

# PETROLEUM DEVELOPMENT CORP Weld County CO

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

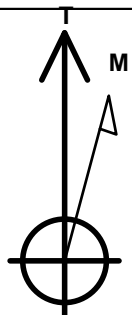
Surface Location: Waste Management 2Q-HZ Pad Sec.2-T2N-R64W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
Ground Elevation: 4933.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1302941.14	3273693.49	40.160820	-104.520730	

RKB - 15' WELL @ 4948.0ft (RKB - 15')

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BHL 500'FNL, 2160'FWL	6901.0	4531.9	72.7	Point



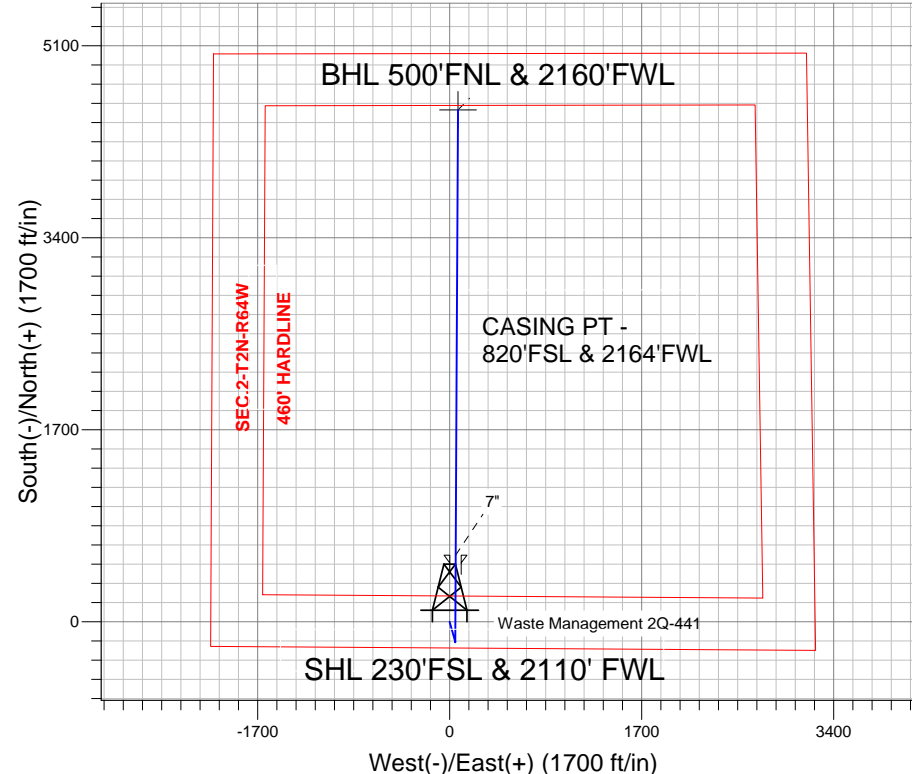
Azimuths to True North  
Magnetic North: 8.49°

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

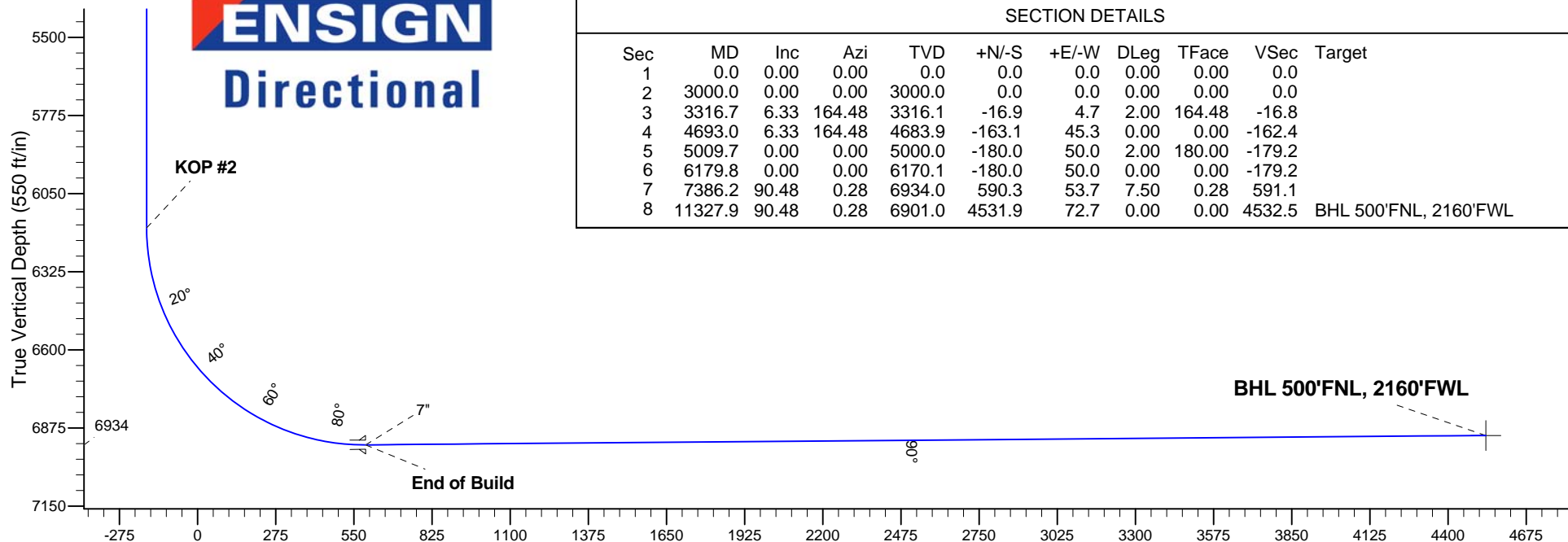
Waste Management 2Q-HZ Pad Sec.2-T2N-R64W  
Waste Management 2Q-441  
Plan #1 (2-06-13)  
8:15, February 07 2013

## ANNOTATIONS

TVD	MD	Annotation
3000.0	3000.0	KOP #1
6170.1	6179.8	KOP #2
6934.0	7386.2	End of Build



**ENSIGN**  
Directional



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0	
3	3316.7	6.33	164.48	3316.1	-16.9	4.7	2.00	164.48	-16.8	
4	4693.0	6.33	164.48	4683.9	-163.1	45.3	0.00	0.00	-162.4	
5	5009.7	0.00	0.00	5000.0	-180.0	50.0	2.00	180.00	-179.2	
6	6179.8	0.00	0.00	6170.1	-180.0	50.0	0.00	0.00	-179.2	
7	7386.2	90.48	0.28	6934.0	590.3	53.7	7.50	0.28	591.1	
8	11327.9	90.48	0.28	6901.0	4531.9	72.7	0.00	0.00	4532.5	BHL 500'FNL, 2160'FWL

Vertical Section at 0.92° (550 ft/in)



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.2-T2N-R64W**

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

**Waste Management 2Q-441**

**Wellbore #1**

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

## **Standard Planning Report**

**07 February, 2013**

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	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,316.7	6.33	164.48	3,316.1	-16.9	4.7	2.00	2.00	0.00	164.48	
4,693.0	6.33	164.48	4,683.9	-163.1	45.3	0.00	0.00	0.00	0.00	
5,009.7	0.00	0.00	5,000.0	-180.0	50.0	2.00	-2.00	0.00	180.00	
6,179.8	0.00	0.00	6,170.1	-180.0	50.0	0.00	0.00	0.00	0.00	
7,386.2	90.48	0.28	6,934.0	590.3	53.7	7.50	7.50	0.00	0.28	
11,327.9	90.48	0.28	6,901.0	4,531.9	72.7	0.00	0.00	0.00	0.00	BHL 500°FNL, 2160

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2Q-441
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Project:</b>	SEC.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Waste Management 2Q-441	<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
1,040.0	0.00	0.00	1,040.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.00	0.00	1,080.0	0.0	0.0	0.0	0.00	0.00	0.00
1,120.0	0.00	0.00	1,120.0	0.0	0.0	0.0	0.00	0.00	0.00
1,160.0	0.00	0.00	1,160.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,240.0	0.00	0.00	1,240.0	0.0	0.0	0.0	0.00	0.00	0.00
1,280.0	0.00	0.00	1,280.0	0.0	0.0	0.0	0.00	0.00	0.00
1,320.0	0.00	0.00	1,320.0	0.0	0.0	0.0	0.00	0.00	0.00
1,360.0	0.00	0.00	1,360.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,440.0	0.00	0.00	1,440.0	0.0	0.0	0.0	0.00	0.00	0.00
1,480.0	0.00	0.00	1,480.0	0.0	0.0	0.0	0.00	0.00	0.00
1,520.0	0.00	0.00	1,520.0	0.0	0.0	0.0	0.00	0.00	0.00
1,560.0	0.00	0.00	1,560.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,640.0	0.00	0.00	1,640.0	0.0	0.0	0.0	0.00	0.00	0.00
1,680.0	0.00	0.00	1,680.0	0.0	0.0	0.0	0.00	0.00	0.00
1,720.0	0.00	0.00	1,720.0	0.0	0.0	0.0	0.00	0.00	0.00
1,760.0	0.00	0.00	1,760.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,840.0	0.00	0.00	1,840.0	0.0	0.0	0.0	0.00	0.00	0.00
1,880.0	0.00	0.00	1,880.0	0.0	0.0	0.0	0.00	0.00	0.00
1,920.0	0.00	0.00	1,920.0	0.0	0.0	0.0	0.00	0.00	0.00
1,960.0	0.00	0.00	1,960.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,040.0	0.00	0.00	2,040.0	0.0	0.0	0.0	0.00	0.00	0.00

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<b>Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Waste Management 2Q-441	<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)
2,080.0	0.00	0.00	2,080.0	0.0	0.0	0.0	0.00	0.00	0.00
2,120.0	0.00	0.00	2,120.0	0.0	0.0	0.0	0.00	0.00	0.00
2,160.0	0.00	0.00	2,160.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,240.0	0.00	0.00	2,240.0	0.0	0.0	0.0	0.00	0.00	0.00
2,280.0	0.00	0.00	2,280.0	0.0	0.0	0.0	0.00	0.00	0.00
2,320.0	0.00	0.00	2,320.0	0.0	0.0	0.0	0.00	0.00	0.00
2,360.0	0.00	0.00	2,360.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,440.0	0.00	0.00	2,440.0	0.0	0.0	0.0	0.00	0.00	0.00
2,480.0	0.00	0.00	2,480.0	0.0	0.0	0.0	0.00	0.00	0.00
2,520.0	0.00	0.00	2,520.0	0.0	0.0	0.0	0.00	0.00	0.00
2,560.0	0.00	0.00	2,560.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,640.0	0.00	0.00	2,640.0	0.0	0.0	0.0	0.00	0.00	0.00
2,680.0	0.00	0.00	2,680.0	0.0	0.0	0.0	0.00	0.00	0.00
2,720.0	0.00	0.00	2,720.0	0.0	0.0	0.0	0.00	0.00	0.00
2,760.0	0.00	0.00	2,760.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,840.0	0.00	0.00	2,840.0	0.0	0.0	0.0	0.00	0.00	0.00
2,880.0	0.00	0.00	2,880.0	0.0	0.0	0.0	0.00	0.00	0.00
2,920.0	0.00	0.00	2,920.0	0.0	0.0	0.0	0.00	0.00	0.00
2,960.0	0.00	0.00	2,960.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP #1</b>									
3,040.0	0.80	164.48	3,040.0	-0.3	0.1	-0.3	2.00	2.00	0.00
3,080.0	1.60	164.48	3,080.0	-1.1	0.3	-1.1	2.00	2.00	0.00
3,120.0	2.40	164.48	3,120.0	-2.4	0.7	-2.4	2.00	2.00	0.00
3,160.0	3.20	164.48	3,159.9	-4.3	1.2	-4.3	2.00	2.00	0.00
3,200.0	4.00	164.48	3,199.8	-6.7	1.9	-6.7	2.00	2.00	0.00
3,240.0	4.80	164.48	3,239.7	-9.7	2.7	-9.6	2.00	2.00	0.00
3,280.0	5.60	164.48	3,279.6	-13.2	3.7	-13.1	2.00	2.00	0.00
3,316.7	6.33	164.48	3,316.1	-16.9	4.7	-16.8	2.00	2.00	0.00
3,320.0	6.33	164.48	3,319.3	-17.2	4.8	-17.1	0.00	0.00	0.00
3,360.0	6.33	164.48	3,359.1	-21.5	6.0	-21.4	0.00	0.00	0.00
3,400.0	6.33	164.48	3,398.8	-25.7	7.1	-25.6	0.00	0.00	0.00
3,440.0	6.33	164.48	3,438.6	-30.0	8.3	-29.8	0.00	0.00	0.00
3,480.0	6.33	164.48	3,478.4	-34.2	9.5	-34.1	0.00	0.00	0.00
3,520.0	6.33	164.48	3,518.1	-38.5	10.7	-38.3	0.00	0.00	0.00
3,560.0	6.33	164.48	3,557.9	-42.7	11.9	-42.5	0.00	0.00	0.00
3,600.0	6.33	164.48	3,597.6	-47.0	13.0	-46.7	0.00	0.00	0.00
3,640.0	6.33	164.48	3,637.4	-51.2	14.2	-51.0	0.00	0.00	0.00
3,680.0	6.33	164.48	3,677.1	-55.5	15.4	-55.2	0.00	0.00	0.00
3,720.0	6.33	164.48	3,716.9	-59.7	16.6	-59.4	0.00	0.00	0.00
3,760.0	6.33	164.48	3,756.6	-64.0	17.8	-63.7	0.00	0.00	0.00
3,800.0	6.33	164.48	3,796.4	-68.2	19.0	-67.9	0.00	0.00	0.00
3,840.0	6.33	164.48	3,836.2	-72.5	20.1	-72.1	0.00	0.00	0.00
3,880.0	6.33	164.48	3,875.9	-76.7	21.3	-76.4	0.00	0.00	0.00
3,920.0	6.33	164.48	3,915.7	-81.0	22.5	-80.6	0.00	0.00	0.00
3,960.0	6.33	164.48	3,955.4	-85.2	23.7	-84.8	0.00	0.00	0.00
4,000.0	6.33	164.48	3,995.2	-89.5	24.9	-89.1	0.00	0.00	0.00
4,040.0	6.33	164.48	4,034.9	-93.7	26.0	-93.3	0.00	0.00	0.00

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<b>Project:</b>	SEC.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Waste Management 2Q-441	<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)
4,080.0	6.33	164.48	4,074.7	-98.0	27.2	-97.5	0.00	0.00	0.00
4,120.0	6.33	164.48	4,114.5	-102.2	28.4	-101.8	0.00	0.00	0.00
4,160.0	6.33	164.48	4,154.2	-106.5	29.6	-106.0	0.00	0.00	0.00
4,200.0	6.33	164.48	4,194.0	-110.7	30.8	-110.2	0.00	0.00	0.00
4,240.0	6.33	164.48	4,233.7	-115.0	31.9	-114.5	0.00	0.00	0.00
4,280.0	6.33	164.48	4,273.5	-119.2	33.1	-118.7	0.00	0.00	0.00
4,320.0	6.33	164.48	4,313.2	-123.5	34.3	-122.9	0.00	0.00	0.00
4,360.0	6.33	164.48	4,353.0	-127.8	35.5	-127.2	0.00	0.00	0.00
4,400.0	6.33	164.48	4,392.7	-132.0	36.7	-131.4	0.00	0.00	0.00
4,440.0	6.33	164.48	4,432.5	-136.3	37.8	-135.6	0.00	0.00	0.00
4,480.0	6.33	164.48	4,472.3	-140.5	39.0	-139.9	0.00	0.00	0.00
4,520.0	6.33	164.48	4,512.0	-144.8	40.2	-144.1	0.00	0.00	0.00
4,560.0	6.33	164.48	4,551.8	-149.0	41.4	-148.3	0.00	0.00	0.00
4,600.0	6.33	164.48	4,591.5	-153.3	42.6	-152.6	0.00	0.00	0.00
4,640.0	6.33	164.48	4,631.3	-157.5	43.8	-156.8	0.00	0.00	0.00
4,680.0	6.33	164.48	4,671.0	-161.8	44.9	-161.0	0.00	0.00	0.00
4,693.0	6.33	164.48	4,683.9	-163.1	45.3	-162.4	0.00	0.00	0.00
4,720.0	5.79	164.48	4,710.8	-165.9	46.1	-165.1	2.00	-2.00	0.00
4,760.0	4.99	164.48	4,750.6	-169.5	47.1	-168.7	2.00	-2.00	0.00
4,800.0	4.19	164.48	4,790.5	-172.6	47.9	-171.8	2.00	-2.00	0.00
4,840.0	3.39	164.48	4,830.4	-175.2	48.7	-174.4	2.00	-2.00	0.00
4,880.0	2.59	164.48	4,870.4	-177.2	49.2	-176.4	2.00	-2.00	0.00
4,920.0	1.79	164.48	4,910.3	-178.6	49.6	-177.8	2.00	-2.00	0.00
4,960.0	0.99	164.48	4,950.3	-179.6	49.9	-178.8	2.00	-2.00	0.00
5,000.0	0.19	164.48	4,990.3	-180.0	50.0	-179.2	2.00	-2.00	0.00
5,009.7	0.00	0.00	5,000.0	-180.0	50.0	-179.2	2.00	-2.00	0.00
5,040.0	0.00	0.00	5,030.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,080.0	0.00	0.00	5,070.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,120.0	0.00	0.00	5,110.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,160.0	0.00	0.00	5,150.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,200.0	0.00	0.00	5,190.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,240.0	0.00	0.00	5,230.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,280.0	0.00	0.00	5,270.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,320.0	0.00	0.00	5,310.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,360.0	0.00	0.00	5,350.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,400.0	0.00	0.00	5,390.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,440.0	0.00	0.00	5,430.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,480.0	0.00	0.00	5,470.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,520.0	0.00	0.00	5,510.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,560.0	0.00	0.00	5,550.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,600.0	0.00	0.00	5,590.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,640.0	0.00	0.00	5,630.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,680.0	0.00	0.00	5,670.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,720.0	0.00	0.00	5,710.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,760.0	0.00	0.00	5,750.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,800.0	0.00	0.00	5,790.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,840.0	0.00	0.00	5,830.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,880.0	0.00	0.00	5,870.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,920.0	0.00	0.00	5,910.3	-180.0	50.0	-179.2	0.00	0.00	0.00
5,960.0	0.00	0.00	5,950.3	-180.0	50.0	-179.2	0.00	0.00	0.00
6,000.0	0.00	0.00	5,990.3	-180.0	50.0	-179.2	0.00	0.00	0.00
6,040.0	0.00	0.00	6,030.3	-180.0	50.0	-179.2	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2Q-441
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Project:</b>	SEC.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Waste Management 2Q-441	<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	6,070.3	-180.0	50.0	-179.2	0.00	0.00	0.00
6,120.0	0.00	0.00	6,110.3	-180.0	50.0	-179.2	0.00	0.00	0.00
6,160.0	0.00	0.00	6,150.3	-180.0	50.0	-179.2	0.00	0.00	0.00
6,179.8	0.00	0.00	6,170.1	-180.0	50.0	-179.2	0.00	0.00	0.00
<b>KOP #2</b>									
6,200.0	1.52	0.28	6,190.3	-179.7	50.0	-178.9	7.50	7.50	0.00
6,240.0	4.52	0.28	6,230.2	-177.6	50.0	-176.8	7.50	7.50	0.00
6,280.0	7.52	0.28	6,270.0	-173.4	50.0	-172.6	7.50	7.50	0.00
6,320.0	10.52	0.28	6,309.5	-167.2	50.1	-166.3	7.50	7.50	0.00
6,360.0	13.52	0.28	6,348.6	-158.8	50.1	-158.0	7.50	7.50	0.00
6,400.0	16.52	0.28	6,387.3	-148.5	50.2	-147.7	7.50	7.50	0.00
6,440.0	19.52	0.28	6,425.3	-136.1	50.2	-135.3	7.50	7.50	0.00
6,480.0	22.52	0.28	6,462.6	-121.8	50.3	-120.9	7.50	7.50	0.00
6,520.0	25.52	0.28	6,499.2	-105.5	50.4	-104.7	7.50	7.50	0.00
6,560.0	28.52	0.28	6,534.8	-87.3	50.4	-86.5	7.50	7.50	0.00
6,600.0	31.52	0.28	6,569.4	-67.3	50.5	-66.5	7.50	7.50	0.00
6,640.0	34.52	0.28	6,603.0	-45.5	50.6	-44.7	7.50	7.50	0.00
6,680.0	37.52	0.28	6,635.3	-22.0	50.8	-21.2	7.50	7.50	0.00
6,720.0	40.52	0.28	6,666.4	3.2	50.9	4.0	7.50	7.50	0.00
6,760.0	43.52	0.28	6,696.1	29.9	51.0	30.8	7.50	7.50	0.00
6,800.0	46.52	0.28	6,724.4	58.2	51.1	59.0	7.50	7.50	0.00
6,840.0	49.52	0.28	6,751.1	88.0	51.3	88.8	7.50	7.50	0.00
6,880.0	52.52	0.28	6,776.3	119.0	51.4	119.9	7.50	7.50	0.00
6,920.0	55.52	0.28	6,799.8	151.4	51.6	152.2	7.50	7.50	0.00
6,960.0	58.52	0.28	6,821.6	185.0	51.8	185.8	7.50	7.50	0.00
7,000.0	61.52	0.28	6,841.6	219.6	51.9	220.4	7.50	7.50	0.00
7,040.0	64.52	0.28	6,859.7	255.2	52.1	256.0	7.50	7.50	0.00
7,080.0	67.52	0.28	6,876.0	291.8	52.3	292.6	7.50	7.50	0.00
7,120.0	70.52	0.28	6,890.3	329.1	52.4	329.9	7.50	7.50	0.00
7,160.0	73.52	0.28	6,902.6	367.2	52.6	368.0	7.50	7.50	0.00
7,200.0	76.52	0.28	6,913.0	405.8	52.8	406.6	7.50	7.50	0.00
7,240.0	79.52	0.28	6,921.3	444.9	53.0	445.7	7.50	7.50	0.00
7,280.0	82.52	0.28	6,927.5	484.4	53.2	485.2	7.50	7.50	0.00
7,320.0	85.52	0.28	6,931.7	524.2	53.4	525.0	7.50	7.50	0.00
7,360.0	88.52	0.28	6,933.8	564.1	53.6	564.9	7.50	7.50	0.00
7,386.2	90.48	0.28	6,934.0	590.3	53.7	591.1	7.50	7.50	0.00
<b>End of Build - 7"</b>									
7,400.0	90.48	0.28	6,933.9	604.1	53.8	604.9	0.00	0.00	0.00
7,440.0	90.48	0.28	6,933.6	644.1	54.0	644.9	0.00	0.00	0.00
7,480.0	90.48	0.28	6,933.2	684.1	54.2	684.9	0.00	0.00	0.00
7,520.0	90.48	0.28	6,932.9	724.1	54.3	724.9	0.00	0.00	0.00
7,560.0	90.48	0.28	6,932.6	764.1	54.5	764.9	0.00	0.00	0.00
7,600.0	90.48	0.28	6,932.2	804.1	54.7	804.9	0.00	0.00	0.00
7,640.0	90.48	0.28	6,931.9	844.1	54.9	844.9	0.00	0.00	0.00
7,680.0	90.48	0.28	6,931.6	884.1	55.1	884.9	0.00	0.00	0.00
7,720.0	90.48	0.28	6,931.2	924.1	55.3	924.9	0.00	0.00	0.00
7,760.0	90.48	0.28	6,930.9	964.1	55.5	964.9	0.00	0.00	0.00
7,800.0	90.48	0.28	6,930.6	1,004.1	55.7	1,004.9	0.00	0.00	0.00
7,840.0	90.48	0.28	6,930.2	1,044.1	55.9	1,044.9	0.00	0.00	0.00
7,880.0	90.48	0.28	6,929.9	1,084.1	56.1	1,084.9	0.00	0.00	0.00
7,920.0	90.48	0.28	6,929.5	1,124.1	56.3	1,124.9	0.00	0.00	0.00
7,960.0	90.48	0.28	6,929.2	1,164.1	56.5	1,164.9	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2Q-441
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Project:</b>	SEC.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Waste Management 2Q-441	<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)
8,000.0	90.48	0.28	6,928.9	1,204.1	56.7	1,204.9	0.00	0.00	0.00
8,040.0	90.48	0.28	6,928.5	1,244.1	56.8	1,244.9	0.00	0.00	0.00
8,080.0	90.48	0.28	6,928.2	1,284.1	57.0	1,284.9	0.00	0.00	0.00
8,120.0	90.48	0.28	6,927.9	1,324.1	57.2	1,324.9	0.00	0.00	0.00
8,160.0	90.48	0.28	6,927.5	1,364.1	57.4	1,364.8	0.00	0.00	0.00
8,200.0	90.48	0.28	6,927.2	1,404.1	57.6	1,404.8	0.00	0.00	0.00
8,240.0	90.48	0.28	6,926.9	1,444.1	57.8	1,444.8	0.00	0.00	0.00
8,280.0	90.48	0.28	6,926.5	1,484.1	58.0	1,484.8	0.00	0.00	0.00
8,320.0	90.48	0.28	6,926.2	1,524.1	58.2	1,524.8	0.00	0.00	0.00
8,360.0	90.48	0.28	6,925.9	1,564.1	58.4	1,564.8	0.00	0.00	0.00
8,400.0	90.48	0.28	6,925.5	1,604.1	58.6	1,604.8	0.00	0.00	0.00
8,440.0	90.48	0.28	6,925.2	1,644.1	58.8	1,644.8	0.00	0.00	0.00
8,480.0	90.48	0.28	6,924.9	1,684.1	59.0	1,684.8	0.00	0.00	0.00
8,520.0	90.48	0.28	6,924.5	1,724.1	59.2	1,724.8	0.00	0.00	0.00
8,560.0	90.48	0.28	6,924.2	1,764.1	59.3	1,764.8	0.00	0.00	0.00
8,600.0	90.48	0.28	6,923.9	1,804.1	59.5	1,804.8	0.00	0.00	0.00
8,640.0	90.48	0.28	6,923.5	1,844.1	59.7	1,844.8	0.00	0.00	0.00
8,680.0	90.48	0.28	6,923.2	1,884.1	59.9	1,884.8	0.00	0.00	0.00
8,720.0	90.48	0.28	6,922.8	1,924.1	60.1	1,924.8	0.00	0.00	0.00
8,760.0	90.48	0.28	6,922.5	1,964.1	60.3	1,964.8	0.00	0.00	0.00
8,800.0	90.48	0.28	6,922.2	2,004.1	60.5	2,004.8	0.00	0.00	0.00
8,840.0	90.48	0.28	6,921.8	2,044.1	60.7	2,044.8	0.00	0.00	0.00
8,880.0	90.48	0.28	6,921.5	2,084.1	60.9	2,084.8	0.00	0.00	0.00
8,920.0	90.48	0.28	6,921.2	2,124.1	61.1	2,124.8	0.00	0.00	0.00
8,960.0	90.48	0.28	6,920.8	2,164.1	61.3	2,164.8	0.00	0.00	0.00
9,000.0	90.48	0.28	6,920.5	2,204.1	61.5	2,204.8	0.00	0.00	0.00
9,040.0	90.48	0.28	6,920.2	2,244.1	61.7	2,244.8	0.00	0.00	0.00
9,080.0	90.48	0.28	6,919.8	2,284.1	61.8	2,284.8	0.00	0.00	0.00
9,120.0	90.48	0.28	6,919.5	2,324.1	62.0	2,324.8	0.00	0.00	0.00
9,160.0	90.48	0.28	6,919.2	2,364.1	62.2	2,364.8	0.00	0.00	0.00
9,200.0	90.48	0.28	6,918.8	2,404.1	62.4	2,404.7	0.00	0.00	0.00
9,240.0	90.48	0.28	6,918.5	2,444.1	62.6	2,444.7	0.00	0.00	0.00
9,280.0	90.48	0.28	6,918.2	2,484.1	62.8	2,484.7	0.00	0.00	0.00
9,320.0	90.48	0.28	6,917.8	2,524.0	63.0	2,524.7	0.00	0.00	0.00
9,360.0	90.48	0.28	6,917.5	2,564.0	63.2	2,564.7	0.00	0.00	0.00
9,400.0	90.48	0.28	6,917.2	2,604.0	63.4	2,604.7	0.00	0.00	0.00
9,440.0	90.48	0.28	6,916.8	2,644.0	63.6	2,644.7	0.00	0.00	0.00
9,480.0	90.48	0.28	6,916.5	2,684.0	63.8	2,684.7	0.00	0.00	0.00
9,520.0	90.48	0.28	6,916.1	2,724.0	64.0	2,724.7	0.00	0.00	0.00
9,560.0	90.48	0.28	6,915.8	2,764.0	64.2	2,764.7	0.00	0.00	0.00
9,600.0	90.48	0.28	6,915.5	2,804.0	64.3	2,804.7	0.00	0.00	0.00
9,640.0	90.48	0.28	6,915.1	2,844.0	64.5	2,844.7	0.00	0.00	0.00
9,680.0	90.48	0.28	6,914.8	2,884.0	64.7	2,884.7	0.00	0.00	0.00
9,720.0	90.48	0.28	6,914.5	2,924.0	64.9	2,924.7	0.00	0.00	0.00
9,760.0	90.48	0.28	6,914.1	2,964.0	65.1	2,964.7	0.00	0.00	0.00
9,800.0	90.48	0.28	6,913.8	3,004.0	65.3	3,004.7	0.00	0.00	0.00
9,840.0	90.48	0.28	6,913.5	3,044.0	65.5	3,044.7	0.00	0.00	0.00
9,880.0	90.48	0.28	6,913.1	3,084.0	65.7	3,084.7	0.00	0.00	0.00
9,920.0	90.48	0.28	6,912.8	3,124.0	65.9	3,124.7	0.00	0.00	0.00
9,960.0	90.48	0.28	6,912.5	3,164.0	66.1	3,164.7	0.00	0.00	0.00
10,000.0	90.48	0.28	6,912.1	3,204.0	66.3	3,204.7	0.00	0.00	0.00
10,040.0	90.48	0.28	6,911.8	3,244.0	66.5	3,244.7	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2Q-441
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Project:</b>	SEC.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Waste Management 2Q-441	<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)
10,080.0	90.48	0.28	6,911.5	3,284.0	66.7	3,284.7	0.00	0.00	0.00
10,120.0	90.48	0.28	6,911.1	3,324.0	66.8	3,324.7	0.00	0.00	0.00
10,160.0	90.48	0.28	6,910.8	3,364.0	67.0	3,364.7	0.00	0.00	0.00
10,200.0	90.48	0.28	6,910.4	3,404.0	67.2	3,404.6	0.00	0.00	0.00
10,240.0	90.48	0.28	6,910.1	3,444.0	67.4	3,444.6	0.00	0.00	0.00
10,280.0	90.48	0.28	6,909.8	3,484.0	67.6	3,484.6	0.00	0.00	0.00
10,320.0	90.48	0.28	6,909.4	3,524.0	67.8	3,524.6	0.00	0.00	0.00
10,360.0	90.48	0.28	6,909.1	3,564.0	68.0	3,564.6	0.00	0.00	0.00
10,400.0	90.48	0.28	6,908.8	3,604.0	68.2	3,604.6	0.00	0.00	0.00
10,440.0	90.48	0.28	6,908.4	3,644.0	68.4	3,644.6	0.00	0.00	0.00
10,480.0	90.48	0.28	6,908.1	3,684.0	68.6	3,684.6	0.00	0.00	0.00
10,520.0	90.48	0.28	6,907.8	3,724.0	68.8	3,724.6	0.00	0.00	0.00
10,560.0	90.48	0.28	6,907.4	3,764.0	69.0	3,764.6	0.00	0.00	0.00
10,600.0	90.48	0.28	6,907.1	3,804.0	69.2	3,804.6	0.00	0.00	0.00
10,640.0	90.48	0.28	6,906.8	3,844.0	69.4	3,844.6	0.00	0.00	0.00
10,680.0	90.48	0.28	6,906.4	3,884.0	69.5	3,884.6	0.00	0.00	0.00
10,720.0	90.48	0.28	6,906.1	3,924.0	69.7	3,924.6	0.00	0.00	0.00
10,760.0	90.48	0.28	6,905.8	3,964.0	69.9	3,964.6	0.00	0.00	0.00
10,800.0	90.48	0.28	6,905.4	4,004.0	70.1	4,004.6	0.00	0.00	0.00
10,840.0	90.48	0.28	6,905.1	4,044.0	70.3	4,044.6	0.00	0.00	0.00
10,880.0	90.48	0.28	6,904.8	4,084.0	70.5	4,084.6	0.00	0.00	0.00
10,920.0	90.48	0.28	6,904.4	4,124.0	70.7	4,124.6	0.00	0.00	0.00
10,960.0	90.48	0.28	6,904.1	4,164.0	70.9	4,164.6	0.00	0.00	0.00
11,000.0	90.48	0.28	6,903.7	4,204.0	71.1	4,204.6	0.00	0.00	0.00
11,040.0	90.48	0.28	6,903.4	4,244.0	71.3	4,244.6	0.00	0.00	0.00
11,080.0	90.48	0.28	6,903.1	4,284.0	71.5	4,284.6	0.00	0.00	0.00
11,120.0	90.48	0.28	6,902.7	4,324.0	71.7	4,324.6	0.00	0.00	0.00
11,160.0	90.48	0.28	6,902.4	4,364.0	71.9	4,364.6	0.00	0.00	0.00
11,200.0	90.48	0.28	6,902.1	4,404.0	72.0	4,404.6	0.00	0.00	0.00
11,240.0	90.48	0.28	6,901.7	4,444.0	72.2	4,444.5	0.00	0.00	0.00
11,280.0	90.48	0.28	6,901.4	4,484.0	72.4	4,484.5	0.00	0.00	0.00
11,320.0	90.48	0.28	6,901.1	4,524.0	72.6	4,524.5	0.00	0.00	0.00
11,327.9	90.48	0.28	6,901.0	4,531.9	72.7	4,532.5	0.00	0.00	0.00
BHL 500'FNL, 2160'FWL									

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,386.2	6,934.0	7"	7	8-3/4

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,000.0	3,000.0	0.0	0.0	KOP #1
6,179.8	6,170.1	-180.0	50.0	KOP #2
7,386.2	6,934.0	590.3	53.7	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.2-T2N-R64W**

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

**Waste Management 2Q-441**

**Wellbore #1**

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

## **Anticollision Report**

**07 February, 2013**



Offset Design		Waste Management 2Q-HZ Pad Sec.2-T2N-R64W - Waste Management 2L-221 - 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	
1,600.0	1,600.0	1,594.8	1,592.2	3.5	3.4	-111.90	-28.7	-71.4	77.5	70.6	6.83	11.336		
1,700.0	1,700.0	1,694.1	1,690.9	3.7	3.7	-113.63	-35.4	-80.8	88.8	81.5	7.28	12.207		
1,800.0	1,800.0	1,793.4	1,789.5	3.9	4.0	-114.97	-42.0	-90.3	100.2	92.5	7.72	12.981		
1,900.0	1,900.0	1,892.7	1,888.2	4.2	4.3	-116.03	-48.7	-99.7	111.7	103.5	8.17	13.671		
2,000.0	2,000.0	1,992.0	1,986.8	4.4	4.5	-116.89	-55.4	-109.2	123.2	114.6	8.62	14.289		
2,100.0	2,100.0	2,091.4	2,085.5	4.6	4.8	-117.61	-62.0	-118.6	134.7	125.7	9.08	14.845		
2,200.0	2,200.0	2,190.7	2,184.1	4.8	5.1	-118.21	-68.7	-128.0	146.3	136.7	9.53	15.348		
2,300.0	2,300.0	2,290.0	2,282.8	5.1	5.4	-118.73	-75.3	-137.5	157.8	147.8	9.99	15.803		
2,400.0	2,400.0	2,389.3	2,381.4	5.3	5.7	-119.17	-82.0	-146.9	169.4	158.9	10.44	16.218		
2,500.0	2,500.0	2,488.6	2,480.1	5.5	6.0	-119.56	-88.7	-156.3	180.9	170.0	10.90	16.598		
2,600.0	2,600.0	2,588.0	2,578.7	5.7	6.3	-119.90	-95.3	-165.8	192.5	181.2	11.36	16.946		
2,700.0	2,700.0	2,687.3	2,677.4	6.0	6.6	-120.20	-102.0	-175.2	204.1	192.3	11.82	17.266		
2,800.0	2,800.0	2,786.6	2,776.0	6.2	6.9	-120.47	-108.6	-184.6	215.7	203.4	12.28	17.562		
2,900.0	2,900.0	2,885.9	2,874.6	6.4	7.2	-120.71	-115.3	-194.1	227.3	214.5	12.74	17.836		
3,000.0	3,000.0	2,985.3	2,973.3	6.6	7.5	-120.93	-122.0	-203.5	238.9	225.7	13.21	18.090		
3,100.0	3,100.0	3,084.6	3,072.0	6.8	7.8	74.56	-128.6	-213.0	250.0	236.5	13.50	18.519		
3,200.0	3,199.8	3,184.0	3,170.7	7.0	8.1	75.28	-135.3	-222.4	260.3	246.4	13.91	18.716		
3,300.0	3,299.5	3,283.3	3,269.3	7.2	8.4	76.66	-142.0	-231.8	269.8	255.4	14.32	18.837		
3,400.0	3,398.8	3,382.4	3,367.8	7.4	8.8	78.55	-148.6	-241.3	279.0	264.2	14.75	18.915		
3,500.0	3,498.2	3,481.6	3,466.3	7.5	9.1	80.35	-155.3	-250.7	288.5	273.3	15.19	18.993		
3,600.0	3,597.6	3,580.7	3,564.7	7.7	9.4	82.03	-161.9	-260.1	298.3	282.6	15.64	19.069		
3,700.0	3,697.0	3,679.9	3,663.2	7.9	9.7	83.61	-168.6	-269.5	308.3	292.2	16.10	19.144		
3,800.0	3,796.4	3,790.5	3,773.2	8.2	9.9	85.35	-174.8	-278.4	316.8	300.2	16.56	19.125		
3,900.0	3,895.8	3,901.8	3,884.4	8.4	10.2	87.22	-178.7	-283.8	321.9	304.8	17.03	18.903		
4,000.0	3,995.2	4,013.2	3,995.7	8.6	10.3	89.27	-180.0	-285.7	323.5	306.0	17.49	18.494		
4,037.1	4,032.0	4,050.5	4,033.0	8.7	10.4	90.00	-180.0	-285.7	323.5	305.8	17.66	18.315		
4,100.0	4,094.6	4,113.0	4,095.6	8.8	10.5	91.22	-180.0	-285.7	323.6	305.6	17.95	18.025		
4,200.0	4,194.0	4,212.4	4,195.0	9.1	10.7	93.16	-180.0	-285.7	324.0	305.6	18.41	17.598		
4,300.0	4,293.4	4,311.8	4,294.4	9.3	10.9	95.09	-180.0	-285.7	324.8	305.9	18.88	17.206		
4,400.0	4,392.7	4,411.2	4,393.7	9.5	11.0	97.01	-180.0	-285.7	326.0	306.6	19.35	16.848		
4,500.0	4,492.1	4,510.6	4,493.1	9.8	11.2	98.92	-180.0	-285.7	327.5	307.7	19.82	16.522		
4,600.0	4,591.5	4,610.0	4,592.5	10.0	11.4	100.80	-180.0	-285.7	329.4	309.1	20.30	16.228		
4,700.0	4,690.9	4,709.4	4,691.9	10.3	11.5	102.67	-180.0	-285.7	331.7	310.9	20.78	15.962		
4,800.0	4,790.5	4,809.0	4,791.5	10.5	11.7	104.22	-180.0	-285.7	333.8	312.5	21.25	15.706		
4,900.0	4,890.3	4,908.8	4,891.3	10.8	11.9	105.17	-180.0	-285.7	335.2	313.5	21.70	15.447		
5,000.0	4,990.3	5,008.8	4,991.3	11.0	12.1	105.52	-180.0	-285.7	335.7	313.6	22.11	15.184		
5,100.0	5,090.3	5,108.8	5,091.3	11.2	12.3	-90.00	-180.0	-285.7	335.7	313.2	22.50	14.921		
5,200.0	5,190.3	5,208.8	5,191.3	11.4	12.5	-90.00	-180.0	-285.7	335.7	312.8	22.91	14.658		
5,300.0	5,290.3	5,308.8	5,291.3	11.6	12.6	-90.00	-180.0	-285.7	335.7	312.4	23.31	14.403		
5,400.0	5,390.3	5,408.8	5,391.3	11.8	12.8	-90.00	-180.0	-285.7	335.7	312.0	23.72	14.156		
5,500.0	5,490.3	5,508.8	5,491.3	12.0	13.0	-90.00	-180.0	-285.7	335.7	311.6	24.13	13.916		
5,600.0	5,590.3	5,608.8	5,591.3	12.2	13.2	-90.00	-180.0	-285.7	335.7	311.2	24.54	13.684		
5,700.0	5,690.3	5,708.8	5,691.3	12.4	13.4	-90.00	-180.0	-285.7	335.7	310.8	24.95	13.458		
5,800.0	5,790.3	5,808.8	5,791.3	12.6	13.6	-90.00	-180.0	-285.7	335.7	310.4	25.36	13.239		
5,900.0	5,890.3	5,908.8	5,891.3	12.8	13.8	-90.00	-180.0	-285.7	335.7	310.0	25.77	13.027		
6,000.0	5,990.3	6,008.8	5,991.3	13.1	14.0	-90.00	-180.0	-285.7	335.7	309.6	26.19	12.820		
6,100.0	6,090.3	6,108.8	6,091.3	13.3	14.2	-90.00	-180.0	-285.7	335.7	309.1	26.60	12.620		
6,159.0	6,149.3	6,167.7	6,150.3	13.4	14.3	-90.36	-180.0	-285.7	335.7	308.9	26.85	12.503		
6,200.0	6,190.3	6,208.8	6,191.3	13.5	14.4	-90.32	-180.0	-285.7	335.7	308.7	27.02	12.424		
6,300.0	6,289.8	6,308.7	6,291.2	13.7	14.6	-91.78	-179.5	-285.7	335.9	308.5	27.38	12.269		
6,400.0	6,387.3	6,410.2	6,392.1	13.8	14.7	-93.78	-168.9	-285.7	336.5	308.8	27.65	12.171		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2Q-441
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2Q-441	<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-221 - 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		
6,500.0	6,481.0	6,513.3	6,492.2	13.9	14.9	-95.73	-144.6	-285.6	337.4	309.6	27.85	12.117		
6,600.0	6,569.4	6,618.1	6,589.7	14.0	15.0	-97.58	-106.3	-285.4	338.7	310.7	28.03	12.083		
6,700.0	6,651.0	6,724.6	6,682.4	14.2	15.1	-99.29	-54.1	-285.1	340.2	312.0	28.26	12.039		
6,800.0	6,724.4	6,832.6	6,768.1	14.4	15.2	-100.84	11.5	-284.8	341.9	313.3	28.62	11.946		
6,900.0	6,788.3	6,942.1	6,844.7	14.8	15.3	-102.19	89.6	-284.4	343.5	314.3	29.19	11.769		
7,000.0	6,841.6	7,053.0	6,910.1	15.3	15.5	-103.31	179.0	-284.0	345.0	315.0	30.05	11.480		
7,100.0	6,883.4	7,164.9	6,962.2	16.0	16.2	-104.19	278.0	-283.5	346.3	315.0	31.28	11.070		
7,200.0	6,913.0	7,277.7	6,999.6	16.9	17.1	-104.80	384.2	-283.0	347.2	314.3	32.89	10.557		
7,300.0	6,929.9	7,391.0	7,021.0	18.0	18.2	-105.13	495.4	-282.4	347.7	312.9	34.87	9.973		
7,400.0	6,933.9	7,493.4	7,031.6	19.1	19.4	-106.06	597.3	-281.9	349.4	312.5	36.92	9.464		
7,500.0	6,933.1	7,602.0	7,036.0	20.4	20.8	-106.89	705.7	-281.4	350.8	311.5	39.31	8.923		
7,600.0	6,932.2	7,701.9	7,036.1	21.8	22.1	-107.04	805.7	-280.9	351.1	309.2	41.90	8.380		
7,700.0	6,931.4	7,801.9	7,036.2	23.2	23.5	-107.18	905.7	-280.4	351.3	306.7	44.63	7.873		
7,800.0	6,930.6	7,901.9	7,036.3	24.7	25.0	-107.32	1,005.7	-279.9	351.6	304.1	47.48	7.405		
7,900.0	6,929.7	8,001.9	7,036.3	26.3	26.6	-107.47	1,105.7	-279.5	351.9	301.4	50.44	6.977		
8,000.0	6,928.9	8,101.9	7,036.4	27.9	28.1	-107.61	1,205.7	-279.0	352.1	298.7	53.47	6.585		
8,100.0	6,928.0	8,201.9	7,036.5	29.5	29.8	-107.75	1,305.7	-278.5	352.4	295.8	56.58	6.229		
8,200.0	6,927.2	8,301.9	7,036.6	31.2	31.4	-107.89	1,405.7	-278.0	352.7	292.9	59.74	5.904		
8,300.0	6,926.4	8,401.9	7,036.6	32.9	33.1	-108.04	1,505.7	-277.5	352.9	290.0	62.95	5.607		
8,400.0	6,925.5	8,501.9	7,036.7	34.6	34.8	-108.18	1,605.6	-277.0	353.2	287.0	66.20	5.336		
8,500.0	6,924.7	8,601.9	7,036.8	36.4	36.6	-108.32	1,705.6	-276.5	353.5	284.0	69.48	5.088		
8,600.0	6,923.9	8,701.9	7,036.9	38.1	38.3	-108.46	1,805.6	-276.0	353.8	281.0	72.79	4.860		
8,700.0	6,923.0	8,801.9	7,037.0	39.9	40.1	-108.60	1,905.6	-275.5	354.1	277.9	76.12	4.651		
8,800.0	6,922.2	8,901.9	7,037.0	41.7	41.8	-108.74	2,005.6	-275.1	354.4	274.9	79.47	4.459		
8,900.0	6,921.3	9,001.9	7,037.1	43.5	43.6	-108.88	2,105.6	-274.6	354.6	271.8	82.84	4.281		
9,000.0	6,920.5	9,101.9	7,037.2	45.3	45.4	-109.02	2,205.6	-274.1	354.9	268.7	86.23	4.116		
9,100.0	6,919.7	9,201.9	7,037.3	47.1	47.2	-109.16	2,305.6	-273.6	355.2	265.6	89.62	3.964		
9,200.0	6,918.8	9,301.9	7,037.3	48.9	49.1	-109.30	2,405.6	-273.1	355.5	262.5	93.03	3.822		
9,300.0	6,918.0	9,401.9	7,037.4	50.8	50.9	-109.44	2,505.6	-272.6	355.8	259.4	96.44	3.689		
9,400.0	6,917.2	9,501.9	7,037.5	52.6	52.7	-109.58	2,605.6	-272.1	356.1	256.2	99.86	3.566		
9,500.0	6,916.3	9,601.9	7,037.6	54.4	54.5	-109.72	2,705.6	-271.6	356.4	253.1	103.28	3.451		
9,600.0	6,915.5	9,701.9	7,037.7	56.3	56.4	-109.86	2,805.6	-271.1	356.7	250.0	106.71	3.343		
9,700.0	6,914.6	9,801.9	7,037.7	58.1	58.2	-110.00	2,905.6	-270.7	357.0	246.9	110.14	3.241		
9,800.0	6,913.8	9,901.9	7,037.8	60.0	60.1	-110.14	3,005.6	-270.2	357.3	243.7	113.58	3.146		
9,900.0	6,913.0	10,001.9	7,037.9	61.8	61.9	-110.27	3,105.6	-269.7	357.6	240.6	117.01	3.056		
10,000.0	6,912.1	10,101.8	7,038.0	63.7	63.8	-110.41	3,205.6	-269.2	357.9	237.5	120.45	2.972		
10,100.0	6,911.3	10,201.8	7,038.0	65.6	65.7	-110.55	3,305.6	-268.7	358.2	234.4	123.89	2.892		
10,200.0	6,910.4	10,301.8	7,038.1	67.4	67.5	-110.69	3,405.6	-268.2	358.6	231.2	127.32	2.816		
10,300.0	6,909.6	10,401.8	7,038.2	69.3	69.4	-110.82	3,505.5	-267.7	358.9	228.1	130.76	2.745		
10,400.0	6,908.8	10,501.8	7,038.3	71.2	71.3	-110.96	3,605.5	-267.2	359.2	225.0	134.20	2.677		
10,500.0	6,907.9	10,601.8	7,038.4	73.1	73.1	-111.10	3,705.5	-266.7	359.5	221.9	137.63	2.612		
10,600.0	6,907.1	10,701.8	7,038.4	74.9	75.0	-111.23	3,805.5	-266.2	359.8	218.8	141.06	2.551		
10,700.0	6,906.3	10,801.8	7,038.5	76.8	76.9	-111.37	3,905.5	-265.8	360.2	215.7	144.49	2.493		
10,800.0	6,905.4	10,901.8	7,038.6	78.7	78.8	-111.51	4,005.5	-265.3	360.5	212.6	147.92	2.437		
10,900.0	6,904.6	11,001.8	7,038.7	80.6	80.6	-111.64	4,105.5	-264.8	360.8	209.5	151.34	2.384		
11,000.0	6,903.7	11,101.8	7,038.7	82.5	82.5	-111.78	4,205.5	-264.3	361.2	206.4	154.76	2.334		
11,100.0	6,902.9	11,201.8	7,038.8	84.4	84.4	-111.91	4,305.5	-263.8	361.5	203.3	158.18	2.285		
11,200.0	6,902.1	11,301.8	7,038.9	86.2	86.3	-112.05	4,405.5	-263.3	361.8	200.2	161.59	2.239		
11,300.0	6,901.2	11,401.8	7,039.0	88.1	88.2	-112.18	4,505.5	-262.8	362.2	197.2	165.00	2.195		
11,327.9	6,901.0	11,428.2	7,039.0	88.7	88.7	-112.22	4,531.9	-262.7	362.3	196.3	165.93	2.183 SF		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2Q-441
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2Q-441	<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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2Q-441
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2Q-441	<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		
0.0	0.0	1.0	1.0	0.0	0.0	-89.99	0.0	-58.7	58.7	58.7	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-89.99	0.0	-58.7	58.7	58.5	0.23	258.558		
166.3	166.3	167.3	167.3	0.3	0.3	-89.99	0.0	-58.7	58.7	58.2	0.53	111.762 CC		
200.0	200.0	201.0	201.0	0.3	0.3	-89.99	0.0	-58.7	58.7	58.0	0.68	86.781 ES		
300.0	300.0	300.0	300.0	0.6	0.5	-90.50	-0.5	-60.4	60.4	59.3	1.11	54.359		
400.0	400.0	396.8	396.7	0.8	0.8	-91.81	-2.1	-65.1	65.3	63.8	1.55	42.191		
500.0	500.0	494.2	493.7	1.0	1.0	-93.61	-4.6	-73.1	73.6	71.6	2.00	36.739		
600.0	600.0	592.4	591.3	1.2	1.3	-95.49	-8.0	-83.8	84.7	82.2	2.47	34.287		
700.0	700.0	691.7	689.9	1.5	1.6	-96.98	-11.6	-94.9	96.2	93.3	2.93	32.807		
800.0	800.0	791.0	788.5	1.7	1.9	-98.16	-15.2	-106.0	107.8	104.4	3.40	31.723		
900.0	900.0	890.3	887.1	1.9	2.2	-99.11	-18.8	-117.1	119.5	115.6	3.87	30.897		
1,000.0	1,000.0	989.6	985.7	2.1	2.5	-99.89	-22.4	-128.3	131.1	126.8	4.33	30.248		
1,100.0	1,100.0	1,088.9	1,084.3	2.4	2.8	-100.54	-25.9	-139.4	142.8	138.0	4.80	29.727		
1,200.0	1,200.0	1,188.2	1,182.9	2.6	3.1	-101.09	-29.5	-150.5	154.5	149.2	5.27	29.300		
1,300.0	1,300.0	1,287.5	1,281.6	2.8	3.4	-101.57	-33.1	-161.7	166.2	160.4	5.74	28.943		
1,400.0	1,400.0	1,386.9	1,380.2	3.0	3.8	-101.98	-36.7	-172.8	177.9	171.7	6.21	28.641		
1,500.0	1,500.0	1,486.2	1,478.8	3.3	4.1	-102.34	-40.2	-183.9	189.6	182.9	6.68	28.382		
1,600.0	1,600.0	1,585.5	1,577.4	3.5	4.4	-102.66	-43.8	-195.1	201.3	194.2	7.15	28.158		
1,700.0	1,700.0	1,684.8	1,676.0	3.7	4.7	-102.95	-47.4	-206.2	213.0	205.4	7.62	27.962		
1,800.0	1,800.0	1,784.1	1,774.6	3.9	5.0	-103.20	-51.0	-217.3	224.8	216.7	8.09	27.789		
1,900.0	1,900.0	1,883.4	1,873.2	4.2	5.3	-103.43	-54.6	-228.5	236.5	228.0	8.56	27.635		
2,000.0	2,000.0	1,982.7	1,971.8	4.4	5.7	-103.64	-58.1	-239.6	248.3	239.2	9.03	27.497		
2,100.0	2,100.0	2,082.0	2,070.5	4.6	6.0	-103.83	-61.7	-250.7	260.0	250.5	9.50	27.374		
2,200.0	2,200.0	2,181.3	2,169.1	4.8	6.3	-104.00	-65.3	-261.8	271.7	261.8	9.97	27.262		
2,300.0	2,300.0	2,280.6	2,267.7	5.1	6.6	-104.16	-68.9	-273.0	283.5	273.1	10.44	27.160		
2,400.0	2,400.0	2,379.9	2,366.3	5.3	6.9	-104.31	-72.4	-284.1	295.2	284.3	10.91	27.068		
2,500.0	2,500.0	2,479.2	2,464.9	5.5	7.2	-104.44	-76.0	-295.2	307.0	295.6	11.38	26.983		
2,600.0	2,600.0	2,578.5	2,563.5	5.7	7.6	-104.56	-79.6	-306.4	318.7	306.9	11.85	26.904		
2,700.0	2,700.0	2,677.8	2,662.1	6.0	7.9	-104.68	-83.2	-317.5	330.5	318.2	12.32	26.832		
2,800.0	2,800.0	2,777.1	2,760.8	6.2	8.2	-104.79	-86.8	-328.6	342.3	329.5	12.79	26.766		
2,900.0	2,900.0	2,876.4	2,859.4	6.4	8.5	-104.89	-90.3	-339.8	354.0	340.8	13.26	26.704		
3,000.0	3,000.0	2,975.7	2,958.0	6.6	8.8	-104.98	-93.9	-350.9	365.8	352.0	13.73	26.646		
3,100.0	3,100.0	3,075.0	3,056.6	6.8	9.1	90.48	-97.5	-362.0	377.5	363.6	13.90	27.160		
3,200.0	3,199.8	3,174.2	3,155.1	7.0	9.5	90.93	-101.1	-373.1	389.4	375.1	14.31	27.213		
3,300.0	3,299.5	3,273.2	3,253.4	7.2	9.8	91.83	-104.6	-384.2	401.4	386.6	14.72	27.259		
3,400.0	3,398.8	3,371.9	3,351.4	7.4	10.1	93.17	-108.2	-395.3	413.6	398.5	15.15	27.295		
3,500.0	3,498.2	3,470.7	3,449.5	7.5	10.4	94.49	-111.7	-406.4	426.1	410.5	15.60	27.323		
3,600.0	3,597.6	3,569.4	3,547.6	7.7	10.7	95.73	-115.3	-417.4	438.8	422.8	16.05	27.345		
3,700.0	3,697.0	3,668.2	3,645.6	7.9	11.0	96.90	-118.9	-428.5	451.7	435.2	16.51	27.362		
3,800.0	3,796.4	3,766.9	3,743.7	8.2	11.4	98.00	-122.4	-439.6	464.8	447.8	16.98	27.374		
3,900.0	3,895.8	3,865.7	3,841.8	8.4	11.7	99.05	-126.0	-450.6	478.1	460.6	17.46	27.383		
4,000.0	3,995.2	3,964.4	3,939.8	8.6	12.0	100.04	-129.5	-461.7	491.4	473.5	17.94	27.388		
4,100.0	4,094.6	4,063.2	4,037.9	8.8	12.3	100.97	-133.1	-472.8	505.0	486.5	18.44	27.391		
4,200.0	4,194.0	4,161.9	4,135.9	9.1	12.6	101.86	-136.6	-483.8	518.6	499.7	18.93	27.393		
4,300.0	4,293.4	4,260.7	4,234.0	9.3	12.9	102.70	-140.2	-494.9	532.4	513.0	19.44	27.392		
4,400.0	4,392.7	4,359.4	4,332.1	9.5	13.3	103.50	-143.8	-506.0	546.3	526.3	19.94	27.391		
4,500.0	4,492.1	4,458.2	4,430.1	9.8	13.6	104.26	-147.3	-517.0	560.2	539.8	20.46	27.388		
4,600.0	4,591.5	4,556.9	4,528.2	10.0	13.9	104.98	-150.9	-528.1	574.3	553.3	20.97	27.385		
4,700.0	4,690.9	4,655.7	4,626.3	10.3	14.2	105.69	-154.4	-539.2	588.5	567.0	21.49	27.379		
4,800.0	4,790.5	4,754.6	4,724.5	10.5	14.5	106.43	-158.0	-550.3	602.1	580.1	22.02	27.340		
4,900.0	4,890.3	4,853.8	4,823.0	10.8	14.8	106.82	-161.6	-561.4	614.9	592.3	22.53	27.291		

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 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	
5,000.0	4,990.3	4,953.1	4,921.6	11.0	15.2	106.87	-165.1	-572.5	626.6	603.6	23.00	27.245		
5,100.0	5,090.3	5,052.4	5,020.2	11.2	15.5	-88.98	-168.7	-583.6	637.7	614.3	23.42	27.229		
5,200.0	5,190.3	5,151.7	5,118.8	11.4	15.8	-89.32	-172.3	-594.8	648.9	625.0	23.86	27.194		
5,300.0	5,290.3	5,266.4	5,232.9	11.6	16.1	-89.67	-176.2	-606.8	659.4	635.1	24.29	27.145		
5,400.0	5,390.3	5,394.3	5,360.4	11.8	16.3	-89.91	-179.0	-615.5	666.2	641.5	24.71	26.957		
5,500.0	5,490.3	5,522.8	5,488.8	12.0	16.5	-90.00	-180.0	-618.7	668.7	643.6	25.13	26.609		
5,600.0	5,590.3	5,625.3	5,591.3	12.2	16.7	-90.00	-180.0	-618.7	668.7	643.2	25.52	26.201		
5,700.0	5,690.3	5,725.3	5,691.3	12.4	16.8	-90.00	-180.0	-618.7	668.7	642.8	25.91	25.812		
5,800.0	5,790.3	5,825.3	5,791.3	12.6	17.0	-90.00	-180.0	-618.7	668.7	642.4	26.29	25.432		
5,900.0	5,890.3	5,925.3	5,891.3	12.8	17.1	-90.00	-180.0	-618.7	668.7	642.0	26.68	25.062		
6,000.0	5,990.3	6,025.3	5,991.3	13.1	17.3	-90.00	-180.0	-618.7	668.7	641.6	27.07	24.701		
6,100.0	6,090.3	6,125.3	6,091.3	13.3	17.4	-90.00	-180.0	-618.7	668.7	641.2	27.46	24.348		
6,167.8	6,158.1	6,193.1	6,159.1	13.4	17.5	-90.33	-180.0	-618.7	668.7	641.0	27.74	24.107		
6,200.0	6,190.3	6,225.4	6,191.4	13.5	17.6	-90.27	-179.7	-618.7	668.7	640.8	27.87	23.998		
6,300.0	6,289.8	6,325.7	6,291.2	13.7	17.7	-90.26	-170.3	-618.7	668.7	640.5	28.19	23.720		
6,400.0	6,387.3	6,426.1	6,389.0	13.8	17.8	-90.24	-148.0	-618.6	668.7	640.3	28.44	23.516		
6,500.0	6,481.0	6,526.4	6,482.9	13.9	17.8	-90.22	-113.0	-618.4	668.7	640.1	28.64	23.350		
6,600.0	6,569.4	6,626.7	6,571.5	14.0	17.9	-90.19	-66.1	-618.2	668.7	639.9	28.86	23.173		
6,700.0	6,651.0	6,726.9	6,653.1	14.2	17.9	-90.16	-8.0	-617.9	668.8	639.6	29.17	22.928		
6,800.0	6,724.4	6,827.1	6,726.3	14.4	18.0	-90.13	60.3	-617.6	668.8	639.1	29.65	22.556		
6,900.0	6,788.3	6,927.2	6,790.0	14.8	18.1	-90.09	137.5	-617.3	668.8	638.4	30.38	22.014		
7,000.0	6,841.6	7,027.3	6,843.0	15.3	18.3	-90.06	222.3	-616.9	668.9	637.4	31.42	21.287		
7,100.0	6,883.4	7,127.4	6,884.5	16.0	18.7	-90.02	313.3	-616.5	668.9	636.1	32.80	20.392		
7,200.0	6,913.0	7,227.3	6,913.7	16.9	19.3	-89.98	408.8	-616.1	668.9	634.4	34.52	19.377		
7,300.0	6,929.9	7,327.3	6,930.2	18.0	20.1	-89.94	507.3	-615.7	669.0	632.4	36.55	18.302		
7,400.0	6,933.9	7,427.2	6,933.9	19.1	21.1	-89.91	607.1	-615.2	669.0	630.2	38.84	17.224		
7,500.0	6,933.1	7,527.2	6,933.0	20.4	22.3	-89.91	707.1	-614.8	669.1	627.7	41.35	16.179		
7,600.0	6,932.2	7,627.2	6,932.2	21.8	23.5	-89.91	807.1	-614.4	669.1	625.1	44.05	15.189		
7,700.0	6,931.4	7,727.2	6,931.4	23.2	24.9	-89.91	907.0	-613.9	669.2	622.2	46.91	14.265		
7,800.0	6,930.6	7,827.2	6,930.5	24.7	26.3	-89.91	1,007.0	-613.5	669.2	619.3	49.90	13.411		
7,900.0	6,929.7	7,927.2	6,929.7	26.3	27.8	-89.91	1,107.0	-613.1	669.2	616.2	52.99	12.629		
8,000.0	6,928.9	8,027.2	6,928.9	27.9	29.3	-89.91	1,207.0	-612.6	669.3	613.1	56.18	11.913		
8,100.0	6,928.0	8,127.2	6,928.0	29.5	30.9	-89.91	1,307.0	-612.2	669.3	609.9	59.45	11.259		
8,200.0	6,927.2	8,227.2	6,927.2	31.2	32.5	-89.91	1,407.0	-611.7	669.4	606.6	62.77	10.663		
8,300.0	6,926.4	8,327.2	6,926.3	32.9	34.1	-89.91	1,507.0	-611.3	669.4	603.2	66.16	10.118		
8,400.0	6,925.5	8,427.2	6,925.5	34.6	35.8	-89.91	1,607.0	-610.9	669.4	599.9	69.59	9.620		
8,500.0	6,924.7	8,527.2	6,924.7	36.4	37.5	-89.91	1,707.0	-610.4	669.5	596.4	73.06	9.164		
8,600.0	6,923.9	8,627.2	6,923.8	38.1	39.2	-89.91	1,807.0	-610.0	669.5	593.0	76.56	8.745		
8,700.0	6,923.0	8,727.2	6,923.0	39.9	41.0	-89.91	1,907.0	-609.5	669.6	589.5	80.10	8.360		
8,800.0	6,922.2	8,827.2	6,922.2	41.7	42.7	-89.91	2,007.0	-609.1	669.6	586.0	83.66	8.004		
8,900.0	6,921.3	8,927.2	6,921.3	43.5	44.5	-89.91	2,107.0	-608.7	669.7	582.4	87.24	7.676		
9,000.0	6,920.5	9,027.2	6,920.5	45.3	46.2	-89.91	2,207.0	-608.2	669.7	578.9	90.85	7.372		
9,100.0	6,919.7	9,127.2	6,919.6	47.1	48.0	-89.91	2,307.0	-607.8	669.7	575.3	94.47	7.090		
9,200.0	6,918.8	9,227.2	6,918.8	48.9	49.8	-89.91	2,407.0	-607.4	669.8	571.7	98.11	6.827		
9,300.0	6,918.0	9,327.2	6,918.0	50.8	51.6	-89.91	2,507.0	-606.9	669.8	568.1	101.76	6.582		
9,400.0	6,917.2	9,427.2	6,917.1	52.6	53.4	-89.91	2,607.0	-606.5	669.9	564.4	105.43	6.354		
9,500.0	6,916.3	9,527.2	6,916.3	54.4	55.2	-89.91	2,707.0	-606.0	669.9	560.8	109.10	6.140		
9,600.0	6,915.5	9,627.2	6,915.5	56.3	57.1	-89.91	2,807.0	-605.6	670.0	557.2	112.79	5.940		
9,700.0	6,914.6	9,727.2	6,914.6	58.1	58.9	-89.91	2,907.0	-605.2	670.0	553.5	116.49	5.752		
9,800.0	6,913.8	9,827.2	6,913.8	60.0	60.7	-89.91	3,007.0	-604.7	670.0	549.9	120.19	5.575		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2Q-441
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2Q-441	<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:		0.0 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			
9,900.0	6,913.0	9,927.2	6,912.9	61.8	62.6	-89.91	3,107.0	-604.3	670.1	546.2	123.91	5.408			
10,000.0	6,912.1	10,027.2	6,912.1	63.7	64.4	-89.91	3,206.9	-603.9	670.1	542.5	127.63	5.251			
10,100.0	6,911.3	10,127.2	6,911.3	65.6	66.3	-89.91	3,306.9	-603.4	670.2	538.8	131.35	5.102			
10,200.0	6,910.4	10,227.2	6,910.4	67.4	68.1	-89.91	3,406.9	-603.0	670.2	535.1	135.09	4.961			
10,300.0	6,909.6	10,327.2	6,909.6	69.3	70.0	-89.91	3,506.9	-602.5	670.3	531.4	138.82	4.828			
10,400.0	6,908.8	10,427.2	6,908.7	71.2	71.8	-89.91	3,606.9	-602.1	670.3	527.7	142.57	4.702			
10,500.0	6,907.9	10,527.2	6,907.9	73.1	73.7	-89.91	3,706.9	-601.7	670.3	524.0	146.31	4.582			
10,600.0	6,907.1	10,627.2	6,907.1	74.9	75.6	-89.91	3,806.9	-601.2	670.4	520.3	150.07	4.467			
10,700.0	6,906.3	10,727.2	6,906.2	76.8	77.4	-89.91	3,906.9	-600.8	670.4	516.6	153.82	4.358			
10,800.0	6,905.4	10,827.2	6,905.4	78.7	79.3	-89.91	4,006.9	-600.3	670.5	512.9	157.58	4.255			
10,900.0	6,904.6	10,927.2	6,904.6	80.6	81.2	-89.91	4,106.9	-599.9	670.5	509.2	161.35	4.156			
11,000.0	6,903.7	11,027.2	6,903.7	82.5	83.0	-89.91	4,206.9	-599.5	670.6	505.4	165.11	4.061			
11,100.0	6,902.9	11,127.2	6,902.9	84.4	84.9	-89.91	4,306.9	-599.0	670.6	501.7	168.88	3.971			
11,200.0	6,902.1	11,227.2	6,902.0	86.2	86.8	-89.91	4,406.9	-598.6	670.6	498.0	172.65	3.884			
11,300.0	6,901.2	11,327.2	6,901.2	88.1	88.7	-89.91	4,506.9	-598.2	670.7	494.3	176.43	3.801			
11,310.2	6,901.1	11,337.4	6,901.1	88.3	88.9	-89.91	4,517.1	-598.1	670.7	493.9	176.81	3.793			
11,327.9	6,901.0	11,352.2	6,901.0	88.7	89.1	-89.91	4,531.9	-598.0	670.7	493.3	177.43	3.780 SF			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2Q-441
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2Q-441	<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									
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation	Warning			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	Toolface (°)	+N/-S (ft)	+E/-W (ft)	Centres (ft)	Ellipses (ft)	Separation (ft)	Factor				
0.0	0.0	0.0	0.0	0.0	0.0	90.03	0.0	30.7	30.8							
100.0	100.0	99.0	99.0	0.1	0.1	90.03	0.0	30.7	30.7	30.5	0.22	137.475				
200.0	200.0	199.0	199.0	0.3	0.3	90.03	0.0	30.7	30.7	30.1	0.67	45.749				
300.0	300.0	299.0	299.0	0.6	0.6	90.03	0.0	30.7	30.7	29.6	1.12	27.413				
400.0	400.0	399.0	399.0	0.8	0.8	90.03	0.0	30.7	30.7	29.2	1.57	19.569				
500.0	500.0	499.0	499.0	1.0	1.0	90.03	0.0	30.7	30.7	28.7	2.02	15.216				
600.0	600.0	599.0	599.0	1.2	1.2	90.03	0.0	30.7	30.7	28.3	2.47	12.447				
700.0	700.0	699.0	699.0	1.5	1.5	90.03	0.0	30.7	30.7	27.8	2.92	10.530				
800.0	800.0	799.0	799.0	1.7	1.7	90.03	0.0	30.7	30.7	27.4	3.37	9.125				
900.0	900.0	899.0	899.0	1.9	1.9	90.03	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	90.03	0.0	30.7	30.7	26.5	4.27	7.203 CC, ES				
1,100.0	1,100.0	1,098.0	1,098.0	2.4	2.3	91.38	-0.8	32.2	32.3	27.6	4.70	6.871				
1,200.0	1,200.0	1,196.8	1,196.6	2.6	2.5	94.78	-3.1	36.8	37.0	31.9	5.11	7.235				
1,300.0	1,300.0	1,295.1	1,294.6	2.8	2.7	98.84	-6.9	44.3	45.0	39.5	5.53	8.141				
1,400.0	1,400.0	1,394.4	1,393.3	3.0	3.0	102.26	-11.7	53.8	55.3	49.3	5.96	9.281				
1,500.0	1,500.0	1,493.8	1,492.1	3.3	3.2	104.62	-16.5	63.3	65.7	59.3	6.39	10.292				
1,600.0	1,600.0	1,593.2	1,591.0	3.5	3.4	106.33	-21.3	72.8	76.2	69.4	6.82	11.180				
1,700.0	1,700.0	1,692.6	1,689.8	3.7	3.7	107.63	-26.1	82.3	86.8	79.6	7.26	11.963				
1,800.0	1,800.0	1,792.0	1,788.7	3.9	4.0	108.64	-31.0	91.8	97.4	89.7	7.70	12.657				
1,900.0	1,900.0	1,891.5	1,887.5	4.2	4.2	109.46	-35.8	101.3	108.0	99.9	8.14	13.274				
2,000.0	2,000.0	1,990.9	1,986.4	4.4	4.5	110.13	-40.6	110.8	118.7	110.1	8.58	13.826				
2,100.0	2,100.0	2,090.3	2,085.2	4.6	4.8	110.69	-45.4	120.3	129.3	120.3	9.03	14.322				
2,200.0	2,200.0	2,189.7	2,184.1	4.8	5.1	111.16	-50.2	129.8	140.0	130.5	9.48	14.770				
2,300.0	2,300.0	2,289.2	2,282.9	5.1	5.4	111.57	-55.1	139.3	150.6	140.7	9.93	15.176				
2,400.0	2,400.0	2,388.6	2,381.8	5.3	5.6	111.92	-59.9	148.8	161.3	150.9	10.38	15.546				
2,500.0	2,500.0	2,488.0	2,480.6	5.5	5.9	112.23	-64.7	158.3	172.0	161.2	10.83	15.884				
2,600.0	2,600.0	2,587.4	2,579.5	5.7	6.2	112.50	-69.5	167.8	182.7	171.4	11.28	16.194				
2,700.0	2,700.0	2,686.9	2,678.3	6.0	6.5	112.74	-74.3	177.3	193.4	181.6	11.74	16.478				
2,800.0	2,800.0	2,786.3	2,777.2	6.2	6.8	112.96	-79.2	186.8	204.1	191.9	12.19	16.741				
2,900.0	2,900.0	2,885.7	2,876.0	6.4	7.1	113.16	-84.0	196.3	214.8	202.1	12.64	16.985				
3,000.0	3,000.0	2,985.1	2,974.9	6.6	7.4	113.33	-88.8	205.8	225.5	212.4	13.10	17.210				
3,100.0	3,100.0	3,084.7	3,073.8	6.8	7.7	-51.16	-93.6	215.3	235.1	221.6	13.50	17.406				
3,200.0	3,199.8	3,184.3	3,172.9	7.0	8.0	-51.85	-98.4	224.9	242.5	228.6	13.91	17.440				
3,300.0	3,299.5	3,284.0	3,272.0	7.2	8.3	-53.16	-103.3	234.4	247.9	233.6	14.31	17.323				
3,400.0	3,398.8	3,383.6	3,371.1	7.4	8.6	-54.90	-108.1	243.9	252.1	237.4	14.73	17.114				
3,500.0	3,498.2	3,483.2	3,470.1	7.5	8.9	-56.60	-112.9	253.4	256.6	241.4	15.17	16.916				
3,600.0	3,597.6	3,582.8	3,569.1	7.7	9.2	-58.25	-117.8	263.0	261.2	245.6	15.61	16.731				
3,700.0	3,697.0	3,682.5	3,668.2	7.9	9.5	-59.83	-122.6	272.5	266.1	250.0	16.07	16.559				
3,800.0	3,796.4	3,782.1	3,767.2	8.2	9.7	-61.36	-127.4	282.0	271.1	254.6	16.53	16.399				
3,900.0	3,895.8	3,881.7	3,866.3	8.4	10.0	-62.83	-132.3	291.5	276.3	259.3	17.01	16.248				
4,000.0	3,995.2	3,981.3	3,965.3	8.6	10.3	-64.25	-137.1	301.1	281.8	264.3	17.49	16.108				
4,100.0	4,094.6	4,080.9	4,064.3	8.8	10.6	-65.61	-141.9	310.6	287.3	269.4	17.99	15.976				
4,200.0	4,194.0	4,180.5	4,163.4	9.1	10.9	-66.92	-146.7	320.1	293.1	274.6	18.49	15.853				
4,300.0	4,293.4	4,280.1	4,262.4	9.3	11.2	-68.18	-151.6	329.6	299.0	280.0	19.00	15.738				
4,400.0	4,392.7	4,379.8	4,361.5	9.5	11.5	-69.39	-156.4	339.2	305.0	285.5	19.51	15.630				
4,500.0	4,492.1	4,479.4	4,460.5	9.8	11.8	-70.55	-161.2	348.7	311.1	291.1	20.03	15.529				
4,600.0	4,591.5	4,579.0	4,559.5	10.0	12.1	-71.67	-166.1	358.2	317.4	296.8	20.56	15.435				
4,700.0	4,690.9	4,678.6	4,658.6	10.3	12.4	-72.75	-170.9	367.7	323.8	302.7	21.10	15.347				
4,800.0	4,790.5	4,785.8	4,765.2	10.5	12.7	-73.69	-175.7	377.2	330.1	308.5	21.62	15.272				
4,900.0	4,890.3	4,897.2	4,876.5	10.8	13.0	-74.26	-178.8	383.4	334.2	312.1	22.07	15.141				
5,000.0	4,990.3	5,008.9	4,988.1	11.0	13.1	-74.47	-180.0	385.7	335.7	313.3	22.47	14.939				

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2Q-441
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2Q-441	<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	
5,100.0	5,090.3	5,110.1	5,089.3	11.2	13.3	90.00	-180.0	385.7	335.7	312.9	22.87	14.680		
5,200.0	5,190.3	5,210.1	5,189.3	11.4	13.5	90.00	-180.0	385.7	335.7	312.5	23.26	14.433		
5,300.0	5,290.3	5,310.1	5,289.3	11.6	13.6	90.00	-180.0	385.7	335.7	312.1	23.66	14.193		
5,400.0	5,390.3	5,410.1	5,389.3	11.8	13.8	90.00	-180.0	385.7	335.7	311.7	24.05	13.960		
5,500.0	5,490.3	5,510.1	5,489.3	12.0	14.0	90.00	-180.0	385.7	335.7	311.3	24.45	13.733		
5,600.0	5,590.3	5,610.1	5,589.3	12.2	14.2	90.00	-180.0	385.7	335.7	310.9	24.85	13.513		
5,700.0	5,690.3	5,710.1	5,689.3	12.4	14.3	90.00	-180.0	385.7	335.7	310.5	25.25	13.298		
5,800.0	5,790.3	5,810.1	5,789.3	12.6	14.5	90.00	-180.0	385.7	335.7	310.1	25.65	13.090		
5,900.0	5,890.3	5,910.1	5,889.3	12.8	14.7	90.00	-180.0	385.7	335.7	309.7	26.05	12.887		
6,000.0	5,990.3	6,010.1	5,989.3	13.1	14.9	90.00	-180.0	385.7	335.7	309.3	26.46	12.690		
6,100.0	6,090.3	6,110.1	6,089.3	13.3	15.0	90.00	-180.0	385.7	335.7	308.9	26.86	12.498		
6,200.0	6,190.3	6,210.1	6,189.3	13.5	15.2	89.77	-180.0	385.7	335.7	308.5	27.26	12.316		
6,226.2	6,216.5	6,236.3	6,215.5	13.5	15.3	89.97	-180.0	385.7	335.7	308.4	27.35	12.274		
6,300.0	6,289.8	6,309.9	6,289.1	13.7	15.4	91.22	-179.4	385.7	335.8	308.2	27.58	12.174		
6,400.0	6,387.3	6,411.0	6,389.5	13.8	15.6	93.19	-168.6	385.8	336.3	308.4	27.82	12.088		
6,500.0	6,481.0	6,513.7	6,489.2	13.9	15.7	95.11	-144.3	385.9	337.1	309.1	28.00	12.039		
6,600.0	6,569.4	6,618.0	6,586.2	14.0	15.8	96.95	-106.0	386.1	338.2	310.0	28.18	12.003		
6,700.0	6,651.0	6,723.9	6,678.4	14.2	15.8	98.66	-54.1	386.3	339.6	311.2	28.42	11.950		
6,800.0	6,724.4	6,831.4	6,763.7	14.4	15.9	100.22	11.1	386.5	341.1	312.3	28.79	11.847		
6,900.0	6,788.3	6,940.3	6,840.0	14.8	16.0	101.60	88.8	386.9	342.6	313.2	29.38	11.660		
7,000.0	6,841.6	7,050.6	6,905.1	15.3	16.2	102.76	177.6	387.2	344.1	313.8	30.26	11.370		
7,100.0	6,883.4	7,162.0	6,957.3	16.0	16.7	103.69	275.9	387.7	345.3	313.8	31.48	10.967		
7,200.0	6,913.0	7,274.3	6,994.9	16.9	17.6	104.36	381.6	388.1	346.2	313.1	33.07	10.469		
7,300.0	6,929.9	7,387.1	7,016.6	18.0	18.7	104.76	492.3	388.6	346.8	311.8	35.00	9.906		
7,400.0	6,933.9	7,489.6	7,027.3	19.1	19.8	105.71	594.2	389.0	348.4	311.4	37.01	9.414		
7,500.0	6,933.1	7,598.3	7,032.0	20.4	21.2	106.60	702.8	389.4	349.8	310.4	39.38	8.883		
7,600.0	6,932.2	7,698.3	7,032.0	21.8	22.5	106.73	802.7	389.9	349.9	308.0	41.95	8.341		
7,700.0	6,931.4	7,798.3	7,032.0	23.2	23.9	106.87	902.7	390.3	350.1	305.4	44.68	7.837		
7,800.0	6,930.6	7,898.3	7,032.0	24.7	25.4	107.00	1,002.7	390.7	350.3	302.8	47.53	7.371		
7,900.0	6,929.7	7,998.3	7,032.0	26.3	26.9	107.13	1,102.7	391.1	350.5	300.0	50.48	6.943		
8,000.0	6,928.9	8,098.3	7,032.0	27.9	28.5	107.27	1,202.7	391.5	350.7	297.1	53.51	6.553		
8,100.0	6,928.0	8,198.3	7,032.0	29.5	30.1	107.40	1,302.7	391.9	350.8	294.2	56.62	6.197		
8,200.0	6,927.2	8,298.3	7,032.0	31.2	31.8	107.54	1,402.7	392.3	351.0	291.2	59.78	5.872		
8,300.0	6,926.4	8,398.3	7,032.0	32.9	33.4	107.67	1,502.7	392.7	351.2	288.2	62.99	5.576		
8,400.0	6,925.5	8,498.3	7,032.0	34.6	35.1	107.80	1,602.7	393.1	351.4	285.2	66.24	5.305		
8,500.0	6,924.7	8,598.3	7,032.0	36.4	36.9	107.94	1,702.7	393.6	351.6	282.1	69.52	5.057		
8,600.0	6,923.9	8,698.3	7,032.0	38.1	38.6	108.07	1,802.7	394.0	351.8	278.9	72.84	4.830		
8,700.0	6,923.0	8,798.3	7,032.0	39.9	40.3	108.20	1,902.7	394.4	352.0	275.8	76.17	4.621		
8,800.0	6,922.2	8,898.3	7,032.0	41.7	42.1	108.34	2,002.7	394.8	352.2	272.6	79.53	4.428		
8,900.0	6,921.3	8,998.3	7,032.0	43.5	43.9	108.47	2,102.7	395.2	352.4	269.5	82.91	4.250		
9,000.0	6,920.5	9,098.3	7,032.0	45.3	45.7	108.60	2,202.7	395.6	352.6	266.3	86.30	4.086		
9,100.0	6,919.7	9,198.3	7,032.0	47.1	47.5	108.74	2,302.7	396.0	352.8	263.1	89.70	3.933		
9,200.0	6,918.8	9,298.3	7,032.0	48.9	49.3	108.87	2,402.7	396.4	353.0	259.9	93.11	3.791		
9,300.0	6,918.0	9,398.2	7,032.0	50.8	51.1	109.00	2,502.7	396.9	353.2	256.7	96.53	3.659		
9,400.0	6,917.2	9,498.2	7,032.0	52.6	52.9	109.13	2,602.7	397.3	353.4	253.4	99.96	3.535		
9,500.0	6,916.3	9,598.2	7,032.0	54.4	54.8	109.27	2,702.7	397.7	353.6	250.2	103.39	3.420		
9,600.0	6,915.5	9,698.2	7,032.0	56.3	56.6	109.40	2,802.7	398.1	353.8	247.0	106.83	3.312		
9,700.0	6,914.6	9,798.2	7,032.0	58.1	58.5	109.53	2,902.7	398.5	354.0	243.8	110.27	3.211		
9,800.0	6,913.8	9,898.2	7,032.0	60.0	60.3	109.66	3,002.7	398.9	354.3	240.5	113.72	3.115		
9,900.0	6,913.0	9,998.2	7,032.0	61.8	62.1	109.79	3,102.6	399.3	354.5	237.3	117.16	3.025		

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

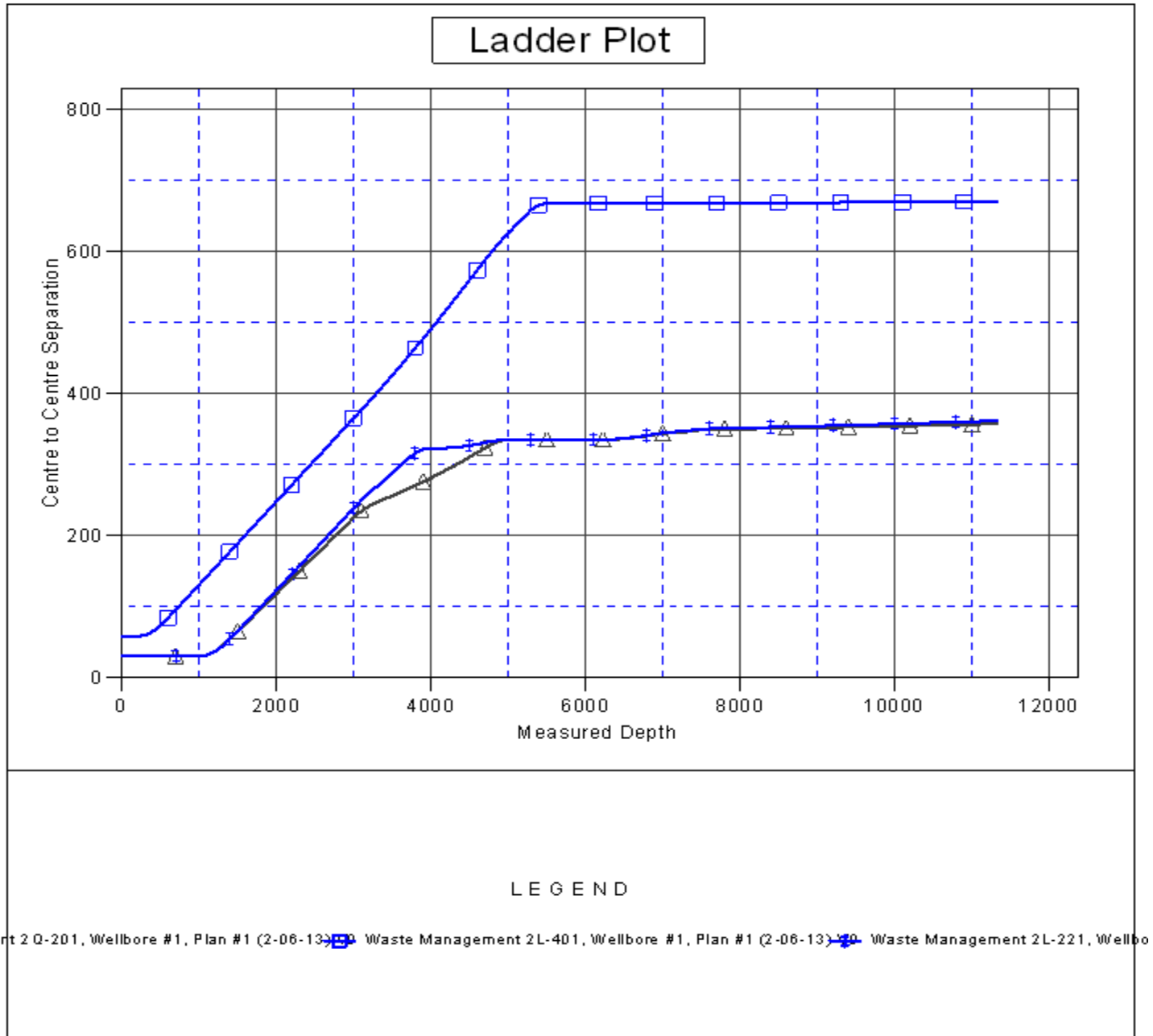
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2Q-441
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2Q-441	<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	
10,000.0	6,912.1	10,098.2	7,032.0	63.7	64.0	109.92	3,202.6	399.7	354.7	234.1	120.61	2.941	
10,100.0	6,911.3	10,198.2	7,032.0	65.6	65.9	110.05	3,302.6	400.1	354.9	230.9	124.06	2.861	
10,200.0	6,910.4	10,298.2	7,032.0	67.4	67.7	110.18	3,402.6	400.6	355.1	227.6	127.51	2.785	
10,300.0	6,909.6	10,398.2	7,032.0	69.3	69.6	110.32	3,502.6	401.0	355.4	224.4	130.96	2.714	
10,400.0	6,908.8	10,498.2	7,032.0	71.2	71.5	110.45	3,602.6	401.4	355.6	221.2	134.41	2.646	
10,500.0	6,907.9	10,598.2	7,032.0	73.1	73.3	110.58	3,702.6	401.8	355.8	218.0	137.85	2.581	
10,600.0	6,907.1	10,698.2	7,032.0	74.9	75.2	110.71	3,802.6	402.2	356.1	214.8	141.30	2.520	
10,700.0	6,906.3	10,798.2	7,032.0	76.8	77.1	110.84	3,902.6	402.6	356.3	211.5	144.74	2.462	
10,800.0	6,905.4	10,898.2	7,032.0	78.7	78.9	110.97	4,002.6	403.0	356.5	208.3	148.19	2.406	
10,900.0	6,904.6	10,998.2	7,032.0	80.6	80.8	111.10	4,102.6	403.4	356.8	205.1	151.62	2.353	
11,000.0	6,903.7	11,098.2	7,032.0	82.5	82.7	111.23	4,202.6	403.9	357.0	201.9	155.06	2.302	
11,100.0	6,902.9	11,198.2	7,032.0	84.4	84.6	111.35	4,302.6	404.3	357.2	198.7	158.49	2.254	
11,200.0	6,902.1	11,298.2	7,032.0	86.2	86.5	111.48	4,402.6	404.7	357.5	195.6	161.92	2.208	
11,300.0	6,901.2	11,398.2	7,032.0	88.1	88.3	111.61	4,502.6	405.1	357.7	192.4	165.35	2.163	
11,327.9	6,901.0	11,426.1	7,032.0	88.7	88.9	111.65	4,530.5	405.2	357.8	191.5	166.31	2.151 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Waste Management 2Q-441
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2Q-441	<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 @ 4948.0ft (RKB - 15')  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: Waste Management 2Q-441  
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 2Q-441
<b>Project:</b>	SEC.2-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Reference Site:</b>	Waste Management 2Q-HZ Pad Sec.2-T2N-R64W	<b>MD Reference:</b>	WELL @ 4948.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Waste Management 2Q-441	<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
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