	10.8	9.3	79.31	-119.8	64.0	324.7	305.9	18.81	17.256			
4,400.0	4,382.5	4,384.5	4,377.3	11.0	9.5	81.23	-130.3	67.0	325.8	306.5	19.29	16.892			
4,500.0	4,482.5	4,483.8	4,476.1	11.2	9.8	83.14	-140.9	69.9	327.3	307.5	19.76	16.560			
4,600.0	4,582.5	4,583.2	4,574.9	11.4	10.0	85.03	-151.5	72.8	329.1	308.9	20.24	16.260			
4,700.0	4,682.5	4,682.6	4,673.6	11.5	10.3	86.89	-162.0	75.8	331.3	310.6	20.72	15.989			
4,800.0	4,782.5	4,784.6	4,775.2	11.7	10.5	88.54	-171.5	78.4	333.6	312.4	21.20	15.734			
4,900.0	4,882.5	4,887.5	4,877.8	11.9	10.7	89.57	-177.5	80.0	335.1	313.4	21.65	15.476			
5,000.0	4,982.5	4,990.6	4,980.9	12.1	11.0	89.99	-179.9	80.7	335.7	313.7	22.07	15.212			

Waste Management 2Q-HZ Pad Sec.2-T2N-R64W - Waste Management 2Q-441 - Wellbore #1 - Plan #													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,100.0	5,082.5	5,091.2	5,081.5	12.3	11.2	90.00	-180.0	80.7	335.7	313.3	22.47	14.944		
5,200.0	5,182.5	5,191.2	5,181.5	12.4	11.4	90.00	-180.0	80.7	335.7	312.9	22.87	14.681		
5,300.0	5,282.5	5,291.2	5,281.5	12.6	11.6	90.00	-180.0	80.7	335.7	312.5	23.27	14.425		
5,400.0	5,382.5	5,391.2	5,381.5	12.8	11.8	90.00	-180.0	80.7	335.7	312.1	23.68	14.177		
5,500.0	5,482.5	5,491.2	5,481.5	13.0	12.0	90.00	-180.0	80.7	335.7	311.7	24.09	13.937		
5,600.0	5,582.5	5,591.2	5,581.5	13.2	12.2	90.00	-180.0	80.7	335.7	311.2	24.50	13.704		
5,700.0	5,682.5	5,691.2	5,681.5	13.4	12.4	90.00	-180.0	80.7	335.7	310.8	24.91	13.478		
5,800.0	5,782.5	5,791.2	5,781.5	13.6	12.6	90.00	-180.0	80.7	335.7	310.4	25.32	13.258		
5,900.0	5,882.5	5,891.2	5,881.5	13.8	12.8	90.00	-180.0	80.7	335.7	310.0	25.74	13.045		
6,000.0	5,982.5	5,991.2	5,981.5	14.0	13.0	90.00	-180.0	80.7	335.7	309.6	26.15	12.838		
6,100.0	6,082.5	6,091.2	6,081.5	14.2	13.2	90.00	-180.0	80.7	335.7	309.2	26.57	12.637		
6,162.5	6,145.0	6,153.7	6,144.0	14.3	13.4	90.00	-180.0	80.7	335.7	308.9	26.83	12.515		
6,200.0	6,182.5	6,191.2	6,181.5	14.4	13.5	89.98	-179.9	80.7	335.7	308.8	26.98	12.442		
6,300.0	6,282.5	6,290.3	6,280.2	14.6	13.6	88.40	-172.0	80.8	335.9	308.5	27.35	12.280		
6,400.0	6,382.0	6,387.6	6,375.4	14.7	13.8	86.43	-151.9	80.9	336.4	308.8	27.63	12.177		
6,500.0	6,479.5	6,483.7	6,466.0	14.9	13.9	84.54	-120.4	81.0	337.3	309.5	27.83	12.119		
6,600.0	6,573.2	6,578.4	6,550.9	15.0	14.0	82.76	-78.3	81.2	338.5	310.4	28.01	12.082		
6,700.0	6,661.7	6,672.1	6,629.0	15.0	14.1	81.12	-26.8	81.5	339.8	311.6	28.22	12.042		
6,800.0	6,743.2	6,764.8	6,699.6	15.1	14.3	79.64	33.2	81.8	341.3	312.8	28.52	11.969		
6,900.0	6,816.6	6,856.5	6,761.8	15.2	14.6	78.33	100.7	82.1	342.8	313.9	28.96	11.838		
7,000.0	6,880.5	6,947.6	6,815.0	15.4	15.0	77.21	174.5	82.4	344.3	314.7	29.62	11.624		
7,100.0	6,933.8	7,038.1	6,858.9	15.8	15.6	76.30	253.5	82.8	345.6	315.0	30.54	11.316		
7,200.0	6,975.6	7,128.1	6,892.9	16.5	16.3	75.60	336.7	83.2	346.6	314.9	31.74	10.919		
7,300.0	7,005.2	7,217.7	6,916.9	17.3	17.1	75.12	423.1	83.6	347.4	314.1	33.25	10.447		
7,400.0	7,022.0	7,307.1	6,930.6	18.3	18.0	74.86	511.4	84.1	347.8	312.7	35.04	9.926		
7,500.0	7,032.2	7,397.3	6,933.9	19.5	19.1	73.90	601.4	84.5	349.5	312.5	37.01	9.444		
7,600.0	7,036.0	7,497.1	6,933.1	20.7	20.4	73.11	701.3	85.0	350.8	311.5	39.26	8.936		
7,700.0	7,036.1	7,597.1	6,932.3	22.1	21.7	72.97	801.3	85.5	351.1	309.2	41.84	8.391		
7,800.0	7,036.2	7,697.1	6,931.4	23.5	23.2	72.82	901.3	85.9	351.3	306.8	44.57	7.883		
7,900.0	7,036.3	7,797.1	6,930.6	25.0	24.7	72.68	1,001.3	86.4	351.6	304.2	47.42	7.415		
8,000.0	7,036.3	7,897.1	6,929.7	26.5	26.2	72.54	1,101.3	86.9	351.9	301.5	50.37	6.986		
8,100.0	7,036.4	7,997.1	6,928.9	28.1	27.8	72.39	1,201.2	87.4	352.1	298.7	53.40	6.594		
8,200.0	7,036.5	8,097.1	6,928.1	29.7	29.5	72.25	1,301.2	87.9	352.4	295.9	56.51	6.236		
8,300.0	7,036.6	8,197.1	6,927.2	31.4	31.1	72.11	1,401.2	88.3	352.7	293.0	59.67	5.910		
8,400.0	7,036.6	8,297.1	6,926.4	33.1	32.8	71.97	1,501.2	88.8	352.9	290.1	62.88	5.613		
8,500.0	7,036.7	8,397.1	6,925.6	34.8	34.6	71.83	1,601.2	89.3	353.2	287.1	66.13	5.342		
8,600.0	7,036.8	8,497.1	6,924.7	36.5	36.3	71.68	1,701.2	89.8	353.5	284.1	69.41	5.093		
8,700.0	7,036.9	8,597.1	6,923.9	38.3	38.1	71.54	1,801.2	90.3	353.8	281.1	72.72	4.865		
8,800.0	7,037.0	8,697.1	6,923.0	40.0	39.8	71.40	1,901.2	90.8	354.1	278.0	76.05	4.656		
8,900.0	7,037.0	8,797.1	6,922.2	41.8	41.6	71.26	2,001.2	91.2	354.3	274.9	79.40	4.463		
9,000.0	7,037.1	8,897.1	6,921.4	43.6	43.4	71.12	2,101.2	91.7	354.6	271.9	82.77	4.285		
9,100.0	7,037.2	8,997.1	6,920.5	45.4	45.2	70.98	2,201.2	92.2	354.9	268.8	86.15	4.120		
9,200.0	7,037.3	9,097.1	6,919.7	47.2	47.0	70.84	2,301.1	92.7	355.2	265.7	89.55	3.967		
9,300.0	7,037.3	9,197.1	6,918.9	49.0	48.9	70.70	2,401.1	93.2	355.5	262.6	92.95	3.825		
9,400.0	7,037.4	9,297.1	6,918.0	50.8	50.7	70.56	2,501.1	93.6	355.8	259.4	96.37	3.692		
9,500.0	7,037.5	9,397.1	6,917.2	52.7	52.5	70.42	2,601.1	94.1	356.1	256.3	99.78	3.569		
9,600.0	7,037.6	9,497.1	6,916.3	54.5	54.4	70.28	2,701.1	94.6	356.4	253.2	103.21	3.453		
9,700.0	7,037.7	9,597.1	6,915.5	56.3	56.2	70.14	2,801.1	95.1	356.7	250.1	106.64	3.345		
9,800.0	7,037.7	9,697.1	6,914.7	58.2	58.1	70.01	2,901.1	95.6	357.0	246.9	110.07	3.243		
9,900.0	7,037.8	9,797.0	6,913.8	60.0	59.9	69.87	3,001.1	96.0	357.3	243.8	113.50	3.148		

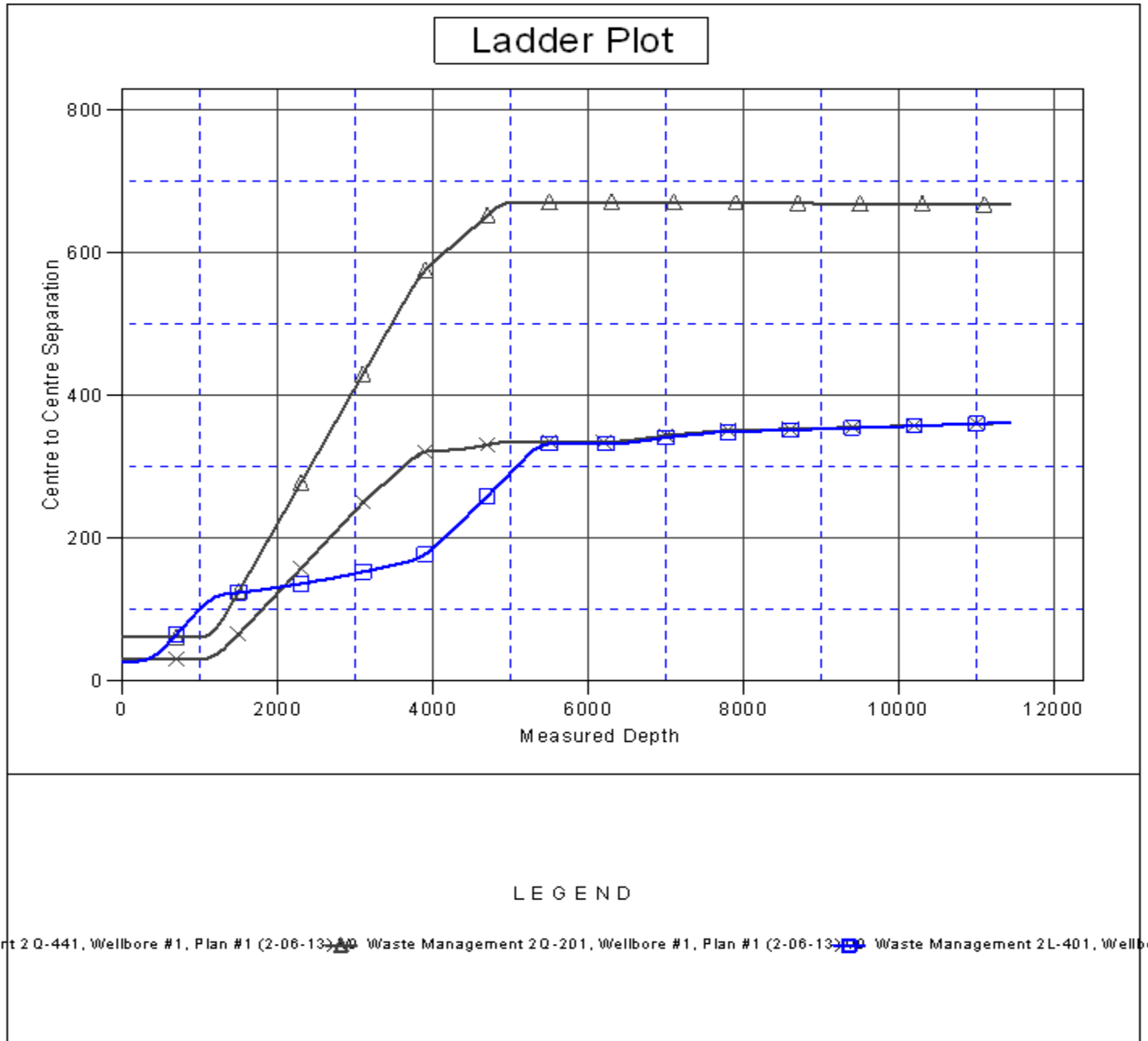
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2L-221
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2L-221	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (2-06-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Waste Management 2Q-HZ Pad Sec.2-T2N-R64W - Waste Management 2Q-441 - Wellbore #1 - Plan #													Offset Site Error: 0.0 ft
Survey Program: 0-MWD													Offset Well Error: 0.0 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	7,037.9	9,897.0	6,913.0	61.9	61.8	69.73	3,101.1	96.5	357.6	240.7	116.94	3.058	
10,100.0	7,038.0	9,997.0	6,912.1	63.8	63.7	69.59	3,201.1	97.0	357.9	237.6	120.38	2.973	
10,200.0	7,038.0	10,097.0	6,911.3	65.6	65.5	69.45	3,301.1	97.5	358.2	234.4	123.81	2.893	
10,300.0	7,038.1	10,197.0	6,910.5	67.5	67.4	69.32	3,401.0	98.0	358.6	231.3	127.25	2.818	
10,400.0	7,038.2	10,297.0	6,909.6	69.3	69.3	69.18	3,501.0	98.4	358.9	228.2	130.69	2.746	
10,500.0	7,038.3	10,397.0	6,908.8	71.2	71.1	69.04	3,601.0	98.9	359.2	225.1	134.12	2.678	
10,600.0	7,038.4	10,497.0	6,908.0	73.1	73.0	68.90	3,701.0	99.4	359.5	222.0	137.56	2.614	
10,700.0	7,038.4	10,597.0	6,907.1	75.0	74.9	68.77	3,801.0	99.9	359.8	218.8	140.99	2.552	
10,800.0	7,038.5	10,697.0	6,906.3	76.8	76.8	68.63	3,901.0	100.4	360.2	215.7	144.42	2.494	
10,900.0	7,038.6	10,797.0	6,905.4	78.7	78.6	68.50	4,001.0	100.9	360.5	212.6	147.84	2.438	
11,000.0	7,038.7	10,897.0	6,904.6	80.6	80.5	68.36	4,101.0	101.3	360.8	209.5	151.27	2.385	
11,100.0	7,038.7	10,997.0	6,903.8	82.5	82.4	68.22	4,201.0	101.8	361.1	206.5	154.69	2.335	
11,200.0	7,038.8	11,097.0	6,902.9	84.4	84.3	68.09	4,301.0	102.3	361.5	203.4	158.11	2.286	
11,300.0	7,038.9	11,197.0	6,902.1	86.3	86.2	67.95	4,401.0	102.8	361.8	200.3	161.52	2.240	
11,400.0	7,039.0	11,297.0	6,901.3	88.1	88.1	67.82	4,500.9	103.3	362.1	197.2	164.93	2.196	
11,428.2	7,039.0	11,325.2	6,901.0	88.7	88.6	67.78	4,529.1	103.4	362.2	196.4	165.89	2.184 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2L-221
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2L-221	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (2-06-13)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4949.0ft (RKB - 15')  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: Waste Management 2L-221  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.63°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2L-221
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4949.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2L-221	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (2-06-13)	<b>Offset TVD Reference:</b>	Offset Datum

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