PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Dalton 24Q-441**

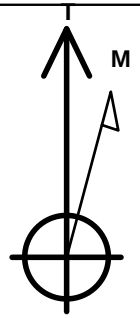
Surface Location: Dalton SW-24Q Pad Sec.24-T7N-R66W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4865.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1445711.22	3215093.09	40.554300	-104.725930	

Original Well Elev WELL @ 4880.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
HARDLINE BHL 460'FNL	1.0	4615.9	-800.0	Polygon
HARDLINE SHL 460'FSL	1.0	210.0	-800.0	Polygon
SECTIONLINE 250'S OF SHL	1.0	-250.0	-800.0	Polygon
BHL 500'FNL & 1980'FWL	7380.0	4575.9	-627.9	Point



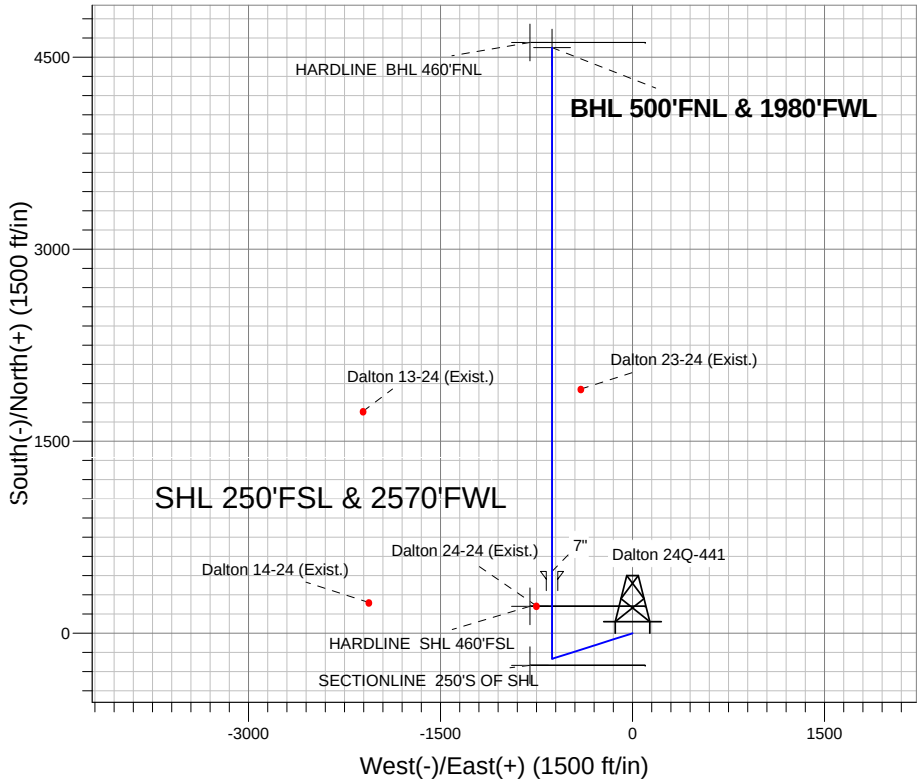
Azimuths to True North
Magnetic North: 8.70°

Magnetic Field
Strength: 53093.3snT
Dip Angle: 67.14°
Date: 8/13/2012
Model: IGRF2010

Dalton SW-24Q Pad Sec.24-T7N-R66W
Dalton 24Q-441
Plan #1 (8-13-12)
11:48, August 17 2012

ANNOTATIONS

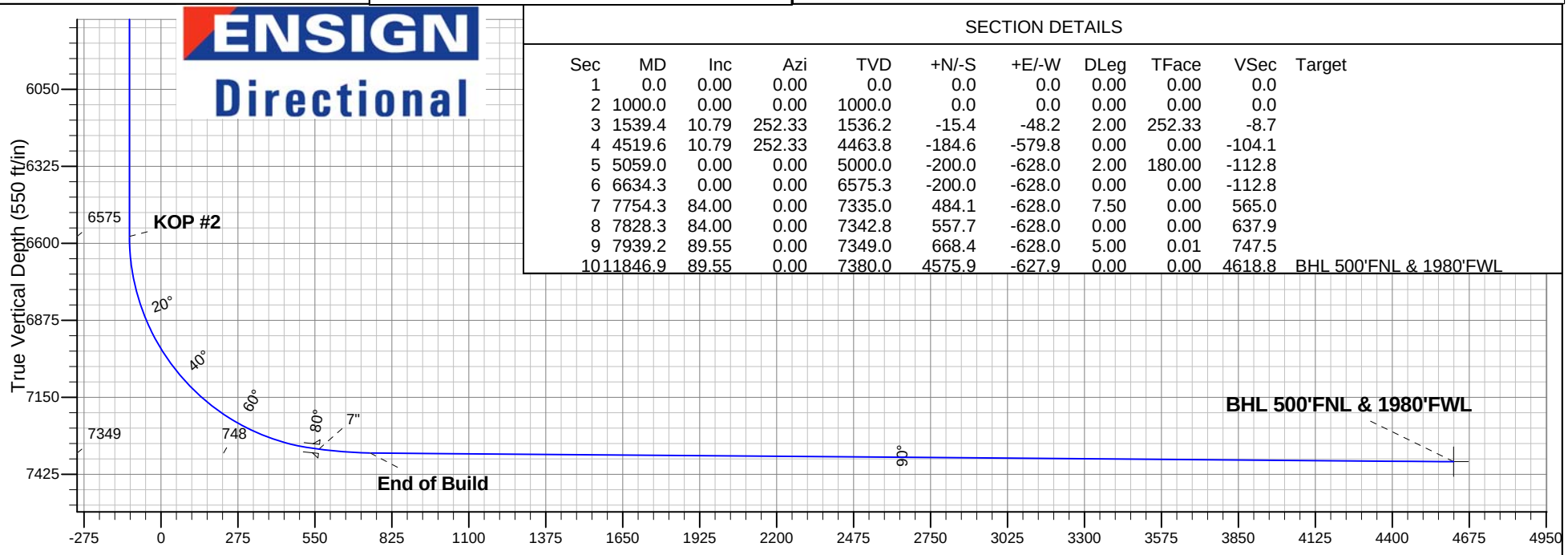
TVD	MD	Annotation
1000.0	1000.0	KOP #1
6575.3	6634.3	KOP #2
7349.0	7939.2	End of Build



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	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1539.4	10.79	252.33	1536.2	-15.4	-48.2	2.00	252.33	-8.7	
4	4519.6	10.79	252.33	4463.8	-184.6	-579.8	0.00	0.00	-104.1	
5	5059.0	0.00	0.00	5000.0	-200.0	-628.0	2.00	180.00	-112.8	
6	6634.3	0.00	0.00	6575.3	-200.0	-628.0	0.00	0.00	-112.8	
7	7754.3	84.00	0.00	7335.0	484.1	-628.0	7.50	0.00	565.0	
8	7828.3	84.00	0.00	7342.8	557.7	-628.0	0.00	0.00	637.9	
9	7939.2	89.55	0.00	7349.0	668.4	-628.0	5.00	0.01	747.5	
10	11846.9	89.55	0.00	7380.0	4575.9	-627.9	0.00	0.00	4618.8	BHL 500'FNL & 1980'FWL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.24-T7N-R66W
Dalton SW-24Q Pad Sec.24-T7N-R66W
Dalton 24Q-441

Wellbore #1

Plan: Plan #1 (8-13-12)

Standard Planning Report

17 August, 2012

Database:	Landmark	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Project:	SEC.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**North Reference:**	True
Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-13-12)		

Project	SEC.24-T7N-R66W, Weld County, CO		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Dalton SW-24Q Pad Sec.24-T7N-R66W				
Site Position:		**Northing:**	1,445,711.23 ft	**Latitude:**	40.554300
From:	Lat/Long	**Easting:**	3,215,093.09 ft	**Longitude:**	-104.725930
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.50 °

Well	Dalton 24Q-441					
Well Position	**+N/-S**	0.0 ft	**Northing:**	1,445,711.22 ft	**Latitude:**	40.554300
	+E/-W	0.0 ft	**Easting:**	3,215,093.09 ft	**Longitude:**	-104.725930
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,865.0 ft

Wellbore	Wellbore #1				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	8/13/2012	8.70	67.14	53,093

Design	Plan #1 (8-13-12)				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**	
	0.0	0.0	0.0	352.19	

Plan Sections

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	
1,539.4	10.79	252.33	1,536.2	-15.4	-48.2	2.00	2.00	0.00	252.33	
4,519.6	10.79	252.33	4,463.8	-184.6	-579.8	0.00	0.00	0.00	0.00	
5,059.0	0.00	0.00	5,000.0	-200.0	-628.0	2.00	-2.00	0.00	180.00	
6,634.3	0.00	0.00	6,575.3	-200.0	-628.0	0.00	0.00	0.00	0.00	
7,754.3	84.00	0.00	7,335.0	484.1	-628.0	7.50	7.50	0.00	0.00	
7,828.3	84.00	0.00	7,342.8	557.7	-628.0	0.00	0.00	0.00	0.00	
7,939.2	89.55	0.00	7,349.0	668.4	-628.0	5.00	5.00	0.00	0.01	
11,846.9	89.55	0.00	7,380.0	4,575.9	-627.9	0.00	0.00	0.00	0.00	BHL 500'FNL & 198

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Project:	SEC.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**North Reference:**	True
Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-13-12)		

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
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
HARDLINE SHL 460'FSL - SECTIONLINE 250'S OF SHL - HARDLINE BHL 460'FNL									
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
KOP #1									
1,040.0	0.80	252.33	1,040.0	-0.1	-0.3	0.0	2.00	2.00	0.00
1,080.0	1.60	252.33	1,080.0	-0.3	-1.1	-0.2	2.00	2.00	0.00
1,120.0	2.40	252.33	1,120.0	-0.8	-2.4	-0.4	2.00	2.00	0.00
1,160.0	3.20	252.33	1,159.9	-1.4	-4.3	-0.8	2.00	2.00	0.00
1,200.0	4.00	252.33	1,199.8	-2.1	-6.6	-1.2	2.00	2.00	0.00
1,240.0	4.80	252.33	1,239.7	-3.0	-9.6	-1.7	2.00	2.00	0.00
1,280.0	5.60	252.33	1,279.6	-4.1	-13.0	-2.3	2.00	2.00	0.00
1,320.0	6.40	252.33	1,319.3	-5.4	-17.0	-3.1	2.00	2.00	0.00
1,360.0	7.20	252.33	1,359.1	-6.9	-21.5	-3.9	2.00	2.00	0.00
1,400.0	8.00	252.33	1,398.7	-8.5	-26.6	-4.8	2.00	2.00	0.00
1,440.0	8.80	252.33	1,438.3	-10.2	-32.1	-5.8	2.00	2.00	0.00
1,480.0	9.60	252.33	1,477.8	-12.2	-38.2	-6.9	2.00	2.00	0.00
1,520.0	10.40	252.33	1,517.1	-14.3	-44.8	-8.1	2.00	2.00	0.00
1,539.4	10.79	252.33	1,536.2	-15.4	-48.2	-8.7	2.00	2.00	0.00
1,560.0	10.79	252.33	1,556.5	-16.5	-51.9	-9.3	0.00	0.00	0.00
1,600.0	10.79	252.33	1,595.7	-18.8	-59.1	-10.6	0.00	0.00	0.00
1,640.0	10.79	252.33	1,635.0	-21.1	-66.2	-11.9	0.00	0.00	0.00
1,680.0	10.79	252.33	1,674.3	-23.3	-73.3	-13.2	0.00	0.00	0.00
1,720.0	10.79	252.33	1,713.6	-25.6	-80.5	-14.4	0.00	0.00	0.00
1,760.0	10.79	252.33	1,752.9	-27.9	-87.6	-15.7	0.00	0.00	0.00
1,800.0	10.79	252.33	1,792.2	-30.2	-94.7	-17.0	0.00	0.00	0.00
1,840.0	10.79	252.33	1,831.5	-32.4	-101.9	-18.3	0.00	0.00	0.00
1,880.0	10.79	252.33	1,870.8	-34.7	-109.0	-19.6	0.00	0.00	0.00
1,920.0	10.79	252.33	1,910.1	-37.0	-116.1	-20.9	0.00	0.00	0.00

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Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-13-12)		

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)
1,960.0	10.79	252.33	1,949.4	-39.3	-123.3	-22.1	0.00	0.00	0.00
2,000.0	10.79	252.33	1,988.7	-41.5	-130.4	-23.4	0.00	0.00	0.00
2,040.0	10.79	252.33	2,028.0	-43.8	-137.5	-24.7	0.00	0.00	0.00
2,080.0	10.79	252.33	2,067.3	-46.1	-144.7	-26.0	0.00	0.00	0.00
2,120.0	10.79	252.33	2,106.6	-48.3	-151.8	-27.3	0.00	0.00	0.00
2,160.0	10.79	252.33	2,145.9	-50.6	-158.9	-28.5	0.00	0.00	0.00
2,200.0	10.79	252.33	2,185.1	-52.9	-166.1	-29.8	0.00	0.00	0.00
2,240.0	10.79	252.33	2,224.4	-55.2	-173.2	-31.1	0.00	0.00	0.00
2,280.0	10.79	252.33	2,263.7	-57.4	-180.3	-32.4	0.00	0.00	0.00
2,320.0	10.79	252.33	2,303.0	-59.7	-187.5	-33.7	0.00	0.00	0.00
2,360.0	10.79	252.33	2,342.3	-62.0	-194.6	-34.9	0.00	0.00	0.00
2,400.0	10.79	252.33	2,381.6	-64.2	-201.7	-36.2	0.00	0.00	0.00
2,440.0	10.79	252.33	2,420.9	-66.5	-208.9	-37.5	0.00	0.00	0.00
2,480.0	10.79	252.33	2,460.2	-68.8	-216.0	-38.8	0.00	0.00	0.00
2,520.0	10.79	252.33	2,499.5	-71.1	-223.1	-40.1	0.00	0.00	0.00
2,560.0	10.79	252.33	2,538.8	-73.3	-230.3	-41.3	0.00	0.00	0.00
2,600.0	10.79	252.33	2,578.1	-75.6	-237.4	-42.6	0.00	0.00	0.00
2,640.0	10.79	252.33	2,617.4	-77.9	-244.5	-43.9	0.00	0.00	0.00
2,680.0	10.79	252.33	2,656.7	-80.1	-251.7	-45.2	0.00	0.00	0.00
2,720.0	10.79	252.33	2,696.0	-82.4	-258.8	-46.5	0.00	0.00	0.00
2,760.0	10.79	252.33	2,735.2	-84.7	-265.9	-47.8	0.00	0.00	0.00
2,800.0	10.79	252.33	2,774.5	-87.0	-273.1	-49.0	0.00	0.00	0.00
2,840.0	10.79	252.33	2,813.8	-89.2	-280.2	-50.3	0.00	0.00	0.00
2,880.0	10.79	252.33	2,853.1	-91.5	-287.3	-51.6	0.00	0.00	0.00
2,920.0	10.79	252.33	2,892.4	-93.8	-294.5	-52.9	0.00	0.00	0.00
2,960.0	10.79	252.33	2,931.7	-96.1	-301.6	-54.2	0.00	0.00	0.00
3,000.0	10.79	252.33	2,971.0	-98.3	-308.7	-55.4	0.00	0.00	0.00
3,040.0	10.79	252.33	3,010.3	-100.6	-315.9	-56.7	0.00	0.00	0.00
3,080.0	10.79	252.33	3,049.6	-102.9	-323.0	-58.0	0.00	0.00	0.00
3,120.0	10.79	252.33	3,088.9	-105.1	-330.1	-59.3	0.00	0.00	0.00
3,160.0	10.79	252.33	3,128.2	-107.4	-337.3	-60.6	0.00	0.00	0.00
3,200.0	10.79	252.33	3,167.5	-109.7	-344.4	-61.8	0.00	0.00	0.00
3,240.0	10.79	252.33	3,206.8	-112.0	-351.5	-63.1	0.00	0.00	0.00
3,280.0	10.79	252.33	3,246.1	-114.2	-358.7	-64.4	0.00	0.00	0.00
3,320.0	10.79	252.33	3,285.4	-116.5	-365.8	-65.7	0.00	0.00	0.00
3,360.0	10.79	252.33	3,324.6	-118.8	-372.9	-67.0	0.00	0.00	0.00
3,400.0	10.79	252.33	3,363.9	-121.0	-380.1	-68.2	0.00	0.00	0.00
3,440.0	10.79	252.33	3,403.2	-123.3	-387.2	-69.5	0.00	0.00	0.00
3,480.0	10.79	252.33	3,442.5	-125.6	-394.3	-70.8	0.00	0.00	0.00
3,520.0	10.79	252.33	3,481.8	-127.9	-401.5	-72.1	0.00	0.00	0.00
3,560.0	10.79	252.33	3,521.1	-130.1	-408.6	-73.4	0.00	0.00	0.00
3,600.0	10.79	252.33	3,560.4	-132.4	-415.7	-74.7	0.00	0.00	0.00
3,640.0	10.79	252.33	3,599.7	-134.7	-422.9	-75.9	0.00	0.00	0.00
3,680.0	10.79	252.33	3,639.0	-136.9	-430.0	-77.2	0.00	0.00	0.00
3,720.0	10.79	252.33	3,678.3	-139.2	-437.1	-78.5	0.00	0.00	0.00
3,760.0	10.79	252.33	3,717.6	-141.5	-444.3	-79.8	0.00	0.00	0.00
3,800.0	10.79	252.33	3,756.9	-143.8	-451.4	-81.1	0.00	0.00	0.00
3,840.0	10.79	252.33	3,796.2	-146.0	-458.5	-82.3	0.00	0.00	0.00
3,880.0	10.79	252.33	3,835.5	-148.3	-465.7	-83.6	0.00	0.00	0.00
3,920.0	10.79	252.33	3,874.7	-150.6	-472.8	-84.9	0.00	0.00	0.00
3,960.0	10.79	252.33	3,914.0	-152.8	-479.9	-86.2	0.00	0.00	0.00
4,000.0	10.79	252.33	3,953.3	-155.1	-487.1	-87.5	0.00	0.00	0.00
4,040.0	10.79	252.33	3,992.6	-157.4	-494.2	-88.7	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Project:	SEC.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**North Reference:**	True
Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-13-12)		

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	10.79	252.33	4,031.9	-159.7	-501.3	-90.0	0.00	0.00	0.00
4,120.0	10.79	252.33	4,071.2	-161.9	-508.5	-91.3	0.00	0.00	0.00
4,160.0	10.79	252.33	4,110.5	-164.2	-515.6	-92.6	0.00	0.00	0.00
4,200.0	10.79	252.33	4,149.8	-166.5	-522.8	-93.9	0.00	0.00	0.00
4,240.0	10.79	252.33	4,189.1	-168.8	-529.9	-95.2	0.00	0.00	0.00
4,280.0	10.79	252.33	4,228.4	-171.0	-537.0	-96.4	0.00	0.00	0.00
4,320.0	10.79	252.33	4,267.7	-173.3	-544.2	-97.7	0.00	0.00	0.00
4,360.0	10.79	252.33	4,307.0	-175.6	-551.3	-99.0	0.00	0.00	0.00
4,400.0	10.79	252.33	4,346.3	-177.8	-558.4	-100.3	0.00	0.00	0.00
4,440.0	10.79	252.33	4,385.6	-180.1	-565.6	-101.6	0.00	0.00	0.00
4,480.0	10.79	252.33	4,424.8	-182.4	-572.7	-102.8	0.00	0.00	0.00
4,519.6	10.79	252.33	4,463.8	-184.6	-579.8	-104.1	0.00	0.00	0.00
4,520.0	10.78	252.33	4,464.1	-184.7	-579.8	-104.1	2.00	-2.00	0.00
4,560.0	9.98	252.33	4,503.5	-186.8	-586.7	-105.4	2.00	-2.00	0.00
4,600.0	9.18	252.33	4,542.9	-188.9	-593.0	-106.5	2.00	-2.00	0.00
4,640.0	8.38	252.33	4,582.5	-190.7	-598.9	-107.5	2.00	-2.00	0.00
4,680.0	7.58	252.33	4,622.1	-192.4	-604.1	-108.5	2.00	-2.00	0.00
4,720.0	6.78	252.33	4,661.8	-193.9	-608.9	-109.3	2.00	-2.00	0.00
4,760.0	5.98	252.33	4,701.5	-195.3	-613.1	-110.1	2.00	-2.00	0.00
4,800.0	5.18	252.33	4,741.3	-196.4	-616.8	-110.8	2.00	-2.00	0.00
4,840.0	4.38	252.33	4,781.2	-197.5	-620.0	-111.3	2.00	-2.00	0.00
4,880.0	3.58	252.33	4,821.1	-198.3	-622.7	-111.8	2.00	-2.00	0.00
4,920.0	2.78	252.33	4,861.0	-199.0	-624.8	-112.2	2.00	-2.00	0.00
4,960.0	1.98	252.33	4,901.0	-199.5	-626.4	-112.5	2.00	-2.00	0.00
5,000.0	1.18	252.33	4,941.0	-199.8	-627.4	-112.7	2.00	-2.00	0.00
5,040.0	0.38	252.33	4,981.0	-200.0	-627.9	-112.8	2.00	-2.00	0.00
5,059.0	0.00	0.00	5,000.0	-200.0	-628.0	-112.8	2.00	-2.00	0.00
5,080.0	0.00	0.00	5,021.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,120.0	0.00	0.00	5,061.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,160.0	0.00	0.00	5,101.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,200.0	0.00	0.00	5,141.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,240.0	0.00	0.00	5,181.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,280.0	0.00	0.00	5,221.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,320.0	0.00	0.00	5,261.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,360.0	0.00	0.00	5,301.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,400.0	0.00	0.00	5,341.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,440.0	0.00	0.00	5,381.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,480.0	0.00	0.00	5,421.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,520.0	0.00	0.00	5,461.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,560.0	0.00	0.00	5,501.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,600.0	0.00	0.00	5,541.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,640.0	0.00	0.00	5,581.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,680.0	0.00	0.00	5,621.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,720.0	0.00	0.00	5,661.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,760.0	0.00	0.00	5,701.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,741.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,840.0	0.00	0.00	5,781.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,880.0	0.00	0.00	5,821.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,920.0	0.00	0.00	5,861.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
5,960.0	0.00	0.00	5,901.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,941.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,040.0	0.00	0.00	5,981.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,080.0	0.00	0.00	6,021.0	-200.0	-628.0	-112.8	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Project:	SEC.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**North Reference:**	True
Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-13-12)		

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)
6,120.0	0.00	0.00	6,061.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,160.0	0.00	0.00	6,101.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,200.0	0.00	0.00	6,141.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,240.0	0.00	0.00	6,181.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,280.0	0.00	0.00	6,221.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,320.0	0.00	0.00	6,261.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,360.0	0.00	0.00	6,301.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,400.0	0.00	0.00	6,341.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,440.0	0.00	0.00	6,381.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,480.0	0.00	0.00	6,421.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,520.0	0.00	0.00	6,461.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,560.0	0.00	0.00	6,501.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,600.0	0.00	0.00	6,541.0	-200.0	-628.0	-112.8	0.00	0.00	0.00
6,634.3	0.00	0.00	6,575.3	-200.0	-628.0	-112.8	0.00	0.00	0.00
KOP #2									
6,640.0	0.43	0.00	6,581.0	-200.0	-628.0	-112.7	7.49	7.49	0.00
6,680.0	3.43	0.00	6,620.9	-198.6	-628.0	-111.4	7.50	7.50	0.00
6,720.0	6.43	0.00	6,660.8	-195.2	-628.0	-108.0	7.50	7.50	0.00
6,760.0	9.43	0.00	6,700.4	-189.7	-628.0	-102.5	7.50	7.50	0.00
6,800.0	12.43	0.00	6,739.7	-182.1	-628.0	-95.0	7.50	7.50	0.00
6,840.0	15.43	0.00	6,778.5	-172.5	-628.0	-85.5	7.50	7.50	0.00
6,880.0	18.43	0.00	6,816.8	-160.8	-628.0	-74.0	7.50	7.50	0.00
6,920.0	21.43	0.00	6,854.4	-147.2	-628.0	-60.5	7.50	7.50	0.00
6,960.0	24.43	0.00	6,891.2	-131.6	-628.0	-45.0	7.50	7.50	0.00
7,000.0	27.43	0.00	6,927.2	-114.1	-628.0	-27.7	7.50	7.50	0.00
7,040.0	30.43	0.00	6,962.2	-94.8	-628.0	-8.5	7.50	7.50	0.00
7,080.0	33.43	0.00	6,996.1	-73.6	-628.0	12.4	7.50	7.50	0.00
7,120.0	36.43	0.00	7,028.9	-50.7	-628.0	35.1	7.50	7.50	0.00
7,160.0	39.43	0.00	7,060.5	-26.2	-628.0	59.5	7.50	7.50	0.00
7,200.0	42.43	0.00	7,090.7	0.0	-628.0	85.4	7.50	7.50	0.00
7,240.0	45.43	0.00	7,119.5	27.8	-628.0	112.9	7.50	7.50	0.00
7,280.0	48.43	0.00	7,146.8	57.0	-628.0	141.9	7.50	7.50	0.00
7,320.0	51.43	0.00	7,172.5	87.6	-628.0	172.2	7.50	7.50	0.00
7,360.0	54.43	0.00	7,196.6	119.5	-628.0	203.8	7.50	7.50	0.00
7,400.0	57.43	0.00	7,219.1	152.7	-628.0	236.6	7.50	7.50	0.00
7,440.0	60.43	0.00	7,239.7	186.9	-628.0	270.5	7.50	7.50	0.00
7,480.0	63.43	0.00	7,258.5	222.2	-628.0	305.5	7.50	7.50	0.00
7,520.0	66.43	0.00	7,275.5	258.4	-628.0	341.4	7.50	7.50	0.00
7,560.0	69.43	0.00	7,290.5	295.5	-628.0	378.1	7.50	7.50	0.00
7,600.0	72.43	0.00	7,303.6	333.3	-628.0	415.6	7.50	7.50	0.00
7,640.0	75.43	0.00	7,314.6	371.7	-628.0	453.6	7.50	7.50	0.00
7,680.0	78.43	0.00	7,323.7	410.7	-628.0	492.2	7.50	7.50	0.00
7,720.0	81.43	0.00	7,330.7	450.1	-628.0	531.3	7.50	7.50	0.00
7,754.3	84.00	0.00	7,335.0	484.1	-628.0	565.0	7.50	7.50	0.00
7"									
7,760.0	84.00	0.00	7,335.6	489.7	-628.0	570.6	0.02	0.02	0.00
7,800.0	84.00	0.00	7,339.8	529.5	-628.0	610.0	0.00	0.00	0.00
7,828.3	84.00	0.00	7,342.8	557.7	-628.0	637.9	0.00	0.00	0.00
7,840.0	84.58	0.00	7,343.9	569.3	-628.0	649.4	5.00	5.00	0.00
7,880.0	86.58	0.00	7,347.0	609.2	-628.0	688.9	5.00	5.00	0.00
7,920.0	88.58	0.00	7,348.7	649.2	-628.0	728.5	5.00	5.00	0.00
7,939.2	89.54	0.00	7,349.0	668.4	-628.0	747.5	5.00	5.00	0.00
End of Build									

Database:	Landmark	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Project:	SEC.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**North Reference:**	True
Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-13-12)		

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)
7,960.0	89.55	0.00	7,349.2	689.2	-628.0	768.1	0.01	0.01	0.00
8,000.0	89.55	0.00	7,349.5	729.2	-628.0	807.8	0.00	0.00	0.00
8,040.0	89.55	0.00	7,349.8	769.1	-628.0	847.4	0.00	0.00	0.00
8,080.0	89.55	0.00	7,350.1	809.1	-628.0	887.0	0.00	0.00	0.00
8,120.0	89.55	0.00	7,350.4	849.1	-628.0	926.6	0.00	0.00	0.00
8,160.0	89.55	0.00	7,350.8	889.1	-628.0	966.3	0.00	0.00	0.00
8,200.0	89.55	0.00	7,351.1	929.1	-628.0	1,005.9	0.00	0.00	0.00
8,240.0	89.55	0.00	7,351.4	969.1	-628.0	1,045.5	0.00	0.00	0.00
8,280.0	89.55	0.00	7,351.7	1,009.1	-628.0	1,085.1	0.00	0.00	0.00
8,320.0	89.55	0.00	7,352.0	1,049.1	-628.0	1,124.8	0.00	0.00	0.00
8,360.0	89.55	0.00	7,352.4	1,089.1	-628.0	1,164.4	0.00	0.00	0.00
8,400.0	89.55	0.00	7,352.7	1,129.1	-628.0	1,204.0	0.00	0.00	0.00
8,440.0	89.55	0.00	7,353.0	1,169.1	-628.0	1,243.7	0.00	0.00	0.00
8,480.0	89.55	0.00	7,353.3	1,209.1	-628.0	1,283.3	0.00	0.00	0.00
8,520.0	89.55	0.00	7,353.6	1,249.1	-628.0	1,322.9	0.00	0.00	0.00
8,560.0	89.55	0.00	7,353.9	1,289.1	-628.0	1,362.5	0.00	0.00	0.00
8,600.0	89.55	0.00	7,354.3	1,329.1	-628.0	1,402.2	0.00	0.00	0.00
8,640.0	89.55	0.00	7,354.6	1,369.1	-628.0	1,441.8	0.00	0.00	0.00
8,680.0	89.55	0.00	7,354.9	1,409.1	-628.0	1,481.4	0.00	0.00	0.00
8,720.0	89.55	0.00	7,355.2	1,449.1	-628.0	1,521.0	0.00	0.00	0.00
8,760.0	89.55	0.00	7,355.5	1,489.1	-628.0	1,560.7	0.00	0.00	0.00
8,800.0	89.55	0.00	7,355.8	1,529.1	-628.0	1,600.3	0.00	0.00	0.00
8,840.0	89.55	0.00	7,356.2	1,569.1	-628.0	1,639.9	0.00	0.00	0.00
8,880.0	89.55	0.00	7,356.5	1,609.1	-628.0	1,679.6	0.00	0.00	0.00
8,920.0	89.55	0.00	7,356.8	1,649.1	-628.0	1,719.2	0.00	0.00	0.00
8,960.0	89.55	0.00	7,357.1	1,689.1	-628.0	1,758.8	0.00	0.00	0.00
9,000.0	89.55	0.00	7,357.4	1,729.1	-628.0	1,798.4	0.00	0.00	0.00
9,040.0	89.55	0.00	7,357.7	1,769.1	-628.0	1,838.1	0.00	0.00	0.00
9,080.0	89.55	0.00	7,358.1	1,809.1	-628.0	1,877.7	0.00	0.00	0.00
9,120.0	89.55	0.00	7,358.4	1,849.1	-628.0	1,917.3	0.00	0.00	0.00
9,160.0	89.55	0.00	7,358.7	1,889.1	-628.0	1,956.9	0.00	0.00	0.00
9,200.0	89.55	0.00	7,359.0	1,929.1	-628.0	1,996.6	0.00	0.00	0.00
9,240.0	89.55	0.00	7,359.3	1,969.1	-628.0	2,036.2	0.00	0.00	0.00
9,280.0	89.55	0.00	7,359.6	2,009.1	-628.0	2,075.8	0.00	0.00	0.00
9,320.0	89.55	0.00	7,360.0	2,049.1	-628.0	2,115.5	0.00	0.00	0.00
9,360.0	89.55	0.00	7,360.3	2,089.1	-628.0	2,155.1	0.00	0.00	0.00
9,400.0	89.55	0.00	7,360.6	2,129.1	-628.0	2,194.7	0.00	0.00	0.00
9,440.0	89.55	0.00	7,360.9	2,169.1	-628.0	2,234.3	0.00	0.00	0.00
9,480.0	89.55	0.00	7,361.2	2,209.1	-628.0	2,274.0	0.00	0.00	0.00
9,520.0	89.55	0.00	7,361.6	2,249.1	-628.0	2,313.6	0.00	0.00	0.00
9,560.0	89.55	0.00	7,361.9	2,289.1	-628.0	2,353.2	0.00	0.00	0.00
9,600.0	89.55	0.00	7,362.2	2,329.1	-628.0	2,392.8	0.00	0.00	0.00
9,640.0	89.55	0.00	7,362.5	2,369.1	-628.0	2,432.5	0.00	0.00	0.00
9,680.0	89.55	0.00	7,362.8	2,409.1	-628.0	2,472.1	0.00	0.00	0.00
9,720.0	89.55	0.00	7,363.1	2,449.1	-628.0	2,511.7	0.00	0.00	0.00
9,760.0	89.55	0.00	7,363.5	2,489.1	-628.0	2,551.4	0.00	0.00	0.00
9,800.0	89.55	0.00	7,363.8	2,529.1	-628.0	2,591.0	0.00	0.00	0.00
9,840.0	89.55	0.00	7,364.1	2,569.1	-628.0	2,630.6	0.00	0.00	0.00
9,880.0	89.55	0.00	7,364.4	2,609.1	-628.0	2,670.2	0.00	0.00	0.00
9,920.0	89.55	0.00	7,364.7	2,649.1	-628.0	2,709.9	0.00	0.00	0.00
9,960.0	89.55	0.00	7,365.0	2,689.1	-627.9	2,749.5	0.00	0.00	0.00
10,000.0	89.55	0.00	7,365.4	2,729.1	-627.9	2,789.1	0.00	0.00	0.00
10,040.0	89.55	0.00	7,365.7	2,769.1	-627.9	2,828.7	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Project:	SEC.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**North Reference:**	True
Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-13-12)		

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	89.55	0.00	7,366.0	2,809.1	-627.9	2,868.4	0.00	0.00	0.00
10,120.0	89.55	0.00	7,366.3	2,849.1	-627.9	2,908.0	0.00	0.00	0.00
10,160.0	89.55	0.00	7,366.6	2,889.1	-627.9	2,947.6	0.00	0.00	0.00
10,200.0	89.55	0.00	7,366.9	2,929.1	-627.9	2,987.3	0.00	0.00	0.00
10,240.0	89.55	0.00	7,367.3	2,969.1	-627.9	3,026.9	0.00	0.00	0.00
10,280.0	89.55	0.00	7,367.6	3,009.1	-627.9	3,066.5	0.00	0.00	0.00
10,320.0	89.55	0.00	7,367.9	3,049.1	-627.9	3,106.1	0.00	0.00	0.00
10,360.0	89.55	0.00	7,368.2	3,089.1	-627.9	3,145.8	0.00	0.00	0.00
10,400.0	89.55	0.00	7,368.5	3,129.1	-627.9	3,185.4	0.00	0.00	0.00
10,440.0	89.55	0.00	7,368.8	3,169.1	-627.9	3,225.0	0.00	0.00	0.00
10,480.0	89.55	0.00	7,369.2	3,209.1	-627.9	3,264.6	0.00	0.00	0.00
10,520.0	89.55	0.00	7,369.5	3,249.1	-627.9	3,304.3	0.00	0.00	0.00
10,560.0	89.55	0.00	7,369.8	3,289.1	-627.9	3,343.9	0.00	0.00	0.00
10,600.0	89.55	0.00	7,370.1	3,329.1	-627.9	3,383.5	0.00	0.00	0.00
10,640.0	89.55	0.00	7,370.4	3,369.1	-627.9	3,423.2	0.00	0.00	0.00
10,680.0	89.55	0.00	7,370.7	3,409.1	-627.9	3,462.8	0.00	0.00	0.00
10,720.0	89.55	0.00	7,371.1	3,449.1	-627.9	3,502.4	0.00	0.00	0.00
10,760.0	89.55	0.00	7,371.4	3,489.1	-627.9	3,542.0	0.00	0.00	0.00
10,800.0	89.55	0.00	7,371.7	3,529.1	-627.9	3,581.7	0.00	0.00	0.00
10,840.0	89.55	0.00	7,372.0	3,569.1	-627.9	3,621.3	0.00	0.00	0.00
10,880.0	89.55	0.00	7,372.3	3,609.1	-627.9	3,660.9	0.00	0.00	0.00
10,920.0	89.55	0.00	7,372.7	3,649.1	-627.9	3,700.5	0.00	0.00	0.00
10,960.0	89.55	0.00	7,373.0	3,689.1	-627.9	3,740.2	0.00	0.00	0.00
11,000.0	89.55	0.00	7,373.3	3,729.1	-627.9	3,779.8	0.00	0.00	0.00
11,040.0	89.55	0.00	7,373.6	3,769.1	-627.9	3,819.4	0.00	0.00	0.00
11,080.0	89.55	0.00	7,373.9	3,809.1	-627.9	3,859.1	0.00	0.00	0.00
11,120.0	89.55	0.00	7,374.2	3,849.1	-627.9	3,898.7	0.00	0.00	0.00
11,160.0	89.55	0.00	7,374.6	3,889.1	-627.9	3,938.3	0.00	0.00	0.00
11,200.0	89.55	0.00	7,374.9	3,929.1	-627.9	3,977.9	0.00	0.00	0.00
11,240.0	89.55	0.00	7,375.2	3,969.0	-627.9	4,017.6	0.00	0.00	0.00
11,280.0	89.55	0.00	7,375.5	4,009.0	-627.9	4,057.2	0.00	0.00	0.00
11,320.0	89.55	0.00	7,375.8	4,049.0	-627.9	4,096.8	0.00	0.00	0.00
11,360.0	89.55	0.00	7,376.1	4,089.0	-627.9	4,136.4	0.00	0.00	0.00
11,400.0	89.55	0.00	7,376.5	4,129.0	-627.9	4,176.1	0.00	0.00	0.00
11,440.0	89.55	0.00	7,376.8	4,169.0	-627.9	4,215.7	0.00	0.00	0.00
11,480.0	89.55	0.00	7,377.1	4,209.0	-627.9	4,255.3	0.00	0.00	0.00
11,520.0	89.55	0.00	7,377.4	4,249.0	-627.9	4,295.0	0.00	0.00	0.00
11,560.0	89.55	0.00	7,377.7	4,289.0	-627.9	4,334.6	0.00	0.00	0.00
11,600.0	89.55	0.00	7,378.0	4,329.0	-627.9	4,374.2	0.00	0.00	0.00
11,640.0	89.55	0.00	7,378.4	4,369.0	-627.9	4,413.8	0.00	0.00	0.00
11,680.0	89.55	0.00	7,378.7	4,409.0	-627.9	4,453.5	0.00	0.00	0.00
11,720.0	89.55	0.00	7,379.0	4,449.0	-627.9	4,493.1	0.00	0.00	0.00
11,760.0	89.55	0.00	7,379.3	4,489.0	-627.9	4,532.7	0.00	0.00	0.00
11,800.0	89.55	0.00	7,379.6	4,529.0	-627.9	4,572.3	0.00	0.00	0.00
11,840.0	89.55	0.00	7,379.9	4,569.0	-627.9	4,612.0	0.00	0.00	0.00
11,846.9	89.55	0.00	7,380.0	4,575.9	-627.9	4,618.8	0.00	0.00	0.00
BHL 500'FNL & 1980'FWL									

Database:	Landmark	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Project:	SEC.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**North Reference:**	True
Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-13-12)		

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
HARDLINE SHL 460'	0.00	0.00	1.0	210.0	-800.0	1,445,914.23	3,214,291.31	40.554876	-104.728809
- plan misses target center by 827.1ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			1.0	0.0	0.0	1,445,914.23	3,214,291.31		
Point 2			1.0	0.0	900.0	1,445,922.08	3,215,191.25		
SECTIONLINE 250'S	0.00	0.00	1.0	-250.0	-800.0	1,445,454.26	3,214,295.33	40.553614	-104.728809
- plan misses target center by 838.2ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			1.0	0.0	0.0	1,445,454.26	3,214,295.33		
Point 2			1.0	0.0	900.0	1,445,462.11	3,215,195.26		
BHL 500'FNL & 1980'	0.00	0.00	7,380.0	4,575.9	-627.9	1,450,281.33	3,214,425.29	40.566860	-104.728190
- plan hits target center									
- Point									
HARDLINE BHL 460'	0.00	0.00	1.0	4,615.9	-800.0	1,450,319.82	3,214,252.85	40.566970	-104.728809
- plan misses target center by 4684.7ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			1.0	0.0	0.0	1,450,319.82	3,214,252.85		
Point 2			1.0	0.0	900.0	1,450,327.68	3,215,152.79		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,754.3	7,335.0	7"	7	7-1/2

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,000.0	1,000.0	0.0	0.0	KOP #1
6,634.3	6,575.3	-200.0	-628.0	KOP #2
7,939.2	7,349.0	668.4	-628.0	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.24-T7N-R66W
Dalton SW-24Q Pad Sec.24-T7N-R66W
Dalton 24Q-441

Wellbore #1
Plan #1 (8-13-12)

Anticollision Report

17 August, 2012

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Reference Plan #1 (8-13-12)

Filter type: NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method: Stations
Depth Range: Unlimited
Results Limited by: Maximum center-center distance of 10,000.0ft
Warning Levels Evaluated at: 2.00 **Sigma**
Error Model: ISCWSA
Scan Method: Closest Approach 3D
Error Surface: Elliptical Conic

Survey Tool Program **Date** 8/17/2012

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,846.9	Plan #1 (8-13-12) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Dalton SW-24L Pad Sec.24-T7N-R66W						
Dalton 13-24 (Exist.) - Wellbore #1 - Design #1	9,003.9	7,215.0	1,483.8	1,430.3	27.706	CC, ES
Dalton 13-24 (Exist.) - Wellbore #1 - Design #1	9,800.0	7,215.0	1,683.9	1,616.2	24.869	SF
Dalton 14-24 (Exist.) - Wellbore #1 - Design #1	7,469.4	7,215.0	1,432.4	1,399.6	43.632	CC, ES
Dalton 14-24 (Exist.) - Wellbore #1 - Design #1	8,700.0	7,215.0	1,866.8	1,818.4	38.550	SF
Dalton 23-24 (Exist.) - Wellbore #1 - Design #1	9,178.7	7,215.0	275.5	228.1	5.813	CC, ES
Dalton 23-24 (Exist.) - Wellbore #1 - Design #1	9,200.0	7,215.0	276.3	228.6	5.792	SF
Dalton 24-24 (Exist.) - Wellbore #1 - Design #1	7,445.1	7,215.0	131.5	99.7	4.130	CC, ES, SF

Offset Design Dalton SW-24L Pad Sec.24-T7N-R66W - Dalton 13-24 (Exist.) - Wellbore #1 - Design #1
Survey Program: 0-MWD
Offset Site Error: 0.0 ft
Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	15.0	15.0	0.0	0.0	-50.49	1,734.3	-2,103.4	2,726.2				
100.0	100.0	115.0	115.0	0.1	0.1	-50.49	1,734.3	-2,103.4	2,726.2	2,725.9	0.26	N/A	
200.0	200.0	215.0	215.0	0.3	0.4	-50.49	1,734.3	-2,103.4	2,726.2	2,725.5	0.71	3,850.487	
300.0	300.0	315.0	315.0	0.6	0.6	-50.49	1,734.3	-2,103.4	2,726.2	2,725.0	1.16	2,355.152	
400.0	400.0	415.0	415.0	0.8	0.8	-50.49	1,734.3	-2,103.4	2,726.2	2,724.6	1.61	1,696.368	
500.0	500.0	515.0	515.0	1.0	1.0	-50.49	1,734.3	-2,103.4	2,726.2	2,724.1	2.06	1,325.577	
600.0	600.0	615.0	615.0	1.2	1.3	-50.49	1,734.3	-2,103.4	2,726.2	2,723.7	2.51	1,087.806	
700.0	700.0	715.0	715.0	1.5	1.5	-50.49	1,734.3	-2,103.4	2,726.2	2,723.2	2.96	922.360	
800.0	800.0	815.0	815.0	1.7	1.7	-50.49	1,734.3	-2,103.4	2,726.2	2,722.8	3.41	800.596	
900.0	900.0	915.0	915.0	1.9	1.9	-50.49	1,734.3	-2,103.4	2,726.2	2,722.3	3.85	707.232	
1,000.0	1,000.0	1,015.0	1,015.0	2.1	2.2	-50.49	1,734.3	-2,103.4	2,726.2	2,721.9	4.30	633.370	
1,100.0	1,100.0	1,115.0	1,115.0	2.3	2.4	57.22	1,734.3	-2,103.4	2,725.2	2,720.5	4.74	575.492	
1,200.0	1,199.8	1,214.8	1,214.8	2.5	2.6	57.36	1,734.3	-2,103.4	2,722.4	2,717.3	5.15	528.167	
1,300.0	1,299.5	1,314.5	1,314.5	2.8	2.8	57.59	1,734.3	-2,103.4	2,717.7	2,712.1	5.58	486.671	
1,400.0	1,398.7	1,413.7	1,413.7	3.0	3.1	57.92	1,734.3	-2,103.4	2,711.2	2,705.2	6.03	449.561	
1,500.0	1,497.5	1,512.5	1,512.5	3.3	3.3	58.34	1,734.3	-2,103.4	2,702.8	2,696.3	6.50	415.744	
1,539.4	1,536.2	1,551.2	1,551.2	3.4	3.4	58.53	1,734.3	-2,103.4	2,699.1	2,692.4	6.69	403.150	
1,600.0	1,595.7	1,610.7	1,610.7	3.6	3.5	58.73	1,734.3	-2,103.4	2,693.1	2,686.1	7.01	384.446	
1,700.0	1,694.0	1,709.0	1,709.0	3.9	3.7	59.07	1,734.3	-2,103.4	2,683.3	2,675.8	7.53	356.213	
1,800.0	1,792.2	1,807.2	1,807.2	4.3	3.9	59.41	1,734.3	-2,103.4	2,673.6	2,665.5	8.08	331.016	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dalton SW-24L Pad Sec.24-T7N-R66W - Dalton 13-24 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,900.0	1,890.4	1,905.4	1,905.4	4.6	4.2	59.75	1,734.3	-2,103.4	2,664.0	2,655.4	8.63	308.536	
2,000.0	1,988.7	2,003.7	2,003.7	5.0	4.4	60.10	1,734.3	-2,103.4	2,654.5	2,645.3	9.20	288.452	
2,100.0	2,086.9	2,101.9	2,101.9	5.4	4.6	60.44	1,734.3	-2,103.4	2,645.1	2,635.3	9.78	270.465	
2,200.0	2,185.1	2,200.1	2,200.1	5.8	4.8	60.79	1,734.3	-2,103.4	2,635.8	2,625.4	10.36	254.306	
2,300.0	2,283.4	2,298.4	2,298.4	6.2	5.1	61.14	1,734.3	-2,103.4	2,626.6	2,615.6	10.96	239.741	
2,400.0	2,381.6	2,396.6	2,396.6	6.6	5.3	61.50	1,734.3	-2,103.4	2,617.5	2,605.9	11.55	226.565	
2,500.0	2,479.8	2,494.8	2,494.8	7.0	5.5	61.85	1,734.3	-2,103.4	2,608.5	2,596.3	12.15	214.605	
2,600.0	2,578.1	2,593.1	2,593.1	7.4	5.7	62.21	1,734.3	-2,103.4	2,599.6	2,586.8	12.76	203.712	
2,700.0	2,676.3	2,691.3	2,691.3	7.8	5.9	62.57	1,734.3	-2,103.4	2,590.8	2,577.4	13.37	193.758	
2,800.0	2,774.5	2,789.5	2,789.5	8.2	6.2	62.94	1,734.3	-2,103.4	2,582.1	2,568.1	13.98	184.633	
2,900.0	2,872.8	2,887.8	2,887.8	8.6	6.4	63.30	1,734.3	-2,103.4	2,573.5	2,558.9	14.60	176.243	
3,000.0	2,971.0	2,986.0	2,986.0	9.0	6.6	63.67	1,734.3	-2,103.4	2,565.0	2,549.8	15.22	168.508	
3,100.0	3,069.2	3,084.2	3,084.2	9.4	6.8	64.04	1,734.3	-2,103.4	2,556.7	2,540.8	15.84	161.356	
3,200.0	3,167.5	3,182.5	3,182.5	9.8	7.0	64.42	1,734.3	-2,103.4	2,548.4	2,531.9	16.47	154.728	
3,300.0	3,265.7	3,280.7	3,280.7	10.3	7.3	64.79	1,734.3	-2,103.4	2,540.3	2,523.2	17.10	148.570	
3,400.0	3,363.9	3,378.9	3,378.9	10.7	7.5	65.17	1,734.3	-2,103.4	2,532.2	2,514.5	17.73	142.836	
3,500.0	3,462.2	3,477.2	3,477.2	11.1	7.7	65.55	1,734.3	-2,103.4	2,524.3	2,505.9	18.36	137.486	
3,600.0	3,560.4	3,575.4	3,575.4	11.5	7.9	65.93	1,734.3	-2,103.4	2,516.5	2,497.5	18.99	132.484	
3,700.0	3,658.6	3,673.6	3,673.6	11.9	8.1	66.31	1,734.3	-2,103.4	2,508.8	2,489.2	19.63	127.798	
3,800.0	3,756.9	3,771.9	3,771.9	12.4	8.4	66.70	1,734.3	-2,103.4	2,501.2	2,481.0	20.27	123.401	
3,900.0	3,855.1	3,870.1	3,870.1	12.8	8.6	67.09	1,734.3	-2,103.4	2,493.8	2,472.9	20.91	119.267	
4,000.0	3,953.3	3,968.3	3,968.3	13.2	8.8	67.48	1,734.3	-2,103.4	2,486.4	2,464.9	21.55	115.376	
4,100.0	4,051.6	4,066.6	4,066.6	13.6	9.0	67.88	1,734.3	-2,103.4	2,479.2	2,457.0	22.19	111.707	
4,200.0	4,149.8	4,164.8	4,164.8	14.1	9.2	68.27	1,734.3	-2,103.4	2,472.1	2,449.3	22.84	108.242	
4,300.0	4,248.0	4,263.0	4,263.0	14.5	9.5	68.67	1,734.3	-2,103.4	2,465.2	2,441.7	23.49	104.967	
4,400.0	4,346.3	4,361.3	4,361.3	14.9	9.7	69.07	1,734.3	-2,103.4	2,458.3	2,434.2	24.13	101.866	
4,500.0	4,444.5	4,459.5	4,459.5	15.3	9.9	69.47	1,734.3	-2,103.4	2,451.6	2,426.8	24.78	98.926	
4,519.6	4,463.8	4,478.8	4,478.8	15.4	10.0	69.55	1,734.3	-2,103.4	2,450.3	2,425.4	24.91	98.367	
4,600.0	4,542.9	4,557.9	4,557.9	15.7	10.1	69.76	1,734.3	-2,103.4	2,445.4	2,420.0	25.38	96.365	
4,700.0	4,641.9	4,656.9	4,656.9	16.0	10.4	69.98	1,734.3	-2,103.4	2,440.4	2,414.5	25.87	94.338	
4,800.0	4,741.3	4,756.3	4,756.3	16.2	10.6	70.14	1,734.3	-2,103.4	2,436.7	2,410.4	26.32	92.564	
4,900.0	4,841.0	4,856.0	4,856.0	16.4	10.8	70.26	1,734.3	-2,103.4	2,434.2	2,407.5	26.74	91.023	
5,000.0	4,941.0	4,956.0	4,956.0	16.5	11.0	70.32	1,734.3	-2,103.4	2,433.0	2,405.8	27.12	89.699	
5,059.0	5,000.0	5,015.0	5,015.0	16.6	11.2	-37.34	1,734.3	-2,103.4	2,432.8	2,405.4	27.33	89.000	
5,100.0	5,041.0	5,056.0	5,056.0	16.7	11.3	-37.34	1,734.3	-2,103.4	2,432.8	2,405.3	27.48	88.524	
5,200.0	5,141.0	5,156.0	5,156.0	16.8	11.5	-37.34	1,734.3	-2,103.4	2,432.8	2,404.9	27.84	87.370	
5,300.0	5,241.0	5,256.0	5,256.0	17.0	11.7	-37.34	1,734.3	-2,103.4	2,432.8	2,404.5	28.21	86.240	
5,400.0	5,341.0	5,356.0	5,356.0	17.1	11.9	-37.34	1,734.3	-2,103.4	2,432.8	2,404.2	28.58	85.133	
5,500.0	5,441.0	5,456.0	5,456.0	17.2	12.2	-37.34	1,734.3	-2,103.4	2,432.8	2,403.8	28.94	84.050	
5,600.0	5,541.0	5,556.0	5,556.0	17.4	12.4	-37.34	1,734.3	-2,103.4	2,432.8	2,403.4	29.31	82.988	
5,700.0	5,641.0	5,656.0	5,656.0	17.5	12.6	-37.34	1,734.3	-2,103.4	2,432.8	2,403.1	29.69	81.948	
5,800.0	5,741.0	5,756.0	5,756.0	17.7	12.8	-37.34	1,734.3	-2,103.4	2,432.8	2,402.7	30.06	80.930	
5,900.0	5,841.0	5,856.0	5,856.0	17.8	13.0	-37.34	1,734.3	-2,103.4	2,432.8	2,402.3	30.44	79.932	
6,000.0	5,941.0	5,956.0	5,956.0	18.0	13.3	-37.34	1,734.3	-2,103.4	2,432.8	2,401.9	30.81	78.954	
6,100.0	6,041.0	6,056.0	6,056.0	18.1	13.5	-37.34	1,734.3	-2,103.4	2,432.8	2,401.6	31.19	77.996	
6,200.0	6,141.0	6,156.0	6,156.0	18.3	13.7	-37.34	1,734.3	-2,103.4	2,432.8	2,401.2	31.57	77.058	
6,300.0	6,241.0	6,256.0	6,256.0	18.4	13.9	-37.34	1,734.3	-2,103.4	2,432.8	2,400.8	31.95	76.138	
6,400.0	6,341.0	6,356.0	6,356.0	18.6	14.2	-37.34	1,734.3	-2,103.4	2,432.8	2,400.4	32.33	75.237	
6,500.0	6,441.0	6,456.0	6,456.0	18.7	14.4	-37.34	1,734.3	-2,103.4	2,432.8	2,400.0	32.72	74.353	
6,600.0	6,541.0	6,556.0	6,556.0	18.9	14.6	-37.34	1,734.3	-2,103.4	2,432.8	2,399.7	33.10	73.487	
6,634.3	6,575.3	6,590.3	6,590.3	19.0	14.7	-37.34	1,734.3	-2,103.4	2,432.8	2,399.5	33.24	73.194	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dalton SW-24L Pad Sec.24-T7N-R66W - Dalton 13-24 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,650.0	6,591.0	6,606.0	6,606.0	19.0	14.7	-37.34	1,734.3	-2,103.4	2,432.6	2,399.3	33.30	73.053	
6,700.0	6,640.9	6,655.9	6,655.9	19.1	14.8	-37.48	1,734.3	-2,103.4	2,430.5	2,397.1	33.43	72.702	
6,750.0	6,690.5	6,705.5	6,705.5	19.1	15.0	-37.78	1,734.3	-2,103.4	2,425.8	2,392.3	33.46	72.496	
6,800.0	6,739.7	6,754.7	6,754.7	19.2	15.1	-38.25	1,734.3	-2,103.4	2,418.6	2,385.2	33.39	72.425	
6,850.0	6,788.1	6,803.1	6,803.1	19.2	15.2	-38.90	1,734.3	-2,103.4	2,408.8	2,375.5	33.24	72.475	
6,900.0	6,835.6	6,850.6	6,850.6	19.3	15.3	-39.73	1,734.3	-2,103.4	2,396.6	2,363.6	33.00	72.627	
6,950.0	6,882.1	6,897.1	6,897.1	19.3	15.4	-40.75	1,734.3	-2,103.4	2,381.9	2,349.3	32.69	72.858	
7,000.0	6,927.2	6,942.2	6,942.2	19.3	15.5	-41.97	1,734.3	-2,103.4	2,365.1	2,332.7	32.34	73.132	
7,050.0	6,970.8	6,985.8	6,985.8	19.3	15.6	-43.39	1,734.3	-2,103.4	2,346.0	2,314.0	31.96	73.407	
7,100.0	7,012.7	7,027.7	7,027.7	19.4	15.7	-45.05	1,734.3	-2,103.4	2,324.9	2,293.3	31.58	73.625	
7,150.0	7,052.7	7,067.7	7,067.7	19.4	15.8	-46.93	1,734.3	-2,103.4	2,301.8	2,270.6	31.22	73.718	
7,200.0	7,090.7	7,105.7	7,105.7	19.4	15.9	-49.05	1,734.3	-2,103.4	2,276.9	2,246.0	30.93	73.607	
7,250.0	7,126.4	7,141.4	7,141.4	19.4	15.9	-51.43	1,734.3	-2,103.4	2,250.5	2,219.7	30.74	73.211	
7,300.0	7,159.9	7,174.9	7,174.9	19.5	16.0	-54.05	1,734.3	-2,103.4	2,222.5	2,191.8	30.67	72.461	
7,350.0	7,190.8	7,205.8	7,205.8	19.5	16.1	-56.92	1,734.3	-2,103.4	2,193.3	2,162.5	30.76	71.311	
7,400.0	7,219.1	7,215.0	7,215.0	19.6	16.1	-59.54	1,734.3	-2,103.4	2,163.1	2,132.1	30.91	69.976	
7,450.0	7,244.6	7,215.0	7,215.0	19.7	16.1	-62.11	1,734.3	-2,103.4	2,132.2	2,101.0	31.17	68.395	
7,500.0	7,267.2	7,215.0	7,215.0	19.8	16.1	-64.81	1,734.3	-2,103.4	2,100.9	2,069.3	31.58	66.526	
7,550.0	7,286.9	7,215.0	7,215.0	20.0	16.1	-67.62	1,734.3	-2,103.4	2,069.2	2,037.1	32.11	64.443	
7,600.0	7,303.6	7,215.0	7,215.0	20.2	16.1	-70.53	1,734.3	-2,103.4	2,037.2	2,004.5	32.73	62.238	
7,650.0	7,317.1	7,215.0	7,215.0	20.5	16.1	-73.50	1,734.3	-2,103.4	2,005.2	1,971.8	33.42	59.999	
7,700.0	7,327.4	7,215.0	7,215.0	20.8	16.1	-76.52	1,734.3	-2,103.4	1,973.2	1,939.0	34.13	57.806	
7,754.3	7,335.0	7,215.0	7,215.0	21.2	16.1	-79.82	1,734.3	-2,103.4	1,938.6	1,903.7	34.90	55.545	
7,800.0	7,339.8	7,215.0	7,215.0	21.5	16.1	-79.82	1,734.3	-2,103.4	1,909.9	1,874.6	35.36	54.007	
7,828.3	7,342.8	7,215.0	7,215.0	21.8	16.1	-79.82	1,734.3	-2,103.4	1,892.5	1,856.9	35.67	53.063	
7,900.0	7,348.0	7,215.0	7,215.0	22.5	16.1	-82.49	1,734.3	-2,103.4	1,849.3	1,812.7	36.63	50.488	
7,939.2	7,349.0	7,215.0	7,215.0	22.9	16.1	-83.91	1,734.3	-2,103.4	1,826.3	1,789.1	37.15	49.159	
8,000.0	7,349.5	7,215.0	7,215.0	23.6	16.1	-83.91	1,734.3	-2,103.4	1,791.5	1,753.6	37.91	47.261	
8,100.0	7,350.3	7,215.0	7,215.0	24.8	16.1	-83.91	1,734.3	-2,103.4	1,737.5	1,698.2	39.23	44.293	
8,200.0	7,351.1	7,215.0	7,215.0	26.1	16.1	-83.91	1,734.3	-2,103.4	1,687.6	1,647.0	40.62	41.542	
8,300.0	7,351.9	7,215.0	7,215.0	27.5	16.1	-83.91	1,734.3	-2,103.4	1,642.3	1,600.2	42.09	39.022	
8,400.0	7,352.7	7,215.0	7,215.0	28.9	16.1	-83.91	1,734.3	-2,103.4	1,602.0	1,558.4	43.61	36.738	
8,500.0	7,353.5	7,215.0	7,215.0	30.4	16.1	-83.91	1,734.3	-2,103.4	1,567.1	1,521.9	45.17	34.691	
8,600.0	7,354.3	7,215.0	7,215.0	32.0	16.1	-83.91	1,734.3	-2,103.4	1,537.8	1,491.0	46.78	32.876	
8,700.0	7,355.0	7,215.0	7,215.0	33.6	16.1	-83.91	1,734.3	-2,103.4	1,514.6	1,466.2	48.42	31.284	
8,800.0	7,355.8	7,215.0	7,215.0	35.2	16.1	-83.91	1,734.3	-2,103.4	1,497.8	1,447.7	50.08	29.906	
8,900.0	7,356.6	7,215.0	7,215.0	36.8	16.1	-83.91	1,734.3	-2,103.4	1,487.5	1,435.7	51.78	28.729	
9,000.0	7,357.4	7,215.0	7,215.0	38.5	16.1	-83.91	1,734.3	-2,103.4	1,483.9	1,430.4	53.49	27.741	
9,003.9	7,357.5	7,215.0	7,215.0	38.6	16.1	-83.91	1,734.3	-2,103.4	1,483.8	1,430.3	53.56	27.706	CC, ES
9,100.0	7,358.2	7,215.0	7,215.0	40.2	16.1	-83.91	1,734.3	-2,103.4	1,487.0	1,431.7	55.22	26.927	
9,200.0	7,359.0	7,215.0	7,215.0	41.9	16.1	-83.91	1,734.3	-2,103.4	1,496.8	1,439.8	56.97	26.272	
9,300.0	7,359.8	7,215.0	7,215.0	43.7	16.1	-83.91	1,734.3	-2,103.4	1,513.1	1,454.4	58.73	25.762	
9,400.0	7,360.6	7,215.0	7,215.0	45.4	16.1	-83.91	1,734.3	-2,103.4	1,535.8	1,475.3	60.51	25.381	
9,500.0	7,361.4	7,215.0	7,215.0	47.2	16.1	-83.91	1,734.3	-2,103.4	1,564.6	1,502.3	62.30	25.115	
9,600.0	7,362.2	7,215.0	7,215.0	48.9	16.1	-83.91	1,734.3	-2,103.4	1,599.1	1,535.0	64.09	24.950	
9,700.0	7,363.0	7,215.0	7,215.0	50.7	16.1	-83.91	1,734.3	-2,103.4	1,639.0	1,573.1	65.90	24.872	
9,800.0	7,363.8	7,215.0	7,215.0	52.5	16.1	-83.91	1,734.3	-2,103.4	1,683.9	1,616.2	67.71	24.869	SF
9,900.0	7,364.6	7,215.0	7,215.0	54.3	16.1	-83.91	1,734.3	-2,103.4	1,733.5	1,663.9	69.53	24.930	
10,000.0	7,365.4	7,215.0	7,215.0	56.1	16.1	-83.91	1,734.3	-2,103.4	1,787.2	1,715.8	71.36	25.045	
10,100.0	7,366.1	7,215.0	7,215.0	58.0	16.1	-83.91	1,734.3	-2,103.4	1,844.8	1,771.6	73.19	25.205	
10,200.0	7,366.9	7,215.0	7,215.0	59.8	16.1	-83.91	1,734.3	-2,103.4	1,905.9	1,830.9	75.03	25.402	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dalton SW-24L Pad Sec.24-T7N-R66W - Dalton 13-24 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,300.0	7,367.7	7,215.0	7,215.0	61.6	16.1	-83.91	1,734.3	-2,103.4	1,970.2	1,893.4	76.87	25.630	
10,400.0	7,368.5	7,215.0	7,215.0	63.5	16.1	-83.91	1,734.3	-2,103.4	2,037.4	1,958.7	78.72	25.882	
10,500.0	7,369.3	7,215.0	7,215.0	65.3	16.1	-83.91	1,734.3	-2,103.4	2,107.2	2,026.6	80.57	26.153	
10,600.0	7,370.1	7,215.0	7,215.0	67.2	16.1	-83.91	1,734.3	-2,103.4	2,179.3	2,096.9	82.42	26.440	
10,700.0	7,370.9	7,215.0	7,215.0	69.0	16.1	-83.91	1,734.3	-2,103.4	2,253.6	2,169.3	84.28	26.739	
10,800.0	7,371.7	7,215.0	7,215.0	70.9	16.1	-83.91	1,734.3	-2,103.4	2,329.8	2,243.6	86.14	27.045	
10,900.0	7,372.5	7,215.0	7,215.0	72.7	16.1	-83.91	1,734.3	-2,103.4	2,407.7	2,319.7	88.01	27.358	
11,000.0	7,373.3	7,215.0	7,215.0	74.6	16.1	-83.91	1,734.3	-2,103.4	2,487.2	2,397.4	89.87	27.675	
11,100.0	7,374.1	7,215.0	7,215.0	76.4	16.1	-83.91	1,734.3	-2,103.4	2,568.2	2,476.4	91.74	27.993	
11,200.0	7,374.9	7,215.0	7,215.0	78.3	16.1	-83.91	1,734.3	-2,103.4	2,650.4	2,556.8	93.61	28.313	
11,300.0	7,375.7	7,215.0	7,215.0	80.2	16.1	-83.91	1,734.3	-2,103.4	2,733.9	2,638.4	95.49	28.631	
11,400.0	7,376.5	7,215.0	7,215.0	82.1	16.1	-83.91	1,734.3	-2,103.4	2,818.4	2,721.0	97.36	28.947	
11,500.0	7,377.2	7,215.0	7,215.0	83.9	16.1	-83.91	1,734.3	-2,103.4	2,903.9	2,804.6	99.24	29.261	
11,600.0	7,378.0	7,215.0	7,215.0	85.8	16.1	-83.91	1,734.3	-2,103.4	2,990.3	2,889.2	101.12	29.572	
11,700.0	7,378.8	7,215.0	7,215.0	87.7	16.1	-83.91	1,734.3	-2,103.4	3,077.5	2,974.5	103.00	29.879	
11,800.0	7,379.6	7,215.0	7,215.0	89.6	16.1	-83.91	1,734.3	-2,103.4	3,165.5	3,060.6	104.88	30.182	
11,846.9	7,380.0	7,215.0	7,215.0	90.5	16.1	-83.91	1,734.3	-2,103.4	3,207.0	3,101.2	105.76	30.322	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dalton SW-24L Pad Sec.24-T7N-R66W - Dalton 14-24 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	15.0	15.0	0.0	0.0	-83.34	240.5	-2,059.1	2,073.1				
100.0	100.0	115.0	115.0	0.1	0.1	-83.34	240.5	-2,059.1	2,073.1	2,072.9	0.26	8,020.361	
200.0	200.0	215.0	215.0	0.3	0.4	-83.34	240.5	-2,059.1	2,073.1	2,072.4	0.71	2,928.068	
300.0	300.0	315.0	315.0	0.6	0.6	-83.34	240.5	-2,059.1	2,073.1	2,072.0	1.16	1,790.954	
400.0	400.0	415.0	415.0	0.8	0.8	-83.34	240.5	-2,059.1	2,073.1	2,071.5	1.61	1,289.988	
500.0	500.0	515.0	515.0	1.0	1.0	-83.34	240.5	-2,059.1	2,073.1	2,071.1	2.06	1,008.024	
600.0	600.0	615.0	615.0	1.2	1.3	-83.34	240.5	-2,059.1	2,073.1	2,070.6	2.51	827.212	
700.0	700.0	715.0	715.0	1.5	1.5	-83.34	240.5	-2,059.1	2,073.1	2,070.2	2.96	701.400	
800.0	800.0	815.0	815.0	1.7	1.7	-83.34	240.5	-2,059.1	2,073.1	2,069.7	3.41	608.806	
900.0	900.0	915.0	915.0	1.9	1.9	-83.34	240.5	-2,059.1	2,073.1	2,069.3	3.85	537.808	
1,000.0	1,000.0	1,015.0	1,015.0	2.1	2.2	-83.34	240.5	-2,059.1	2,073.1	2,068.8	4.30	481.640	
1,100.0	1,100.0	1,115.0	1,115.0	2.3	2.4	24.36	240.5	-2,059.1	2,071.5	2,066.8	4.73	437.524	
1,200.0	1,199.8	1,214.8	1,214.8	2.5	2.6	24.46	240.5	-2,059.1	2,066.8	2,061.6	5.15	401.405	
1,300.0	1,299.5	1,314.5	1,314.5	2.8	2.8	24.63	240.5	-2,059.1	2,058.8	2,053.3	5.57	369.918	
1,400.0	1,398.7	1,413.7	1,413.7	3.0	3.1	24.86	240.5	-2,059.1	2,047.7	2,041.8	5.99	342.100	
1,500.0	1,497.5	1,512.5	1,512.5	3.3	3.3	25.17	240.5	-2,059.1	2,033.5	2,027.1	6.41	317.191	
1,539.4	1,536.2	1,551.2	1,551.2	3.4	3.4	25.31	240.5	-2,059.1	2,027.1	2,020.5	6.58	308.045	
1,600.0	1,595.7	1,610.7	1,610.7	3.6	3.5	25.45	240.5	-2,059.1	2,016.8	2,009.9	6.86	294.131	
1,700.0	1,694.0	1,709.0	1,709.0	3.9	3.7	25.68	240.5	-2,059.1	1,999.9	1,992.5	7.32	273.159	
1,800.0	1,792.2	1,807.2	1,807.2	4.3	3.9	25.91	240.5	-2,059.1	1,983.0	1,975.2	7.79	254.395	
1,900.0	1,890.4	1,905.4	1,905.4	4.6	4.2	26.15	240.5	-2,059.1	1,966.1	1,957.8	8.28	237.561	
2,000.0	1,988.7	2,003.7	2,003.7	5.0	4.4	26.39	240.5	-2,059.1	1,949.2	1,940.5	8.76	222.412	
2,100.0	2,086.9	2,101.9	2,101.9	5.4	4.6	26.64	240.5	-2,059.1	1,932.4	1,923.2	9.26	208.733	
2,200.0	2,185.1	2,200.1	2,200.1	5.8	4.8	26.89	240.5	-2,059.1	1,915.7	1,905.9	9.76	196.339	
2,300.0	2,283.4	2,298.4	2,298.4	6.2	5.1	27.14	240.5	-2,059.1	1,898.9	1,888.7	10.26	185.070	
2,400.0	2,381.6	2,396.6	2,396.6	6.6	5.3	27.40	240.5	-2,059.1	1,882.2	1,871.5	10.77	174.791	
2,500.0	2,479.8	2,494.8	2,494.8	7.0	5.5	27.66	240.5	-2,059.1	1,865.6	1,854.3	11.28	165.384	
2,600.0	2,578.1	2,593.1	2,593.1	7.4	5.7	27.93	240.5	-2,059.1	1,848.9	1,837.1	11.80	156.748	
2,700.0	2,676.3	2,691.3	2,691.3	7.8	5.9	28.20	240.5	-2,059.1	1,832.4	1,820.0	12.31	148.797	
2,800.0	2,774.5	2,789.5	2,789.5	8.2	6.2	28.48	240.5	-2,059.1	1,815.8	1,803.0	12.84	141.456	
2,900.0	2,872.8	2,887.8	2,887.8	8.6	6.4	28.77	240.5	-2,059.1	1,799.3	1,786.0	13.36	134.661	
3,000.0	2,971.0	2,986.0	2,986.0	9.0	6.6	29.05	240.5	-2,059.1	1,782.9	1,769.0	13.89	128.354	
3,100.0	3,069.2	3,084.2	3,084.2	9.4	6.8	29.35	240.5	-2,059.1	1,766.5	1,752.0	14.42	122.488	
3,200.0	3,167.5	3,182.5	3,182.5	9.8	7.0	29.65	240.5	-2,059.1	1,750.1	1,735.1	14.96	117.018	
3,300.0	3,265.7	3,280.7	3,280.7	10.3	7.3	29.95	240.5	-2,059.1	1,733.8	1,718.3	15.49	111.909	
3,400.0	3,363.9	3,378.9	3,378.9	10.7	7.5	30.26	240.5	-2,059.1	1,717.5	1,701.5	16.03	107.125	
3,500.0	3,462.2	3,477.2	3,477.2	11.1	7.7	30.58	240.5	-2,059.1	1,701.3	1,684.7	16.58	102.638	
3,600.0	3,560.4	3,575.4	3,575.4	11.5	7.9	30.90	240.5	-2,059.1	1,685.2	1,668.0	17.12	98.423	
3,700.0	3,658.6	3,673.6	3,673.6	11.9	8.1	31.23	240.5	-2,059.1	1,669.0	1,651.4	17.67	94.455	
3,800.0	3,756.9	3,771.9	3,771.9	12.4	8.4	31.56	240.5	-2,059.1	1,653.0	1,634.8	18.22	90.715	
3,900.0	3,855.1	3,870.1	3,870.1	12.8	8.6	31.90	240.5	-2,059.1	1,637.0	1,618.2	18.78	87.184	
4,000.0	3,953.3	3,968.3	3,968.3	13.2	8.8	32.25	240.5	-2,059.1	1,621.1	1,601.7	19.33	83.846	
4,100.0	4,051.6	4,066.6	4,066.6	13.6	9.0	32.61	240.5	-2,059.1	1,605.2	1,585.3	19.89	80.685	
4,200.0	4,149.8	4,164.8	4,164.8	14.1	9.2	32.97	240.5	-2,059.1	1,589.4	1,568.9	20.46	77.689	
4,300.0	4,248.0	4,263.0	4,263.0	14.5	9.5	33.34	240.5	-2,059.1	1,573.6	1,552.6	21.02	74.846	
4,400.0	4,346.3	4,361.3	4,361.3	14.9	9.7	33.71	240.5	-2,059.1	1,557.9	1,536.3	21.59	72.144	
4,500.0	4,444.5	4,459.5	4,459.5	15.3	9.9	34.10	240.5	-2,059.1	1,542.3	1,520.1	22.17	69.574	
4,519.6	4,463.8	4,478.8	4,478.8	15.4	10.0	34.17	240.5	-2,059.1	1,539.2	1,517.0	22.28	69.084	
4,600.0	4,542.9	4,557.9	4,557.9	15.7	10.1	34.33	240.5	-2,059.1	1,527.7	1,504.9	22.72	67.226	
4,700.0	4,641.9	4,656.9	4,656.9	16.0	10.4	34.50	240.5	-2,059.1	1,515.9	1,492.7	23.21	65.316	
4,800.0	4,741.3	4,756.3	4,756.3	16.2	10.6	34.63	240.5	-2,059.1	1,507.0	1,483.3	23.66	63.698	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dalton SW-24L Pad Sec.24-T7N-R66W - Dalton 14-24 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,841.0	4,856.0	4,856.0	16.4	10.8	34.72	240.5	-2,059.1	1,501.0	1,476.9	24.07	62.351	
5,000.0	4,941.0	4,956.0	4,956.0	16.5	11.0	34.77	240.5	-2,059.1	1,497.9	1,473.4	24.45	61.259	
5,059.0	5,000.0	5,015.0	5,015.0	16.6	11.2	-72.89	240.5	-2,059.1	1,497.4	1,472.7	24.66	60.715	
5,100.0	5,041.0	5,056.0	5,056.0	16.7	11.3	-72.89	240.5	-2,059.1	1,497.4	1,472.6	24.82	60.329	
5,200.0	5,141.0	5,156.0	5,156.0	16.8	11.5	-72.89	240.5	-2,059.1	1,497.4	1,472.2	25.21	59.407	
5,300.0	5,241.0	5,256.0	5,256.0	17.0	11.7	-72.89	240.5	-2,059.1	1,497.4	1,471.8	25.59	58.508	
5,400.0	5,341.0	5,356.0	5,356.0	17.1	11.9	-72.89	240.5	-2,059.1	1,497.4	1,471.4	25.98	57.632	
5,500.0	5,441.0	5,456.0	5,456.0	17.2	12.2	-72.89	240.5	-2,059.1	1,497.4	1,471.0	26.37	56.779	
5,600.0	5,541.0	5,556.0	5,556.0	17.4	12.4	-72.89	240.5	-2,059.1	1,497.4	1,470.6	26.76	55.947	
5,700.0	5,641.0	5,656.0	5,656.0	17.5	12.6	-72.89	240.5	-2,059.1	1,497.4	1,470.2	27.16	55.136	
5,800.0	5,741.0	5,756.0	5,756.0	17.7	12.8	-72.89	240.5	-2,059.1	1,497.4	1,469.8	27.55	54.345	
5,900.0	5,841.0	5,856.0	5,856.0	17.8	13.0	-72.89	240.5	-2,059.1	1,497.4	1,469.4	27.95	53.574	
6,000.0	5,941.0	5,956.0	5,956.0	18.0	13.3	-72.89	240.5	-2,059.1	1,497.4	1,469.0	28.35	52.822	
6,100.0	6,041.0	6,056.0	6,056.0	18.1	13.5	-72.89	240.5	-2,059.1	1,497.4	1,468.6	28.75	52.088	
6,200.0	6,141.0	6,156.0	6,156.0	18.3	13.7	-72.89	240.5	-2,059.1	1,497.4	1,468.2	29.15	51.372	
6,300.0	6,241.0	6,256.0	6,256.0	18.4	13.9	-72.89	240.5	-2,059.1	1,497.4	1,467.8	29.55	50.673	
6,400.0	6,341.0	6,356.0	6,356.0	18.6	14.2	-72.89	240.5	-2,059.1	1,497.4	1,467.4	29.95	49.991	
6,500.0	6,441.0	6,456.0	6,456.0	18.7	14.4	-72.89	240.5	-2,059.1	1,497.4	1,467.0	30.36	49.326	
6,600.0	6,541.0	6,556.0	6,556.0	18.9	14.6	-72.89	240.5	-2,059.1	1,497.4	1,466.6	30.76	48.676	
6,634.3	6,575.3	6,590.3	6,590.3	19.0	14.7	-72.89	240.5	-2,059.1	1,497.4	1,466.5	30.90	48.456	
6,650.0	6,591.0	6,606.0	6,606.0	19.0	14.7	-72.90	240.5	-2,059.1	1,497.3	1,466.4	30.97	48.349	
6,700.0	6,640.9	6,655.9	6,655.9	19.1	14.8	-73.05	240.5	-2,059.1	1,496.6	1,465.4	31.15	48.038	
6,750.0	6,690.5	6,705.5	6,705.5	19.1	15.0	-73.39	240.5	-2,059.1	1,494.8	1,463.5	31.29	47.771	
6,800.0	6,739.7	6,754.7	6,754.7	19.2	15.1	-73.91	240.5	-2,059.1	1,492.2	1,460.8	31.39	47.541	
6,850.0	6,788.1	6,803.1	6,803.1	19.2	15.2	-74.61	240.5	-2,059.1	1,488.8	1,457.3	31.45	47.338	
6,900.0	6,835.6	6,850.6	6,850.6	19.3	15.3	-75.46	240.5	-2,059.1	1,484.6	1,453.1	31.49	47.150	
6,950.0	6,882.1	6,897.1	6,897.1	19.3	15.4	-76.46	240.5	-2,059.1	1,479.7	1,448.2	31.51	46.965	
7,000.0	6,927.2	6,942.2	6,942.2	19.3	15.5	-77.59	240.5	-2,059.1	1,474.4	1,442.9	31.52	46.770	
7,050.0	6,970.8	6,985.8	6,985.8	19.3	15.6	-78.83	240.5	-2,059.1	1,468.7	1,437.2	31.55	46.552	
7,100.0	7,012.7	7,027.7	7,027.7	19.4	15.7	-80.15	240.5	-2,059.1	1,462.8	1,431.2	31.59	46.302	
7,150.0	7,052.7	7,067.7	7,067.7	19.4	15.8	-81.53	240.5	-2,059.1	1,456.9	1,425.3	31.66	46.015	
7,200.0	7,090.7	7,105.7	7,105.7	19.4	15.9	-82.93	240.5	-2,059.1	1,451.2	1,419.4	31.76	45.689	
7,250.0	7,126.4	7,141.4	7,141.4	19.4	15.9	-84.32	240.5	-2,059.1	1,445.8	1,413.9	31.90	45.325	
7,300.0	7,159.9	7,174.9	7,174.9	19.5	16.0	-85.67	240.5	-2,059.1	1,441.0	1,408.9	32.07	44.930	
7,350.0	7,190.8	7,205.8	7,205.8	19.5	16.1	-86.94	240.5	-2,059.1	1,436.9	1,404.6	32.28	44.511	
7,400.0	7,219.1	7,215.0	7,215.0	19.6	16.1	-87.46	240.5	-2,059.1	1,433.9	1,401.4	32.49	44.134	
7,450.0	7,244.6	7,215.0	7,215.0	19.7	16.1	-87.57	240.5	-2,059.1	1,432.5	1,399.8	32.72	43.778	
7,469.4	7,253.7	7,215.0	7,215.0	19.8	16.1	-87.58	240.5	-2,059.1	1,432.4	1,399.6	32.83	43.632	CC, ES
7,500.0	7,267.2	7,215.0	7,215.0	19.8	16.1	-87.56	240.5	-2,059.1	1,432.7	1,399.7	33.00	43.418	
7,550.0	7,286.9	7,215.0	7,215.0	20.0	16.1	-87.42	240.5	-2,059.1	1,434.5	1,401.2	33.32	43.055	
7,600.0	7,303.6	7,215.0	7,215.0	20.2	16.1	-87.17	240.5	-2,059.1	1,437.8	1,404.2	33.68	42.690	
7,650.0	7,317.1	7,215.0	7,215.0	20.5	16.1	-86.80	240.5	-2,059.1	1,442.8	1,408.7	34.09	42.324	
7,700.0	7,327.4	7,215.0	7,215.0	20.8	16.1	-86.31	240.5	-2,059.1	1,449.3	1,414.7	34.54	41.960	
7,754.3	7,335.0	7,215.0	7,215.0	21.2	16.1	-85.65	240.5	-2,059.1	1,458.0	1,422.9	35.07	41.569	
7,800.0	7,339.8	7,215.0	7,215.0	21.5	16.1	-85.65	240.5	-2,059.1	1,466.7	1,431.1	35.54	41.265	
7,828.3	7,342.8	7,215.0	7,215.0	21.8	16.1	-85.65	240.5	-2,059.1	1,472.8	1,436.9	35.85	41.084	
7,900.0	7,348.0	7,215.0	7,215.0	22.5	16.1	-84.75	240.5	-2,059.1	1,490.3	1,453.6	36.68	40.634	
7,939.2	7,349.0	7,215.0	7,215.0	22.9	16.1	-84.19	240.5	-2,059.1	1,501.1	1,464.0	37.15	40.402	
8,000.0	7,349.5	7,215.0	7,215.0	23.6	16.1	-84.19	240.5	-2,059.1	1,519.6	1,481.7	37.91	40.083	
8,100.0	7,350.3	7,215.0	7,215.0	24.8	16.1	-84.19	240.5	-2,059.1	1,554.7	1,515.5	39.23	39.630	
8,200.0	7,351.1	7,215.0	7,215.0	26.1	16.1	-84.19	240.5	-2,059.1	1,595.3	1,554.7	40.63	39.266	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dalton SW-24L Pad Sec.24-T7N-R66W - Dalton 14-24 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,300.0	7,351.9	7,215.0	7,215.0	27.5	16.1	-84.19	240.5	-2,059.1	1,641.1	1,599.0	42.09	38.986	
8,400.0	7,352.7	7,215.0	7,215.0	28.9	16.1	-84.19	240.5	-2,059.1	1,691.5	1,647.8	43.61	38.783	
8,500.0	7,353.5	7,215.0	7,215.0	30.4	16.1	-84.19	240.5	-2,059.1	1,746.1	1,701.0	45.18	38.649	
8,600.0	7,354.3	7,215.0	7,215.0	32.0	16.1	-84.19	240.5	-2,059.1	1,804.7	1,757.9	46.79	38.574	
8,700.0	7,355.0	7,215.0	7,215.0	33.6	16.1	-84.19	240.5	-2,059.1	1,866.8	1,818.4	48.42	38.550	SF
8,800.0	7,355.8	7,215.0	7,215.0	35.2	16.1	-84.19	240.5	-2,059.1	1,932.1	1,882.0	50.09	38.569	
8,900.0	7,356.6	7,215.0	7,215.0	36.8	16.1	-84.19	240.5	-2,059.1	2,000.2	1,948.4	51.79	38.624	
9,000.0	7,357.4	7,215.0	7,215.0	38.5	16.1	-84.19	240.5	-2,059.1	2,070.9	2,017.4	53.50	38.708	
9,100.0	7,358.2	7,215.0	7,215.0	40.2	16.1	-84.19	240.5	-2,059.1	2,144.0	2,088.8	55.23	38.816	
9,200.0	7,359.0	7,215.0	7,215.0	41.9	16.1	-84.19	240.5	-2,059.1	2,219.2	2,162.2	56.98	38.944	
9,300.0	7,359.8	7,215.0	7,215.0	43.7	16.1	-84.19	240.5	-2,059.1	2,296.2	2,237.5	58.75	39.086	
9,400.0	7,360.6	7,215.0	7,215.0	45.4	16.1	-84.19	240.5	-2,059.1	2,375.0	2,314.5	60.52	39.240	
9,500.0	7,361.4	7,215.0	7,215.0	47.2	16.1	-84.19	240.5	-2,059.1	2,455.3	2,393.0	62.31	39.403	
9,600.0	7,362.2	7,215.0	7,215.0	48.9	16.1	-84.19	240.5	-2,059.1	2,537.0	2,472.9	64.11	39.573	
9,700.0	7,363.0	7,215.0	7,215.0	50.7	16.1	-84.19	240.5	-2,059.1	2,620.0	2,554.1	65.92	39.748	
9,800.0	7,363.8	7,215.0	7,215.0	52.5	16.1	-84.19	240.5	-2,059.1	2,704.2	2,636.4	67.73	39.925	
9,900.0	7,364.6	7,215.0	7,215.0	54.3	16.1	-84.19	240.5	-2,059.1	2,789.4	2,719.8	69.55	40.105	
10,000.0	7,365.4	7,215.0	7,215.0	56.1	16.1	-84.19	240.5	-2,059.1	2,875.5	2,804.1	71.38	40.285	
10,100.0	7,366.1	7,215.0	7,215.0	58.0	16.1	-84.19	240.5	-2,059.1	2,962.5	2,889.3	73.21	40.464	
10,200.0	7,366.9	7,215.0	7,215.0	59.8	16.1	-84.19	240.5	-2,059.1	3,050.3	2,975.3	75.05	40.643	
10,300.0	7,367.7	7,215.0	7,215.0	61.6	16.1	-84.19	240.5	-2,059.1	3,138.8	3,061.9	76.90	40.820	
10,400.0	7,368.5	7,215.0	7,215.0	63.5	16.1	-84.19	240.5	-2,059.1	3,228.0	3,149.3	78.74	40.995	
10,500.0	7,369.3	7,215.0	7,215.0	65.3	16.1	-84.19	240.5	-2,059.1	3,317.9	3,237.3	80.59	41.167	
10,600.0	7,370.1	7,215.0	7,215.0	67.2	16.1	-84.19	240.5	-2,059.1	3,408.3	3,325.8	82.45	41.337	
10,700.0	7,370.9	7,215.0	7,215.0	69.0	16.1	-84.19	240.5	-2,059.1	3,499.2	3,414.9	84.31	41.504	
10,800.0	7,371.7	7,215.0	7,215.0	70.9	16.1	-84.19	240.5	-2,059.1	3,590.6	3,504.4	86.17	41.668	
10,900.0	7,372.5	7,215.0	7,215.0	72.7	16.1	-84.19	240.5	-2,059.1	3,682.4	3,594.4	88.04	41.829	
11,000.0	7,373.3	7,215.0	7,215.0	74.6	16.1	-84.19	240.5	-2,059.1	3,774.7	3,684.8	89.90	41.986	
11,100.0	7,374.1	7,215.0	7,215.0	76.4	16.1	-84.19	240.5	-2,059.1	3,867.3	3,775.5	91.77	42.140	
11,200.0	7,374.9	7,215.0	7,215.0	78.3	16.1	-84.19	240.5	-2,059.1	3,960.3	3,866.7	93.64	42.291	
11,300.0	7,375.7	7,215.0	7,215.0	80.2	16.1	-84.19	240.5	-2,059.1	4,053.6	3,958.1	95.52	42.438	
11,400.0	7,376.5	7,215.0	7,215.0	82.1	16.1	-84.19	240.5	-2,059.1	4,147.3	4,049.9	97.39	42.582	
11,500.0	7,377.2	7,215.0	7,215.0	83.9	16.1	-84.19	240.5	-2,059.1	4,241.2	4,141.9	99.27	42.723	
11,600.0	7,378.0	7,215.0	7,215.0	85.8	16.1	-84.19	240.5	-2,059.1	4,335.4	4,234.3	101.15	42.861	
11,700.0	7,378.8	7,215.0	7,215.0	87.7	16.1	-84.19	240.5	-2,059.1	4,429.9	4,326.8	103.03	42.995	
11,800.0	7,379.6	7,215.0	7,215.0	89.6	16.1	-84.19	240.5	-2,059.1	4,524.6	4,419.7	104.92	43.126	
11,846.9	7,380.0	7,215.0	7,215.0	90.5	16.1	-84.19	240.5	-2,059.1	4,569.0	4,463.2	105.80	43.186	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dalton SW-24L Pad Sec.24-T7N-R66W - Dalton 23-24 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	15.0	15.0	0.0	0.0	-11.92	1,909.1	-402.9	1,951.1				
100.0	100.0	115.0	115.0	0.1	0.1	-11.92	1,909.1	-402.9	1,951.1	1,950.8	0.26	7,548.348	
200.0	200.0	215.0	215.0	0.3	0.4	-11.92	1,909.1	-402.9	1,951.1	1,950.4	0.71	2,755.746	
300.0	300.0	315.0	315.0	0.6	0.6	-11.92	1,909.1	-402.9	1,951.1	1,949.9	1.16	1,685.553	
400.0	400.0	415.0	415.0	0.8	0.8	-11.92	1,909.1	-402.9	1,951.1	1,949.5	1.61	1,214.070	
500.0	500.0	515.0	515.0	1.0	1.0	-11.92	1,909.1	-402.9	1,951.1	1,949.0	2.06	948.699	
600.0	600.0	615.0	615.0	1.2	1.3	-11.92	1,909.1	-402.9	1,951.1	1,948.6	2.51	778.529	
700.0	700.0	715.0	715.0	1.5	1.5	-11.92	1,909.1	-402.9	1,951.1	1,948.1	2.96	660.122	
800.0	800.0	815.0	815.0	1.7	1.7	-11.92	1,909.1	-402.9	1,951.1	1,947.7	3.41	572.977	
900.0	900.0	915.0	915.0	1.9	1.9	-11.92	1,909.1	-402.9	1,951.1	1,947.2	3.85	506.157	
1,000.0	1,000.0	1,015.0	1,015.0	2.1	2.2	-11.92	1,909.1	-402.9	1,951.1	1,946.8	4.30	453.295	
1,100.0	1,100.0	1,115.0	1,115.0	2.3	2.4	95.80	1,909.1	-402.9	1,951.3	1,946.5	4.74	411.974	
1,200.0	1,199.8	1,214.8	1,214.8	2.5	2.6	95.94	1,909.1	-402.9	1,951.8	1,946.7	5.16	378.346	
1,300.0	1,299.5	1,314.5	1,314.5	2.8	2.8	96.17	1,909.1	-402.9	1,952.7	1,947.1	5.60	348.942	
1,400.0	1,398.7	1,413.7	1,413.7	3.0	3.1	96.50	1,909.1	-402.9	1,954.1	1,948.0	6.06	322.680	
1,500.0	1,497.5	1,512.5	1,512.5	3.3	3.3	96.91	1,909.1	-402.9	1,955.9	1,949.4	6.55	298.771	
1,539.4	1,536.2	1,551.2	1,551.2	3.4	3.4	97.10	1,909.1	-402.9	1,956.8	1,950.1	6.75	289.877	
1,600.0	1,595.7	1,610.7	1,610.7	3.6	3.5	97.42	1,909.1	-402.9	1,958.3	1,951.2	7.07	276.824	
1,700.0	1,694.0	1,709.0	1,709.0	3.9	3.7	97.95	1,909.1	-402.9	1,960.8	1,953.2	7.62	257.162	
1,800.0	1,792.2	1,807.2	1,807.2	4.3	3.9	98.48	1,909.1	-402.9	1,963.6	1,955.4	8.19	239.688	
1,900.0	1,890.4	1,905.4	1,905.4	4.6	4.2	99.01	1,909.1	-402.9	1,966.4	1,957.7	8.77	224.178	
2,000.0	1,988.7	2,003.7	2,003.7	5.0	4.4	99.54	1,909.1	-402.9	1,969.5	1,960.2	9.36	210.397	
2,100.0	2,086.9	2,101.9	2,101.9	5.4	4.6	100.07	1,909.1	-402.9	1,972.8	1,962.8	9.96	198.122	
2,200.0	2,185.1	2,200.1	2,200.1	5.8	4.8	100.60	1,909.1	-402.9	1,976.2	1,965.6	10.56	187.152	
2,300.0	2,283.4	2,298.4	2,298.4	6.2	5.1	101.12	1,909.1	-402.9	1,979.8	1,968.6	11.17	177.315	
2,400.0	2,381.6	2,396.6	2,396.6	6.6	5.3	101.64	1,909.1	-402.9	1,983.5	1,971.7	11.77	168.460	
2,500.0	2,479.8	2,494.8	2,494.8	7.0	5.5	102.16	1,909.1	-402.9	1,987.5	1,975.1	12.39	160.460	
2,600.0	2,578.1	2,593.1	2,593.1	7.4	5.7	102.68	1,909.1	-402.9	1,991.5	1,978.5	13.00	153.205	
2,700.0	2,676.3	2,691.3	2,691.3	7.8	5.9	103.19	1,909.1	-402.9	1,995.8	1,982.2	13.61	146.604	
2,800.0	2,774.5	2,789.5	2,789.5	8.2	6.2	103.71	1,909.1	-402.9	2,000.2	1,986.0	14.23	140.578	
2,900.0	2,872.8	2,887.8	2,887.8	8.6	6.4	104.22	1,909.1	-402.9	2,004.8	1,990.0	14.84	135.058	
3,000.0	2,971.0	2,986.0	2,986.0	9.0	6.6	104.73	1,909.1	-402.9	2,009.6	1,994.1	15.46	129.989	
3,100.0	3,069.2	3,084.2	3,084.2	9.4	6.8	105.23	1,909.1	-402.9	2,014.5	1,998.4	16.07	125.319	
3,200.0	3,167.5	3,182.5	3,182.5	9.8	7.0	105.74	1,909.1	-402.9	2,019.6	2,002.9	16.69	121.006	
3,300.0	3,265.7	3,280.7	3,280.7	10.3	7.3	106.24	1,909.1	-402.9	2,024.8	2,007.5	17.30	117.013	
3,400.0	3,363.9	3,378.9	3,378.9	10.7	7.5	106.74	1,909.1	-402.9	2,030.2	2,012.3	17.92	113.308	
3,500.0	3,462.2	3,477.2	3,477.2	11.1	7.7	107.23	1,909.1	-402.9	2,035.8	2,017.2	18.53	109.862	
3,600.0	3,560.4	3,575.4	3,575.4	11.5	7.9	107.73	1,909.1	-402.9	2,041.5	2,022.4	19.14	106.650	
3,700.0	3,658.6	3,673.6	3,673.6	11.9	8.1	108.22	1,909.1	-402.9	2,047.4	2,027.6	19.75	103.651	
3,800.0	3,756.9	3,771.9	3,771.9	12.4	8.4	108.71	1,909.1	-402.9	2,053.4	2,033.0	20.36	100.846	
3,900.0	3,855.1	3,870.1	3,870.1	12.8	8.6	109.19	1,909.1	-402.9	2,059.6	2,038.6	20.97	98.217	
4,000.0	3,953.3	3,968.3	3,968.3	13.2	8.8	109.67	1,909.1	-402.9	2,065.9	2,044.3	21.58	95.750	
4,100.0	4,051.6	4,066.6	4,066.6	13.6	9.0	110.15	1,909.1	-402.9	2,072.4	2,050.2	22.18	93.430	
4,200.0	4,149.8	4,164.8	4,164.8	14.1	9.2	110.63	1,909.1	-402.9	2,079.0	2,056.2	22.78	91.246	
4,300.0	4,248.0	4,263.0	4,263.0	14.5	9.5	111.10	1,909.1	-402.9	2,085.8	2,062.4	23.39	89.188	
4,400.0	4,346.3	4,361.3	4,361.3	14.9	9.7	111.58	1,909.1	-402.9	2,092.7	2,068.7	23.99	87.244	
4,500.0	4,444.5	4,459.5	4,459.5	15.3	9.9	112.04	1,909.1	-402.9	2,099.7	2,075.2	24.59	85.407	
4,519.6	4,463.8	4,478.8	4,478.8	15.4	10.0	112.13	1,909.1	-402.9	2,101.1	2,076.4	24.70	85.058	
4,600.0	4,542.9	4,557.9	4,557.9	15.7	10.1	112.58	1,909.1	-402.9	2,106.5	2,081.4	25.13	83.808	
4,700.0	4,641.9	4,656.9	4,656.9	16.0	10.4	113.04	1,909.1	-402.9	2,112.1	2,086.5	25.60	82.507	
4,800.0	4,741.3	4,756.3	4,756.3	16.2	10.6	113.38	1,909.1	-402.9	2,116.3	2,090.3	26.03	81.292	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dalton SW-24L Pad Sec.24-T7N-R66W - Dalton 23-24 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,841.0	4,856.0	4,856.0	16.4	10.8	113.62	1,909.1	-402.9	2,119.3	2,092.8	26.44	80.155	
5,000.0	4,941.0	4,956.0	4,956.0	16.5	11.0	113.74	1,909.1	-402.9	2,120.8	2,094.0	26.82	79.088	
5,059.0	5,000.0	5,015.0	5,015.0	16.6	11.2	6.09	1,909.1	-402.9	2,121.0	2,094.0	27.03	78.481	
5,100.0	5,041.0	5,056.0	5,056.0	16.7	11.3	6.09	1,909.1	-402.9	2,121.0	2,093.9	27.17	78.053	
5,200.0	5,141.0	5,156.0	5,156.0	16.8	11.5	6.09	1,909.1	-402.9	2,121.0	2,093.5	27.54	77.010	
5,300.0	5,241.0	5,256.0	5,256.0	17.0	11.7	6.09	1,909.1	-402.9	2,121.0	2,093.1	27.91	75.989	
5,400.0	5,341.0	5,356.0	5,356.0	17.1	11.9	6.09	1,909.1	-402.9	2,121.0	2,092.7	28.28	74.990	
5,500.0	5,441.0	5,456.0	5,456.0	17.2	12.2	6.09	1,909.1	-402.9	2,121.0	2,092.4	28.66	74.013	
5,600.0	5,541.0	5,556.0	5,556.0	17.4	12.4	6.09	1,909.1	-402.9	2,121.0	2,092.0	29.03	73.057	
5,700.0	5,641.0	5,656.0	5,656.0	17.5	12.6	6.09	1,909.1	-402.9	2,121.0	2,091.6	29.41	72.120	
5,800.0	5,741.0	5,756.0	5,756.0	17.7	12.8	6.09	1,909.1	-402.9	2,121.0	2,091.2	29.79	71.204	
5,900.0	5,841.0	5,856.0	5,856.0	17.8	13.0	6.09	1,909.1	-402.9	2,121.0	2,090.9	30.17	70.307	
6,000.0	5,941.0	5,956.0	5,956.0	18.0	13.3	6.09	1,909.1	-402.9	2,121.0	2,090.5	30.55	69.429	
6,100.0	6,041.0	6,056.0	6,056.0	18.1	13.5	6.09	1,909.1	-402.9	2,121.0	2,090.1	30.93	68.569	
6,200.0	6,141.0	6,156.0	6,156.0	18.3	13.7	6.09	1,909.1	-402.9	2,121.0	2,089.7	31.32	67.727	
6,300.0	6,241.0	6,256.0	6,256.0	18.4	13.9	6.09	1,909.1	-402.9	2,121.0	2,089.3	31.70	66.903	
6,400.0	6,341.0	6,356.0	6,356.0	18.6	14.2	6.09	1,909.1	-402.9	2,121.0	2,088.9	32.09	66.095	
6,500.0	6,441.0	6,456.0	6,456.0	18.7	14.4	6.09	1,909.1	-402.9	2,121.0	2,088.6	32.48	65.305	
6,600.0	6,541.0	6,556.0	6,556.0	18.9	14.6	6.09	1,909.1	-402.9	2,121.0	2,088.2	32.87	64.530	
6,634.3	6,575.3	6,590.3	6,590.3	19.0	14.7	6.09	1,909.1	-402.9	2,121.0	2,088.0	33.00	64.268	
6,650.0	6,591.0	6,606.0	6,606.0	19.0	14.7	6.09	1,909.1	-402.9	2,120.9	2,087.8	33.05	64.169	
6,700.0	6,640.9	6,655.9	6,655.9	19.1	14.8	6.12	1,909.1	-402.9	2,118.2	2,085.1	33.13	63.940	
6,750.0	6,690.5	6,705.5	6,705.5	19.1	15.0	6.19	1,909.1	-402.9	2,112.3	2,079.2	33.09	63.840	
6,800.0	6,739.7	6,754.7	6,754.7	19.2	15.1	6.29	1,909.1	-402.9	2,103.2	2,070.3	32.93	63.870	
6,850.0	6,788.1	6,803.1	6,803.1	19.2	15.2	6.43	1,909.1	-402.9	2,091.0	2,058.3	32.66	64.029	
6,900.0	6,835.6	6,850.6	6,850.6	19.3	15.3	6.62	1,909.1	-402.9	2,075.6	2,043.3	32.27	64.320	
6,950.0	6,882.1	6,897.1	6,897.1	19.3	15.4	6.85	1,909.1	-402.9	2,057.1	2,025.3	31.77	64.743	
7,000.0	6,927.2	6,942.2	6,942.2	19.3	15.5	7.14	1,909.1	-402.9	2,035.7	2,004.5	31.17	65.301	
7,050.0	6,970.8	6,985.8	6,985.8	19.3	15.6	7.50	1,909.1	-402.9	2,011.4	1,980.9	30.48	65.995	
7,100.0	7,012.7	7,027.7	7,027.7	19.4	15.7	7.93	1,909.1	-402.9	1,984.3	1,954.6	29.69	66.825	
7,150.0	7,052.7	7,067.7	7,067.7	19.4	15.8	8.45	1,909.1	-402.9	1,954.5	1,925.7	28.83	67.788	
7,200.0	7,090.7	7,105.7	7,105.7	19.4	15.9	9.08	1,909.1	-402.9	1,922.2	1,894.3	27.91	68.873	
7,250.0	7,126.4	7,141.4	7,141.4	19.4	15.9	9.84	1,909.1	-402.9	1,887.6	1,860.6	26.94	70.062	
7,300.0	7,159.9	7,174.9	7,174.9	19.5	16.0	10.78	1,909.1	-402.9	1,850.7	1,824.7	25.95	71.315	
7,350.0	7,190.8	7,205.8	7,205.8	19.5	16.1	11.94	1,909.1	-402.9	1,811.7	1,786.7	24.97	72.566	
7,400.0	7,219.1	7,215.0	7,215.0	19.6	16.1	13.17	1,909.1	-402.9	1,770.9	1,746.9	23.98	73.857	
7,450.0	7,244.6	7,215.0	7,215.0	19.7	16.1	14.58	1,909.1	-402.9	1,728.7	1,705.7	23.05	75.004	
7,500.0	7,267.2	7,215.0	7,215.0	19.8	16.1	16.33	1,909.1	-402.9	1,685.3	1,663.0	22.26	75.723	
7,550.0	7,286.9	7,215.0	7,215.0	20.0	16.1	18.54	1,909.1	-402.9	1,640.7	1,619.1	21.68	75.688	
7,600.0	7,303.6	7,215.0	7,215.0	20.2	16.1	21.40	1,909.1	-402.9	1,595.1	1,573.7	21.42	74.465	
7,650.0	7,317.1	7,215.0	7,215.0	20.5	16.1	25.18	1,909.1	-402.9	1,548.6	1,526.9	21.64	71.545	
7,700.0	7,327.4	7,215.0	7,215.0	20.8	16.1	30.37	1,909.1	-402.9	1,501.2	1,478.6	22.58	66.486	
7,754.3	7,335.0	7,215.0	7,215.0	21.2	16.1	38.47	1,909.1	-402.9	1,448.9	1,424.2	24.77	58.499	
7,800.0	7,339.8	7,215.0	7,215.0	21.5	16.1	38.47	1,909.1	-402.9	1,404.7	1,379.7	25.09	55.983	
7,828.3	7,342.8	7,215.0	7,215.0	21.8	16.1	38.47	1,909.1	-402.9	1,377.4	1,352.1	25.30	54.437	
7,900.0	7,348.0	7,215.0	7,215.0	22.5	16.1	48.11	1,909.1	-402.9	1,307.9	1,279.3	28.62	45.699	
7,939.2	7,349.0	7,215.0	7,215.0	22.9	16.1	54.79	1,909.1	-402.9	1,269.7	1,238.8	30.90	41.093	
8,000.0	7,349.5	7,215.0	7,215.0	23.6	16.1	54.79	1,909.1	-402.9	1,210.4	1,178.9	31.53	38.393	
8,100.0	7,350.3	7,215.0	7,215.0	24.8	16.1	54.79	1,909.1	-402.9	1,113.3	1,080.7	32.63	34.118	
8,200.0	7,351.1	7,215.0	7,215.0	26.1	16.1	54.79	1,909.1	-402.9	1,016.7	982.9	33.81	30.074	
8,300.0	7,351.9	7,215.0	7,215.0	27.5	16.1	54.79	1,909.1	-402.9	920.9	885.8	35.04	26.277	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dalton SW-24L Pad Sec.24-T7N-R66W - Dalton 23-24 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,400.0	7,352.7	7,215.0	7,215.0	28.9	16.1	54.79	1,909.1	-402.9	826.0	789.6	36.33	22.735	
8,500.0	7,353.5	7,215.0	7,215.0	30.4	16.1	54.79	1,909.1	-402.9	732.5	694.8	37.66	19.450	
8,600.0	7,354.3	7,215.0	7,215.0	32.0	16.1	54.79	1,909.1	-402.9	640.9	601.9	39.02	16.423	
8,700.0	7,355.0	7,215.0	7,215.0	33.6	16.1	54.79	1,909.1	-402.9	552.3	511.9	40.42	13.664	
8,800.0	7,355.8	7,215.0	7,215.0	35.2	16.1	54.79	1,909.1	-402.9	468.3	426.4	41.84	11.193	
8,900.0	7,356.6	7,215.0	7,215.0	36.8	16.1	54.79	1,909.1	-402.9	391.9	348.6	43.28	9.054	
9,000.0	7,357.4	7,215.0	7,215.0	38.5	16.1	54.79	1,909.1	-402.9	328.4	283.6	44.74	7.339	
9,100.0	7,358.2	7,215.0	7,215.0	40.2	16.1	54.79	1,909.1	-402.9	286.5	240.3	46.22	6.199	
9,178.7	7,358.8	7,215.0	7,215.0	41.6	16.1	54.79	1,909.1	-402.9	275.5	228.1	47.39	5.813	CC, ES
9,200.0	7,359.0	7,215.0	7,215.0	41.9	16.1	54.79	1,909.1	-402.9	276.3	228.6	47.71	5.792	SF
9,300.0	7,359.8	7,215.0	7,215.0	43.7	16.1	54.79	1,909.1	-402.9	301.0	251.8	49.21	6.117	
9,400.0	7,360.6	7,215.0	7,215.0	45.4	16.1	54.79	1,909.1	-402.9	353.4	302.6	50.72	6.967	
9,500.0	7,361.4	7,215.0	7,215.0	47.2	16.1	54.79	1,909.1	-402.9	423.2	371.0	52.25	8.101	
9,600.0	7,362.2	7,215.0	7,215.0	48.9	16.1	54.79	1,909.1	-402.9	503.4	449.6	53.78	9.361	
9,700.0	7,363.0	7,215.0	7,215.0	50.7	16.1	54.79	1,909.1	-402.9	589.6	534.3	55.32	10.659	
9,800.0	7,363.8	7,215.0	7,215.0	52.5	16.1	54.79	1,909.1	-402.9	679.6	622.8	56.86	11.953	
9,900.0	7,364.6	7,215.0	7,215.0	54.3	16.1	54.79	1,909.1	-402.9	772.1	713.7	58.41	13.219	
10,000.0	7,365.4	7,215.0	7,215.0	56.1	16.1	54.79	1,909.1	-402.9	866.3	806.3	59.97	14.446	
10,100.0	7,366.1	7,215.0	7,215.0	58.0	16.1	54.79	1,909.1	-402.9	961.6	900.1	61.53	15.628	
10,200.0	7,366.9	7,215.0	7,215.0	59.8	16.1	54.79	1,909.1	-402.9	1,057.8	994.7	63.10	16.765	
10,300.0	7,367.7	7,215.0	7,215.0	61.6	16.1	54.79	1,909.1	-402.9	1,154.7	1,090.0	64.67	17.856	
10,400.0	7,368.5	7,215.0	7,215.0	63.5	16.1	54.79	1,909.1	-402.9	1,252.0	1,185.8	66.24	18.901	
10,500.0	7,369.3	7,215.0	7,215.0	65.3	16.1	54.79	1,909.1	-402.9	1,349.7	1,281.9	67.82	19.903	
10,600.0	7,370.1	7,215.0	7,215.0	67.2	16.1	54.79	1,909.1	-402.9	1,447.8	1,378.4	69.40	20.862	
10,700.0	7,370.9	7,215.0	7,215.0	69.0	16.1	54.79	1,909.1	-402.9	1,546.1	1,475.1	70.98	21.782	
10,800.0	7,371.7	7,215.0	7,215.0	70.9	16.1	54.79	1,909.1	-402.9	1,644.6	1,572.0	72.56	22.664	
10,900.0	7,372.5	7,215.0	7,215.0	72.7	16.1	54.79	1,909.1	-402.9	1,743.2	1,669.1	74.15	23.509	
11,000.0	7,373.3	7,215.0	7,215.0	74.6	16.1	54.79	1,909.1	-402.9	1,842.0	1,766.3	75.74	24.320	
11,100.0	7,374.1	7,215.0	7,215.0	76.4	16.1	54.79	1,909.1	-402.9	1,941.0	1,863.6	77.33	25.099	
11,200.0	7,374.9	7,215.0	7,215.0	78.3	16.1	54.79	1,909.1	-402.9	2,040.0	1,961.1	78.93	25.847	
11,300.0	7,375.7	7,215.0	7,215.0	80.2	16.1	54.79	1,909.1	-402.9	2,139.1	2,058.6	80.52	26.566	
11,400.0	7,376.5	7,215.0	7,215.0	82.1	16.1	54.79	1,909.1	-402.9	2,238.3	2,156.2	82.12	27.258	
11,500.0	7,377.2	7,215.0	7,215.0	83.9	16.1	54.79	1,909.1	-402.9	2,337.6	2,253.9	83.72	27.923	
11,600.0	7,378.0	7,215.0	7,215.0	85.8	16.1	54.79	1,909.1	-402.9	2,436.9	2,351.6	85.32	28.564	
11,700.0	7,378.8	7,215.0	7,215.0	87.7	16.1	54.79	1,909.1	-402.9	2,536.3	2,449.4	86.92	29.181	
11,800.0	7,379.6	7,215.0	7,215.0	89.6	16.1	54.79	1,909.1	-402.9	2,635.8	2,547.2	88.52	29.776	
11,846.9	7,380.0	7,215.0	7,215.0	90.5	16.1	54.79	1,909.1	-402.9	2,682.4	2,593.1	89.27	30.048	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dalton SW-24L Pad Sec.24-T7N-R66W - Dalton 24-24 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	15.0	15.0	0.0	0.0	-74.01	215.0	-750.3	780.5	780.5	0.02	N/A	
100.0	100.0	115.0	115.0	0.1	0.1	-74.01	215.0	-750.3	780.5	780.2	0.26	3,019.449	
200.0	200.0	215.0	215.0	0.3	0.4	-74.01	215.0	-750.3	780.5	779.8	0.71	1,102.338	
300.0	300.0	315.0	315.0	0.6	0.6	-74.01	215.0	-750.3	780.5	779.3	1.16	674.246	
400.0	400.0	415.0	415.0	0.8	0.8	-74.01	215.0	-750.3	780.5	778.9	1.61	485.646	
500.0	500.0	515.0	515.0	1.0	1.0	-74.01	215.0	-750.3	780.5	778.4	2.06	379.494	
600.0	600.0	615.0	615.0	1.2	1.3	-74.01	215.0	-750.3	780.5	778.0	2.51	311.423	
700.0	700.0	715.0	715.0	1.5	1.5	-74.01	215.0	-750.3	780.5	777.5	2.96	264.058	
800.0	800.0	815.0	815.0	1.7	1.7	-74.01	215.0	-750.3	780.5	777.1	3.41	229.199	
900.0	900.0	915.0	915.0	1.9	1.9	-74.01	215.0	-750.3	780.5	776.6	3.85	202.470	
1,000.0	1,000.0	1,015.0	1,015.0	2.1	2.2	-74.01	215.0	-750.3	780.5	776.2	4.30	181.325	
1,100.0	1,100.0	1,115.0	1,115.0	2.3	2.4	33.74	215.0	-750.3	779.0	774.3	4.73	164.530	
1,200.0	1,199.8	1,214.8	1,214.8	2.5	2.6	34.00	215.0	-750.3	774.7	769.5	5.15	150.418	
1,300.0	1,299.5	1,314.5	1,314.5	2.8	2.8	34.45	215.0	-750.3	767.5	761.9	5.57	137.773	
1,400.0	1,398.7	1,413.7	1,413.7	3.0	3.1	35.08	215.0	-750.3	757.4	751.4	6.00	126.273	
1,500.0	1,497.5	1,512.5	1,512.5	3.3	3.3	35.92	215.0	-750.3	744.6	738.2	6.44	115.662	
1,539.4	1,536.2	1,551.2	1,551.2	3.4	3.4	36.31	215.0	-750.3	738.9	732.2	6.62	111.681	
1,600.0	1,595.7	1,610.7	1,610.7	3.6	3.5	36.84	215.0	-750.3	729.7	722.8	6.90	105.682	
1,700.0	1,694.0	1,709.0	1,709.0	3.9	3.7	37.73	215.0	-750.3	714.7	707.3	7.39	96.654	
1,800.0	1,792.2	1,807.2	1,807.2	4.3	3.9	38.66	215.0	-750.3	699.9	692.0	7.90	88.602	
1,900.0	1,890.4	1,905.4	1,905.4	4.6	4.2	39.64	215.0	-750.3	685.3	676.9	8.42	81.408	
2,000.0	1,988.7	2,003.7	2,003.7	5.0	4.4	40.65	215.0	-750.3	670.9	661.9	8.95	74.964	
2,100.0	2,086.9	2,101.9	2,101.9	5.4	4.6	41.70	215.0	-750.3	656.7	647.2	9.49	69.178	
2,200.0	2,185.1	2,200.1	2,200.1	5.8	4.8	42.80	215.0	-750.3	642.7	632.6	10.05	63.968	
2,300.0	2,283.4	2,298.4	2,298.4	6.2	5.1	43.95	215.0	-750.3	629.0	618.4	10.61	59.263	
2,400.0	2,381.6	2,396.6	2,396.6	6.6	5.3	45.15	215.0	-750.3	615.5	604.3	11.19	55.005	
2,500.0	2,479.8	2,494.8	2,494.8	7.0	5.5	46.40	215.0	-750.3	602.3	590.6	11.78	51.140	
2,600.0	2,578.1	2,593.1	2,593.1	7.4	5.7	47.71	215.0	-750.3	589.5	577.1	12.38	47.626	
2,700.0	2,676.3	2,691.3	2,691.3	7.8	5.9	49.07	215.0	-750.3	576.9	563.9	12.99	44.424	
2,800.0	2,774.5	2,789.5	2,789.5	8.2	6.2	50.49	215.0	-750.3	564.7	551.1	13.61	41.501	
2,900.0	2,872.8	2,887.8	2,887.8	8.6	6.4	51.97	215.0	-750.3	552.9	538.6	14.24	38.830	
3,000.0	2,971.0	2,986.0	2,986.0	9.0	6.6	53.51	215.0	-750.3	541.4	526.5	14.88	36.386	
3,100.0	3,069.2	3,084.2	3,084.2	9.4	6.8	55.12	215.0	-750.3	530.3	514.8	15.53	34.149	
3,200.0	3,167.5	3,182.5	3,182.5	9.8	7.0	56.79	215.0	-750.3	519.7	503.5	16.19	32.099	
3,300.0	3,265.7	3,280.7	3,280.7	10.3	7.3	58.53	215.0	-750.3	509.6	492.7	16.86	30.220	
3,400.0	3,363.9	3,378.9	3,378.9	10.7	7.5	60.33	215.0	-750.3	500.0	482.4	17.54	28.500	
3,500.0	3,462.2	3,477.2	3,477.2	11.1	7.7	62.21	215.0	-750.3	490.8	472.6	18.23	26.924	
3,600.0	3,560.4	3,575.4	3,575.4	11.5	7.9	64.15	215.0	-750.3	482.3	463.3	18.92	25.484	
3,700.0	3,658.6	3,673.6	3,673.6	11.9	8.1	66.15	215.0	-750.3	474.3	454.7	19.62	24.168	
3,800.0	3,756.9	3,771.9	3,771.9	12.4	8.4	68.22	215.0	-750.3	466.9	446.6	20.33	22.968	
3,900.0	3,855.1	3,870.1	3,870.1	12.8	8.6	70.35	215.0	-750.3	460.2	439.1	21.04	21.876	
4,000.0	3,953.3	3,968.3	3,968.3	13.2	8.8	72.54	215.0	-750.3	454.1	432.4	21.74	20.885	
4,100.0	4,051.6	4,066.6	4,066.6	13.6	9.0	74.78	215.0	-750.3	448.8	426.3	22.45	19.989	
4,200.0	4,149.8	4,164.8	4,164.8	14.1	9.2	77.07	215.0	-750.3	444.2	421.0	23.15	19.182	
4,300.0	4,248.0	4,263.0	4,263.0	14.5	9.5	79.41	215.0	-750.3	440.3	416.4	23.85	18.459	
4,400.0	4,346.3	4,361.3	4,361.3	14.9	9.7	81.78	215.0	-750.3	437.2	412.6	24.54	17.813	
4,500.0	4,444.5	4,459.5	4,459.5	15.3	9.9	84.18	215.0	-750.3	434.8	409.6	25.22	17.241	
4,519.6	4,463.8	4,478.8	4,478.8	15.4	10.0	84.65	215.0	-750.3	434.5	409.1	25.35	17.137	
4,600.0	4,542.9	4,557.9	4,557.9	15.7	10.1	86.44	215.0	-750.3	433.4	407.5	25.83	16.778	
4,700.0	4,641.9	4,656.9	4,656.9	16.0	10.4	88.28	215.0	-750.3	432.7	406.4	26.32	16.437	
4,800.0	4,741.3	4,756.3	4,756.3	16.2	10.6	89.70	215.0	-750.3	432.5	405.7	26.78	16.152	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dalton SW-24L Pad Sec.24-T7N-R66W - Dalton 24-24 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,826.8	4,768.1	4,783.1	4,783.1	16.3	10.6	90.00	215.0	-750.3	432.5	405.6	26.89	16.085	
4,900.0	4,841.0	4,856.0	4,856.0	16.4	10.8	90.66	215.0	-750.3	432.5	405.3	27.19	15.907	
5,000.0	4,941.0	4,956.0	4,956.0	16.5	11.0	91.16	215.0	-750.3	432.6	405.0	27.57	15.691	
5,059.0	5,000.0	5,015.0	5,015.0	16.6	11.2	-16.42	215.0	-750.3	432.6	404.8	27.78	15.572	
5,100.0	5,041.0	5,056.0	5,056.0	16.7	11.3	-16.42	215.0	-750.3	432.6	404.7	27.93	15.491	
5,200.0	5,141.0	5,156.0	5,156.0	16.8	11.5	-16.42	215.0	-750.3	432.6	404.3	28.29	15.293	
5,300.0	5,241.0	5,256.0	5,256.0	17.0	11.7	-16.42	215.0	-750.3	432.6	404.0	28.65	15.099	
5,400.0	5,341.0	5,356.0	5,356.0	17.1	11.9	-16.42	215.0	-750.3	432.6	403.6	29.02	14.909	
5,500.0	5,441.0	5,456.0	5,456.0	17.2	12.2	-16.42	215.0	-750.3	432.6	403.2	29.38	14.723	
5,600.0	5,541.0	5,556.0	5,556.0	17.4	12.4	-16.42	215.0	-750.3	432.6	402.9	29.75	14.541	
5,700.0	5,641.0	5,656.0	5,656.0	17.5	12.6	-16.42	215.0	-750.3	432.6	402.5	30.12	14.362	
5,800.0	5,741.0	5,756.0	5,756.0	17.7	12.8	-16.42	215.0	-750.3	432.6	402.1	30.49	14.187	
5,900.0	5,841.0	5,856.0	5,856.0	17.8	13.0	-16.42	215.0	-750.3	432.6	401.7	30.87	14.016	
6,000.0	5,941.0	5,956.0	5,956.0	18.0	13.3	-16.42	215.0	-750.3	432.6	401.4	31.24	13.847	
6,100.0	6,041.0	6,056.0	6,056.0	18.1	13.5	-16.42	215.0	-750.3	432.6	401.0	31.62	13.682	
6,200.0	6,141.0	6,156.0	6,156.0	18.3	13.7	-16.42	215.0	-750.3	432.6	400.6	32.00	13.521	
6,300.0	6,241.0	6,256.0	6,256.0	18.4	13.9	-16.42	215.0	-750.3	432.6	400.2	32.37	13.362	
6,400.0	6,341.0	6,356.0	6,356.0	18.6	14.2	-16.42	215.0	-750.3	432.6	399.8	32.76	13.207	
6,500.0	6,441.0	6,456.0	6,456.0	18.7	14.4	-16.42	215.0	-750.3	432.6	399.5	33.14	13.055	
6,600.0	6,541.0	6,556.0	6,556.0	18.9	14.6	-16.42	215.0	-750.3	432.6	399.1	33.52	12.905	
6,634.3	6,575.3	6,590.3	6,590.3	19.0	14.7	-16.42	215.0	-750.3	432.6	398.9	33.65	12.854	
6,650.0	6,591.0	6,606.0	6,606.0	19.0	14.7	-16.43	215.0	-750.3	432.4	398.7	33.71	12.829	
6,700.0	6,640.9	6,655.9	6,655.9	19.1	14.8	-16.58	215.0	-750.3	429.9	396.1	33.81	12.715	
6,750.0	6,690.5	6,705.5	6,705.5	19.1	15.0	-16.94	215.0	-750.3	424.2	390.4	33.79	12.554	
6,800.0	6,739.7	6,754.7	6,754.7	19.2	15.1	-17.50	215.0	-750.3	415.5	381.8	33.66	12.342	
6,850.0	6,788.1	6,803.1	6,803.1	19.2	15.2	-18.31	215.0	-750.3	403.7	370.3	33.42	12.079	
6,900.0	6,835.6	6,850.6	6,850.6	19.3	15.3	-19.41	215.0	-750.3	388.9	355.9	33.08	11.759	
6,950.0	6,882.1	6,897.1	6,897.1	19.3	15.4	-20.85	215.0	-750.3	371.4	338.7	32.64	11.377	
7,000.0	6,927.2	6,942.2	6,942.2	19.3	15.5	-22.72	215.0	-750.3	351.1	318.9	32.13	10.926	
7,050.0	6,970.8	6,985.8	6,985.8	19.3	15.6	-25.13	215.0	-750.3	328.3	296.7	31.58	10.395	
7,100.0	7,012.7	7,027.7	7,027.7	19.4	15.7	-28.27	215.0	-750.3	303.1	272.1	31.02	9.771	
7,150.0	7,052.7	7,067.7	7,067.7	19.4	15.8	-32.34	215.0	-750.3	276.0	245.4	30.54	9.038	
7,200.0	7,090.7	7,105.7	7,105.7	19.4	15.9	-37.63	215.0	-750.3	247.3	217.1	30.22	8.183	
7,250.0	7,126.4	7,141.4	7,141.4	19.4	15.9	-44.45	215.0	-750.3	217.6	187.4	30.20	7.207	
7,300.0	7,159.9	7,174.9	7,174.9	19.5	16.0	-53.06	215.0	-750.3	188.0	157.4	30.58	6.148	
7,350.0	7,190.8	7,205.8	7,205.8	19.5	16.1	-63.37	215.0	-750.3	160.2	128.9	31.35	5.111	
7,400.0	7,219.1	7,215.0	7,215.0	19.6	16.1	-67.92	215.0	-750.3	138.6	106.8	31.73	4.367	
7,445.1	7,242.2	7,215.0	7,215.0	19.7	16.1	-68.42	215.0	-750.3	131.5	99.7	31.84	4.130	CC, ES, SF
7,450.0	7,244.6	7,215.0	7,215.0	19.7	16.1	-68.42	215.0	-750.3	131.6	99.7	31.85	4.132	
7,500.0	7,267.2	7,215.0	7,215.0	19.8	16.1	-67.68	215.0	-750.3	141.8	109.9	31.91	4.444	
7,550.0	7,286.9	7,215.0	7,215.0	20.0	16.1	-65.75	215.0	-750.3	166.1	134.2	31.87	5.210	
7,600.0	7,303.6	7,215.0	7,215.0	20.2	16.1	-62.74	215.0	-750.3	199.2	167.5	31.68	6.287	
7,650.0	7,317.1	7,215.0	7,215.0	20.5	16.1	-58.84	215.0	-750.3	237.4	206.1	31.30	7.586	
7,700.0	7,327.4	7,215.0	7,215.0	20.8	16.1	-54.32	215.0	-750.3	278.5	247.8	30.71	9.071	
7,754.3	7,335.0	7,215.0	7,215.0	21.2	16.1	-49.04	215.0	-750.3	325.0	295.1	29.87	10.882	
7,800.0	7,339.8	7,215.0	7,215.0	21.5	16.1	-49.04	215.0	-750.3	365.3	335.1	30.24	12.082	
7,828.3	7,342.8	7,215.0	7,215.0	21.8	16.1	-49.04	215.0	-750.3	390.9	360.4	30.47	12.827	
7,900.0	7,348.0	7,215.0	7,215.0	22.5	16.1	-43.15	215.0	-750.3	456.5	427.0	29.51	15.469	
7,939.2	7,349.0	7,215.0	7,215.0	22.9	16.1	-40.06	215.0	-750.3	492.7	463.7	28.98	17.003	
8,000.0	7,349.5	7,215.0	7,215.0	23.6	16.1	-40.06	215.0	-750.3	549.3	519.7	29.52	18.607	
8,100.0	7,350.3	7,215.0	7,215.0	24.8	16.1	-40.06	215.0	-750.3	644.0	613.6	30.46	21.146	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Offset Design Dalton SW-24L Pad Sec.24-T7N-R66W - Dalton 24-24 (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

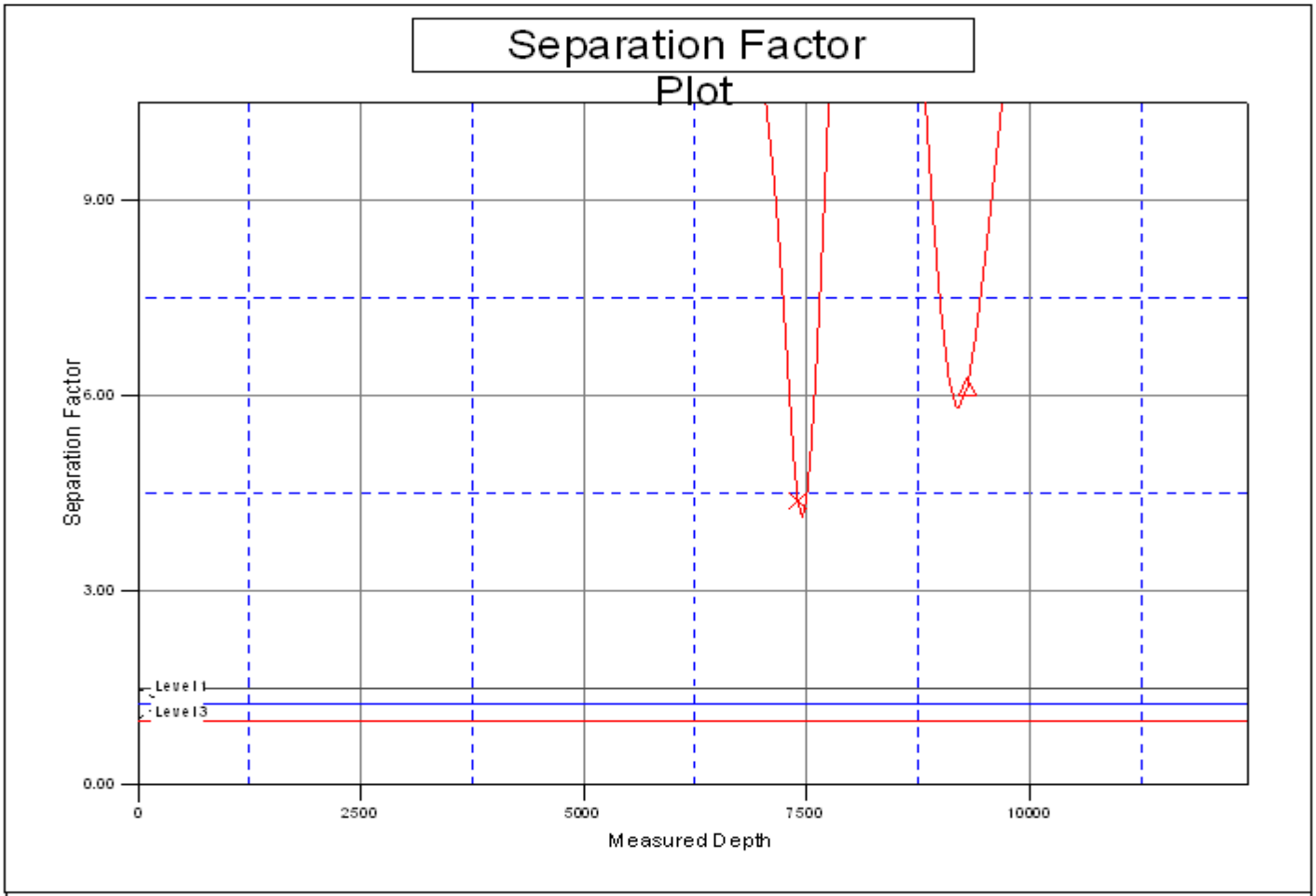
Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,200.0	7,351.1	7,215.0	7,215.0	26.1	16.1	-40.06	215.0	-750.3	740.2	708.7	31.44	23.539	
8,300.0	7,351.9	7,215.0	7,215.0	27.5	16.1	-40.06	215.0	-750.3	837.2	804.7	32.47	25.781	
8,400.0	7,352.7	7,215.0	7,215.0	28.9	16.1	-40.06	215.0	-750.3	934.9	901.3	33.54	27.873	
8,500.0	7,353.5	7,215.0	7,215.0	30.4	16.1	-40.06	215.0	-750.3	1,033.0	998.3	34.64	29.822	
8,600.0	7,354.3	7,215.0	7,215.0	32.0	16.1	-40.06	215.0	-750.3	1,131.4	1,095.7	35.76	31.636	
8,700.0	7,355.0	7,215.0	7,215.0	33.6	16.1	-40.06	215.0	-750.3	1,230.1	1,193.2	36.91	33.325	
8,800.0	7,355.8	7,215.0	7,215.0	35.2	16.1	-40.06	215.0	-750.3	1,329.0	1,290.9	38.08	34.899	
8,900.0	7,356.6	7,215.0	7,215.0	36.8	16.1	-40.06	215.0	-750.3	1,428.1	1,388.8	39.27	36.367	
9,000.0	7,357.4	7,215.0	7,215.0	38.5	16.1	-40.06	215.0	-750.3	1,527.2	1,486.8	40.47	37.737	
9,100.0	7,358.2	7,215.0	7,215.0	40.2	16.1	-40.06	215.0	-750.3	1,626.5	1,584.8	41.69	39.018	
9,200.0	7,359.0	7,215.0	7,215.0	41.9	16.1	-40.06	215.0	-750.3	1,725.9	1,682.9	42.91	40.217	
9,300.0	7,359.8	7,215.0	7,215.0	43.7	16.1	-40.06	215.0	-750.3	1,825.3	1,781.1	44.15	41.341	
9,400.0	7,360.6	7,215.0	7,215.0	45.4	16.1	-40.06	215.0	-750.3	1,924.8	1,879.4	45.40	42.396	
9,500.0	7,361.4	7,215.0	7,215.0	47.2	16.1	-40.06	215.0	-750.3	2,024.3	1,977.6	46.66	43.388	
9,600.0	7,362.2	7,215.0	7,215.0	48.9	16.1	-40.06	215.0	-750.3	2,123.9	2,076.0	47.92	44.322	
9,700.0	7,363.0	7,215.0	7,215.0	50.7	16.1	-40.06	215.0	-750.3	2,223.5	2,174.3	49.19	45.203	
9,800.0	7,363.8	7,215.0	7,215.0	52.5	16.1	-40.06	215.0	-750.3	2,323.1	2,272.7	50.47	46.034	
9,900.0	7,364.6	7,215.0	7,215.0	54.3	16.1	-40.06	215.0	-750.3	2,422.8	2,371.1	51.75	46.820	
10,000.0	7,365.4	7,215.0	7,215.0	56.1	16.1	-40.06	215.0	-750.3	2,522.5	2,469.5	53.03	47.564	
10,100.0	7,366.1	7,215.0	7,215.0	58.0	16.1	-40.06	215.0	-750.3	2,622.3	2,567.9	54.33	48.269	
10,200.0	7,366.9	7,215.0	7,215.0	59.8	16.1	-40.06	215.0	-750.3	2,722.0	2,666.4	55.62	48.938	
10,300.0	7,367.7	7,215.0	7,215.0	61.6	16.1	-40.06	215.0	-750.3	2,821.8	2,764.8	56.92	49.574	
10,400.0	7,368.5	7,215.0	7,215.0	63.5	16.1	-40.06	215.0	-750.3	2,921.5	2,863.3	58.22	50.178	
10,500.0	7,369.3	7,215.0	7,215.0	65.3	16.1	-40.06	215.0	-750.3	3,021.3	2,961.8	59.53	50.754	
10,600.0	7,370.1	7,215.0	7,215.0	67.2	16.1	-40.06	215.0	-750.3	3,121.2	3,060.3	60.84	51.303	
10,700.0	7,370.9	7,215.0	7,215.0	69.0	16.1	-40.06	215.0	-750.3	3,221.0	3,158.8	62.15	51.827	
10,800.0	7,371.7	7,215.0	7,215.0	70.9	16.1	-40.06	215.0	-750.3	3,320.8	3,257.3	63.46	52.327	
10,900.0	7,372.5	7,215.0	7,215.0	72.7	16.1	-40.06	215.0	-750.3	3,420.6	3,355.9	64.78	52.805	
11,000.0	7,373.3	7,215.0	7,215.0	74.6	16.1	-40.06	215.0	-750.3	3,520.5	3,454.4	66.10	53.262	
11,100.0	7,374.1	7,215.0	7,215.0	76.4	16.1	-40.06	215.0	-750.3	3,620.4	3,552.9	67.42	53.700	
11,200.0	7,374.9	7,215.0	7,215.0	78.3	16.1	-40.06	215.0	-750.3	3,720.2	3,651.5	68.74	54.120	
11,300.0	7,375.7	7,215.0	7,215.0	80.2	16.1	-40.06	215.0	-750.3	3,820.1	3,750.0	70.06	54.523	
11,400.0	7,376.5	7,215.0	7,215.0	82.1	16.1	-40.06	215.0	-750.3	3,920.0	3,848.6	71.39	54.910	
11,500.0	7,377.2	7,215.0	7,215.0	83.9	16.1	-40.06	215.0	-750.3	4,019.9	3,947.1	72.72	55.282	
11,600.0	7,378.0	7,215.0	7,215.0	85.8	16.1	-40.06	215.0	-750.3	4,119.7	4,045.7	74.04	55.639	
11,700.0	7,378.8	7,215.0	7,215.0	87.7	16.1	-40.06	215.0	-750.3	4,219.6	4,144.3	75.37	55.983	
11,800.0	7,379.6	7,215.0	7,215.0	89.6	16.1	-40.06	215.0	-750.3	4,319.5	4,242.8	76.70	56.314	
11,846.9	7,380.0	7,215.0	7,215.0	90.5	16.1	-40.06	215.0	-750.3	4,366.4	4,289.0	77.33	56.465	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4880.0ft (Original Well Elev) Coordinates are relative to: Dalton 24Q-441
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.50°

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Dalton 24Q-441
Project:	SEC.24-T7N-R66W	**TVD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Reference Site:	Dalton SW-24Q Pad Sec.24-T7N-R66W	**MD Reference:**	WELL @ 4880.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Dalton 24Q-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (8-13-12)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4880.0ft (Original Well Elev) Coordinates are relative to: Dalton 24Q-441
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.50°



LEGEND

Dalton 23-24 (Exist.), Wellbore #1, Design #1 V0
Dalton 13-24 (Exist.), Wellbore #1, Design #1 V0
Dalton 24-24 (Exist.), Wellbore #1, Design #1 V0
Dalton 14-24 (Exist.), Wellbore #1, Design #1 V0