

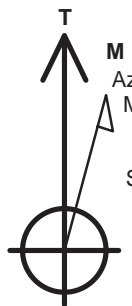
# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Brown 23D-201**

Surface Location: Brown 5N65W23 Pad Sec.23-T5N-R65W  
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone  
 Ground Elevation: 4643.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1382631.88 3243495.79 40.380432 -104.625959  
 Original Well Elev WELL @ 4656.0ft (Original Well Elev)

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' E/W Hardline (23D-201)	1.0	5608.2	-50.1	Rectangle (Sides: L7896.5 W100.0)
SHL 1082'FSL & 1374'FEL, Sec.23	1.0	0.0	0.0	Point
BHL 0'FNL & 1405'FEL, Sec.14	6782.0	9556.3	-50.1	Point

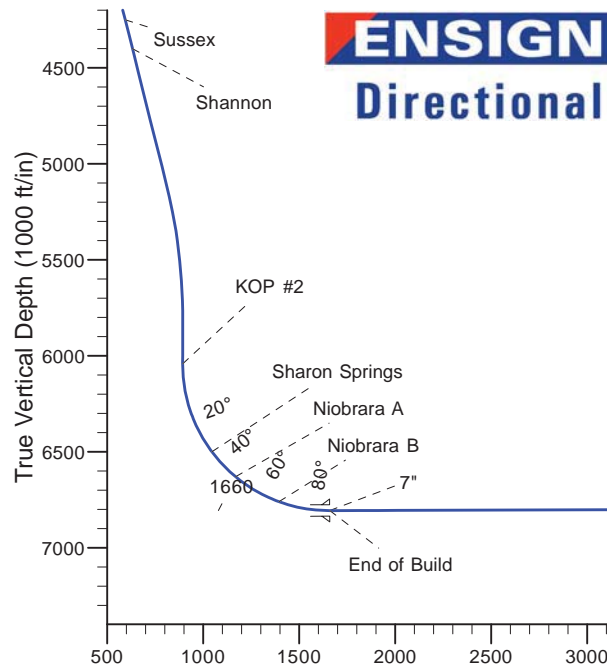
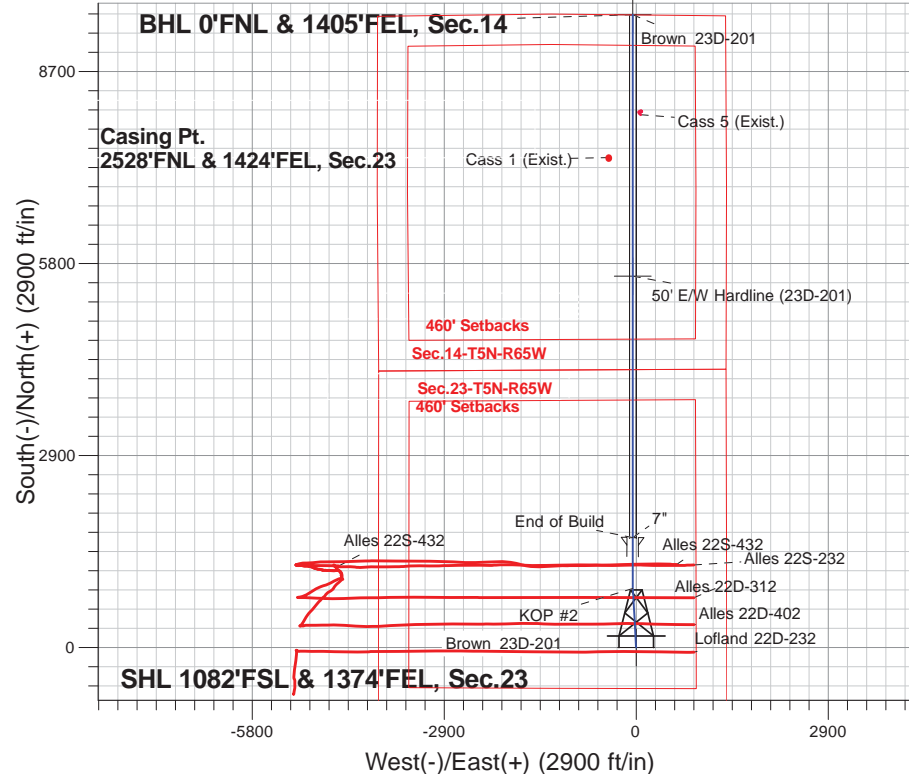


Azimuths to True North  
 Magnetic North: 8.22°  
 Magnetic Field  
 Strength: 52692.7snT  
 Dip Angle: 66.91°  
 Date: 9/2/2015  
 Model: IGRF2010

## ANNOTATIONS

TVD	MD	Annotation
1400.0	1400.0	KOP #1
6042.9	6144.8	KOP #2
6806.8	7347.2	End of Build

Brown 5N65W23 Pad Sec.23-T5N-R65W  
 Brown 23D-201  
 Plan #1 (9-2-15)  
 9:31, September 04 2015



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1400.0	0.00	0.00	1400.0	0.0	0.0	0.00	0.00	0.0	
3	2336.3	14.04	356.79	2327.0	114.0	-6.4	1.50	356.79	114.0	
4	5199.7	14.04	356.79	5104.8	807.8	-45.3	0.00	0.00	808.0	
5	5902.0	0.00	0.00	5800.0	893.3	-50.1	2.00	180.00	893.6	
6	6144.8	0.00	0.00	6042.9	893.3	-50.1	0.00	0.00	893.6	
7	7347.2	90.18	0.00	6806.8	1659.6	-50.1	7.50	0.00	1659.9	
8	15243.9	90.18	0.00	6782.0	9556.3	-50.1	0.00	0.00	9556.4	BHL 0'FNL & 1405'FEL, Sec.14

BHL 0'FNL & 1405'FEL, Sec.14

Vertical Section at 359.70° (1000 ft/in)

# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.23-T5N-R65W**

**Brown 5N65W23 Pad Sec.23-T5N-R65W**

**Brown 23D-201**

**Wellbore #1**

**Plan: Plan #1 (9-2-15)**

## **Standard Planning Report**

**04 September, 2015**

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Project:</b>	SEC.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-2-15)		

<b>Project</b>	SEC.23-T5N-R65W		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site		Brown 5N65W23 Pad Sec.23-T5N-R65W			
Site Position:		Northing:	1,382,632.17 usft	Latitude:	40.380434
From:	Lat/Long	Easting:	3,243,450.66 usft	Longitude:	-104.626121
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.56

Well	Brown 23D-201					
Well Position	+N/-S	-0.7 ft	Northing:	1,382,631.88 usft	Latitude:	40.380432
	+E/-W	45.1 ft	Easting:	3,243,495.79 usft	Longitude:	-104.625959
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,643.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	9/2/2015	8.22	66.91	52,693

<b>Design</b>	Plan #1 (9-2-15)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	359.70

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,336.3	14.04	356.79	2,327.0	114.0	-6.4	1.50	1.50	0.00	356.79	
5,199.7	14.04	356.79	5,104.8	807.8	-45.3	0.00	0.00	0.00	0.00	
5,902.0	0.00	0.00	5,800.0	893.3	-50.1	2.00	-2.00	0.00	180.00	
6,144.8	0.00	0.00	6,042.9	893.3	-50.1	0.00	0.00	0.00	0.00	
7,347.2	90.18	0.00	6,806.8	1,659.6	-50.1	7.50	7.50	0.00	0.00	
15,243.9	90.18	0.00	6,782.0	9,556.3	-50.1	0.00	0.00	0.00	0.00	BHL 0°FNL & 1405°FE

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Project:</b>	SEC.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-2-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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
<b>SHL 1082'FSL &amp; 1374'FEL, Sec.23 - 50' E/W Hardline (23D-201)</b>									
100.0	0.00	0.00	100.0	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
300.0	0.00	0.00	300.0	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
500.0	0.00	0.00	500.0	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
700.0	0.00	0.00	700.0	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
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP #1</b>									
1,500.0	1.50	356.79	1,500.0	1.3	-0.1	1.3	1.50	1.50	0.00
1,600.0	3.00	356.79	1,599.9	5.2	-0.3	5.2	1.50	1.50	0.00
1,700.0	4.50	356.79	1,699.7	11.8	-0.7	11.8	1.50	1.50	0.00
1,800.0	6.00	356.79	1,799.3	20.9	-1.2	20.9	1.50	1.50	0.00
1,900.0	7.50	356.79	1,898.6	32.6	-1.8	32.6	1.50	1.50	0.00
2,000.0	9.00	356.79	1,997.5	47.0	-2.6	47.0	1.50	1.50	0.00
2,100.0	10.50	356.79	2,096.1	63.9	-3.6	63.9	1.50	1.50	0.00
2,200.0	12.00	356.79	2,194.2	83.3	-4.7	83.4	1.50	1.50	0.00
2,300.0	13.50	356.79	2,291.7	105.4	-5.9	105.4	1.50	1.50	0.00
2,336.3	14.04	356.79	2,327.0	114.0	-6.4	114.0	1.50	1.50	0.00
2,400.0	14.04	356.79	2,388.7	129.4	-7.3	129.5	0.00	0.00	0.00
2,500.0	14.04	356.79	2,485.8	153.7	-8.6	153.7	0.00	0.00	0.00
2,600.0	14.04	356.79	2,582.8	177.9	-10.0	177.9	0.00	0.00	0.00
2,700.0	14.04	356.79	2,679.8	202.1	-11.3	202.2	0.00	0.00	0.00
2,800.0	14.04	356.79	2,776.8	226.4	-12.7	226.4	0.00	0.00	0.00
2,900.0	14.04	356.79	2,873.8	250.6	-14.1	250.7	0.00	0.00	0.00
3,000.0	14.04	356.79	2,970.8	274.8	-15.4	274.9	0.00	0.00	0.00
3,100.0	14.04	356.79	3,067.8	299.0	-16.8	299.1	0.00	0.00	0.00
3,200.0	14.04	356.79	3,164.8	323.3	-18.1	323.4	0.00	0.00	0.00
3,300.0	14.04	356.79	3,261.8	347.5	-19.5	347.6	0.00	0.00	0.00
3,400.0	14.04	356.79	3,358.9	371.7	-20.9	371.8	0.00	0.00	0.00
3,500.0	14.04	356.79	3,455.9	396.0	-22.2	396.1	0.00	0.00	0.00
3,545.5	14.04	356.79	3,500.0	407.0	-22.8	407.1	0.00	0.00	0.00
<b>Parkman</b>									
3,600.0	14.04	356.79	3,552.9	420.2	-23.6	420.3	0.00	0.00	0.00
3,700.0	14.04	356.79	3,649.9	444.4	-24.9	444.5	0.00	0.00	0.00
3,800.0	14.04	356.79	3,746.9	468.6	-26.3	468.8	0.00	0.00	0.00
3,900.0	14.04	356.79	3,843.9	492.9	-27.7	493.0	0.00	0.00	0.00
4,000.0	14.04	356.79	3,940.9	517.1	-29.0	517.3	0.00	0.00	0.00
4,100.0	14.04	356.79	4,037.9	541.3	-30.4	541.5	0.00	0.00	0.00
4,200.0	14.04	356.79	4,134.9	565.6	-31.7	565.7	0.00	0.00	0.00
4,300.0	14.04	356.79	4,232.0	589.8	-33.1	590.0	0.00	0.00	0.00
4,318.6	14.04	356.79	4,250.0	594.3	-33.4	594.5	0.00	0.00	0.00
<b>Sussex</b>									
4,400.0	14.04	356.79	4,329.0	614.0	-34.5	614.2	0.00	0.00	0.00

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<b>Project:</b>	SEC.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-2-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,473.2	14.04	356.79	4,400.0	631.8	-35.5	631.9	0.00	0.00	0.00
<b>Shannon</b>									
4,500.0	14.04	356.79	4,426.0	638.3	-35.8	638.4	0.00	0.00	0.00
4,600.0	14.04	356.79	4,523.0	662.5	-37.2	662.7	0.00	0.00	0.00
4,700.0	14.04	356.79	4,620.0	686.7	-38.5	686.9	0.00	0.00	0.00
4,800.0	14.04	356.79	4,717.0	710.9	-39.9	711.1	0.00	0.00	0.00
4,900.0	14.04	356.79	4,814.0	735.2	-41.3	735.4	0.00	0.00	0.00
5,000.0	14.04	356.79	4,911.0	759.4	-42.6	759.6	0.00	0.00	0.00
5,100.0	14.04	356.79	5,008.0	783.6	-44.0	783.9	0.00	0.00	0.00
5,199.7	14.04	356.79	5,104.8	807.8	-45.3	808.0	0.00	0.00	0.00
5,200.0	14.04	356.79	5,105.0	807.9	-45.4	808.1	2.00	-2.00	0.00
5,300.0	12.04	356.79	5,202.5	830.4	-46.6	830.6	2.00	-2.00	0.00
5,400.0	10.04	356.79	5,300.6	849.5	-47.7	849.7	2.00	-2.00	0.00
5,500.0	8.04	356.79	5,399.4	865.2	-48.6	865.4	2.00	-2.00	0.00
5,600.0	6.04	356.79	5,498.6	877.4	-49.3	877.7	2.00	-2.00	0.00
5,700.0	4.04	356.79	5,598.2	886.2	-49.7	886.4	2.00	-2.00	0.00
5,800.0	2.04	356.79	5,698.1	891.5	-50.0	891.7	2.00	-2.00	0.00
5,900.0	0.04	356.79	5,798.0	893.3	-50.1	893.6	2.00	-2.00	0.00
5,902.0	0.00	0.00	5,800.0	893.3	-50.1	893.6	2.00	-2.00	0.00
6,000.0	0.00	0.00	5,898.0	893.3	-50.1	893.6	0.00	0.00	0.00
6,100.0	0.00	0.00	5,998.0	893.3	-50.1	893.6	0.00	0.00	0.00
6,144.8	0.00	0.00	6,042.8	893.3	-50.1	893.6	0.00	0.00	0.00
<b>KOP #2</b>									
6,200.0	4.14	0.00	6,098.0	895.3	-50.1	895.5	7.50	7.50	0.00
6,300.0	11.64	0.00	6,197.0	909.0	-50.1	909.3	7.50	7.50	0.00
6,400.0	19.14	0.00	6,293.3	935.5	-50.1	935.8	7.50	7.50	0.00
6,500.0	26.64	0.00	6,385.4	974.4	-50.1	974.6	7.50	7.50	0.00
6,600.0	34.14	0.00	6,471.6	1,024.9	-50.1	1,025.2	7.50	7.50	0.00
6,634.9	36.75	0.00	6,500.0	1,045.2	-50.1	1,045.4	7.50	7.50	0.00
<b>Sharon Springs</b>									
6,700.0	41.64	0.00	6,550.5	1,086.3	-50.1	1,086.6	7.50	7.50	0.00
6,800.0	49.14	0.00	6,620.6	1,157.4	-50.1	1,157.7	7.50	7.50	0.00
6,814.5	50.22	0.00	6,630.0	1,168.5	-50.1	1,168.7	7.50	7.50	0.00
<b>Niobrara A</b>									
6,900.0	56.64	0.00	6,680.9	1,237.1	-50.1	1,237.4	7.50	7.50	0.00
7,000.0	64.14	0.00	6,730.3	1,324.0	-50.1	1,324.3	7.50	7.50	0.00
7,076.0	69.84	0.00	6,760.0	1,393.9	-50.1	1,394.2	7.50	7.50	0.00
<b>Niobrara B</b>									
7,100.0	71.64	0.00	6,767.9	1,416.6	-50.1	1,416.8	7.50	7.50	0.00
7,200.0	79.14	0.00	6,793.1	1,513.3	-50.1	1,513.5	7.50	7.50	0.00
7,300.0	86.64	0.00	6,805.5	1,612.4	-50.1	1,612.7	7.50	7.50	0.00
7,347.2	90.18	0.00	6,806.8	1,659.6	-50.1	1,659.9	7.50	7.50	0.00
<b>End of Build - 7"</b>									
7,400.0	90.18	0.00	6,806.6	1,712.4	-50.1	1,712.7	0.00	0.00	0.00
7,500.0	90.18	0.00	6,806.3	1,812.4	-50.1	1,812.7	0.00	0.00	0.00
7,600.0	90.18	0.00	6,806.0	1,912.4	-50.1	1,912.7	0.00	0.00	0.00
7,700.0	90.18	0.00	6,805.7	2,012.4	-50.1	2,012.7	0.00	0.00	0.00
7,800.0	90.18	0.00	6,805.4	2,112.4	-50.1	2,112.7	0.00	0.00	0.00
7,900.0	90.18	0.00	6,805.1	2,212.4	-50.1	2,212.7	0.00	0.00	0.00
8,000.0	90.18	0.00	6,804.8	2,312.4	-50.1	2,312.6	0.00	0.00	0.00
8,100.0	90.18	0.00	6,804.4	2,412.4	-50.1	2,412.6	0.00	0.00	0.00
8,200.0	90.18	0.00	6,804.1	2,512.4	-50.1	2,512.6	0.00	0.00	0.00

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<b>Project:</b>	SEC.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-2-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,300.0	90.18	0.00	6,803.8	2,612.4	-50.1	2,612.6	0.00	0.00	0.00
8,400.0	90.18	0.00	6,803.5	2,712.4	-50.1	2,712.6	0.00	0.00	0.00
8,500.0	90.18	0.00	6,803.2	2,812.4	-50.1	2,812.6	0.00	0.00	0.00
8,600.0	90.18	0.00	6,802.9	2,912.4	-50.1	2,912.6	0.00	0.00	0.00
8,700.0	90.18	0.00	6,802.6	3,012.4	-50.1	3,012.6	0.00	0.00	0.00
8,800.0	90.18	0.00	6,802.2	3,112.4	-50.1	3,112.6	0.00	0.00	0.00
8,900.0	90.18	0.00	6,801.9	3,212.4	-50.1	3,212.6	0.00	0.00	0.00
9,000.0	90.18	0.00	6,801.6	3,312.4	-50.1	3,312.6	0.00	0.00	0.00
9,100.0	90.18	0.00	6,801.3	3,412.4	-50.1	3,412.6	0.00	0.00	0.00
9,200.0	90.18	0.00	6,801.0	3,512.4	-50.1	3,512.6	0.00	0.00	0.00
9,300.0	90.18	0.00	6,800.7	3,612.4	-50.1	3,612.6	0.00	0.00	0.00
9,400.0	90.18	0.00	6,800.4	3,712.4	-50.1	3,712.6	0.00	0.00	0.00
9,500.0	90.18	0.00	6,800.0	3,812.4	-50.1	3,812.6	0.00	0.00	0.00
9,600.0	90.18	0.00	6,799.7	3,912.4	-50.1	3,912.6	0.00	0.00	0.00
9,700.0	90.18	0.00	6,799.4	4,012.4	-50.1	4,012.6	0.00	0.00	0.00
9,800.0	90.18	0.00	6,799.1	4,112.4	-50.1	4,112.6	0.00	0.00	0.00
9,900.0	90.18	0.00	6,798.8	4,212.4	-50.1	4,212.6	0.00	0.00	0.00
10,000.0	90.18	0.00	6,798.5	4,312.4	-50.1	4,312.6	0.00	0.00	0.00
10,100.0	90.18	0.00	6,798.2	4,412.4	-50.1	4,412.6	0.00	0.00	0.00
10,200.0	90.18	0.00	6,797.8	4,512.4	-50.1	4,512.6	0.00	0.00	0.00
10,300.0	90.18	0.00	6,797.5	4,612.4	-50.1	4,612.6	0.00	0.00	0.00
10,400.0	90.18	0.00	6,797.2	4,712.4	-50.1	4,712.6	0.00	0.00	0.00
10,500.0	90.18	0.00	6,796.9	4,812.4	-50.1	4,812.6	0.00	0.00	0.00
10,600.0	90.18	0.00	6,796.6	4,912.4	-50.1	4,912.6	0.00	0.00	0.00
10,700.0	90.18	0.00	6,796.3	5,012.4	-50.1	5,012.6	0.00	0.00	0.00
10,800.0	90.18	0.00	6,796.0	5,112.4	-50.1	5,112.6	0.00	0.00	0.00
10,900.0	90.18	0.00	6,795.6	5,212.4	-50.1	5,212.6	0.00	0.00	0.00
11,000.0	90.18	0.00	6,795.3	5,312.4	-50.1	5,312.6	0.00	0.00	0.00
11,100.0	90.18	0.00	6,795.0	5,412.4	-50.1	5,412.6	0.00	0.00	0.00
11,200.0	90.18	0.00	6,794.7	5,512.4	-50.1	5,512.6	0.00	0.00	0.00
11,300.0	90.18	0.00	6,794.4	5,612.4	-50.1	5,612.6	0.00	0.00	0.00
11,400.0	90.18	0.00	6,794.1	5,712.4	-50.1	5,712.6	0.00	0.00	0.00
11,500.0	90.18	0.00	6,793.8	5,812.4	-50.1	5,812.6	0.00	0.00	0.00
11,600.0	90.18	0.00	6,793.4	5,912.4	-50.1	5,912.6	0.00	0.00	0.00
11,700.0	90.18	0.00	6,793.1	6,012.4	-50.1	6,012.6	0.00	0.00	0.00
11,800.0	90.18	0.00	6,792.8	6,112.4	-50.1	6,112.6	0.00	0.00	0.00
11,900.0	90.18	0.00	6,792.5	6,212.4	-50.1	6,212.6	0.00	0.00	0.00
12,000.0	90.18	0.00	6,792.2	6,312.4	-50.1	6,312.6	0.00	0.00	0.00
12,100.0	90.18	0.00	6,791.9	6,412.4	-50.1	6,412.6	0.00	0.00	0.00
12,200.0	90.18	0.00	6,791.6	6,512.4	-50.1	6,512.6	0.00	0.00	0.00
12,300.0	90.18	0.00	6,791.2	6,612.4	-50.1	6,612.6	0.00	0.00	0.00
12,400.0	90.18	0.00	6,790.9	6,712.4	-50.1	6,712.6	0.00	0.00	0.00
12,500.0	90.18	0.00	6,790.6	6,812.4	-50.1	6,812.6	0.00	0.00	0.00
12,600.0	90.18	0.00	6,790.3	6,912.4	-50.1	6,912.6	0.00	0.00	0.00
12,700.0	90.18	0.00	6,790.0	7,012.4	-50.1	7,012.6	0.00	0.00	0.00
12,800.0	90.18	0.00	6,789.7	7,112.4	-50.1	7,112.6	0.00	0.00	0.00
12,900.0	90.18	0.00	6,789.4	7,212.4	-50.1	7,212.6	0.00	0.00	0.00
13,000.0	90.18	0.00	6,789.0	7,312.4	-50.1	7,312.6	0.00	0.00	0.00
13,100.0	90.18	0.00	6,788.7	7,412.4	-50.1	7,412.6	0.00	0.00	0.00
13,200.0	90.18	0.00	6,788.4	7,512.4	-50.1	7,512.6	0.00	0.00	0.00
13,300.0	90.18	0.00	6,788.1	7,612.4	-50.1	7,612.5	0.00	0.00	0.00
13,400.0	90.18	0.00	6,787.8	7,712.4	-50.1	7,712.5	0.00	0.00	0.00
13,500.0	90.18	0.00	6,787.5	7,812.4	-50.1	7,812.5	0.00	0.00	0.00

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Project:</b>	SEC.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-2-15)		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
13,600.0	90.18	0.00	6,787.2	7,912.4	-50.1	7,912.5	0.00	0.00	0.00	
13,700.0	90.18	0.00	6,786.9	8,012.4	-50.1	8,012.5	0.00	0.00	0.00	
13,800.0	90.18	0.00	6,786.5	8,112.4	-50.1	8,112.5	0.00	0.00	0.00	
13,900.0	90.18	0.00	6,786.2	8,212.4	-50.1	8,212.5	0.00	0.00	0.00	
14,000.0	90.18	0.00	6,785.9	8,312.4	-50.1	8,312.5	0.00	0.00	0.00	
14,100.0	90.18	0.00	6,785.6	8,412.4	-50.1	8,412.5	0.00	0.00	0.00	
14,200.0	90.18	0.00	6,785.3	8,512.4	-50.1	8,512.5	0.00	0.00	0.00	
14,300.0	90.18	0.00	6,785.0	8,612.4	-50.1	8,612.5	0.00	0.00	0.00	
14,400.0	90.18	0.00	6,784.7	8,712.4	-50.1	8,712.5	0.00	0.00	0.00	
14,500.0	90.18	0.00	6,784.3	8,812.4	-50.1	8,812.5	0.00	0.00	0.00	
14,600.0	90.18	0.00	6,784.0	8,912.4	-50.1	8,912.5	0.00	0.00	0.00	
14,700.0	90.18	0.00	6,783.7	9,012.4	-50.1	9,012.5	0.00	0.00	0.00	
14,800.0	90.18	0.00	6,783.4	9,112.4	-50.1	9,112.5	0.00	0.00	0.00	
14,900.0	90.18	0.00	6,783.1	9,212.4	-50.1	9,212.5	0.00	0.00	0.00	
15,000.0	90.18	0.00	6,782.8	9,312.4	-50.1	9,312.5	0.00	0.00	0.00	
15,100.0	90.18	0.00	6,782.5	9,412.4	-50.1	9,412.5	0.00	0.00	0.00	
15,200.0	90.18	0.00	6,782.1	9,512.4	-50.1	9,512.5	0.00	0.00	0.00	
15,243.9	90.18	0.00	6,782.0	9,556.3	-50.1	9,556.4	0.00	0.00	0.00	
BHL 0'FNL & 1405'FEL, Sec.14										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL 1082'FSL & 1374'FI	0.00	0.00	1.0	0.0	0.0	1,382,631.89	3,243,495.79	40.380432	-104.625959
- plan hits target center									
- Point									
50' E/W Hardline (23D-2	0.00	0.00	1.0	5,608.1	-50.1	1,388,239.02	3,243,390.42	40.395826	-104.626139
- plan misses target center by 5608.4ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Rectangle (sides W100.0 H7,896.5 D0.0)									
BHL 0'FNL & 1405'FEL,	0.00	0.00	6,782.0	9,556.3	-50.1	1,392,186.79	3,243,351.48	40.406663	-104.626139
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (")	Hole Diameter (")
7,347.2	6,806.8	7"		7	7-1/2

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Project:</b>	SEC.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-2-15)		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,545.5	3,500.0	Parkman		0.00	
4,318.6	4,250.0	Sussex		0.00	
4,473.2	4,400.0	Shannon		0.00	
6,634.9	6,500.0	Sharon Springs		0.00	
6,814.5	6,630.0	Niobrara A		0.00	
7,076.0	6,760.0	Niobrara B		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,400.0	1,400.0	0.0	0.0	KOP #1
6,144.8	6,042.9	114.0	-6.4	KOP #2
7,347.2	6,806.8	807.8	-45.3	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.23-T5N-R65W**

**Brown 5N65W23 Pad Sec.23-T5N-R65W**

**Brown 23D-201**

**Wellbore #1**

**Plan #1 (9-2-15)**

## **Anticollision Report**

**04 September, 2015**

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (9-2-15)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0 ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b> 9/4/2015			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	15,243.9	Plan #1 (9-2-15) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
Alles 22S-HZ Pad Sec.22-T5N-R65W						
Alles 22D-312 - Wellbore #1 - Wellbore #1	6,600.0	11,708.8	468.7	341.1	3.673	SF
Alles 22D-312 - Wellbore #1 - Wellbore #1	6,650.0	11,706.6	455.6	332.9	3.715	ES
Alles 22D-312 - Wellbore #1 - Wellbore #1	6,701.6	11,704.6	450.9	333.9	3.852	CC
Alles 22D-402 - Wellbore #1 - Wellbore #1	6,450.0	11,794.0	859.0	720.6	6.206	SF
Alles 22D-402 - Wellbore #1 - Wellbore #1	6,600.0	11,790.6	825.5	699.2	6.533	ES
Alles 22D-402 - Wellbore #1 - Wellbore #1	6,615.8	11,790.1	825.2	700.4	6.610	CC
Alles 22S-232 - Wellbore #1 - Wellbore #1	6,950.0	10,967.4	102.3	23.2	1.293	Level 3, ES, SF
Alles 22S-232 - Wellbore #1 - Wellbore #1	6,964.1	10,967.4	101.2	23.9	1.309	Level 3, CC
Alles 22S-432 - Wellbore #1 - Wellbore #1						Out of range
Alles 22S-432 - Wellbore #2 - Wellbore #2	6,950.0	11,759.5	264.4	178.5	3.077	SF
Alles 22S-432 - Wellbore #2 - Wellbore #2	7,000.0	11,760.3	249.7	170.7	3.162	ES
Alles 22S-432 - Wellbore #2 - Wellbore #2	7,032.2	11,760.9	246.9	172.5	3.315	CC
Brown 5N65W23 Pad Sec.23-T5N-R65W						
Brown 23D-341 - Wellbore #1 - Plan #1 (9-2-15)	1,000.0	1,000.0	15.0	10.8	3.524	CC
Brown 23D-341 - Wellbore #1 - Plan #1 (9-2-15)	15,243.9	15,237.2	340.8	-14.7	0.959	Level 1, ES, SF
Brown 23D-421 - Wellbore #1 - Plan #1 (9-2-15)	1,000.0	1,000.0	15.0	10.8	3.523	CC
Brown 23D-421 - Wellbore #1 - Plan #1 (9-2-15)	1,100.0	1,099.9	15.3	10.6	3.251	ES
Brown 23D-421 - Wellbore #1 - Plan #1 (9-2-15)	15,243.9	15,248.0	468.4	129.6	1.383	Level 3, SF
Brown 23P-201 - Wellbore #1 - Plan #1 (8-31-15)	200.0	200.0	60.2	59.5	89.252	CC, ES
Brown 23P-201 - Wellbore #1 - Plan #1 (8-31-15)	800.0	787.6	101.7	98.3	29.981	SF
Brown 23P-221 - Wellbore #1 - Plan #1 (9-2-15)	600.0	600.0	30.1	27.6	12.171	CC, ES
Brown 23P-221 - Wellbore #1 - Plan #1 (9-2-15)	15,243.9	15,274.4	668.9	303.0	1.828	SF
Brown 23P-321 - Wellbore #1 - Plan #1 (9-2-15)	400.0	400.0	45.1	43.6	28.690	CC, ES
Brown 23P-321 - Wellbore #1 - Plan #1 (9-2-15)	15,243.9	15,619.2	989.8	625.3	2.715	SF
Brown 23X-241 - Wellbore #1 - Plan #1 (9-2-15)	200.0	200.0	44.9	44.2	66.523	CC, ES
Brown 23X-241 - Wellbore #1 - Plan #1 (9-2-15)	700.0	692.3	74.4	71.5	25.379	SF
Brown 23X-341 - Wellbore #1 - Plan #1 (9-2-15)	400.0	400.0	29.8	28.2	18.947	CC, ES
Brown 23X-341 - Wellbore #1 - Plan #1 (9-2-15)	15,243.9	15,571.6	875.1	510.9	2.403	SF
Existing Sec. 23-T5N-R65W						
Cass 1 (Exist.) - Wellbore #1 - Wellbore #1	13,086.4	6,747.8	364.0	87.4	1.316	Level 3, CC
Cass 1 (Exist.) - Wellbore #1 - Wellbore #1	13,100.0	6,747.7	364.3	87.4	1.316	Level 3, ES, SF
Cass 5 (Exist.) - Wellbore #1 - Wellbore #1	13,745.0	6,744.7	111.3	-55.0	0.669	Level 1, CC, ES, SF

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Lofland 22T-HZ Pad Sec.22-T5N-R65W						
Lofland 22D-232 - Wellbore #1 - Wellbore #1						Out of range

Offset Design		Alles 22S-HZ Pad Sec.22-T5N-R65W - Alles 22D-312 - Wellbore #1 - Wellbore #1											Offset Site Error:		0.0 ft
Survey Program:		60-MWD											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
6,000.0	5,898.0	11,736.4	6,854.3	20.7	135.4	162.34	751.2	-4.9	963.9	820.8	143.06	6.738			
6,100.0	5,998.0	11,732.0	6,854.5	20.9	135.3	163.98	751.2	-9.3	865.2	721.0	144.20	6.000			
6,144.8	6,042.9	11,730.0	6,854.6	20.9	135.3	164.73	751.2	-11.4	821.1	676.4	144.69	5.675			
6,150.0	6,048.0	11,729.7	6,854.6	20.9	135.3	165.36	751.2	-11.6	816.0	670.9	145.07	5.625			
6,200.0	6,098.0	11,727.5	6,854.7	21.0	135.2	169.61	751.2	-13.8	767.3	620.2	147.03	5.218			
6,250.0	6,147.7	11,725.2	6,854.9	21.2	135.1	172.07	751.2	-16.1	719.6	572.4	147.22	4.888			
6,300.0	6,197.0	11,722.9	6,855.0	21.4	135.1	173.67	751.2	-18.4	673.5	527.1	146.38	4.601			
6,350.0	6,245.6	11,720.7	6,855.1	21.6	135.0	174.80	751.2	-20.7	629.5	484.7	144.76	4.348			
6,400.0	6,293.3	11,718.4	6,855.2	21.9	134.9	175.64	751.2	-22.9	588.2	445.7	142.47	4.128			
6,450.0	6,340.0	11,716.1	6,855.3	22.2	134.9	176.29	751.2	-25.2	550.4	410.8	139.58	3.943			
6,500.0	6,385.4	11,713.5	6,855.4	22.6	134.8	176.87	751.2	-27.8	517.2	381.1	136.11	3.800			
6,550.0	6,429.3	11,711.1	6,855.5	23.0	134.7	177.33	751.2	-30.2	489.6	357.5	132.11	3.706			
6,600.0	6,471.6	11,708.8	6,855.6	23.5	134.7	177.71	751.2	-32.5	468.7	341.1	127.60	3.673 SF			
6,650.0	6,512.0	11,706.6	6,855.7	24.0	134.6	178.02	751.2	-34.7	455.6	332.9	122.63	3.715 ES			
6,700.0	6,550.5	11,704.7	6,855.8	24.5	134.6	178.28	751.2	-36.6	450.9	333.7	117.23	3.846			
6,701.6	6,551.7	11,704.6	6,855.8	24.5	134.6	178.29	751.2	-36.7	450.9	333.9	117.05	3.852 CC			
6,750.0	6,586.7	11,702.9	6,855.9	25.1	134.5	178.50	751.2	-38.4	455.0	343.6	111.43	4.083			
6,800.0	6,620.6	11,701.2	6,856.0	25.7	134.5	178.69	751.2	-40.1	467.6	362.3	105.29	4.441			
6,850.0	6,652.1	11,699.7	6,856.0	26.3	134.4	178.85	751.2	-41.5	488.0	389.2	98.85	4.937			
6,900.0	6,680.9	11,698.4	6,856.1	27.0	134.4	178.99	751.2	-42.9	515.3	423.1	92.17	5.590			
6,950.0	6,707.0	11,697.2	6,856.2	27.7	134.3	179.10	751.2	-44.1	548.2	462.8	85.33	6.424			
7,000.0	6,730.3	11,696.2	6,856.2	28.5	134.3	179.20	751.2	-45.1	585.7	507.3	78.41	7.469			
7,050.0	6,750.6	11,695.3	6,856.2	29.3	134.3	179.27	751.2	-46.0	626.8	555.3	71.54	8.761			
7,100.0	6,767.9	11,694.5	6,856.3	30.0	134.3	179.33	751.2	-46.8	670.7	605.9	64.87	10.339			
7,150.0	6,782.1	11,693.9	6,856.3	30.9	134.3	179.36	751.2	-47.4	716.8	658.2	58.61	12.229			
7,200.0	6,793.1	11,693.4	6,856.3	31.7	134.2	179.34	751.2	-47.8	764.4	711.4	53.05	14.409			
7,250.0	6,800.9	11,693.1	6,856.3	32.5	134.2	179.25	751.2	-48.2	813.1	764.6	48.55	16.748			
7,300.0	6,805.5	11,692.9	6,856.3	33.4	134.2	178.96	751.2	-48.4	862.5	817.0	45.54	18.941			
7,347.2	6,806.8	11,692.8	6,856.3	34.2	134.2	177.71	751.2	-48.4	909.6	865.1	44.51	20.438			
7,400.0	6,806.6	11,692.8	6,856.3	35.1	134.2	177.71	751.2	-48.4	962.3	917.5	44.84	21.462			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Alles 22S-HZ Pad Sec.22-T5N-R65W - Alles 22D-402 - Wellbore #1 - Wellbore #1													<b>Offset Site Error:</b>	0.0 ft
<b>Survey Program:</b> 121-MWD													<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
6,250.0	6,147.7	11,801.6	6,965.2	21.2	134.0	177.85	360.6	-25.8	976.7	829.6	147.12	6.639		
6,300.0	6,197.0	11,800.0	6,965.3	21.4	133.9	178.11	360.6	-27.3	940.9	795.1	145.80	6.454		
6,350.0	6,245.6	11,798.5	6,965.3	21.6	133.9	178.33	360.6	-28.9	909.1	765.2	143.91	6.317		
6,400.0	6,293.3	11,794.0	6,965.5	21.9	133.7	178.74	360.7	-33.4	881.6	740.2	141.41	6.234		
6,450.0	6,340.0	11,794.0	6,965.5	22.2	133.7	178.78	360.7	-33.4	859.0	720.6	138.43	6.206 SF		
6,500.0	6,385.4	11,794.0	6,965.5	22.6	133.7	178.81	360.7	-33.4	841.9	707.0	134.92	6.240		
6,550.0	6,429.3	11,794.0	6,965.5	23.0	133.7	178.83	360.7	-33.4	830.7	699.8	130.91	6.345		
6,600.0	6,471.6	11,790.6	6,965.6	23.5	133.7	179.07	360.7	-36.7	825.5	699.2	126.37	6.533 ES		
6,615.8	6,484.6	11,790.1	6,965.6	23.6	133.6	179.10	360.7	-37.2	825.2	700.4	124.85	6.610 CC		
6,650.0	6,512.0	11,789.1	6,965.7	24.0	133.6	179.18	360.7	-38.3	826.7	705.3	121.40	6.810		
6,700.0	6,550.5	11,787.6	6,965.7	24.5	133.6	179.27	360.7	-39.8	834.1	718.1	116.01	7.190		
6,750.0	6,586.7	11,786.2	6,965.8	25.1	133.5	179.36	360.7	-41.2	847.6	737.3	110.24	7.688		
6,800.0	6,620.6	11,784.8	6,965.8	25.7	133.5	179.44	360.7	-42.5	866.7	762.6	104.14	8.323		
6,850.0	6,652.1	11,783.6	6,965.9	26.3	133.5	179.51	360.7	-43.8	891.2	793.4	97.75	9.117		
6,900.0	6,680.9	11,782.4	6,965.9	27.0	133.4	179.58	360.8	-44.9	920.3	829.2	91.13	10.099		
6,950.0	6,707.0	11,781.4	6,966.0	27.7	133.4	179.65	360.8	-46.0	953.7	869.3	84.37	11.305		
7,000.0	6,730.3	11,780.4	6,966.0	28.5	133.4	179.71	360.8	-47.0	990.7	913.2	77.54	12.776		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Alles 22S-HZ Pad Sec.22-T5N-R65W - Alles 22S-232 - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 ft
<b>Survey Program:</b> 123-MWD												<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
6,000.0	5,898.0	10,975.3	6,806.7	20.7	123.1	1.52	1,243.8	-40.9	970.2	833.0	137.23	7.070	
6,100.0	5,998.0	10,974.1	6,806.7	20.9	123.1	1.32	1,243.8	-42.1	877.7	740.3	137.41	6.388	
6,144.8	6,042.9	10,973.6	6,806.7	20.9	123.1	1.23	1,243.8	-42.6	836.8	699.4	137.49	6.087	
6,150.0	6,048.0	10,973.5	6,806.7	20.9	123.1	1.24	1,243.8	-42.7	832.1	694.6	137.51	6.051	
6,200.0	6,098.0	10,972.9	6,806.8	21.0	123.1	1.32	1,243.8	-43.3	786.2	648.8	137.45	5.720	
6,250.0	6,147.7	10,972.3	6,806.8	21.2	123.1	1.44	1,243.8	-43.9	739.6	602.7	136.85	5.404	
6,300.0	6,197.0	10,971.8	6,806.8	21.4	123.0	1.59	1,243.8	-44.4	692.2	556.4	135.71	5.100	
6,350.0	6,245.6	10,971.2	6,806.8	21.6	123.0	1.81	1,243.8	-45.0	644.1	510.1	134.03	4.805	
6,400.0	6,293.3	10,970.7	6,806.8	21.9	123.0	2.15	1,243.8	-45.5	595.5	463.6	131.83	4.517	
6,450.0	6,340.0	10,970.3	6,806.8	22.2	123.0	2.74	1,243.8	-46.0	546.3	417.2	129.08	4.232	
6,500.0	6,385.4	10,969.8	6,806.8	22.6	123.0	3.99	1,243.8	-46.4	496.8	371.0	125.76	3.950	
6,550.0	6,429.3	10,969.4	6,806.8	23.0	123.0	8.27	1,243.8	-46.8	447.0	325.6	121.35	3.683	
6,600.0	6,471.6	10,969.0	6,806.8	23.5	123.0	148.34	1,243.7	-47.2	397.0	290.3	106.70	3.720	
6,650.0	6,512.0	10,968.7	6,806.8	24.0	123.0	174.90	1,243.7	-47.6	347.0	233.6	113.49	3.058	
6,700.0	6,550.5	10,968.4	6,806.8	24.5	122.9	177.38	1,243.7	-47.9	297.5	188.8	108.69	2.737	
6,750.0	6,586.7	10,968.1	6,806.8	25.1	122.9	178.29	1,243.7	-48.1	248.7	145.3	103.38	2.405	
6,800.0	6,620.6	10,967.9	6,806.8	25.7	122.9	178.74	1,243.7	-48.4	201.6	103.9	97.71	2.063	
6,850.0	6,652.1	10,967.7	6,806.8	26.3	122.9	179.00	1,243.7	-48.5	158.0	66.3	91.75	1.722	
6,900.0	6,680.9	10,967.5	6,806.8	27.0	122.9	179.15	1,243.7	-48.7	122.1	36.5	85.54	1.427 Level 3	
6,950.0	6,707.0	10,967.4	6,806.8	27.7	122.9	179.23	1,243.7	-48.8	102.3	23.2	79.16	1.293 Level 3, ES, SF	
6,964.1	6,713.9	10,967.4	6,806.8	27.9	122.9	179.25	1,243.7	-48.8	101.2	23.9	77.33	1.309 Level 3, CC	
7,000.0	6,730.3	10,967.4	6,806.8	28.5	122.9	179.26	1,243.7	-48.9	108.2	35.5	72.68	1.488 Level 3	
7,050.0	6,750.6	10,967.3	6,806.8	29.3	122.9	179.24	1,243.7	-48.9	136.3	70.1	66.21	2.059	
7,100.0	6,767.9	10,967.4	6,806.8	30.0	122.9	179.15	1,243.7	-48.8	176.3	116.5	59.88	2.945	
7,150.0	6,782.1	10,967.4	6,806.8	30.9	122.9	178.96	1,243.7	-48.8	221.8	167.9	53.87	4.116	
7,200.0	6,793.1	10,967.5	6,806.8	31.7	122.9	178.59	1,243.7	-48.7	269.7	221.3	48.46	5.566	
7,250.0	6,800.9	10,967.7	6,806.8	32.5	122.9	177.73	1,243.7	-48.5	318.9	274.9	44.00	7.248	
7,300.0	6,805.5	10,967.9	6,806.8	33.4	122.9	174.48	1,243.7	-48.3	368.7	327.5	41.23	8.943	
7,347.2	6,806.8	10,968.1	6,806.8	34.2	122.9	21.18	1,243.7	-48.1	415.9	370.7	45.25	9.191	
7,400.0	6,806.6	10,968.4	6,806.8	35.1	122.9	23.65	1,243.7	-47.8	468.7	422.2	46.54	10.071	
7,500.0	6,806.3	10,968.9	6,806.8	36.9	123.0	28.07	1,243.7	-47.3	568.7	519.8	48.93	11.623	
7,600.0	6,806.0	10,969.4	6,806.8	38.6	123.0	32.15	1,243.8	-46.8	668.7	617.4	51.24	13.049	
7,700.0	6,805.7	10,969.9	6,806.8	40.4	123.0	35.88	1,243.8	-46.3	768.7	715.2	53.48	14.374	
7,800.0	6,805.4	10,970.4	6,806.8	42.2	123.0	39.29	1,243.8	-45.8	868.7	813.0	55.64	15.614	
7,900.0	6,805.1	10,970.9	6,806.8	44.0	123.0	42.39	1,243.8	-45.3	968.7	910.9	57.73	16.780	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Alles 22S-HZ Pad Sec.22-T5N-R65W - Alles 22S-432 - Wellbore #2 - Wellbore #2												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 125-MWD, 6034-MWD												<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
6,144.8	6,042.9	11,764.9	6,974.0	20.9	135.0	2.11	1,255.2	-36.8	995.4	845.9	149.42	6.661	
6,150.0	6,048.0	11,764.8	6,974.0	20.9	135.0	2.13	1,255.2	-36.9	990.5	841.1	149.44	6.628	
6,200.0	6,098.0	11,763.4	6,974.0	21.0	135.0	2.29	1,255.2	-38.3	943.5	794.1	149.32	6.319	
6,250.0	6,147.7	11,762.2	6,974.1	21.2	135.0	2.55	1,255.1	-39.5	895.6	747.0	148.60	6.027	
6,300.0	6,197.0	11,761.1	6,974.1	21.4	134.9	2.98	1,255.1	-40.6	847.1	699.8	147.29	5.751	
6,350.0	6,245.6	11,760.1	6,974.1	21.6	134.9	3.76	1,255.1	-41.6	798.0	652.7	145.36	5.490	
6,400.0	6,293.3	11,759.3	6,974.2	21.9	134.9	5.51	1,255.0	-42.4	748.5	605.8	142.70	5.245	
6,450.0	6,340.0	11,758.6	6,974.2	22.2	134.9	12.12	1,255.0	-43.1	698.7	560.8	137.90	5.067	
6,500.0	6,385.4	11,758.0	6,974.2	22.6	134.8	150.36	1,255.0	-43.7	648.7	525.4	123.29	5.261	
6,550.0	6,429.3	11,757.6	6,974.2	23.0	134.8	173.36	1,255.0	-44.1	598.8	466.7	132.10	4.533	
6,600.0	6,471.6	11,757.4	6,974.2	23.5	134.8	176.28	1,255.0	-44.3	549.2	421.1	128.07	4.288	
6,650.0	6,512.0	11,757.2	6,974.2	24.0	134.8	177.35	1,255.0	-44.5	500.2	377.0	123.22	4.060	
6,700.0	6,550.5	11,757.3	6,974.2	24.5	134.8	177.86	1,255.0	-44.4	452.4	334.6	117.86	3.838	
6,750.0	6,586.7	11,757.4	6,974.2	25.1	134.8	178.12	1,255.0	-44.3	406.4	294.3	112.10	3.625	
6,800.0	6,620.6	11,757.7	6,974.2	25.7	134.8	178.23	1,255.0	-44.0	363.0	257.0	105.96	3.426	
6,850.0	6,652.1	11,758.2	6,974.2	26.3	134.8	178.26	1,255.0	-43.5	323.5	224.0	99.52	3.251	
6,900.0	6,680.9	11,758.7	6,974.2	27.0	134.9	178.22	1,255.0	-42.9	289.9	197.1	92.82	3.123	
6,950.0	6,707.0	11,759.5	6,974.2	27.7	134.9	178.12	1,255.0	-42.2	264.4	178.5	85.94	3.077 SF	
7,000.0	6,730.3	11,760.3	6,974.1	28.5	134.9	177.96	1,255.1	-41.4	249.7	170.7	78.97	3.162 ES	
7,032.2	6,743.7	11,760.9	6,974.1	29.0	134.9	177.83	1,255.1	-40.8	246.9	172.5	74.49	3.315 CC	
7,050.0	6,750.6	11,761.3	6,974.1	29.3	134.9	177.74	1,255.1	-40.4	247.8	175.8	72.02	3.440	
7,100.0	6,767.9	11,762.4	6,974.1	30.0	135.0	177.45	1,255.1	-39.3	258.9	193.7	65.25	3.968	
7,150.0	6,782.1	11,763.6	6,974.0	30.9	135.0	177.07	1,255.2	-38.1	281.6	222.7	58.87	4.783	
7,200.0	6,793.1	11,764.9	6,974.0	31.7	135.0	176.57	1,255.2	-36.8	313.2	260.0	53.17	5.890	
7,250.0	6,800.9	11,766.3	6,974.0	32.5	135.1	175.90	1,255.3	-35.4	351.1	302.6	48.53	7.235	
7,300.0	6,805.5	11,767.8	6,973.9	33.4	135.1	174.97	1,255.3	-33.8	393.5	348.1	45.42	8.663	
7,347.2	6,806.8	11,769.4	6,973.9	34.2	135.2	173.71	1,255.4	-32.3	436.3	392.0	44.32	9.844	
7,400.0	6,806.6	11,771.1	6,973.8	35.1	135.2	173.10	1,255.4	-30.6	485.7	440.9	44.80	10.842	
7,500.0	6,806.3	11,774.5	6,973.7	36.9	135.3	171.93	1,255.5	-27.2	580.8	535.1	45.74	12.698	
7,600.0	6,806.0	11,777.9	6,973.7	38.6	135.4	170.76	1,255.6	-23.8	677.4	630.6	46.75	14.490	
7,700.0	6,805.7	11,781.4	6,973.6	40.4	135.5	169.52	1,255.8	-20.3	774.8	726.9	47.83	16.199	
7,800.0	6,805.4	11,785.1	6,973.4	42.2	135.6	168.25	1,255.9	-16.6	872.7	823.8	48.97	17.822	
7,900.0	6,805.1	11,788.9	6,973.3	44.0	135.7	166.97	1,256.0	-12.8	971.1	920.9	50.18	19.354	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-88.61	0.4	-15.0	15.0	15.0	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	-88.61	0.4	-15.0	15.0	14.8	0.22	66.954		
200.0	200.0	200.0	200.0	0.3	0.3	-88.61	0.4	-15.0	15.0	14.4	0.67	22.318		
300.0	300.0	300.0	300.0	0.6	0.6	-88.61	0.4	-15.0	15.0	13.9	1.12	13.391		
400.0	400.0	400.0	400.0	0.8	0.8	-88.61	0.4	-15.0	15.0	13.5	1.57	9.565		
500.0	500.0	500.0	500.0	1.0	1.0	-88.61	0.4	-15.0	15.0	13.0	2.02	7.439		
600.0	600.0	600.0	600.0	1.2	1.2	-88.61	0.4	-15.0	15.0	12.6	2.47	6.087		
700.0	700.0	700.0	700.0	1.5	1.5	-88.61	0.4	-15.0	15.0	12.1	2.92	5.150		
800.0	800.0	800.0	800.0	1.7	1.7	-88.61	0.4	-15.0	15.0	11.7	3.37	4.464		
900.0	900.0	900.0	900.0	1.9	1.9	-88.61	0.4	-15.0	15.0	11.2	3.82	3.938		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-88.61	0.4	-15.0	15.0	10.8	4.27	3.524 CC		
1,100.0	1,100.0	1,099.8	1,099.8	2.4	2.4	-84.14	1.6	-15.5	15.6	10.9	4.72	3.301		
1,200.0	1,200.0	1,199.5	1,199.4	2.6	2.6	-72.64	5.3	-16.8	17.6	12.5	5.17	3.415		
1,300.0	1,300.0	1,299.0	1,298.7	2.8	2.8	-59.21	11.4	-19.0	22.2	16.6	5.61	3.956		
1,400.0	1,400.0	1,398.0	1,397.3	3.0	3.0	-48.15	19.8	-22.1	29.8	23.8	6.07	4.919		
1,500.0	1,500.0	1,496.6	1,495.2	3.3	3.3	-38.23	30.7	-26.1	39.5	33.0	6.52	6.062		
1,600.0	1,599.9	1,595.0	1,592.6	3.5	3.6	-34.97	43.8	-30.9	49.8	42.8	6.97	7.146		
1,700.0	1,699.7	1,693.0	1,689.2	3.7	3.8	-33.47	59.3	-36.5	60.4	53.0	7.42	8.148		
1,800.0	1,799.3	1,790.8	1,785.2	3.9	4.2	-32.96	77.0	-43.0	71.4	63.5	7.87	9.065		
1,900.0	1,898.6	1,888.3	1,880.3	4.2	4.5	-33.04	97.0	-50.2	82.6	74.2	8.34	9.902		
2,000.0	1,997.5	1,985.5	1,974.6	4.4	4.9	-33.51	119.2	-58.3	94.0	85.2	8.82	10.665		
2,100.0	2,096.1	2,084.9	2,070.7	4.7	5.3	-34.46	143.0	-67.0	104.6	95.3	9.32	11.224		
2,200.0	2,194.2	2,184.5	2,166.9	5.0	5.8	-36.00	167.0	-75.8	113.1	103.2	9.85	11.481		
2,300.0	2,291.7	2,284.1	2,263.3	5.4	6.2	-38.09	190.9	-84.5	119.6	109.1	10.42	11.474		
2,336.3	2,327.0	2,320.4	2,298.3	5.5	6.4	-38.99	199.6	-87.7	121.5	110.8	10.64	11.414		
2,400.0	2,388.7	2,383.9	2,359.7	5.7	6.7	-40.61	214.9	-93.2	124.6	113.6	11.06	11.268		
2,500.0	2,485.8	2,483.6	2,456.1	6.1	7.2	-43.01	238.9	-101.9	129.8	118.0	11.75	11.047		
2,600.0	2,582.8	2,583.3	2,552.5	6.5	7.6	-45.21	262.8	-110.7	135.2	122.7	12.47	10.834		
2,700.0	2,679.8	2,683.0	2,648.9	6.9	8.1	-47.25	286.8	-119.4	140.7	127.5	13.23	10.632		
2,800.0	2,776.8	2,782.8	2,745.4	7.4	8.6	-49.13	310.8	-128.1	146.4	132.4	14.02	10.440		
2,900.0	2,873.8	2,882.5	2,841.8	7.8	9.1	-50.86	334.7	-136.9	152.3	137.4	14.84	10.260		
3,000.0	2,970.8	2,982.2	2,938.2	8.2	9.6	-52.47	358.7	-145.6	158.3	142.6	15.68	10.092		
3,100.0	3,067.8	3,081.9	3,034.6	8.7	10.1	-53.96	382.7	-154.3	164.4	147.8	16.55	9.935		
3,200.0	3,164.8	3,181.7	3,131.0	9.2	10.6	-55.34	406.6	-163.1	170.6	153.2	17.43	9.789		
3,300.0	3,261.8	3,281.4	3,227.4	9.6	11.1	-56.62	430.6	-171.8	176.9	158.6	18.32	9.654		
3,400.0	3,358.9	3,381.1	3,323.8	10.1	11.7	-57.82	454.6	-180.5	183.3	164.0	19.23	9.529		
3,500.0	3,455.9	3,480.8	3,420.2	10.5	12.2	-58.93	478.5	-189.3	189.7	169.6	20.16	9.413		
3,600.0	3,552.9	3,580.6	3,516.6	11.0	12.7	-59.97	502.5	-198.0	196.2	175.2	21.09	9.306		
3,700.0	3,649.9	3,680.3	3,613.0	11.5	13.2	-60.94	526.5	-206.7	202.8	180.8	22.03	9.207		
3,800.0	3,746.9	3,780.0	3,709.4	12.0	13.7	-61.86	550.4	-215.5	209.5	186.5	22.98	9.115		
3,900.0	3,843.9	3,879.8	3,805.8	12.4	14.2	-62.71	574.4	-224.2	216.2	192.2	23.94	9.030		
4,000.0	3,940.9	3,979.5	3,902.2	12.9	14.7	-63.52	598.4	-232.9	222.9	198.0	24.90	8.952		
4,100.0	4,037.9	4,079.2	3,998.7	13.4	15.3	-64.27	622.3	-241.7	229.7	203.8	25.87	8.879		
4,200.0	4,134.9	4,178.9	4,095.1	13.9	15.8	-64.99	646.3	-250.4	236.5	209.6	26.84	8.811		
4,300.0	4,232.0	4,278.7	4,191.5	14.4	16.3	-65.66	670.3	-259.1	243.3	215.5	27.81	8.748		
4,400.0	4,329.0	4,378.4	4,287.9	14.9	16.8	-66.30	694.2	-267.9	250.2	221.4	28.79	8.689		
4,500.0	4,426.0	4,478.1	4,384.3	15.4	17.3	-66.90	718.2	-276.6	257.1	227.3	29.78	8.634		
4,600.0	4,523.0	4,577.8	4,480.7	15.8	17.9	-67.47	742.2	-285.3	264.0	233.3	30.76	8.583		
4,700.0	4,620.0	4,677.6	4,577.1	16.3	18.4	-68.01	766.1	-294.1	271.0	239.2	31.75	8.535		
4,800.0	4,717.0	4,777.3	4,673.5	16.8	18.9	-68.53	790.1	-302.8	278.0	245.2	32.74	8.490		
4,900.0	4,814.0	4,877.0	4,769.9	17.3	19.4	-69.02	814.1	-311.5	285.0	251.2	33.73	8.448		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Brown 5N65W23 Pad Sec.23-T5N-R65W - Brown 23D-341 - Wellbore #1 - Plan #1 (9-2-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference				Offset			Semi Major Axis			Distance			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,911.0	4,976.7	4,866.3	17.8	20.0	-69.48	838.0	-320.3	292.0	257.3	34.73	8.408	
5,100.0	5,008.0	5,076.5	4,962.7	18.3	20.5	-69.93	862.0	-329.0	299.0	263.3	35.72	8.371	
5,199.7	5,104.8	5,175.9	5,058.9	18.8	21.0	-70.35	885.9	-337.7	306.1	269.4	36.72	8.336	
5,300.0	5,202.5	5,275.9	5,155.5	19.2	21.5	-70.60	909.9	-346.5	313.8	276.1	37.61	8.342	
5,400.0	5,300.6	5,381.7	5,258.2	19.5	22.0	-70.45	933.9	-355.2	321.7	283.5	38.28	8.405	
5,500.0	5,399.4	5,488.6	5,362.8	19.8	22.3	-70.23	954.6	-362.8	328.7	289.9	38.85	8.461	
5,600.0	5,498.6	5,595.8	5,468.4	20.1	22.7	-69.95	971.6	-369.0	334.7	295.3	39.33	8.509	
5,700.0	5,598.2	5,703.2	5,574.9	20.3	23.0	-69.62	985.0	-373.8	339.6	299.9	39.72	8.549	
5,800.0	5,698.1	5,810.9	5,682.1	20.5	23.2	-69.23	994.6	-377.3	343.5	303.5	40.02	8.583	
5,902.0	5,800.0	5,920.9	5,791.9	20.6	23.4	-71.98	1,000.4	-379.5	346.4	306.2	40.23	8.611	
6,000.0	5,898.0	6,026.9	5,897.9	20.7	23.5	-71.71	1,002.4	-380.2	347.6	307.1	40.44	8.594	
6,100.0	5,998.0	6,127.0	5,998.0	20.9	23.6	-71.71	1,002.4	-380.2	347.6	306.9	40.71	8.538	
6,144.8	6,042.9	6,171.9	6,042.9	20.9	23.7	-71.71	1,002.4	-380.2	347.6	306.7	40.83	8.513	
6,150.0	6,048.0	6,177.0	6,048.0	20.9	23.7	-71.72	1,002.4	-380.2	347.6	306.7	40.85	8.509	
6,200.0	6,098.0	6,227.0	6,098.0	21.0	23.7	-72.07	1,002.4	-380.2	347.0	305.8	41.12	8.437	
6,250.0	6,147.7	6,273.2	6,144.2	21.2	23.8	-72.86	1,002.8	-380.2	345.5	304.0	41.53	8.320	
6,300.0	6,197.0	6,317.2	6,188.1	21.4	23.9	-73.72	1,005.6	-380.2	344.0	302.0	42.01	8.188	
6,350.0	6,245.6	6,361.4	6,232.0	21.6	24.0	-74.65	1,010.9	-380.2	342.4	299.8	42.57	8.043	
6,400.0	6,293.3	6,405.9	6,275.7	21.9	24.2	-75.64	1,018.8	-380.2	340.8	297.6	43.22	7.885	
6,450.0	6,340.0	6,450.0	6,318.6	22.2	24.4	-76.69	1,029.2	-380.2	339.3	295.3	43.95	7.718	
6,500.0	6,385.4	6,495.8	6,362.4	22.6	24.6	-77.83	1,042.5	-380.2	337.8	293.0	44.79	7.541	
6,550.0	6,429.3	6,541.2	6,405.0	23.0	24.9	-79.01	1,058.3	-380.2	336.3	290.6	45.71	7.358	
6,600.0	6,471.6	6,587.0	6,446.9	23.5	25.3	-80.24	1,076.8	-380.2	335.0	288.3	46.70	7.172	
6,650.0	6,512.0	6,633.1	6,487.9	24.0	25.6	-81.52	1,097.9	-380.2	333.7	286.0	47.79	6.984	
6,700.0	6,550.5	6,679.7	6,528.0	24.5	26.0	-82.85	1,121.7	-380.2	332.7	283.7	48.94	6.797	
6,750.0	6,586.7	6,726.7	6,566.8	25.1	26.5	-84.23	1,148.1	-380.2	331.7	281.6	50.17	6.612	
6,800.0	6,620.6	6,774.2	6,604.4	25.7	26.9	-85.63	1,177.2	-380.2	331.0	279.5	51.46	6.432	
6,850.0	6,652.1	6,822.1	6,640.3	26.3	27.5	-87.07	1,208.8	-380.2	330.5	277.7	52.80	6.258	
6,900.0	6,680.9	6,870.6	6,674.6	27.0	28.0	-88.52	1,243.1	-380.2	330.1	275.9	54.19	6.092	
6,950.0	6,707.0	6,919.6	6,707.0	27.7	28.6	-89.99	1,279.8	-380.2	330.0	274.4	55.61	5.934	
6,950.2	6,707.1	6,919.8	6,707.1	27.7	28.6	-90.00	1,280.0	-380.2	330.0	274.4	55.62	5.933	
7,000.0	6,730.3	6,969.1	6,737.3	28.5	29.3	-91.47	1,319.0	-380.2	330.1	273.1	57.06	5.786	
7,050.0	6,750.6	7,019.2	6,765.3	29.3	30.0	-92.95	1,360.5	-380.2	330.5	272.0	58.51	5.648	
7,100.0	6,767.9	7,069.9	6,790.7	30.0	30.7	-94.42	1,404.3	-380.2	331.0	271.1	59.97	5.520	
7,150.0	6,782.1	7,121.2	6,813.5	30.9	31.5	-95.88	1,450.3	-380.2	331.8	270.4	61.43	5.402	
7,200.0	6,793.1	7,173.1	6,833.4	31.7	32.3	-97.32	1,498.2	-380.2	332.8	269.9	62.86	5.294	
7,250.0	6,800.9	7,225.6	6,850.1	32.5	33.1	-98.72	1,548.0	-380.2	334.0	269.7	64.28	5.196	
7,300.0	6,805.5	7,278.8	6,863.5	33.4	34.0	-100.08	1,599.5	-380.2	335.3	269.7	65.67	5.107	
7,347.2	6,806.8	7,329.6	6,873.0	34.2	34.8	-101.33	1,649.4	-380.2	336.7	269.8	66.95	5.030	
7,400.0	6,806.6	7,387.3	6,879.6	35.1	35.8	-102.47	1,706.7	-380.2	338.0	269.5	68.52	4.933	
7,500.0	6,806.3	7,493.3	6,881.9	36.9	37.6	-102.89	1,812.6	-380.2	338.6	266.7	71.89	4.709	
7,600.0	6,806.0	7,593.3	6,881.7	38.6	39.3	-102.91	1,912.6	-380.2	338.6	263.3	75.31	4.496	
7,700.0	6,805.7	7,693.3	6,881.5	40.4	41.0	-102.93	2,012.6	-380.2	338.6	259.8	78.76	4.299	
7,800.0	6,805.4	7,793.3	6,881.3	42.2	42.8	-102.95	2,112.6	-380.2	338.6	256.4	82.24	4.118	
7,900.0	6,805.1	7,893.3	6,881.1	44.0	44.6	-102.97	2,212.6	-380.2	338.7	252.9	85.73	3.950	
8,000.0	6,804.8	7,993.3	6,880.9	45.8	46.4	-102.99	2,312.6	-380.2	338.7	249.4	89.25	3.795	
8,100.0	6,804.4	8,093.3	6,880.7	47.6	48.1	-103.01	2,412.6	-380.2	338.7	245.9	92.79	3.650	
8,200.0	6,804.1	8,193.3	6,880.5	49.4	49.9	-103.03	2,512.6	-380.2	338.7	242.4	96.34	3.516	
8,300.0	6,803.8	8,293.3	6,880.3	51.2	51.8	-103.05	2,612.6	-380.2	338.8	238.9	99.90	3.391	
8,400.0	6,803.5	8,393.3	6,880.1	53.1	53.6	-103.07	2,712.6	-380.2	338.8	235.3	103.48	3.274	
8,500.0	6,803.2	8,493.3	6,880.0	54.9	55.4	-103.09	2,812.6	-380.2	338.8	231.8	107.07	3.165	

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Brown 5N65W23 Pad Sec.23-T5N-R65W - Brown 23D-341 - Wellbore #1 - Plan #1 (9-2-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,600.0	6,802.9	8,593.3	6,879.8	56.8	57.2	-103.12	2,912.6	-380.2	338.9	228.2	110.67	3.062		
8,700.0	6,802.6	8,693.3	6,879.6	58.6	59.1	-103.14	3,012.6	-380.2	338.9	224.6	114.28	2.965		
8,800.0	6,802.2	8,793.3	6,879.4	60.5	60.9	-103.16	3,112.6	-380.2	338.9	221.0	117.89	2.875		
8,900.0	6,801.9	8,893.3	6,879.2	62.3	62.8	-103.18	3,212.6	-380.2	338.9	217.4	121.52	2.789		
9,000.0	6,801.6	8,993.3	6,879.0	64.2	64.6	-103.20	3,312.6	-380.2	339.0	213.8	125.15	2.709		
9,100.0	6,801.3	9,093.3	6,878.8	66.1	66.5	-103.22	3,412.6	-380.2	339.0	210.2	128.78	2.632		
9,200.0	6,801.0	9,193.3	6,878.6	67.9	68.3	-103.24	3,512.6	-380.2	339.0	206.6	132.42	2.560		
9,300.0	6,800.7	9,293.3	6,878.4	69.8	70.2	-103.26	3,612.6	-380.2	339.0	203.0	136.07	2.492		
9,400.0	6,800.4	9,393.3	6,878.2	71.7	72.1	-103.28	3,712.6	-380.2	339.1	199.4	139.72	2.427		
9,500.0	6,800.0	9,493.3	6,878.0	73.6	73.9	-103.30	3,812.6	-380.2	339.1	195.7	143.38	2.365		
9,600.0	6,799.7	9,593.3	6,877.8	75.4	75.8	-103.32	3,912.6	-380.2	339.1	192.1	147.04	2.306		
9,700.0	6,799.4	9,693.3	6,877.6	77.3	77.7	-103.34	4,012.6	-380.2	339.2	188.5	150.70	2.251		
9,800.0	6,799.1	9,793.3	6,877.5	79.2	79.5	-103.36	4,112.6	-380.2	339.2	184.8	154.37	2.197		
9,900.0	6,798.8	9,893.3	6,877.3	81.1	81.4	-103.38	4,212.6	-380.2	339.2	181.2	158.03	2.146		
10,000.0	6,798.5	9,993.3	6,877.1	83.0	83.3	-103.40	4,312.6	-380.2	339.2	177.5	161.71	2.098		
10,100.0	6,798.2	10,093.3	6,876.9	84.9	85.2	-103.42	4,412.6	-380.2	339.3	173.9	165.38	2.051		
10,200.0	6,797.9	10,193.3	6,876.7	86.8	87.1	-103.44	4,512.6	-380.2	339.3	170.2	169.06	2.007		
10,300.0	6,797.6	10,293.3	6,876.5	88.7	88.9	-103.46	4,612.6	-380.2	339.3	166.6	172.74	1.964		
10,400.0	6,797.3	10,393.3	6,876.3	90.5	90.8	-103.48	4,712.6	-380.2	339.4	162.9	176.42	1.924		
10,500.0	6,796.9	10,493.3	6,876.1	92.4	92.7	-103.50	4,812.6	-380.2	339.4	159.3	180.10	1.884		
10,600.0	6,796.6	10,593.3	6,875.9	94.3	94.6	-103.52	4,912.6	-380.2	339.4	155.6	183.78	1.847		
10,700.0	6,796.3	10,693.3	6,875.7	96.2	96.5	-103.54	5,012.6	-380.2	339.4	152.0	187.47	1.811		
10,800.0	6,796.0	10,793.3	6,875.5	98.1	98.4	-103.56	5,112.6	-380.2	339.5	148.3	191.16	1.776		
10,900.0	6,795.6	10,893.3	6,875.3	100.0	100.3	-103.58	5,212.6	-380.2	339.5	144.7	194.85	1.742		
11,000.0	6,795.3	10,993.3	6,875.2	101.9	102.2	-103.60	5,312.6	-380.2	339.5	141.0	198.53	1.710		
11,100.0	6,795.0	11,093.3	6,875.0	103.8	104.1	-103.62	5,412.6	-380.2	339.6	137.3	202.23	1.679		
11,200.0	6,794.7	11,193.3	6,874.8	105.7	106.0	-103.64	5,512.6	-380.2	339.6	133.7	205.92	1.649		
11,300.0	6,794.4	11,293.3	6,874.6	107.6	107.9	-103.66	5,612.6	-380.2	339.6	130.0	209.61	1.620		
11,400.0	6,794.1	11,393.3	6,874.4	109.5	109.8	-103.68	5,712.6	-380.2	339.6	126.3	213.30	1.592		
11,500.0	6,793.8	11,493.3	6,874.2	111.4	111.7	-103.70	5,812.6	-380.2	339.7	122.7	217.00	1.565		
11,600.0	6,793.4	11,593.3	6,874.0	113.3	113.6	-103.72	5,912.6	-380.2	339.7	119.0	220.69	1.539		
11,700.0	6,793.1	11,693.3	6,873.8	115.2	115.4	-103.74	6,012.6	-380.2	339.7	115.3	224.39	1.514		
11,800.0	6,792.8	11,793.3	6,873.6	117.1	117.3	-103.76	6,112.6	-380.2	339.8	111.7	228.08	1.490 Level 3		
11,900.0	6,792.5	11,893.3	6,873.4	119.0	119.2	-103.78	6,212.6	-380.2	339.8	108.0	231.78	1.466 Level 3		
12,000.0	6,792.2	11,993.3	6,873.2	120.9	121.2	-103.80	6,312.6	-380.2	339.8	104.3	235.48	1.443 Level 3		
12,100.0	6,791.9	12,093.3	6,873.0	122.9	123.1	-103.82	6,412.6	-380.2	339.9	100.7	239.18	1.421 Level 3		
12,200.0	6,791.6	12,193.3	6,872.8	124.8	125.0	-103.84	6,512.6	-380.2	339.9	97.0	242.87	1.399 Level 3		
12,300.0	6,791.2	12,293.3	6,872.7	126.7	126.9	-103.86	6,612.6	-380.2	339.9	93.3	246.57	1.379 Level 3		
12,400.0	6,790.9	12,393.3	6,872.5	128.6	128.8	-103.88	6,712.6	-380.2	339.9	89.7	250.27	1.358 Level 3		
12,500.0	6,790.6	12,493.3	6,872.3	130.5	130.7	-103.90	6,812.6	-380.2	340.0	86.0	253.97	1.339 Level 3		
12,600.0	6,790.3	12,593.3	6,872.1	132.4	132.6	-103.92	6,912.6	-380.2	340.0	82.3	257.67	1.320 Level 3		
12,700.0	6,790.0	12,693.3	6,871.9	134.3	134.5	-103.94	7,012.6	-380.2	340.0	78.7	261.37	1.301 Level 3		
12,800.0	6,789.7	12,793.3	6,871.7	136.2	136.4	-103.96	7,112.6	-380.2	340.1	75.0	265.07	1.283 Level 3		
12,900.0	6,789.4	12,893.3	6,871.5	138.1	138.3	-103.98	7,212.6	-380.2	340.1	71.3	268.77	1.265 Level 3		
13,000.0	6,789.0	12,993.3	6,871.3	140.0	140.2	-104.00	7,312.6	-380.1	340.1	67.6	272.47	1.248 Level 2		
13,100.0	6,788.7	13,093.3	6,871.1	141.9	142.1	-104.02	7,412.6	-380.1	340.1	64.0	276.17	1.232 Level 2		
13,200.0	6,788.4	13,193.3	6,870.9	143.8	144.0	-104.04	7,512.6	-380.1	340.2	60.3	279.86	1.215 Level 2		
13,300.0	6,788.1	13,293.3	6,870.7	145.7	145.9	-104.06	7,612.6	-380.1	340.2	56.6	283.56	1.200 Level 2		
13,400.0	6,787.8	13,393.3	6,870.5	147.7	147.8	-104.08	7,712.6	-380.1	340.2	53.0	287.26	1.184 Level 2		
13,500.0	6,787.5	13,493.3	6,870.4	149.6	149.7	-104.10	7,812.5	-380.1	340.3	49.3	290.96	1.169 Level 2		
13,600.0	6,787.2	13,593.3	6,870.2	151.5	151.6	-104.12	7,912.5	-380.1	340.3	45.6	294.66	1.155 Level 2		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Brown 5N65W23 Pad Sec.23-T5N-R65W - Brown 23D-341 - Wellbore #1 - Plan #1 (9-2-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
13,700.0	6,786.9	13,693.3	6,870.0	153.4	153.5	-104.14	8,012.5	-380.1	340.3	42.0	298.36	1.141	Level 2	
13,800.0	6,786.5	13,793.3	6,869.8	155.3	155.5	-104.16	8,112.5	-380.1	340.4	38.3	302.06	1.127	Level 2	
13,900.0	6,786.2	13,893.3	6,869.6	157.2	157.4	-104.18	8,212.5	-380.1	340.4	34.6	305.76	1.113	Level 2	
14,000.0	6,785.9	13,993.3	6,869.4	159.1	159.3	-104.20	8,312.5	-380.1	340.4	31.0	309.46	1.100	Level 2	
14,100.0	6,785.6	14,093.3	6,869.2	161.0	161.2	-104.22	8,412.5	-380.1	340.4	27.3	313.16	1.087	Level 2	
14,200.0	6,785.3	14,193.3	6,869.0	162.9	163.1	-104.24	8,512.5	-380.1	340.5	23.6	316.86	1.075	Level 2	
14,300.0	6,785.0	14,293.3	6,868.8	164.9	165.0	-104.26	8,612.5	-380.1	340.5	19.9	320.56	1.062	Level 2	
14,400.0	6,784.7	14,393.3	6,868.6	166.8	166.9	-104.28	8,712.5	-380.1	340.5	16.3	324.26	1.050	Level 2	
14,500.0	6,784.3	14,493.3	6,868.4	168.7	168.8	-104.30	8,812.5	-380.1	340.6	12.6	327.95	1.038	Level 2	
14,600.0	6,784.0	14,593.3	6,868.2	170.6	170.7	-104.32	8,912.5	-380.1	340.6	8.9	331.65	1.027	Level 2	
14,700.0	6,783.7	14,693.3	6,868.0	172.5	172.6	-104.34	9,012.5	-380.1	340.6	5.3	335.35	1.016	Level 2	
14,800.0	6,783.4	14,793.3	6,867.9	174.4	174.6	-104.36	9,112.5	-380.1	340.7	1.6	339.05	1.005	Level 2	
14,900.0	6,783.1	14,893.3	6,867.7	176.3	176.5	-104.38	9,212.5	-380.1	340.7	-2.1	342.74	0.994	Level 1	
15,000.0	6,782.8	14,993.3	6,867.5	178.2	178.4	-104.40	9,312.5	-380.1	340.7	-5.7	346.44	0.983	Level 1	
15,100.0	6,782.5	15,093.3	6,867.3	180.2	180.3	-104.42	9,412.5	-380.1	340.7	-9.4	350.14	0.973	Level 1	
15,200.0	6,782.1	15,193.3	6,867.1	182.1	182.2	-104.44	9,512.5	-380.1	340.8	-13.1	353.83	0.963	Level 1	
15,243.9	6,782.0	15,237.2	6,867.0	182.9	183.0	-104.44	9,556.4	-380.1	340.8	-14.7	355.46	0.959	Level 1, ES, SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Brown 5N65W23 Pad Sec.23-T5N-R65W - Brown 23D-421 - Wellbore #1 - Plan #1 (9-2-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference				Offset			Semi Major Axis		Distance				Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	15.0	15.0	15.0	0.00	N/A	
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	15.0	15.0	14.8	0.22	66.934	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	15.0	15.0	14.4	0.67	22.311	
300.0	300.0	300.0	300.0	0.6	0.6	90.00	0.0	15.0	15.0	13.9	1.12	13.387	
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	15.0	15.0	13.5	1.57	9.562	
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	15.0	15.0	13.0	2.02	7.437	
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	15.0	15.0	12.6	2.47	6.085	
700.0	700.0	700.0	700.0	1.5	1.5	90.00	0.0	15.0	15.0	12.1	2.92	5.149	
800.0	800.0	800.0	800.0	1.7	1.7	90.00	0.0	15.0	15.0	11.7	3.37	4.462	
900.0	900.0	900.0	900.0	1.9	1.9	90.00	0.0	15.0	15.0	11.2	3.82	3.937	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.00	0.0	15.0	15.0	10.8	4.27	3.523 CC	
1,100.0	1,100.0	1,099.9	1,099.9	2.4	2.4	86.91	0.8	15.3	15.3	10.6	4.72	3.251 ES	
1,200.0	1,200.0	1,199.8	1,199.7	2.6	2.6	78.44	3.3	16.1	16.5	11.3	5.17	3.191	
1,300.0	1,300.0	1,299.5	1,299.3	2.8	2.8	67.04	7.4	17.5	19.0	13.4	5.61	3.391	
1,400.0	1,400.0	1,399.0	1,398.7	3.0	3.0	55.87	13.2	19.4	23.5	17.5	6.06	3.878	
1,500.0	1,500.0	1,498.4	1,497.8	3.3	3.3	51.92	20.6	21.9	29.3	22.8	6.51	4.497	
1,600.0	1,599.9	1,597.7	1,596.7	3.5	3.5	49.04	29.6	24.9	35.2	28.2	6.96	5.050	
1,700.0	1,699.7	1,697.0	1,695.3	3.7	3.8	48.62	40.2	28.4	40.9	33.5	7.42	5.515	
1,800.0	1,799.3	1,796.2	1,793.6	3.9	4.0	49.73	52.4	32.5	46.5	38.6	7.88	5.898	
1,900.0	1,898.6	1,895.3	1,891.6	4.2	4.3	51.88	66.2	37.1	51.9	43.5	8.36	6.212	
2,000.0	1,997.5	1,994.3	1,989.3	4.4	4.6	54.79	81.6	42.3	57.3	48.5	8.86	6.472	
2,100.0	2,096.1	2,093.2	2,086.6	4.7	4.9	58.25	98.6	47.9	62.9	53.5	9.40	6.689	
2,200.0	2,194.2	2,192.0	2,183.5	5.0	5.3	62.11	117.2	54.1	68.7	58.7	10.00	6.872	
2,300.0	2,291.7	2,290.8	2,279.9	5.4	5.6	66.22	137.4	60.8	75.0	64.3	10.66	7.029	
2,336.3	2,327.0	2,326.6	2,314.8	5.5	5.8	67.75	145.1	63.4	77.4	66.4	10.93	7.081	
2,400.0	2,388.7	2,389.5	2,375.9	5.7	6.0	70.18	159.1	68.1	82.0	70.6	11.40	7.188	
2,500.0	2,485.8	2,488.1	2,471.4	6.1	6.4	72.79	182.3	75.8	90.3	78.1	12.18	7.414	
2,600.0	2,582.8	2,586.6	2,566.4	6.5	6.9	74.16	207.1	84.1	99.8	86.9	12.99	7.689	
2,700.0	2,679.8	2,685.0	2,660.8	6.9	7.4	74.57	233.4	92.8	110.4	96.6	13.81	7.997	
2,800.0	2,776.8	2,783.1	2,754.5	7.4	7.9	74.27	261.1	102.1	122.0	107.4	14.64	8.333	
2,900.0	2,873.8	2,882.0	2,848.5	7.8	8.4	73.59	290.2	111.8	134.4	118.9	15.49	8.675	
3,000.0	2,970.8	2,981.2	2,942.8	8.2	9.0	73.00	319.4	121.6	146.8	130.4	16.35	8.977	
3,100.0	3,067.8	3,080.5	3,037.1	8.7	9.5	72.50	348.7	131.3	159.2	142.0	17.22	9.244	
3,200.0	3,164.8	3,179.7	3,131.4	9.2	10.1	72.08	377.9	141.1	171.6	153.5	18.10	9.480	
3,300.0	3,261.8	3,278.9	3,225.7	9.6	10.6	71.71	407.2	150.8	184.0	165.1	18.99	9.692	
3,400.0	3,358.9	3,378.1	3,320.0	10.1	11.2	71.39	436.4	160.6	196.5	176.6	19.89	9.881	
3,500.0	3,455.9	3,477.3	3,414.3	10.5	11.8	71.11	465.7	170.3	208.9	188.1	20.79	10.051	
3,600.0	3,552.9	3,576.5	3,508.6	11.0	12.4	70.85	494.9	180.1	221.4	199.7	21.70	10.204	
3,700.0	3,649.9	3,675.8	3,603.0	11.5	13.0	70.63	524.2	189.8	233.8	211.2	22.61	10.344	
3,800.0	3,746.9	3,775.0	3,697.3	12.0	13.5	70.43	553.4	199.6	246.3	222.8	23.52	10.471	
3,900.0	3,843.9	3,874.2	3,791.6	12.4	14.1	70.25	582.7	209.3	258.8	234.3	24.44	10.586	
4,000.0	3,940.9	3,973.4	3,885.9	12.9	14.7	70.08	611.9	219.1	271.2	245.9	25.37	10.693	
4,100.0	4,037.9	4,072.6	3,980.2	13.4	15.3	69.93	641.2	228.8	283.7	257.4	26.29	10.790	
4,200.0	4,134.9	4,171.8	4,074.5	13.9	15.9	69.79	670.4	238.6	296.2	268.9	27.22	10.880	
4,300.0	4,232.0	4,271.1	4,168.8	14.4	16.5	69.66	699.6	248.3	308.6	280.5	28.15	10.963	
4,400.0	4,329.0	4,370.3	4,263.1	14.9	17.1	69.55	728.9	258.1	321.1	292.0	29.08	11.041	
4,500.0	4,426.0	4,469.5	4,357.4	15.4	17.7	69.44	758.1	267.8	333.6	303.6	30.02	11.112	
4,600.0	4,523.0	4,568.7	4,451.7	15.8	18.3	69.34	787.4	277.6	346.1	315.1	30.96	11.179	
4,700.0	4,620.0	4,667.9	4,546.0	16.3	18.9	69.24	816.6	287.3	358.5	326.6	31.89	11.241	
4,800.0	4,717.0	4,767.1	4,640.3	16.8	19.5	69.16	845.9	297.1	371.0	338.2	32.83	11.299	
4,900.0	4,814.0	4,866.4	4,734.6	17.3	20.1	69.07	875.1	306.8	383.5	349.7	33.78	11.354	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Brown 5N65W23 Pad Sec.23-T5N-R65W - Brown 23D-421 - Wellbore #1 - Plan #1 (9-2-15)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	Toolface (°)	+N/-S (ft)	+E/-W (ft)	Centres (ft)	Ellipses (ft)	Separation (ft)	Factor			
5,000.0	4,911.0	4,965.6	4,828.9	17.8	20.7	69.00	904.4	316.6	396.0	361.2	34.72	11.405			
5,100.0	5,008.0	5,064.8	4,923.2	18.3	21.3	68.93	933.6	326.3	408.4	372.8	35.66	11.453			
5,199.7	5,104.8	5,164.6	5,018.1	18.8	21.9	68.86	963.0	336.1	420.9	384.3	36.60	11.498			
5,300.0	5,202.5	5,275.2	5,124.0	19.2	22.5	69.01	993.4	346.3	432.5	395.1	37.45	11.550			
5,400.0	5,300.6	5,386.0	5,231.2	19.5	22.9	69.08	1,019.9	355.1	442.8	404.7	38.14	11.609			
5,500.0	5,399.4	5,497.3	5,339.9	19.8	23.3	69.07	1,042.5	362.6	451.8	413.0	38.75	11.658			
5,600.0	5,498.6	5,609.0	5,449.8	20.1	23.7	68.99	1,061.2	368.9	459.3	420.1	39.27	11.698			
5,700.0	5,598.2	5,721.0	5,560.8	20.3	24.0	68.83	1,075.9	373.8	465.5	425.9	39.69	11.730			
5,800.0	5,698.1	5,833.4	5,672.6	20.5	24.2	68.60	1,086.4	377.3	470.4	430.4	40.01	11.755			
5,902.0	5,800.0	5,948.2	5,787.2	20.6	24.4	65.08	1,092.9	379.4	473.8	433.6	40.25	11.773			
6,000.0	5,898.0	6,058.9	5,897.8	20.7	24.6	64.88	1,095.0	380.1	475.2	434.7	40.48	11.740			
6,100.0	5,998.0	6,159.1	5,998.0	20.9	24.7	64.88	1,095.0	380.1	475.2	434.5	40.75	11.662			
6,144.8	6,042.9	6,203.9	6,042.9	20.9	24.7	64.88	1,095.0	380.1	475.2	434.3	40.87	11.627			
6,150.0	6,048.0	6,209.1	6,048.0	20.9	24.7	64.89	1,095.0	380.1	475.2	434.3	40.89	11.621			
6,200.0	6,098.0	6,259.1	6,098.0	21.0	24.8	65.16	1,095.0	380.1	474.4	433.2	41.17	11.521			
6,250.0	6,147.7	6,308.8	6,147.7	21.2	24.8	65.88	1,095.0	380.1	472.2	430.6	41.58	11.355			
6,300.0	6,197.0	6,354.7	6,193.7	21.4	24.9	66.98	1,095.0	380.1	468.8	426.7	42.10	11.135			
6,350.0	6,245.6	6,400.0	6,238.9	21.6	25.0	68.31	1,096.3	380.1	464.8	422.1	42.70	10.884			
6,400.0	6,293.3	6,436.9	6,275.6	21.9	25.1	69.53	1,099.4	380.1	460.8	417.4	43.33	10.633			
6,450.0	6,340.0	6,477.1	6,315.5	22.2	25.2	70.91	1,104.8	380.1	456.8	412.7	44.06	10.367			
6,500.0	6,385.4	6,517.8	6,355.5	22.6	25.4	72.37	1,112.3	380.1	452.8	408.0	44.87	10.093			
6,550.0	6,429.3	6,558.9	6,395.4	23.0	25.5	73.92	1,122.1	380.1	449.0	403.3	45.76	9.813			
6,600.0	6,471.6	6,600.0	6,434.7	23.5	25.8	75.54	1,134.0	380.1	445.4	398.7	46.73	9.533			
6,650.0	6,512.0	6,642.6	6,474.7	24.0	26.0	77.26	1,148.6	380.1	442.1	394.3	47.79	9.250			
6,700.0	6,550.5	6,685.2	6,513.9	24.5	26.3	79.04	1,165.4	380.1	439.0	390.1	48.92	8.974			
6,750.0	6,586.7	6,728.5	6,552.7	25.1	26.7	80.88	1,184.6	380.1	436.3	386.2	50.12	8.706			
6,800.0	6,620.6	6,772.4	6,590.8	25.7	27.0	82.78	1,206.4	380.1	434.1	382.7	51.38	8.449			
6,850.0	6,652.1	6,817.1	6,628.3	26.3	27.4	84.73	1,230.7	380.1	432.3	379.6	52.68	8.207			
6,900.0	6,680.9	6,862.5	6,664.9	27.0	27.9	86.72	1,257.6	380.1	431.1	377.1	54.01	7.981			
6,950.0	6,707.0	6,908.8	6,700.4	27.7	28.4	88.74	1,287.3	380.1	430.4	375.0	55.36	7.774			
6,980.9	6,721.8	6,937.8	6,721.8	28.2	28.7	90.00	1,306.9	380.1	430.3	374.1	56.20	7.656			
7,000.0	6,730.3	6,955.9	6,734.7	28.5	28.9	90.78	1,319.6	380.1	430.3	373.6	56.72	7.587			
7,050.0	6,750.6	7,004.1	6,767.6	29.3	29.5	92.84	1,354.8	380.1	430.9	372.8	58.06	7.421			
7,100.0	6,767.9	7,053.3	6,798.9	30.0	30.1	94.90	1,392.8	380.1	432.0	372.7	59.39	7.275			
7,150.0	6,782.1	7,103.6	6,828.2	30.9	30.8	96.95	1,433.6	380.1	433.8	373.2	60.67	7.150			
7,200.0	6,793.1	7,155.1	6,855.5	31.7	31.5	98.98	1,477.3	380.1	436.2	374.3	61.92	7.045			
7,250.0	6,800.9	7,208.0	6,880.2	32.5	32.3	100.98	1,524.0	380.1	439.2	376.1	63.11	6.959			
7,300.0	6,805.5	7,262.1	6,902.3	33.4	33.1	102.94	1,573.5	380.1	442.7	378.5	64.25	6.890			
7,347.2	6,806.8	7,314.6	6,920.2	34.2	34.0	104.75	1,622.8	380.1	446.5	381.2	65.28	6.839			
7,400.0	6,806.6	7,375.5	6,936.7	35.1	35.0	106.80	1,681.3	380.1	450.6	384.1	66.46	6.779			
7,500.0	6,806.3	7,496.8	6,955.4	36.9	37.0	109.11	1,801.1	380.1	455.5	386.3	69.22	6.581			
7,600.0	6,806.0	7,608.0	6,957.7	38.6	38.9	109.42	1,912.2	380.1	456.2	383.6	72.58	6.285			
7,700.0	6,805.7	7,708.0	6,957.8	40.4	40.6	109.47	2,012.2	380.1	456.4	380.5	75.90	6.013			
7,800.0	6,805.4	7,808.0	6,957.9	42.2	42.3	109.52	2,112.2	380.1	456.5	377.3	79.24	5.761			
7,900.0	6,805.1	7,908.0	6,958.0	44.0	44.1	109.57	2,212.2	380.1	456.7	374.0	82.61	5.528			
8,000.0	6,804.8	8,008.0	6,958.2	45.8	45.9	109.62	2,312.2	380.1	456.8	370.8	85.99	5.312			
8,100.0	6,804.4	8,108.0	6,958.3	47.6	47.7	109.67	2,412.2	380.1	456.9	367.6	89.39	5.112			
8,200.0	6,804.1	8,208.0	6,958.4	49.4	49.5	109.72	2,512.2	380.1	457.1	364.3	92.81	4.925			
8,300.0	6,803.8	8,308.0	6,958.5	51.2	51.3	109.78	2,612.2	380.1	457.2	361.0	96.24	4.751			
8,400.0	6,803.5	8,408.0	6,958.6	53.1	53.1	109.83	2,712.2	380.1	457.4	357.7	99.68	4.589			
8,500.0	6,803.2	8,508.0	6,958.8	54.9	54.9	109.88	2,812.2	380.1	457.5	354.4	103.13	4.436			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,600.0	6,802.9	8,608.0	6,958.9	56.8	56.7	109.93	2,912.2	380.1	457.7	351.1	106.59	4.294	
8,700.0	6,802.6	8,708.0	6,959.0	58.6	58.5	109.98	3,012.2	380.1	457.8	347.8	110.06	4.160	
8,800.0	6,802.2	8,808.0	6,959.1	60.5	60.4	110.03	3,112.2	380.1	458.0	344.5	113.53	4.034	
8,900.0	6,801.9	8,908.0	6,959.3	62.3	62.2	110.08	3,212.2	380.1	458.1	341.1	117.01	3.915	
9,000.0	6,801.6	9,008.0	6,959.4	64.2	64.1	110.14	3,312.2	380.1	458.3	337.8	120.50	3.803	
9,100.0	6,801.3	9,108.0	6,959.5	66.1	65.9	110.19	3,412.2	380.1	458.4	334.4	123.99	3.697	
9,200.0	6,801.0	9,208.0	6,959.6	67.9	67.8	110.24	3,512.2	380.1	458.6	331.1	127.49	3.597	
9,300.0	6,800.7	9,308.0	6,959.7	69.8	69.6	110.29	3,612.2	380.1	458.7	327.7	130.99	3.502	
9,400.0	6,800.4	9,408.0	6,959.9	71.7	71.5	110.34	3,712.2	380.1	458.9	324.4	134.49	3.412	
9,500.0	6,800.0	9,508.0	6,960.0	73.6	73.3	110.39	3,812.2	380.1	459.0	321.0	137.99	3.327	
9,600.0	6,799.7	9,608.0	6,960.1	75.4	75.2	110.44	3,912.2	380.1	459.2	317.7	141.50	3.245	
9,700.0	6,799.4	9,708.0	6,960.2	77.3	77.1	110.49	4,012.2	380.1	459.3	314.3	145.01	3.168	
9,800.0	6,799.1	9,808.0	6,960.4	79.2	79.0	110.54	4,112.2	380.1	459.5	311.0	148.52	3.094	
9,900.0	6,798.8	9,908.0	6,960.5	81.1	80.8	110.59	4,212.2	380.1	459.7	307.6	152.04	3.023	
10,000.0	6,798.5	10,008.0	6,960.6	83.0	82.7	110.65	4,312.2	380.1	459.8	304.3	155.55	2.956	
10,100.0	6,798.2	10,108.0	6,960.7	84.9	84.6	110.70	4,412.2	380.1	460.0	300.9	159.07	2.892	
10,200.0	6,797.8	10,208.0	6,960.8	86.8	86.5	110.75	4,512.2	380.1	460.1	297.5	162.58	2.830	
10,300.0	6,797.5	10,308.0	6,961.0	88.7	88.3	110.80	4,612.2	380.1	460.3	294.2	166.10	2.771	
10,400.0	6,797.2	10,408.0	6,961.1	90.5	90.2	110.85	4,712.2	380.1	460.4	290.8	169.62	2.714	
10,500.0	6,796.9	10,508.0	6,961.2	92.4	92.1	110.90	4,812.2	380.1	460.6	287.4	173.13	2.660	
10,600.0	6,796.6	10,608.0	6,961.3	94.3	94.0	110.95	4,912.2	380.1	460.7	284.1	176.65	2.608	
10,700.0	6,796.3	10,708.0	6,961.5	96.2	95.9	111.00	5,012.2	380.1	460.9	280.7	180.17	2.558	
10,800.0	6,796.0	10,808.0	6,961.6	98.1	97.8	111.05	5,112.2	380.1	461.0	277.4	183.69	2.510	
10,900.0	6,795.6	10,908.0	6,961.7	100.0	99.7	111.10	5,212.2	380.1	461.2	274.0	187.20	2.464	
11,000.0	6,795.3	11,008.0	6,961.8	101.9	101.6	111.15	5,312.2	380.1	461.4	270.6	190.72	2.419	
11,100.0	6,795.0	11,108.0	6,961.9	103.8	103.5	111.20	5,412.2	380.1	461.5	267.3	194.24	2.376	
11,200.0	6,794.7	11,208.0	6,962.1	105.7	105.3	111.25	5,512.2	380.1	461.7	263.9	197.75	2.335	
11,300.0	6,794.4	11,308.0	6,962.2	107.6	107.2	111.30	5,612.2	380.1	461.8	260.6	201.27	2.295	
11,400.0	6,794.1	11,408.0	6,962.3	109.5	109.1	111.35	5,712.2	380.1	462.0	257.2	204.78	2.256	
11,500.0	6,793.8	11,508.0	6,962.4	111.4	111.0	111.41	5,812.2	380.1	462.2	253.9	208.30	2.219	
11,600.0	6,793.4	11,608.0	6,962.6	113.3	112.9	111.46	5,912.2	380.1	462.3	250.5	211.81	2.183	
11,700.0	6,793.1	11,708.0	6,962.7	115.2	114.8	111.51	6,012.2	380.1	462.5	247.1	215.32	2.148	
11,800.0	6,792.8	11,808.0	6,962.8	117.1	116.7	111.56	6,112.2	380.1	462.6	243.8	218.83	2.114	
11,900.0	6,792.5	11,908.0	6,962.9	119.0	118.6	111.61	6,212.2	380.1	462.8	240.4	222.34	2.081	
12,000.0	6,792.2	12,008.0	6,963.0	120.9	120.5	111.66	6,312.2	380.1	463.0	237.1	225.85	2.050	
12,100.0	6,791.9	12,108.0	6,963.2	122.9	122.4	111.71	6,412.2	380.1	463.1	233.8	229.36	2.019	
12,200.0	6,791.6	12,208.0	6,963.3	124.8	124.3	111.76	6,512.2	380.1	463.3	230.4	232.87	1.989	
12,300.0	6,791.2	12,308.0	6,963.4	126.7	126.2	111.81	6,612.2	380.1	463.4	227.1	236.37	1.961	
12,400.0	6,790.9	12,408.0	6,963.5	128.6	128.1	111.86	6,712.2	380.1	463.6	223.7	239.88	1.933	
12,500.0	6,790.6	12,508.0	6,963.7	130.5	130.0	111.91	6,812.2	380.1	463.8	220.4	243.38	1.906	
12,600.0	6,790.3	12,608.0	6,963.8	132.4	131.9	111.96	6,912.2	380.1	463.9	217.0	246.88	1.879	
12,700.0	6,790.0	12,708.0	6,963.9	134.3	133.8	112.01	7,012.2	380.1	464.1	213.7	250.38	1.854	
12,800.0	6,789.7	12,808.0	6,964.0	136.2	135.7	112.06	7,112.2	380.1	464.3	210.4	253.88	1.829	
12,900.0	6,789.4	12,908.0	6,964.1	138.1	137.6	112.11	7,212.2	380.1	464.4	207.0	257.37	1.804	
13,000.0	6,789.0	13,008.0	6,964.3	140.0	139.6	112.16	7,312.2	380.1	464.6	203.7	260.87	1.781	
13,100.0	6,788.7	13,108.0	6,964.4	141.9	141.5	112.21	7,412.2	380.1	464.7	200.4	264.36	1.758	
13,200.0	6,788.4	13,208.0	6,964.5	143.8	143.4	112.26	7,512.2	380.1	464.9	197.1	267.85	1.736	
13,300.0	6,788.1	13,308.0	6,964.6	145.7	145.3	112.31	7,612.2	380.1	465.1	193.7	271.34	1.714	
13,400.0	6,787.8	13,408.0	6,964.8	147.7	147.2	112.36	7,712.2	380.1	465.2	190.4	274.83	1.693	
13,500.0	6,787.5	13,507.9	6,964.9	149.6	149.1	112.41	7,812.2	380.1	465.4	187.1	278.32	1.672	
13,600.0	6,787.2	13,607.9	6,965.0	151.5	151.0	112.46	7,912.2	380.1	465.6	183.8	281.80	1.652	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Brown 5N65W23 Pad Sec.23-T5N-R65W - Brown 23D-421 - Wellbore #1 - Plan #1 (9-2-15)											Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
13,700.0	6,786.9	13,707.9	6,965.1	153.4	152.9	112.50	8,012.2	380.1	465.7	180.5	285.29	1.633		
13,800.0	6,786.5	13,807.9	6,965.2	155.3	154.8	112.55	8,112.2	380.1	465.9	177.1	288.77	1.613		
13,900.0	6,786.2	13,907.9	6,965.4	157.2	156.7	112.60	8,212.2	380.1	466.1	173.8	292.25	1.595		
14,000.0	6,785.9	14,007.9	6,965.5	159.1	158.6	112.65	8,312.2	380.1	466.2	170.5	295.73	1.577		
14,100.0	6,785.6	14,107.9	6,965.6	161.0	160.5	112.70	8,412.2	380.1	466.4	167.2	299.20	1.559		
14,200.0	6,785.3	14,207.9	6,965.7	162.9	162.4	112.75	8,512.2	380.1	466.6	163.9	302.68	1.542		
14,300.0	6,785.0	14,307.9	6,965.9	164.9	164.4	112.80	8,612.2	380.1	466.8	160.6	306.15	1.525		
14,400.0	6,784.7	14,407.9	6,966.0	166.8	166.3	112.85	8,712.2	380.1	466.9	157.3	309.62	1.508		
14,500.0	6,784.3	14,507.9	6,966.1	168.7	168.2	112.90	8,812.2	380.1	467.1	154.0	313.09	1.492	Level 3	
14,600.0	6,784.0	14,607.9	6,966.2	170.6	170.1	112.95	8,912.2	380.1	467.3	150.7	316.55	1.476	Level 3	
14,700.0	6,783.7	14,707.9	6,966.3	172.5	172.0	113.00	9,012.2	380.1	467.4	147.4	320.02	1.461	Level 3	
14,800.0	6,783.4	14,807.9	6,966.5	174.4	173.9	113.05	9,112.2	380.1	467.6	144.1	323.48	1.446	Level 3	
14,900.0	6,783.1	14,907.9	6,966.6	176.3	175.8	113.10	9,212.2	380.1	467.8	140.8	326.94	1.431	Level 3	
15,000.0	6,782.8	15,007.9	6,966.7	178.2	177.7	113.15	9,312.2	380.1	467.9	137.5	330.40	1.416	Level 3	
15,100.0	6,782.5	15,107.9	6,966.8	180.2	179.6	113.20	9,412.2	380.1	468.1	134.3	333.86	1.402	Level 3	
15,200.0	6,782.1	15,207.9	6,967.0	182.1	181.5	113.24	9,512.2	380.1	468.3	131.0	337.31	1.388	Level 3	
15,243.9	6,782.0	15,248.0	6,967.0	182.9	182.3	113.26	9,552.3	380.1	468.4	129.6	338.76	1.383	Level 3, SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.31	0.7	-60.2	60.2				
100.0	100.0	100.0	100.0	0.1	0.1	-89.31	0.7	-60.2	60.2	60.0	0.22	267.757	
200.0	200.0	200.0	200.0	0.3	0.3	-89.31	0.7	-60.2	60.2	59.5	0.67	89.252 CC, ES	
300.0	300.0	298.7	298.7	0.6	0.6	-88.63	1.5	-61.2	61.2	60.1	1.12	54.833	
400.0	400.0	397.3	397.2	0.8	0.8	-86.73	3.7	-64.3	64.5	62.9	1.56	41.258	
500.0	500.0	495.6	495.3	1.0	1.0	-83.96	7.4	-69.5	70.0	68.0	2.01	34.763	
600.0	600.0	593.5	592.8	1.2	1.3	-80.77	12.5	-76.7	78.0	75.6	2.47	31.580	
700.0	700.0	690.9	689.5	1.5	1.5	-77.53	19.0	-85.8	88.5	85.6	2.93	30.224	
800.0	800.0	787.6	785.3	1.7	1.8	-74.51	26.9	-96.9	101.7	98.3	3.39	29.981 SF	
900.0	900.0	883.7	880.0	1.9	2.2	-71.82	36.1	-109.9	117.4	113.5	3.85	30.457	
1,000.0	1,000.0	978.8	973.4	2.1	2.5	-69.51	46.6	-124.7	135.7	131.4	4.32	31.416	
1,100.0	1,100.0	1,073.0	1,065.4	2.4	3.0	-67.56	58.3	-141.1	156.6	151.8	4.79	32.706	
1,200.0	1,200.0	1,166.1	1,155.8	2.6	3.4	-65.92	71.1	-159.2	179.9	174.6	5.26	34.226	
1,300.0	1,300.0	1,258.0	1,244.5	2.8	3.9	-64.55	85.1	-178.8	205.7	199.9	5.73	35.906	
1,400.0	1,400.0	1,348.7	1,331.5	3.0	4.4	-63.41	100.1	-199.9	233.8	227.6	6.20	37.701	
1,500.0	1,500.0	1,438.3	1,416.8	3.3	4.9	-59.07	116.0	-222.3	263.6	256.9	6.69	39.381	
1,600.0	1,599.9	1,533.5	1,506.9	3.5	5.5	-58.48	133.7	-247.1	293.4	286.2	7.19	40.813	
1,700.0	1,699.7	1,629.3	1,597.7	3.7	6.1	-58.36	151.4	-272.1	321.8	314.2	7.69	41.850	
1,800.0	1,799.3	1,725.5	1,688.9	3.9	6.7	-58.60	169.2	-297.2	349.0	340.8	8.21	42.528	
1,900.0	1,898.6	1,821.9	1,780.2	4.2	7.4	-59.12	187.1	-322.3	374.9	366.2	8.74	42.892	
2,000.0	1,997.5	1,918.6	1,871.8	4.4	8.0	-59.88	205.0	-347.5	399.6	390.3	9.30	42.973	
2,100.0	2,096.1	2,015.3	1,963.5	4.7	8.6	-60.84	222.9	-372.7	423.2	413.4	9.89	42.798	
2,200.0	2,194.2	2,112.2	2,055.2	5.0	9.3	-61.97	240.9	-397.9	445.8	435.3	10.52	42.387	
2,300.0	2,291.7	2,209.0	2,146.9	5.4	9.9	-63.27	258.8	-423.1	467.5	456.3	11.20	41.760	
2,336.3	2,327.0	2,244.1	2,180.2	5.5	10.2	-63.77	265.3	-432.3	475.2	463.8	11.46	41.484	
2,400.0	2,388.7	2,305.7	2,238.6	5.7	10.6	-64.83	276.7	-448.4	488.7	476.7	11.93	40.967	
2,500.0	2,485.8	2,402.5	2,330.3	6.1	11.2	-66.38	294.7	-473.6	510.1	497.4	12.70	40.168	
2,600.0	2,582.8	2,499.3	2,422.0	6.5	11.9	-67.80	312.6	-498.8	531.9	518.4	13.50	39.396	
2,700.0	2,679.8	2,596.0	2,513.7	6.9	12.5	-69.12	330.5	-524.0	554.0	539.7	14.33	38.661	
2,800.0	2,776.8	2,692.8	2,605.4	7.4	13.1	-70.33	348.5	-549.2	576.3	561.1	15.18	37.966	
2,900.0	2,873.8	2,789.6	2,697.1	7.8	13.8	-71.45	366.4	-574.4	598.9	582.8	16.05	37.314	
3,000.0	2,970.8	2,886.3	2,788.7	8.2	14.4	-72.50	384.3	-599.6	621.7	604.7	16.94	36.705	
3,100.0	3,067.8	2,983.1	2,880.4	8.7	15.1	-73.47	402.2	-624.9	644.6	626.8	17.84	36.137	
3,200.0	3,164.8	3,079.8	2,972.1	9.2	15.7	-74.37	420.2	-650.1	667.7	649.0	18.75	35.610	
3,300.0	3,261.8	3,176.6	3,063.8	9.6	16.4	-75.21	438.1	-675.3	691.0	671.3	19.68	35.119	
3,400.0	3,358.9	3,273.4	3,155.5	10.1	17.0	-76.00	456.0	-700.5	714.4	693.8	20.61	34.664	
3,500.0	3,455.9	3,370.1	3,247.1	10.5	17.7	-76.74	474.0	-725.7	737.9	716.4	21.55	34.240	
3,600.0	3,552.9	3,466.9	3,338.8	11.0	18.3	-77.44	491.9	-750.9	761.6	739.1	22.50	33.847	
3,700.0	3,649.9	3,563.7	3,430.5	11.5	19.0	-78.09	509.8	-776.1	785.3	761.8	23.46	33.481	
3,800.0	3,746.9	3,660.4	3,522.2	12.0	19.6	-78.70	527.7	-801.4	809.1	784.7	24.42	33.139	
3,900.0	3,843.9	3,757.2	3,613.9	12.4	20.3	-79.28	545.7	-826.6	833.0	807.7	25.38	32.821	
4,000.0	3,940.9	3,853.9	3,705.6	12.9	20.9	-79.83	563.6	-851.8	857.0	830.7	26.35	32.524	
4,100.0	4,037.9	3,950.7	3,797.2	13.4	21.6	-80.35	581.5	-877.0	881.1	853.8	27.32	32.246	
4,200.0	4,134.9	4,047.5	3,888.9	13.9	22.2	-80.84	599.4	-902.2	905.2	876.9	28.30	31.986	
4,300.0	4,232.0	4,144.2	3,980.6	14.4	22.9	-81.30	617.4	-927.4	929.4	900.1	29.28	31.742	
4,400.0	4,329.0	4,241.0	4,072.3	14.9	23.5	-81.75	635.3	-952.6	953.6	923.3	30.26	31.513	
4,500.0	4,426.0	4,337.7	4,164.0	15.4	24.2	-82.17	653.2	-977.9	977.9	946.6	31.25	31.298	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	-89.31	0.4	-30.1	30.1				
100.0	100.0	100.0	100.0	0.1	0.1	-89.31	0.4	-30.1	30.1	29.9	0.22	133.878	
200.0	200.0	200.0	200.0	0.3	0.3	-89.31	0.4	-30.1	30.1	29.4	0.67	44.626	
300.0	300.0	300.0	300.0	0.6	0.6	-89.31	0.4	-30.1	30.1	29.0	1.12	26.776	
400.0	400.0	400.0	400.0	0.8	0.8	-89.31	0.4	-30.1	30.1	28.5	1.57	19.125	
500.0	500.0	500.0	500.0	1.0	1.0	-89.31	0.4	-30.1	30.1	28.1	2.02	14.875	
600.0	600.0	600.0	600.0	1.2	1.2	-89.31	0.4	-30.1	30.1	27.6	2.47	12.171	CC, ES
700.0	700.0	699.5	699.5	1.5	1.5	-87.42	1.4	-30.9	30.9	28.0	2.92	10.596	
800.0	800.0	798.8	798.8	1.7	1.7	-82.36	4.5	-33.3	33.6	30.2	3.36	9.984	
900.0	900.0	897.9	897.6	1.9	1.9	-75.59	9.6	-37.2	38.5	34.7	3.81	10.094	
1,000.0	1,000.0	996.6	995.9	2.1	2.1	-68.69	16.6	-42.7	46.0	41.7	4.26	10.786	
1,100.0	1,100.0	1,094.8	1,093.4	2.4	2.4	-62.64	25.7	-49.7	56.3	51.6	4.72	11.935	
1,200.0	1,200.0	1,192.3	1,189.9	2.6	2.7	-57.77	36.6	-58.1	69.4	64.3	5.17	13.424	
1,300.0	1,300.0	1,289.0	1,285.3	2.8	3.0	-53.99	49.4	-68.0	85.3	79.7	5.63	15.158	
1,400.0	1,400.0	1,384.9	1,379.4	3.0	3.3	-51.08	64.0	-79.2	103.9	97.8	6.09	17.067	
1,500.0	1,500.0	1,480.0	1,472.2	3.3	3.7	-45.83	80.2	-91.8	124.1	117.6	6.55	18.952	
1,600.0	1,599.9	1,575.6	1,565.1	3.5	4.1	-44.86	98.3	-105.8	144.9	137.9	7.02	20.654	
1,700.0	1,699.7	1,673.7	1,660.2	3.7	4.5	-44.70	117.3	-120.4	164.4	157.0	7.49	21.956	
1,800.0	1,799.3	1,772.1	1,755.6	3.9	5.0	-45.13	136.3	-135.1	182.2	174.2	7.98	22.840	
1,900.0	1,898.6	1,870.7	1,851.3	4.2	5.5	-46.02	155.4	-149.9	198.1	189.6	8.47	23.373	
2,000.0	1,997.5	1,969.6	1,947.1	4.4	5.9	-47.29	174.6	-164.6	212.3	203.3	9.00	23.600	
2,100.0	2,096.1	2,068.6	2,043.1	4.7	6.4	-48.90	193.7	-179.4	224.9	215.4	9.55	23.563	
2,200.0	2,194.2	2,167.6	2,139.1	5.0	6.9	-50.82	212.9	-194.2	236.1	226.0	10.14	23.293	
2,300.0	2,291.7	2,266.6	2,235.1	5.4	7.4	-53.04	232.0	-209.0	246.0	235.2	10.78	22.822	
2,336.3	2,327.0	2,302.6	2,270.0	5.5	7.6	-53.93	239.0	-214.4	249.3	238.2	11.03	22.608	
2,400.0	2,388.7	2,365.6	2,331.1	5.7	7.9	-55.54	251.2	-223.8	255.0	243.6	11.48	22.208	
2,500.0	2,485.8	2,464.5	2,427.0	6.1	8.4	-57.94	270.3	-238.6	264.5	252.2	12.24	21.614	
2,600.0	2,582.8	2,563.5	2,523.0	6.5	8.9	-60.16	289.5	-253.4	274.4	261.3	13.03	21.063	
2,700.0	2,679.8	2,662.5	2,618.9	6.9	9.4	-62.23	308.6	-268.2	284.6	270.8	13.85	20.556	
2,800.0	2,776.8	2,761.4	2,714.9	7.4	9.9	-64.16	327.8	-283.0	295.2	280.5	14.70	20.091	
2,900.0	2,873.8	2,860.4	2,810.9	7.8	10.4	-65.95	346.9	-297.8	306.2	290.6	15.57	19.666	
3,000.0	2,970.8	2,959.3	2,906.8	8.2	10.9	-67.62	366.1	-312.6	317.3	300.9	16.46	19.281	
3,100.0	3,067.8	3,058.3	3,002.8	8.7	11.4	-69.17	385.2	-327.3	328.8	311.4	17.37	18.931	
3,200.0	3,164.8	3,157.3	3,098.7	9.2	11.9	-70.62	404.4	-342.1	340.5	322.2	18.29	18.613	
3,300.0	3,261.8	3,256.2	3,194.7	9.6	12.4	-71.97	423.5	-356.9	352.3	333.1	19.23	18.325	
3,400.0	3,358.9	3,355.2	3,290.6	10.1	12.9	-73.24	442.6	-371.7	364.4	344.2	20.17	18.065	
3,500.0	3,455.9	3,454.1	3,386.6	10.5	13.4	-74.42	461.8	-386.5	376.6	355.5	21.12	17.828	
3,600.0	3,552.9	3,553.1	3,482.5	11.0	13.9	-75.53	480.9	-401.3	389.0	366.9	22.08	17.613	
3,700.0	3,649.9	3,652.0	3,578.5	11.5	14.4	-76.57	500.1	-416.1	401.5	378.4	23.05	17.417	
3,800.0	3,746.9	3,751.0	3,674.4	12.0	14.9	-77.55	519.2	-430.9	414.1	390.1	24.02	17.239	
3,900.0	3,843.9	3,850.0	3,770.4	12.4	15.4	-78.47	538.4	-445.7	426.8	401.8	25.00	17.077	
4,000.0	3,940.9	3,948.9	3,866.4	12.9	16.0	-79.33	557.5	-460.5	439.7	413.7	25.97	16.928	
4,100.0	4,037.9	4,047.9	3,962.3	13.4	16.5	-80.15	576.7	-475.2	452.6	425.7	26.95	16.792	
4,200.0	4,134.9	4,146.8	4,058.3	13.9	17.0	-80.92	595.8	-490.0	465.6	437.7	27.94	16.668	
4,300.0	4,232.0	4,245.8	4,154.2	14.4	17.5	-81.65	615.0	-504.8	478.7	449.8	28.92	16.553	
4,400.0	4,329.0	4,344.8	4,250.2	14.9	18.0	-82.34	634.1	-519.6	491.9	462.0	29.91	16.448	
4,500.0	4,426.0	4,443.7	4,346.1	15.4	18.5	-83.00	653.3	-534.4	505.1	474.3	30.89	16.351	
4,600.0	4,523.0	4,542.7	4,442.1	15.8	19.0	-83.62	672.4	-549.2	518.4	486.6	31.88	16.261	
4,700.0	4,620.0	4,641.6	4,538.0	16.3	19.5	-84.21	691.6	-564.0	531.8	498.9	32.87	16.179	
4,800.0	4,717.0	4,740.6	4,634.0	16.8	20.0	-84.77	710.7	-578.8	545.2	511.4	33.86	16.102	
4,900.0	4,814.0	4,839.5	4,730.0	17.3	20.5	-85.31	729.8	-593.6	558.7	523.8	34.85	16.031	

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Brown 5N65W23 Pad Sec.23-T5N-R65W - Brown 23P-221 - Wellbore #1 - Plan #1 (9-2-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,000.0	4,911.0	4,938.5	4,825.9	17.8	21.0	-85.82	749.0	-608.3	572.2	536.3	35.84	15.964		
5,100.0	5,008.0	5,037.5	4,921.9	18.3	21.6	-86.31	768.1	-623.1	585.7	548.9	36.83	15.903		
5,199.7	5,104.8	5,136.1	5,017.6	18.8	22.1	-86.77	787.2	-637.9	599.3	561.5	37.82	15.846		
5,300.0	5,202.5	5,235.4	5,113.8	19.2	22.6	-87.33	806.4	-652.7	613.0	574.3	38.75	15.818		
5,400.0	5,300.6	5,336.0	5,211.4	19.5	23.1	-87.55	825.9	-667.7	626.9	587.3	39.55	15.850		
5,500.0	5,399.4	5,450.2	5,322.7	19.8	23.5	-87.58	845.9	-683.2	639.5	599.3	40.25	15.888		
5,600.0	5,498.6	5,565.0	5,435.6	20.1	23.9	-87.54	862.4	-695.9	649.9	609.1	40.83	15.916		
5,700.0	5,598.2	5,680.5	5,549.9	20.3	24.2	-87.44	875.4	-706.0	658.1	616.8	41.32	15.925		
5,800.0	5,698.1	5,796.4	5,665.2	20.5	24.5	-87.27	884.7	-713.2	664.0	622.3	41.71	15.918		
5,902.0	5,800.0	5,914.9	5,783.5	20.6	24.7	-90.24	890.5	-717.6	667.7	625.7	42.01	15.894		
6,000.0	5,898.0	6,029.2	5,897.7	20.7	24.8	-90.08	892.4	-719.1	668.9	626.7	42.25	15.831		
6,100.0	5,998.0	6,129.5	5,998.0	20.9	24.9	-90.08	892.4	-719.1	668.9	626.4	42.51	15.736		
6,144.8	6,042.9	6,174.3	6,042.9	20.9	25.0	-90.08	892.4	-719.1	668.9	626.3	42.63	15.693		
6,150.0	6,048.0	6,179.5	6,048.1	20.9	25.0	-90.08	892.4	-719.1	668.9	626.3	42.64	15.688		
6,200.0	6,098.0	6,229.6	6,098.1	21.0	25.1	-90.08	894.4	-719.1	668.9	626.1	42.83	15.617		
6,250.0	6,147.7	6,279.6	6,147.8	21.2	25.2	-90.08	899.6	-719.1	668.9	625.8	43.11	15.516		
6,300.0	6,197.0	6,329.7	6,197.2	21.4	25.4	-90.08	908.1	-719.1	668.9	625.5	43.49	15.383		
6,350.0	6,245.6	6,379.8	6,245.8	21.6	25.6	-90.08	919.8	-719.1	668.9	625.0	43.95	15.221		
6,400.0	6,293.3	6,429.8	6,293.6	21.9	25.8	-90.08	934.7	-719.1	668.9	624.4	44.50	15.032		
6,450.0	6,340.0	6,479.9	6,340.3	22.2	26.1	-90.07	952.6	-719.1	668.9	623.8	45.14	14.818		
6,500.0	6,385.4	6,529.9	6,385.8	22.6	26.4	-90.07	973.6	-719.1	668.9	623.1	45.87	14.583		
6,550.0	6,429.3	6,580.0	6,429.7	23.0	26.7	-90.07	997.5	-719.1	668.9	622.3	46.68	14.329		
6,600.0	6,471.6	6,630.0	6,472.0	23.5	27.1	-90.07	1,024.3	-719.1	668.9	621.4	47.58	14.058		
6,650.0	6,512.0	6,680.1	6,512.5	24.0	27.6	-90.06	1,053.7	-719.1	668.9	620.4	48.56	13.774		
6,700.0	6,550.5	6,730.1	6,550.9	24.5	28.0	-90.06	1,085.8	-719.1	668.9	619.3	49.63	13.480		
6,750.0	6,586.7	6,780.2	6,587.2	25.1	28.5	-90.06	1,120.3	-719.1	668.9	618.2	50.77	13.177		
6,800.0	6,620.6	6,830.2	6,621.1	25.7	29.1	-90.05	1,157.0	-719.1	668.9	617.0	51.98	12.869		
6,850.0	6,652.1	6,880.3	6,652.5	26.3	29.6	-90.05	1,196.0	-719.1	668.9	615.7	53.27	12.559		
6,900.0	6,680.9	6,930.3	6,681.4	27.0	30.2	-90.05	1,236.8	-719.1	668.9	614.3	54.62	12.247		
6,950.0	6,707.0	6,980.3	6,707.5	27.7	30.9	-90.04	1,279.5	-719.1	668.9	612.9	56.04	11.938		
7,000.0	6,730.3	7,030.4	6,730.7	28.5	31.5	-90.04	1,323.8	-719.1	668.9	611.4	57.51	11.632		
7,050.0	6,750.6	7,080.4	6,751.0	29.3	32.2	-90.03	1,369.5	-719.1	668.9	609.9	59.04	11.331		
7,100.0	6,767.9	7,130.4	6,768.2	30.0	32.9	-90.03	1,416.5	-719.1	668.9	608.3	60.61	11.037		
7,150.0	6,782.1	7,180.4	6,782.4	30.9	33.7	-90.02	1,464.5	-719.1	668.9	606.7	62.23	10.750		
7,200.0	6,793.1	7,230.4	6,793.3	31.7	34.4	-90.02	1,513.3	-719.1	668.9	605.1	63.87	10.473		
7,250.0	6,800.9	7,280.5	6,801.1	32.5	35.2	-90.01	1,562.6	-719.1	668.9	603.4	65.55	10.206		
7,300.0	6,805.5	7,330.5	6,805.6	33.4	36.0	-90.01	1,612.4	-719.1	668.9	601.7	67.24	9.949		
7,306.5	6,805.8	7,336.9	6,805.9	33.5	36.1	-90.01	1,618.9	-719.1	668.9	601.5	67.46	9.916		
7,347.2	6,806.8	7,377.7	6,806.8	34.2	36.8	-90.00	1,659.6	-719.1	668.9	600.1	68.85	9.716		
7,400.0	6,806.6	7,430.5	6,806.7	35.1	37.6	-90.00	1,712.4	-719.1	668.9	598.3	70.66	9.467		
7,500.0	6,806.3	7,530.5	6,806.3	36.9	39.2	-90.00	1,812.4	-719.1	668.9	594.8	74.12	9.025		
7,600.0	6,806.0	7,630.5	6,806.0	38.6	40.9	-90.00	1,912.4	-719.1	668.9	591.3	77.62	8.618		
7,700.0	6,805.7	7,730.5	6,805.7	40.4	42.6	-90.00	2,012.4	-719.1	668.9	587.8	81.15	8.244		
7,800.0	6,805.4	7,830.5	6,805.4	42.2	44.3	-90.00	2,112.4	-719.1	668.9	584.2	84.70	7.898		
7,900.0	6,805.1	7,930.5	6,805.1	44.0	46.0	-90.00	2,212.4	-719.1	668.9	580.7	88.28	7.578		
8,000.0	6,804.8	8,030.5	6,804.8	45.8	47.7	-90.00	2,312.4	-719.1	668.9	577.1	91.88	7.281		
8,100.0	6,804.4	8,130.5	6,804.5	47.6	49.4	-90.00	2,412.4	-719.1	668.9	573.4	95.50	7.005		
8,200.0	6,804.1	8,230.5	6,804.1	49.4	51.2	-90.00	2,512.4	-719.1	668.9	569.8	99.13	6.748		
8,300.0	6,803.8	8,330.5	6,803.8	51.2	53.0	-90.00	2,612.4	-719.1	668.9	566.2	102.78	6.508		
8,400.0	6,803.5	8,430.5	6,803.5	53.1	54.8	-90.00	2,712.4	-719.1	668.9	562.5	106.44	6.284		
8,500.0	6,803.2	8,530.5	6,803.2	54.9	56.5	-90.00	2,812.4	-719.1	668.9	558.8	110.12	6.075		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Brown 5N65W23 Pad Sec.23-T5N-R65W - Brown 23P-221 - Wellbore #1 - Plan #1 (9-2-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,600.0	6,802.9	8,630.5	6,802.9	56.8	58.3	-90.00	2,912.4	-719.1	668.9	555.1	113.81	5.878	
8,700.0	6,802.6	8,730.5	6,802.6	58.6	60.1	-90.00	3,012.4	-719.1	668.9	551.4	117.50	5.693	
8,800.0	6,802.2	8,830.5	6,802.3	60.5	62.0	-90.00	3,112.4	-719.1	668.9	547.7	121.21	5.519	
8,900.0	6,801.9	8,930.5	6,801.9	62.3	63.8	-90.00	3,212.4	-719.1	668.9	544.0	124.92	5.355	
9,000.0	6,801.6	9,030.5	6,801.6	64.2	65.6	-90.00	3,312.4	-719.1	668.9	540.3	128.64	5.200	
9,100.0	6,801.3	9,130.5	6,801.3	66.1	67.4	-90.00	3,412.4	-719.1	668.9	536.6	132.37	5.054	
9,200.0	6,801.0	9,230.5	6,801.0	67.9	69.3	-90.00	3,512.4	-719.1	668.9	532.8	136.10	4.915	
9,300.0	6,800.7	9,330.5	6,800.7	69.8	71.1	-90.00	3,612.4	-719.1	668.9	529.1	139.84	4.784	
9,400.0	6,800.4	9,430.5	6,800.4	71.7	72.9	-90.00	3,712.4	-719.1	668.9	525.4	143.59	4.659	
9,500.0	6,800.0	9,530.5	6,800.1	73.6	74.8	-90.00	3,812.4	-719.1	668.9	521.6	147.34	4.540	
9,600.0	6,799.7	9,630.5	6,799.8	75.4	76.6	-90.00	3,912.4	-719.1	668.9	517.9	151.09	4.427	
9,700.0	6,799.4	9,730.5	6,799.4	77.3	78.5	-90.00	4,012.4	-719.1	668.9	514.1	154.85	4.320	
9,800.0	6,799.1	9,830.5	6,799.1	79.2	80.3	-90.00	4,112.4	-719.1	668.9	510.3	158.61	4.217	
9,900.0	6,798.8	9,930.5	6,798.8	81.1	82.2	-90.00	4,212.4	-719.1	668.9	506.6	162.38	4.120	
10,000.0	6,798.5	10,030.5	6,798.5	83.0	84.1	-90.00	4,312.4	-719.1	668.9	502.8	166.15	4.026	
10,100.0	6,798.2	10,130.5	6,798.2	84.9	85.9	-90.00	4,412.4	-719.1	668.9	499.0	169.92	3.937	
10,200.0	6,797.8	10,230.5	6,797.9	86.8	87.8	-90.00	4,512.4	-719.1	668.9	495.2	173.70	3.851	
10,300.0	6,797.5	10,330.5	6,797.6	88.7	89.7	-90.00	4,612.4	-719.1	668.9	491.5	177.48	3.769	
10,400.0	6,797.2	10,430.5	6,797.2	90.5	91.5	-90.00	4,712.4	-719.1	668.9	487.7	181.26	3.691	
10,500.0	6,796.9	10,530.5	6,796.9	92.4	93.4	-90.00	4,812.4	-719.1	668.9	483.9	185.04	3.615	
10,600.0	6,796.6	10,630.5	6,796.6	94.3	95.3	-90.00	4,912.4	-719.1	668.9	480.1	188.83	3.543	
10,700.0	6,796.3	10,730.5	6,796.3	96.2	97.2	-90.00	5,012.4	-719.1	668.9	476.3	192.62	3.473	
10,800.0	6,796.0	10,830.5	6,796.0	98.1	99.0	-90.00	5,112.4	-719.1	668.9	472.5	196.41	3.406	
10,900.0	6,795.6	10,930.5	6,795.7	100.0	100.9	-90.00	5,212.4	-719.1	668.9	468.7	200.20	3.341	
11,000.0	6,795.3	11,030.5	6,795.4	101.9	102.8	-90.00	5,312.4	-719.1	668.9	465.0	203.99	3.279	
11,100.0	6,795.0	11,130.5	6,795.0	103.8	104.7	-90.00	5,412.4	-719.1	668.9	461.2	207.79	3.219	
11,200.0	6,794.7	11,230.5	6,794.7	105.7	106.6	-90.00	5,512.4	-719.1	668.9	457.4	211.58	3.162	
11,300.0	6,794.4	11,330.5	6,794.4	107.6	108.5	-90.00	5,612.4	-719.1	668.9	453.6	215.38	3.106	
11,400.0	6,794.1	11,430.5	6,794.1	109.5	110.4	-90.00	5,712.4	-719.1	668.9	449.8	219.18	3.052	
11,500.0	6,793.8	11,530.5	6,793.8	111.4	112.2	-90.00	5,812.4	-719.1	668.9	446.0	222.98	3.000	
11,600.0	6,793.4	11,630.5	6,793.5	113.3	114.1	-90.00	5,912.4	-719.1	668.9	442.2	226.79	2.950	
11,700.0	6,793.1	11,730.5	6,793.2	115.2	116.0	-90.00	6,012.4	-719.1	668.9	438.4	230.59	2.901	
11,800.0	6,792.8	11,830.5	6,792.8	117.1	117.9	-90.00	6,112.4	-719.1	668.9	434.5	234.40	2.854	
11,900.0	6,792.5	11,930.5	6,792.5	119.0	119.8	-90.00	6,212.4	-719.1	668.9	430.7	238.20	2.808	
12,000.0	6,792.2	12,030.5	6,792.2	120.9	121.7	-90.00	6,312.4	-719.1	668.9	426.9	242.01	2.764	
12,100.0	6,791.9	12,130.5	6,791.9	122.9	123.6	-90.00	6,412.4	-719.1	668.9	423.1	245.82	2.721	
12,200.0	6,791.6	12,230.5	6,791.6	124.8	125.5	-90.00	6,512.4	-719.1	668.9	419.3	249.63	2.680	
12,300.0	6,791.2	12,330.5	6,791.3	126.7	127.4	-90.00	6,612.4	-719.1	668.9	415.5	253.44	2.639	
12,400.0	6,790.9	12,430.5	6,791.0	128.6	129.3	-90.00	6,712.4	-719.1	668.9	411.7	257.25	2.600	
12,500.0	6,790.6	12,530.5	6,790.6	130.5	131.2	-90.00	6,812.4	-719.1	668.9	407.9	261.06	2.562	
12,600.0	6,790.3	12,630.5	6,790.3	132.4	133.1	-90.00	6,912.4	-719.1	668.9	404.1	264.88	2.526	
12,700.0	6,790.0	12,730.5	6,790.0	134.3	135.0	-90.00	7,012.4	-719.1	668.9	400.3	268.69	2.490	
12,800.0	6,789.7	12,830.5	6,789.7	136.2	136.9	-90.00	7,112.4	-719.1	668.9	396.4	272.50	2.455	
12,900.0	6,789.4	12,930.5	6,789.4	138.1	138.8	-90.00	7,212.4	-719.1	668.9	392.6	276.32	2.421	
13,000.0	6,789.0	13,030.5	6,789.1	140.0	140.7	-90.00	7,312.4	-719.1	668.9	388.8	280.14	2.388	
13,100.0	6,788.7	13,130.5	6,788.8	141.9	142.6	-90.00	7,412.4	-719.1	668.9	385.0	283.95	2.356	
13,200.0	6,788.4	13,230.5	6,788.4	143.8	144.5	-90.00	7,512.4	-719.1	668.9	381.2	287.77	2.325	
13,300.0	6,788.1	13,330.5	6,788.1	145.7	146.4	-90.00	7,612.4	-719.1	668.9	377.4	291.59	2.294	
13,400.0	6,787.8	13,430.5	6,787.8	147.7	148.3	-90.00	7,712.4	-719.1	668.9	373.5	295.41	2.264	
13,500.0	6,787.5	13,530.5	6,787.5	149.6	150.2	-90.00	7,812.4	-719.1	668.9	369.7	299.22	2.236	
13,600.0	6,787.2	13,630.5	6,787.2	151.5	152.1	-90.00	7,912.4	-719.1	668.9	365.9	303.04	2.207	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Brown 5N65W23 Pad Sec.23-T5N-R65W - Brown 23P-221 - Wellbore #1 - Plan #1 (9-2-15)													<b>Offset Site Error:</b>	0.0 ft
<b>Survey Program:</b> 0-MWD													<b>Offset Well Error:</b>	0.0 ft
<b>Reference</b>		<b>Offset</b>		<b>Semi Major Axis</b>			<b>Distance</b>						<b>Warning</b>	
<b>Measured Depth (ft)</b>	<b>Vertical Depth (ft)</b>	<b>Measured Depth (ft)</b>	<b>Vertical Depth (ft)</b>	<b>Reference (ft)</b>	<b>Offset (ft)</b>	<b>Highside Toolface (°)</b>	<b>Offset Wellbore Centre +N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Between Centres (ft)</b>	<b>Between Ellipses (ft)</b>	<b>Minimum Separation (ft)</b>	<b>Separation Factor</b>		
13,700.0	6,786.9	13,730.5	6,786.9	153.4	154.0	-90.00	8,012.4	-719.1	668.9	362.1	306.86	2.180		
13,800.0	6,786.5	13,830.5	6,786.6	155.3	155.9	-90.00	8,112.4	-719.1	668.9	358.3	310.68	2.153		
13,900.0	6,786.2	13,930.5	6,786.2	157.2	157.8	-90.00	8,212.4	-719.1	668.9	354.4	314.51	2.127		
14,000.0	6,785.9	14,030.5	6,785.9	159.1	159.7	-90.00	8,312.4	-719.1	668.9	350.6	318.33	2.101		
14,100.0	6,785.6	14,130.5	6,785.6	161.0	161.6	-90.00	8,412.4	-719.1	668.9	346.8	322.15	2.077		
14,200.0	6,785.3	14,230.5	6,785.3	162.9	163.5	-90.00	8,512.4	-719.1	668.9	343.0	325.97	2.052		
14,300.0	6,785.0	14,330.5	6,785.0	164.9	165.4	-90.00	8,612.4	-719.1	668.9	339.2	329.79	2.028		
14,400.0	6,784.7	14,430.5	6,784.7	166.8	167.3	-90.00	8,712.4	-719.1	668.9	335.3	333.62	2.005		
14,500.0	6,784.3	14,530.5	6,784.4	168.7	169.2	-90.00	8,812.4	-719.1	668.9	331.5	337.44	1.982		
14,600.0	6,784.0	14,630.5	6,784.0	170.6	171.1	-90.00	8,912.4	-719.1	668.9	327.7	341.26	1.960		
14,700.0	6,783.7	14,730.5	6,783.7	172.5	173.0	-90.00	9,012.4	-719.1	668.9	323.9	345.09	1.938		
14,800.0	6,783.4	14,830.5	6,783.4	174.4	174.9	-90.00	9,112.4	-719.1	668.9	320.0	348.91	1.917		
14,900.0	6,783.1	14,930.5	6,783.1	176.3	176.8	-90.00	9,212.4	-719.1	668.9	316.2	352.74	1.896		
15,000.0	6,782.8	15,030.5	6,782.8	178.2	178.7	-90.00	9,312.4	-719.1	668.9	312.4	356.56	1.876		
15,100.0	6,782.5	15,130.5	6,782.5	180.2	180.7	-90.00	9,412.4	-719.1	668.9	308.6	360.39	1.856		
15,200.0	6,782.1	15,230.5	6,782.2	182.1	182.6	-90.00	9,512.4	-719.1	668.9	304.7	364.22	1.837		
15,243.9	6,782.0	15,274.4	6,782.0	182.9	183.4	-90.00	9,556.3	-719.1	668.9	303.0	365.90	1.828 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	-89.07	0.7	-45.1	45.1				
100.0	100.0	100.0	100.0	0.1	0.1	-89.07	0.7	-45.1	45.1	44.9	0.22	200.829	
200.0	200.0	200.0	200.0	0.3	0.3	-89.07	0.7	-45.1	45.1	44.5	0.67	66.943	
300.0	300.0	300.0	300.0	0.6	0.6	-89.07	0.7	-45.1	45.1	44.0	1.12	40.166	
400.0	400.0	400.0	400.0	0.8	0.8	-89.07	0.7	-45.1	45.1	43.6	1.57	28.690 CC, ES	
500.0	500.0	499.0	499.0	1.0	1.0	-88.23	1.4	-46.2	46.2	44.2	2.02	22.947	
600.0	600.0	597.8	597.8	1.2	1.2	-85.92	3.5	-49.4	49.6	47.1	2.46	20.190	
700.0	700.0	696.4	696.1	1.5	1.5	-82.72	7.0	-54.8	55.4	52.4	2.90	19.065	
800.0	800.0	794.6	793.9	1.7	1.7	-79.23	11.8	-62.2	63.6	60.3	3.35	18.969	
900.0	900.0	892.3	890.9	1.9	2.0	-75.90	18.0	-71.7	74.5	70.7	3.81	19.564	
1,000.0	1,000.0	989.3	987.0	2.1	2.3	-72.97	25.5	-83.2	87.9	83.7	4.26	20.635	
1,100.0	1,100.0	1,085.6	1,081.9	2.4	2.6	-70.51	34.2	-96.6	104.0	99.3	4.72	22.041	
1,200.0	1,200.0	1,181.0	1,175.6	2.6	2.9	-68.47	44.1	-111.8	122.7	117.5	5.18	23.683	
1,300.0	1,300.0	1,275.4	1,267.8	2.8	3.3	-66.82	55.2	-128.9	143.8	138.2	5.64	25.492	
1,400.0	1,400.0	1,369.7	1,359.3	3.0	3.7	-65.46	67.4	-147.7	167.4	161.3	6.11	27.398	
1,500.0	1,500.0	1,466.8	1,453.4	3.3	4.2	-61.19	80.4	-167.7	191.1	184.5	6.59	29.022	
1,600.0	1,599.9	1,564.2	1,547.9	3.5	4.7	-60.95	93.5	-187.8	213.6	206.6	7.06	30.260	
1,700.0	1,699.7	1,661.9	1,642.6	3.7	5.2	-61.28	106.6	-207.9	234.9	227.4	7.54	31.143	
1,800.0	1,799.3	1,759.8	1,737.4	3.9	5.6	-62.06	119.7	-228.0	255.0	247.0	8.04	31.723	
1,900.0	1,898.6	1,857.7	1,832.4	4.2	6.1	-63.19	132.8	-248.2	274.1	265.5	8.55	32.040	
2,000.0	1,997.5	1,955.7	1,927.4	4.4	6.6	-64.61	145.9	-268.4	292.1	283.0	9.09	32.125	
2,100.0	2,096.1	2,053.7	2,022.4	4.7	7.1	-66.30	159.0	-288.6	309.4	299.7	9.67	32.002	
2,200.0	2,194.2	2,151.6	2,117.3	5.0	7.6	-68.21	172.2	-308.7	325.9	315.6	10.28	31.692	
2,300.0	2,291.7	2,249.4	2,212.1	5.4	8.1	-70.32	185.2	-328.8	342.1	331.1	10.96	31.220	
2,336.3	2,327.0	2,284.8	2,246.4	5.5	8.3	-71.13	190.0	-336.1	347.8	336.6	11.22	31.014	
2,400.0	2,388.7	2,347.0	2,306.7	5.7	8.6	-72.68	198.3	-348.9	358.1	346.4	11.69	30.634	
2,500.0	2,485.8	2,444.5	2,401.2	6.1	9.1	-74.93	211.4	-369.0	374.6	362.2	12.46	30.065	
2,600.0	2,582.8	2,542.1	2,495.8	6.5	9.7	-77.00	224.4	-389.1	391.7	378.5	13.27	29.532	
2,700.0	2,679.8	2,639.7	2,590.4	6.9	10.2	-78.89	237.5	-409.2	409.3	395.2	14.09	29.040	
2,800.0	2,776.8	2,737.2	2,685.0	7.4	10.7	-80.63	250.6	-429.3	427.3	412.3	14.94	28.590	
2,900.0	2,873.8	2,834.8	2,779.5	7.8	11.2	-82.23	263.6	-449.4	445.6	429.8	15.81	28.179	
3,000.0	2,970.8	2,932.3	2,874.1	8.2	11.7	-83.71	276.7	-469.5	464.2	447.5	16.69	27.807	
3,100.0	3,067.8	3,029.9	2,968.7	8.7	12.2	-85.07	289.8	-489.6	483.1	465.6	17.59	27.470	
3,200.0	3,164.8	3,127.5	3,063.3	9.2	12.7	-86.33	302.8	-509.6	502.3	483.8	18.49	27.165	
3,300.0	3,261.8	3,225.0	3,157.8	9.6	13.2	-87.49	315.9	-529.7	521.7	502.3	19.40	26.890	
3,400.0	3,358.9	3,322.6	3,252.4	10.1	13.7	-88.58	329.0	-549.8	541.2	520.9	20.32	26.641	
3,500.0	3,455.9	3,420.2	3,347.0	10.5	14.2	-89.59	342.0	-569.9	561.0	539.8	21.24	26.415	
3,600.0	3,552.9	3,517.7	3,441.6	11.0	14.7	-90.53	355.1	-590.0	580.9	558.7	22.16	26.211	
3,700.0	3,649.9	3,615.3	3,536.1	11.5	15.2	-91.41	368.1	-610.1	600.9	577.9	23.09	26.025	
3,800.0	3,746.9	3,712.9	3,630.7	12.0	15.8	-92.23	381.2	-630.2	621.1	597.1	24.02	25.856	
3,900.0	3,843.9	3,810.4	3,725.3	12.4	16.3	-93.00	394.3	-650.3	641.4	616.5	24.96	25.703	
4,000.0	3,940.9	3,908.0	3,819.9	12.9	16.8	-93.72	407.3	-670.3	661.8	635.9	25.89	25.562	
4,100.0	4,037.9	4,005.5	3,914.4	13.4	17.3	-94.40	420.4	-690.4	682.3	655.5	26.83	25.434	
4,200.0	4,134.9	4,103.1	4,009.0	13.9	17.8	-95.04	433.5	-710.5	702.9	675.1	27.76	25.317	
4,300.0	4,232.0	4,200.7	4,103.6	14.4	18.3	-95.65	446.5	-730.6	723.5	694.8	28.70	25.209	
4,400.0	4,329.0	4,298.2	4,198.2	14.9	18.8	-96.22	459.6	-750.7	744.3	714.6	29.64	25.110	
4,500.0	4,426.0	4,395.8	4,292.7	15.4	19.3	-96.76	472.7	-770.8	765.1	734.5	30.58	25.019	
4,600.0	4,523.0	4,493.4	4,387.3	15.8	19.9	-97.27	485.7	-790.9	785.9	754.4	31.52	24.935	
4,700.0	4,620.0	4,590.9	4,481.9	16.3	20.4	-97.76	498.8	-811.0	806.9	774.4	32.46	24.857	
4,800.0	4,717.0	4,688.5	4,576.5	16.8	20.9	-98.22	511.9	-831.1	827.8	794.4	33.40	24.785	
4,900.0	4,814.0	4,786.1	4,671.0	17.3	21.4	-98.66	524.9	-851.1	848.9	814.5	34.34	24.718	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Brown 5N65W23 Pad Sec.23-T5N-R65W - Brown 23P-321 - Wellbore #1 - Plan #1 (9-2-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference				Offset			Semi Major Axis			Distance			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,911.0	4,883.6	4,765.6	17.8	21.9	-99.07	538.0	-871.2	869.9	834.6	35.28	24.656	
5,100.0	5,008.0	4,981.2	4,860.2	18.3	22.4	-99.47	551.1	-891.3	891.0	854.8	36.22	24.599	
5,199.7	5,104.8	5,078.5	4,954.5	18.8	22.9	-99.85	564.1	-911.4	912.1	875.0	37.16	24.546	
5,300.0	5,202.5	5,176.5	5,049.5	19.2	23.4	-100.53	577.2	-931.5	933.1	895.0	38.10	24.490	
5,400.0	5,300.6	5,274.4	5,144.4	19.5	24.0	-100.97	590.3	-951.7	953.3	914.4	38.92	24.493	
5,500.0	5,399.4	5,385.4	5,252.2	19.8	24.5	-101.17	604.9	-974.1	972.6	932.9	39.70	24.498	
5,600.0	5,498.6	5,513.5	5,377.5	20.1	24.9	-101.25	619.1	-996.0	988.8	948.4	40.38	24.487	
7,000.0	6,730.3	7,363.5	6,889.2	28.5	34.1	-98.81	1,301.3	-1,036.3	999.1	941.4	57.74	17.304	
7,050.0	6,750.6	7,422.9	6,895.3	29.3	34.9	-97.94	1,360.4	-1,036.3	996.8	937.4	59.34	16.798	
7,100.0	6,767.9	7,479.6	6,896.9	30.0	35.7	-97.07	1,417.1	-1,036.3	994.5	933.6	60.95	16.318	
7,150.0	6,782.1	7,527.5	6,896.7	30.9	36.3	-96.41	1,464.9	-1,036.3	992.8	930.3	62.46	15.895	
7,200.0	6,793.1	7,576.2	6,896.5	31.7	37.0	-95.87	1,513.7	-1,036.3	991.6	927.5	64.01	15.491	
7,250.0	6,800.9	7,625.6	6,896.3	32.5	37.7	-95.48	1,563.0	-1,036.3	990.8	925.2	65.59	15.104	
7,300.0	6,805.5	7,675.3	6,896.1	33.4	38.5	-95.24	1,612.8	-1,036.3	990.3	923.1	67.20	14.738	
7,347.2	6,806.8	7,722.5	6,896.0	34.2	39.2	-95.17	1,660.0	-1,036.3	990.2	921.5	68.71	14.411	
7,400.0	6,806.6	7,775.3	6,895.8	35.1	40.0	-95.17	1,712.7	-1,036.3	990.2	919.7	70.50	14.045	
7,500.0	6,806.3	7,875.3	6,895.4	36.9	41.5	-95.16	1,812.7	-1,036.3	990.2	916.2	73.93	13.393	
7,600.0	6,806.0	7,975.3	6,895.0	38.6	43.0	-95.16	1,912.7	-1,036.3	990.2	912.8	77.40	12.793	
7,700.0	6,805.7	8,075.3	6,894.7	40.4	44.6	-95.16	2,012.7	-1,036.3	990.2	909.3	80.90	12.239	
7,800.0	6,805.4	8,175.3	6,894.3	42.2	46.3	-95.15	2,112.7	-1,036.3	990.2	905.7	84.43	11.728	
7,900.0	6,805.1	8,275.3	6,893.9	44.0	47.9	-95.15	2,212.7	-1,036.3	990.1	902.2	87.98	11.254	
8,000.0	6,804.8	8,375.3	6,893.6	45.8	49.6	-95.15	2,312.7	-1,036.3	990.1	898.6	91.56	10.814	
8,100.0	6,804.4	8,475.3	6,893.2	47.6	51.2	-95.14	2,412.7	-1,036.3	990.1	895.0	95.15	10.406	
8,200.0	6,804.1	8,575.3	6,892.8	49.4	52.9	-95.14	2,512.7	-1,036.3	990.1	891.4	98.77	10.025	
8,300.0	6,803.8	8,675.3	6,892.5	51.2	54.6	-95.14	2,612.7	-1,036.3	990.1	887.7	102.40	9.670	
8,400.0	6,803.5	8,775.3	6,892.1	53.1	56.4	-95.13	2,712.7	-1,036.3	990.1	884.1	106.04	9.337	
8,500.0	6,803.2	8,875.3	6,891.7	54.9	58.1	-95.13	2,812.7	-1,036.3	990.1	880.4	109.69	9.026	
8,600.0	6,802.9	8,975.3	6,891.4	56.8	59.9	-95.13	2,912.7	-1,036.3	990.1	876.8	113.36	8.734	
8,700.0	6,802.6	9,075.3	6,891.0	58.6	61.6	-95.13	3,012.7	-1,036.3	990.1	873.1	117.04	8.460	
8,800.0	6,802.2	9,175.3	6,890.7	60.5	63.4	-95.12	3,112.7	-1,036.3	990.1	869.4	120.72	8.201	
8,900.0	6,801.9	9,275.3	6,890.3	62.3	65.2	-95.12	3,212.7	-1,036.3	990.1	865.7	124.42	7.958	
9,000.0	6,801.6	9,375.3	6,889.9	64.2	66.9	-95.12	3,312.7	-1,036.3	990.1	862.0	128.12	7.728	
9,100.0	6,801.3	9,475.3	6,889.6	66.1	68.7	-95.11	3,412.7	-1,036.3	990.1	858.3	131.83	7.510	
9,200.0	6,801.0	9,575.3	6,889.2	67.9	70.5	-95.11	3,512.7	-1,036.3	990.1	854.5	135.55	7.304	
9,300.0	6,800.7	9,675.3	6,888.8	69.8	72.3	-95.11	3,612.7	-1,036.3	990.1	850.8	139.27	7.109	
9,400.0	6,800.4	9,775.3	6,888.5	71.7	74.2	-95.10	3,712.7	-1,036.3	990.1	847.1	143.00	6.924	
9,500.0	6,800.0	9,875.3	6,888.1	73.6	76.0	-95.10	3,812.7	-1,036.3	990.1	843.3	146.73	6.747	
9,600.0	6,799.7	9,975.3	6,887.7	75.4	77.8	-95.10	3,912.7	-1,036.3	990.1	839.6	150.47	6.580	
9,700.0	6,799.4	10,075.3	6,887.4	77.3	79.6	-95.10	4,012.7	-1,036.3	990.1	835.8	154.22	6.420	
9,800.0	6,799.1	10,175.3	6,887.0	79.2	81.4	-95.09	4,112.7	-1,036.3	990.1	832.1	157.96	6.268	
9,900.0	6,798.8	10,275.3	6,886.6	81.1	83.3	-95.09	4,212.7	-1,036.3	990.1	828.3	161.71	6.122	
10,000.0	6,798.5	10,375.3	6,886.3	83.0	85.1	-95.09	4,312.7	-1,036.3	990.0	824.6	165.47	5.983	
10,100.0	6,798.2	10,475.3	6,885.9	84.9	87.0	-95.08	4,412.7	-1,036.3	990.0	820.8	169.23	5.850	
10,200.0	6,797.9	10,575.3	6,885.5	86.8	88.8	-95.08	4,512.7	-1,036.3	990.0	817.1	172.99	5.723	
10,300.0	6,797.5	10,675.3	6,885.2	88.7	90.7	-95.08	4,612.7	-1,036.3	990.0	813.3	176.75	5.601	
10,400.0	6,797.2	10,775.3	6,884.8	90.5	92.5	-95.07	4,712.7	-1,036.3	990.0	809.5	180.52	5.484	
10,500.0	6,796.9	10,875.3	6,884.4	92.4	94.4	-95.07	4,812.7	-1,036.3	990.0	805.7	184.29	5.372	
10,600.0	6,796.6	10,975.3	6,884.1	94.3	96.2	-95.07	4,912.7	-1,036.3	990.0	802.0	188.06	5.264	
10,700.0	6,796.3	11,075.3	6,883.7	96.2	98.1	-95.07	5,012.7	-1,036.3	990.0	798.2	191.83	5.161	
10,800.0	6,796.0	11,175.3	6,883.3	98.1	99.9	-95.06	5,112.7	-1,036.3	990.0	794.4	195.61	5.061	
10,900.0	6,795.6	11,275.3	6,883.0	100.0	101.8	-95.06	5,212.7	-1,036.3	990.0	790.6	199.39	4.965	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Brown 5N65W23 Pad Sec.23-T5N-R65W - Brown 23P-321 - Wellbore #1 - Plan #1 (9-2-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
11,000.0	6,795.3	11,375.3	6,882.6	101.9	103.7	-95.06	5,312.7	-1,036.3	990.0	786.8	203.17	4.873		
11,100.0	6,795.0	11,475.3	6,882.2	103.8	105.5	-95.05	5,412.7	-1,036.3	990.0	783.0	206.95	4.784		
11,200.0	6,794.7	11,575.3	6,881.9	105.7	107.4	-95.05	5,512.7	-1,036.3	990.0	779.3	210.73	4.698		
11,300.0	6,794.4	11,675.3	6,881.5	107.6	109.3	-95.05	5,612.7	-1,036.3	990.0	775.5	214.52	4.615		
11,400.0	6,794.1	11,775.3	6,881.1	109.5	111.1	-95.04	5,712.7	-1,036.3	990.0	771.7	218.30	4.535		
11,500.0	6,793.8	11,875.3	6,880.8	111.4	113.0	-95.04	5,812.7	-1,036.3	990.0	767.9	222.09	4.458		
11,600.0	6,793.4	11,975.3	6,880.4	113.3	114.9	-95.04	5,912.7	-1,036.3	990.0	764.1	225.88	4.383		
11,700.0	6,793.1	12,075.3	6,880.0	115.2	116.8	-95.04	6,012.7	-1,036.3	990.0	760.3	229.67	4.310		
11,800.0	6,792.8	12,175.3	6,879.7	117.1	118.7	-95.03	6,112.7	-1,036.3	990.0	756.5	233.46	4.240		
11,900.0	6,792.5	12,275.3	6,879.3	119.0	120.5	-95.03	6,212.7	-1,036.3	990.0	752.7	237.26	4.173		
12,000.0	6,792.2	12,375.3	6,878.9	120.9	122.4	-95.03	6,312.7	-1,036.3	990.0	748.9	241.05	4.107		
12,100.0	6,791.9	12,475.3	6,878.6	122.9	124.3	-95.02	6,412.7	-1,036.3	990.0	745.1	244.85	4.043		
12,200.0	6,791.6	12,575.3	6,878.2	124.8	126.2	-95.02	6,512.7	-1,036.3	989.9	741.3	248.65	3.981		
12,300.0	6,791.2	12,675.3	6,877.8	126.7	128.1	-95.02	6,612.7	-1,036.3	989.9	737.5	252.44	3.921		
12,400.0	6,790.9	12,775.3	6,877.5	128.6	130.0	-95.01	6,712.7	-1,036.3	989.9	733.7	256.24	3.863		
12,500.0	6,790.6	12,875.3	6,877.1	130.5	131.8	-95.01	6,812.7	-1,036.3	989.9	729.9	260.04	3.807		
12,600.0	6,790.3	12,975.3	6,876.7	132.4	133.7	-95.01	6,912.7	-1,036.3	989.9	726.1	263.84	3.752		
12,700.0	6,790.0	13,075.3	6,876.4	134.3	135.6	-95.01	7,012.7	-1,036.3	989.9	722.3	267.64	3.699		
12,800.0	6,789.7	13,175.3	6,876.0	136.2	137.5	-95.00	7,112.7	-1,036.3	989.9	718.5	271.45	3.647		
12,900.0	6,789.4	13,275.3	6,875.6	138.1	139.4	-95.00	7,212.7	-1,036.3	989.9	714.7	275.25	3.596		
13,000.0	6,789.0	13,375.3	6,875.3	140.0	141.3	-95.00	7,312.7	-1,036.3	989.9	710.9	279.05	3.547		
13,100.0	6,788.7	13,475.3	6,874.9	141.9	143.2	-94.99	7,412.7	-1,036.3	989.9	707.0	282.86	3.500		
13,200.0	6,788.4	13,575.3	6,874.5	143.8	145.1	-94.99	7,512.7	-1,036.3	989.9	703.2	286.66	3.453		
13,300.0	6,788.1	13,675.3	6,874.2	145.7	147.0	-94.99	7,612.7	-1,036.3	989.9	699.4	290.47	3.408		
13,400.0	6,787.8	13,775.3	6,873.8	147.7	148.9	-94.98	7,712.7	-1,036.3	989.9	695.6	294.27	3.364		
13,500.0	6,787.5	13,875.3	6,873.4	149.6	150.8	-94.98	7,812.7	-1,036.3	989.9	691.8	298.08	3.321		
13,600.0	6,787.2	13,975.3	6,873.1	151.5	152.7	-94.98	7,912.7	-1,036.3	989.9	688.0	301.89	3.279		
13,700.0	6,786.9	14,075.3	6,872.7	153.4	154.5	-94.97	8,012.7	-1,036.3	989.9	684.2	305.70	3.238		
13,800.0	6,786.5	14,175.3	6,872.3	155.3	156.4	-94.97	8,112.7	-1,036.3	989.9	680.4	309.51	3.198		
13,900.0	6,786.2	14,275.3	6,872.0	157.2	158.3	-94.97	8,212.7	-1,036.3	989.9	676.6	313.32	3.159		
14,000.0	6,785.9	14,375.3	6,871.6	159.1	160.2	-94.97	8,312.7	-1,036.3	989.9	672.7	317.13	3.121		
14,100.0	6,785.6	14,475.3	6,871.2	161.0	162.1	-94.96	8,412.7	-1,036.3	989.9	668.9	320.94	3.084		
14,200.0	6,785.3	14,575.3	6,870.9	162.9	164.0	-94.96	8,512.7	-1,036.3	989.9	665.1	324.75	3.048		
14,300.0	6,785.0	14,675.3	6,870.5	164.9	165.9	-94.96	8,612.7	-1,036.3	989.9	661.3	328.56	3.013		
14,400.0	6,784.7	14,775.3	6,870.1	166.8	167.8	-94.95	8,712.7	-1,036.3	989.8	657.5	332.37	2.978		
14,500.0	6,784.3	14,875.3	6,869.8	168.7	169.7	-94.95	8,812.7	-1,036.3	989.8	653.7	336.18	2.944		
14,600.0	6,784.0	14,975.3	6,869.4	170.6	171.6	-94.95	8,912.7	-1,036.3	989.8	649.8	340.00	2.911		
14,700.0	6,783.7	15,075.3	6,869.0	172.5	173.5	-94.94	9,012.7	-1,036.3	989.8	646.0	343.81	2.879		
14,800.0	6,783.4	15,175.3	6,868.7	174.4	175.4	-94.94	9,112.7	-1,036.3	989.8	642.2	347.62	2.847		
14,900.0	6,783.1	15,275.3	6,868.3	176.3	177.3	-94.94	9,212.7	-1,036.3	989.8	638.4	351.44	2.817		
15,000.0	6,782.8	15,375.3	6,867.9	178.2	179.2	-94.94	9,312.7	-1,036.3	989.8	634.6	355.25	2.786		
15,100.0	6,782.5	15,475.3	6,867.6	180.2	181.1	-94.93	9,412.7	-1,036.3	989.8	630.8	359.06	2.757		
15,200.0	6,782.1	15,575.3	6,867.2	182.1	183.1	-94.93	9,512.7	-1,036.3	989.8	626.9	362.88	2.728		
15,243.9	6,782.0	15,619.2	6,867.0	182.9	183.9	-94.93	9,556.6	-1,036.3	989.8	625.3	364.55	2.715 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.47	-0.4	44.9	44.9				
100.0	100.0	100.0	100.0	0.1	0.1	90.47	-0.4	44.9	44.9	44.6	0.22	199.570	
200.0	200.0	200.0	200.0	0.3	0.3	90.47	-0.4	44.9	44.9	44.2	0.67	66.523 CC, ES	
300.0	300.0	299.0	299.0	0.6	0.6	89.64	0.3	46.0	46.0	44.9	1.12	41.168	
400.0	400.0	397.8	397.7	0.8	0.8	87.40	2.2	49.3	49.4	47.8	1.56	31.597	
500.0	500.0	496.4	496.1	1.0	1.0	84.29	5.5	54.8	55.2	53.2	2.01	27.387	
600.0	600.0	594.6	593.9	1.2	1.3	80.91	10.0	62.4	63.5	61.0	2.47	25.691	
700.0	700.0	692.3	690.9	1.5	1.5	77.69	15.7	72.1	74.4	71.5	2.93	25.379 SF	
800.0	800.0	789.3	787.0	1.7	1.8	74.87	22.7	83.9	87.9	84.5	3.39	25.900	
900.0	900.0	885.6	881.9	1.9	2.2	72.49	30.8	97.7	104.0	100.2	3.86	26.951	
1,000.0	1,000.0	981.0	975.5	2.1	2.5	70.54	40.1	113.4	122.7	118.4	4.33	28.350	
1,100.0	1,100.0	1,075.4	1,067.7	2.4	2.9	68.94	50.4	130.9	143.9	139.1	4.80	29.983	
1,200.0	1,200.0	1,168.7	1,158.4	2.6	3.4	67.64	61.7	150.1	167.5	162.3	5.27	31.775	
1,300.0	1,300.0	1,265.1	1,251.6	2.8	3.9	66.57	74.1	171.1	192.6	186.9	5.75	33.484	
1,400.0	1,400.0	1,361.8	1,345.2	3.0	4.4	65.75	86.6	192.2	217.8	211.6	6.23	34.955	
1,500.0	1,500.0	1,458.7	1,438.9	3.3	4.8	68.25	99.0	213.3	242.5	235.8	6.69	36.232	
1,600.0	1,599.9	1,555.8	1,532.9	3.5	5.4	68.15	111.5	234.5	266.3	259.1	7.18	37.097	
1,700.0	1,699.7	1,653.1	1,627.0	3.7	5.9	68.53	124.1	255.7	289.2	281.5	7.67	37.693	
1,800.0	1,799.3	1,750.5	1,721.2	3.9	6.4	69.27	136.6	276.9	311.2	303.0	8.18	38.056	
1,900.0	1,898.6	1,847.9	1,815.5	4.2	6.9	70.32	149.1	298.2	332.4	323.7	8.70	38.211	
2,000.0	1,997.5	1,945.3	1,909.7	4.4	7.4	71.61	161.7	319.4	353.0	343.7	9.25	38.175	
2,100.0	2,096.1	2,042.7	2,003.8	4.7	7.9	73.12	174.2	340.6	373.0	363.2	9.83	37.963	
2,200.0	2,194.2	2,139.8	2,097.8	5.0	8.4	74.82	186.7	361.8	392.8	382.3	10.45	37.591	
2,300.0	2,291.7	2,236.7	2,191.6	5.4	8.9	76.67	199.1	382.9	412.3	401.2	11.12	37.077	
2,336.3	2,327.0	2,271.8	2,225.6	5.5	9.1	77.38	203.7	390.6	419.4	408.1	11.38	36.860	
2,400.0	2,388.7	2,333.4	2,285.1	5.7	9.4	78.78	211.6	404.0	432.0	420.2	11.85	36.459	
2,500.0	2,485.8	2,430.1	2,378.6	6.1	10.0	80.83	224.0	425.1	452.3	439.6	12.62	35.850	
2,600.0	2,582.8	2,526.8	2,472.2	6.5	10.5	82.70	236.5	446.2	473.0	459.6	13.41	35.276	
2,700.0	2,679.8	2,623.4	2,565.7	6.9	11.0	84.42	248.9	467.3	494.2	480.0	14.23	34.742	
2,800.0	2,776.8	2,720.1	2,659.2	7.4	11.5	85.99	261.3	488.3	515.8	500.8	15.06	34.250	
2,900.0	2,873.8	2,816.8	2,752.7	7.8	12.0	87.44	273.8	509.4	537.8	521.9	15.91	33.800	
3,000.0	2,970.8	2,913.4	2,846.3	8.2	12.5	88.78	286.2	530.5	560.1	543.3	16.77	33.389	
3,100.0	3,067.8	3,010.1	2,939.8	8.7	13.0	90.02	298.7	551.6	582.6	565.0	17.65	33.015	
3,200.0	3,164.8	3,106.8	3,033.3	9.2	13.6	91.17	311.1	572.6	605.4	586.9	18.53	32.675	
3,300.0	3,261.8	3,203.5	3,126.8	9.6	14.1	92.23	323.5	593.7	628.4	609.0	19.41	32.367	
3,400.0	3,358.9	3,300.1	3,220.3	10.1	14.6	93.22	336.0	614.8	651.6	631.3	20.31	32.086	
3,500.0	3,455.9	3,396.8	3,313.9	10.5	15.1	94.14	348.4	635.9	674.9	653.7	21.20	31.831	
3,600.0	3,552.9	3,493.5	3,407.4	11.0	15.6	95.00	360.8	657.0	698.5	676.3	22.10	31.598	
3,700.0	3,649.9	3,590.1	3,500.9	11.5	16.1	95.81	373.3	678.0	722.1	699.1	23.01	31.386	
3,800.0	3,746.9	3,686.8	3,594.4	12.0	16.7	96.56	385.7	699.1	745.9	722.0	23.91	31.192	
3,900.0	3,843.9	3,783.5	3,688.0	12.4	17.2	97.27	398.2	720.2	769.8	745.0	24.82	31.015	
4,000.0	3,940.9	3,880.2	3,781.5	12.9	17.7	97.93	410.6	741.3	793.8	768.1	25.73	30.853	
4,100.0	4,037.9	3,976.8	3,875.0	13.4	18.2	98.56	423.0	762.4	817.9	791.3	26.64	30.704	
4,200.0	4,134.9	4,073.5	3,968.5	13.9	18.7	99.15	435.5	783.4	842.1	814.6	27.55	30.567	
4,300.0	4,232.0	4,170.2	4,062.0	14.4	19.2	99.71	447.9	804.5	866.4	837.9	28.46	30.440	
4,400.0	4,329.0	4,266.8	4,155.6	14.9	19.8	100.24	460.4	825.6	890.7	861.3	29.37	30.324	
4,500.0	4,426.0	4,363.5	4,249.1	15.4	20.3	100.74	472.8	846.7	915.1	884.8	30.29	30.216	
4,600.0	4,523.0	4,460.2	4,342.6	15.8	20.8	101.21	485.2	867.7	939.6	908.4	31.20	30.116	
4,700.0	4,620.0	4,556.9	4,436.1	16.3	21.3	101.66	497.7	888.8	964.1	932.0	32.11	30.024	
4,800.0	4,717.0	4,653.5	4,529.6	16.8	21.8	102.09	510.1	909.9	988.7	955.7	33.03	29.938	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	29.8	29.8				
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	29.8	29.8	29.6	0.22	132.629	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	29.8	29.8	29.1	0.67	44.210	
300.0	300.0	300.0	300.0	0.6	0.6	90.00	0.0	29.8	29.8	28.7	1.12	26.526	
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	29.8	29.8	28.2	1.57	18.947 CC, ES	
500.0	500.0	499.6	499.6	1.0	1.0	88.99	0.5	30.5	30.5	28.5	2.02	15.119	
600.0	600.0	599.1	599.1	1.2	1.2	86.20	2.2	32.5	32.6	30.1	2.46	13.256	
700.0	700.0	698.5	698.4	1.5	1.4	82.30	4.8	35.9	36.2	33.3	2.90	12.480	
800.0	800.0	797.7	797.4	1.7	1.7	78.03	8.6	40.6	41.6	38.2	3.35	12.400	
900.0	900.0	896.7	896.1	1.9	1.9	73.94	13.4	46.6	48.7	44.9	3.80	12.797	
1,000.0	1,000.0	995.4	994.3	2.1	2.2	70.34	19.3	54.0	57.6	53.3	4.26	13.529	
1,100.0	1,100.0	1,093.8	1,092.1	2.4	2.4	67.32	26.2	62.6	68.3	63.6	4.71	14.501	
1,200.0	1,200.0	1,191.7	1,189.2	2.6	2.7	64.83	34.1	72.5	80.8	75.7	5.17	15.644	
1,300.0	1,300.0	1,289.1	1,285.6	2.8	3.0	62.82	42.9	83.6	95.1	89.5	5.62	16.912	
1,400.0	1,400.0	1,386.1	1,381.2	3.0	3.4	61.18	52.8	96.0	111.1	105.1	6.08	18.270	
1,500.0	1,500.0	1,482.6	1,476.2	3.3	3.7	63.35	63.6	109.5	128.3	121.8	6.54	19.624	
1,600.0	1,599.9	1,578.8	1,570.5	3.5	4.1	63.31	75.4	124.3	145.9	138.9	7.00	20.846	
1,700.0	1,699.7	1,676.0	1,665.5	3.7	4.5	63.97	88.1	140.2	163.8	156.4	7.47	21.919	
1,800.0	1,799.3	1,774.4	1,761.7	3.9	4.9	65.21	101.1	156.5	180.8	172.9	7.96	22.719	
1,900.0	1,898.6	1,872.9	1,858.0	4.2	5.3	66.92	114.1	172.8	196.9	188.5	8.46	23.265	
2,000.0	1,997.5	1,971.4	1,954.2	4.4	5.7	69.00	127.1	189.1	212.3	203.3	9.00	23.594	
2,100.0	2,096.1	2,069.8	2,050.4	4.7	6.1	71.40	140.1	205.4	227.1	217.5	9.57	23.738	
2,200.0	2,194.2	2,168.0	2,146.4	5.0	6.6	74.07	153.1	221.6	241.6	231.4	10.18	23.726	
2,300.0	2,291.7	2,266.1	2,242.2	5.4	7.0	76.97	166.0	237.9	256.0	245.2	10.85	23.588	
2,336.3	2,327.0	2,301.6	2,277.0	5.5	7.2	78.07	170.7	243.7	261.3	250.2	11.11	23.513	
2,400.0	2,388.7	2,363.9	2,337.8	5.7	7.4	80.09	178.9	254.0	270.8	259.2	11.59	23.371	
2,500.0	2,485.8	2,461.7	2,433.4	6.1	7.9	82.99	191.8	270.2	286.3	273.9	12.35	23.171	
2,600.0	2,582.8	2,559.5	2,529.0	6.5	8.3	85.59	204.7	286.4	302.4	289.3	13.15	22.998	
2,700.0	2,679.8	2,657.2	2,624.5	6.9	8.7	87.93	217.6	302.6	319.1	305.2	13.97	22.851	
2,800.0	2,776.8	2,755.0	2,720.1	7.4	9.2	90.03	230.6	318.8	336.3	321.5	14.80	22.728	
2,900.0	2,873.8	2,852.8	2,815.7	7.8	9.6	91.94	243.5	334.9	353.9	338.2	15.64	22.627	
3,000.0	2,970.8	2,950.6	2,911.2	8.2	10.1	93.66	256.4	351.1	371.8	355.3	16.49	22.545	
3,100.0	3,067.8	3,048.4	3,006.8	8.7	10.5	95.22	269.3	367.3	390.0	372.7	17.35	22.479	
3,200.0	3,164.8	3,146.2	3,102.4	9.2	10.9	96.65	282.2	383.5	408.5	390.3	18.21	22.428	
3,300.0	3,261.8	3,244.0	3,198.0	9.6	11.4	97.95	295.1	399.6	427.2	408.1	19.08	22.389	
3,400.0	3,358.9	3,341.7	3,293.5	10.1	11.8	99.14	308.0	415.8	446.1	426.2	19.95	22.361	
3,500.0	3,455.9	3,439.5	3,389.1	10.5	12.3	100.24	320.9	432.0	465.2	444.4	20.82	22.341	
3,600.0	3,552.9	3,537.3	3,484.7	11.0	12.7	101.25	333.8	448.2	484.4	462.7	21.70	22.328	
3,700.0	3,649.9	3,635.1	3,580.2	11.5	13.2	102.18	346.8	464.4	503.8	481.2	22.57	22.321	
3,800.0	3,746.9	3,732.9	3,675.8	12.0	13.6	103.05	359.7	480.5	523.3	499.8	23.45	22.319	
3,900.0	3,843.9	3,830.7	3,771.4	12.4	14.1	103.85	372.6	496.7	542.9	518.6	24.32	22.321	
4,000.0	3,940.9	3,928.5	3,867.0	12.9	14.5	104.60	385.5	512.9	562.6	537.4	25.20	22.327	
4,100.0	4,037.9	4,026.2	3,962.5	13.4	14.9	105.30	398.4	529.1	582.3	556.3	26.07	22.335	
4,200.0	4,134.9	4,124.0	4,058.1	13.9	15.4	105.95	411.3	545.3	602.2	575.3	26.95	22.346	
4,300.0	4,232.0	4,221.8	4,153.7	14.4	15.8	106.56	424.2	561.4	622.1	594.3	27.82	22.359	
4,400.0	4,329.0	4,319.6	4,249.2	14.9	16.3	107.13	437.1	577.6	642.1	613.4	28.70	22.373	
4,500.0	4,426.0	4,417.4	4,344.8	15.4	16.7	107.67	450.0	593.8	662.2	632.6	29.58	22.389	
4,600.0	4,523.0	4,515.2	4,440.4	15.8	17.2	108.17	462.9	610.0	682.3	651.8	30.45	22.405	
4,700.0	4,620.0	4,613.0	4,535.9	16.3	17.6	108.65	475.9	626.2	702.4	671.1	31.33	22.423	
4,800.0	4,717.0	4,710.8	4,631.5	16.8	18.1	109.10	488.8	642.3	722.6	690.4	32.20	22.441	
4,900.0	4,814.0	4,808.5	4,727.1	17.3	18.5	109.52	501.7	658.5	742.8	709.7	33.07	22.459	

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,000.0	4,911.0	4,906.3	4,822.7	17.8	19.0	109.93	514.6	674.7	763.1	729.1	33.95	22.478		
5,100.0	5,008.0	5,004.1	4,918.2	18.3	19.4	110.31	527.5	690.9	783.4	748.6	34.82	22.497		
5,199.7	5,104.8	5,101.6	5,013.5	18.8	19.8	110.67	540.4	707.0	803.7	768.0	35.69	22.516		
5,300.0	5,202.5	5,199.9	5,109.6	19.2	20.3	111.28	553.3	723.3	823.5	786.9	36.56	22.523		
5,400.0	5,300.6	5,298.1	5,205.6	19.5	20.7	111.63	566.3	739.5	842.0	804.7	37.33	22.554		
5,500.0	5,399.4	5,396.6	5,301.8	19.8	21.2	111.73	579.3	755.8	859.2	821.2	38.05	22.579		
5,600.0	5,498.6	5,496.0	5,399.0	20.1	21.6	111.59	592.4	772.3	875.2	836.5	38.73	22.600		
5,700.0	5,598.2	5,614.7	5,515.5	20.3	22.0	111.24	606.5	789.8	888.8	849.5	39.31	22.613		
5,800.0	5,698.1	5,734.7	5,634.1	20.5	22.4	110.85	617.6	803.8	898.9	859.2	39.79	22.593		
5,902.0	5,800.0	5,857.9	5,756.6	20.6	22.7	107.20	625.7	814.0	905.7	865.5	40.18	22.538		
6,000.0	5,898.0	5,977.1	5,875.6	20.7	22.9	106.80	630.5	820.0	909.2	868.7	40.50	22.450		
6,100.0	5,998.0	6,099.1	5,997.6	20.9	23.0	106.66	632.2	822.1	910.5	869.7	40.80	22.315		
6,144.8	6,042.9	6,144.4	6,042.9	20.9	23.1	106.66	632.2	822.1	910.5	869.6	40.92	22.250		
6,150.0	6,048.0	6,149.6	6,048.0	20.9	23.1	106.67	632.2	822.1	910.5	869.6	40.93	22.243		
6,200.0	6,098.0	6,199.5	6,098.0	21.0	23.1	106.74	632.2	822.1	911.1	870.0	41.08	22.178		
6,250.0	6,147.7	6,265.3	6,163.8	21.2	23.2	107.00	633.6	822.1	912.3	871.0	41.31	22.086		
6,300.0	6,197.0	6,342.4	6,240.3	21.4	23.4	107.21	642.1	822.1	913.2	871.6	41.65	21.925		
6,350.0	6,245.6	6,419.8	6,316.0	21.6	23.7	107.30	658.3	822.1	913.6	871.5	42.11	21.695		
6,400.0	6,293.3	6,497.4	6,389.8	21.9	24.0	107.26	682.2	822.1	913.4	870.7	42.67	21.405		
6,450.0	6,340.0	6,574.6	6,460.5	22.2	24.3	107.09	713.3	822.1	912.7	869.3	43.35	21.054		
6,500.0	6,385.4	6,651.2	6,527.1	22.6	24.8	106.79	751.0	822.1	911.5	867.3	44.13	20.655		
6,550.0	6,429.3	6,726.7	6,588.7	23.0	25.3	106.38	794.5	822.1	909.8	864.8	45.02	20.208		
6,600.0	6,471.6	6,801.0	6,644.9	23.5	25.8	105.86	843.0	822.1	907.7	861.7	46.01	19.728		
6,650.0	6,512.0	6,873.6	6,695.0	24.0	26.5	105.24	895.6	822.1	905.3	858.2	47.11	19.216		
6,700.0	6,550.5	6,944.6	6,739.0	24.5	27.1	104.54	951.3	822.1	902.5	854.2	48.30	18.686		
6,750.0	6,586.7	7,013.6	6,776.6	25.1	27.8	103.76	1,009.2	822.1	899.6	850.0	49.58	18.144		
6,800.0	6,620.6	7,080.8	6,808.0	25.7	28.6	102.91	1,068.5	822.1	896.6	845.6	50.95	17.598		
6,850.0	6,652.1	7,146.0	6,833.4	26.3	29.4	102.01	1,128.4	822.1	893.5	841.1	52.39	17.055		
6,900.0	6,680.9	7,209.2	6,853.1	27.0	30.2	101.06	1,188.5	822.1	890.4	836.5	53.89	16.522		
6,950.0	6,707.0	7,270.5	6,867.4	27.7	31.0	100.08	1,248.1	822.1	887.4	832.0	55.46	16.000		
7,000.0	6,730.3	7,329.9	6,876.6	28.5	31.8	99.07	1,306.8	822.1	884.6	827.5	57.06	15.502		
7,050.0	6,750.6	7,387.5	6,881.2	29.3	32.6	98.03	1,364.2	822.1	882.0	823.3	58.71	15.023		
7,100.0	6,767.9	7,440.3	6,881.8	30.0	33.4	97.06	1,417.0	822.1	879.6	819.3	60.32	14.582		
7,150.0	6,782.1	7,488.2	6,881.6	30.9	34.1	96.29	1,464.9	822.1	877.9	816.0	61.89	14.186		
7,200.0	6,793.1	7,536.9	6,881.4	31.7	34.8	95.68	1,513.6	822.1	876.7	813.2	63.49	13.809		
7,250.0	6,800.9	7,586.3	6,881.3	32.5	35.5	95.22	1,563.0	822.1	875.9	810.8	65.11	13.452		
7,300.0	6,805.5	7,636.0	6,881.1	33.4	36.3	94.94	1,612.7	822.1	875.5	808.8	66.75	13.115		
7,347.2	6,806.8	7,683.2	6,880.9	34.2	37.0	94.86	1,659.9	822.1	875.4	807.1	68.30	12.817		
7,400.0	6,806.6	7,736.0	6,880.7	35.1	37.9	94.85	1,712.7	822.1	875.4	805.3	70.10	12.488		
7,500.0	6,806.3	7,836.0	6,880.4	36.9	39.5	94.85	1,812.7	822.1	875.4	801.8	73.53	11.905		
7,600.0	6,806.0	7,936.0	6,880.0	38.6	41.1	94.85	1,912.7	822.1	875.4	798.4	77.00	11.368		
7,700.0	6,805.7	8,036.0	6,879.6	40.4	42.7	94.84	2,012.7	822.1	875.4	794.9	80.51	10.873		
7,800.0	6,805.4	8,136.0	6,879.3	42.2	44.4	94.84	2,112.7	822.1	875.4	791.3	84.04	10.416		
7,900.0	6,805.1	8,236.0	6,878.9	44.0	46.1	94.84	2,212.7	822.1	875.4	787.8	87.60	9.993		
8,000.0	6,804.8	8,336.0	6,878.5	45.8	47.8	94.83	2,312.7	822.1	875.4	784.2	91.18	9.601		
8,100.0	6,804.4	8,436.0	6,878.2	47.6	49.5	94.83	2,412.7	822.1	875.4	780.6	94.78	9.236		
8,200.0	6,804.1	8,536.0	6,877.8	49.4	51.3	94.83	2,512.7	822.1	875.4	777.0	98.39	8.896		
8,300.0	6,803.8	8,636.0	6,877.4	51.2	53.0	94.82	2,612.7	822.1	875.3	773.3	102.03	8.580		
8,400.0	6,803.5	8,736.0	6,877.1	53.1	54.8	94.82	2,712.7	822.1	875.3	769.7	105.67	8.284		
8,500.0	6,803.2	8,836.0	6,876.7	54.9	56.5	94.82	2,812.7	822.1	875.3	766.0	109.33	8.006		
8,600.0	6,802.9	8,936.0	6,876.3	56.8	58.3	94.81	2,912.7	822.1	875.3	762.3	113.00	7.746		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Brown 5N65W23 Pad Sec.23-T5N-R65W - Brown 23X-341 - Wellbore #1 - Plan #1 (9-2-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference				Offset				Semi Major Axis				Distance	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,700.0	6,802.6	9,036.0	6,876.0	58.6	60.1	94.81	3,012.7	822.1	875.3	758.6	116.68	7.502	
8,800.0	6,802.2	9,136.0	6,875.6	60.5	61.9	94.81	3,112.7	822.1	875.3	755.0	120.37	7.272	
8,900.0	6,801.9	9,236.0	6,875.2	62.3	63.7	94.80	3,212.7	822.1	875.3	751.3	124.07	7.055	
9,000.0	6,801.6	9,336.0	6,874.9	64.2	65.5	94.80	3,312.7	822.1	875.3	747.5	127.77	6.850	
9,100.0	6,801.3	9,436.0	6,874.5	66.1	67.4	94.80	3,412.7	822.1	875.3	743.8	131.49	6.657	
9,200.0	6,801.0	9,536.0	6,874.1	67.9	69.2	94.79	3,512.7	822.1	875.3	740.1	135.21	6.474	
9,300.0	6,800.7	9,636.0	6,873.8	69.8	71.0	94.79	3,612.7	822.1	875.3	736.4	138.93	6.300	
9,400.0	6,800.4	9,736.0	6,873.4	71.7	72.8	94.79	3,712.7	822.1	875.3	732.6	142.66	6.135	
9,500.0	6,800.0	9,836.0	6,873.0	73.6	74.7	94.78	3,812.7	822.1	875.3	728.9	146.40	5.979	
9,600.0	6,799.7	9,936.0	6,872.7	75.4	76.5	94.78	3,912.7	822.1	875.3	725.1	150.14	5.830	
9,700.0	6,799.4	10,036.0	6,872.3	77.3	78.4	94.78	4,012.7	822.1	875.3	721.4	153.89	5.688	
9,800.0	6,799.1	10,136.0	6,871.9	79.2	80.2	94.77	4,112.7	822.1	875.3	717.6	157.64	5.553	
9,900.0	6,798.8	10,236.0	6,871.6	81.1	82.1	94.77	4,212.7	822.1	875.3	713.9	161.39	5.423	
10,000.0	6,798.5	10,336.0	6,871.2	83.0	83.9	94.77	4,312.7	822.1	875.3	710.1	165.15	5.300	
10,100.0	6,798.2	10,436.0	6,870.8	84.9	85.8	94.76	4,412.7	822.1	875.3	706.4	168.91	5.182	
10,200.0	6,797.8	10,536.0	6,870.5	86.8	87.6	94.76	4,512.7	822.1	875.3	702.6	172.67	5.069	
10,300.0	6,797.5	10,636.0	6,870.1	88.7	89.5	94.76	4,612.7	822.1	875.3	698.8	176.43	4.961	
10,400.0	6,797.2	10,736.0	6,869.7	90.5	91.4	94.75	4,712.7	822.1	875.3	695.1	180.20	4.857	
10,500.0	6,796.9	10,836.0	6,869.4	92.4	93.2	94.75	4,812.7	822.1	875.3	691.3	183.97	4.757	
10,600.0	6,796.6	10,936.0	6,869.0	94.3	95.1	94.75	4,912.7	822.1	875.2	687.5	187.75	4.662	
10,700.0	6,796.3	11,036.0	6,868.6	96.2	97.0	94.74	5,012.7	822.1	875.2	683.7	191.52	4.570	
10,800.0	6,796.0	11,136.0	6,868.3	98.1	98.9	94.74	5,112.7	822.1	875.2	679.9	195.30	4.481	
10,900.0	6,795.6	11,236.0	6,867.9	100.0	100.7	94.73	5,212.7	822.1	875.2	676.1	199.08	4.396	
11,000.0	6,795.3	11,336.0	6,867.5	101.9	102.6	94.73	5,312.7	822.1	875.2	672.4	202.86	4.314	
11,100.0	6,795.0	11,436.0	6,867.2	103.8	104.5	94.73	5,412.7	822.1	875.2	668.6	206.65	4.235	
11,200.0	6,794.7	11,536.0	6,866.8	105.7	106.4	94.72	5,512.7	822.1	875.2	664.8	210.43	4.159	
11,300.0	6,794.4	11,636.0	6,866.4	107.6	108.3	94.72	5,612.7	822.1	875.2	661.0	214.22	4.086	
11,400.0	6,794.1	11,736.0	6,866.1	109.5	110.1	94.72	5,712.7	822.1	875.2	657.2	218.01	4.015	
11,500.0	6,793.8	11,836.0	6,865.7	111.4	112.0	94.71	5,812.7	822.1	875.2	653.4	221.80	3.946	
11,600.0	6,793.4	11,936.0	6,865.3	113.3	113.9	94.71	5,912.7	822.1	875.2	649.6	225.59	3.880	
11,700.0	6,793.1	12,036.0	6,865.0	115.2	115.8	94.71	6,012.7	822.1	875.2	645.8	229.38	3.815	
11,800.0	6,792.8	12,136.0	6,864.6	117.1	117.7	94.70	6,112.7	822.1	875.2	642.0	233.18	3.753	
11,900.0	6,792.5	12,236.0	6,864.2	119.0	119.6	94.70	6,212.7	822.1	875.2	638.2	236.97	3.693	
12,000.0	6,792.2	12,336.0	6,863.9	120.9	121.5	94.70	6,312.7	822.1	875.2	634.4	240.77	3.635	
12,100.0	6,791.9	12,436.0	6,863.5	122.9	123.3	94.69	6,412.7	822.1	875.2	630.6	244.57	3.578	
12,200.0	6,791.6	12,536.0	6,863.1	124.8	125.2	94.69	6,512.7	822.1	875.2	626.8	248.37	3.524	
12,300.0	6,791.2	12,636.0	6,862.8	126.7	127.1	94.69	6,612.7	822.1	875.2	623.0	252.17	3.471	
12,400.0	6,790.9	12,736.0	6,862.4	128.6	129.0	94.68	6,712.7	822.1	875.2	619.2	255.97	3.419	
12,500.0	6,790.6	12,836.0	6,862.0	130.5	130.9	94.68	6,812.7	822.1	875.2	615.4	259.77	3.369	
12,600.0	6,790.3	12,936.0	6,861.7	132.4	132.8	94.68	6,912.7	822.1	875.2	611.6	263.57	3.320	
12,700.0	6,790.0	13,036.0	6,861.3	134.3	134.7	94.67	7,012.7	822.1	875.2	607.8	267.37	3.273	
12,800.0	6,789.7	13,136.0	6,860.9	136.2	136.6	94.67	7,112.7	822.1	875.2	604.0	271.18	3.227	
12,900.0	6,789.4	13,236.0	6,860.6	138.1	138.5	94.67	7,212.7	822.1	875.1	600.2	274.98	3.183	
13,000.0	6,789.0	13,336.0	6,860.2	140.0	140.4	94.66	7,312.7	822.1	875.1	596.4	278.79	3.139	
13,100.0	6,788.7	13,436.0	6,859.8	141.9	142.3	94.66	7,412.7	822.1	875.1	592.5	282.59	3.097	
13,200.0	6,788.4	13,536.0	6,859.5	143.8	144.2	94.66	7,512.7	822.1	875.1	588.7	286.40	3.056	
13,300.0	6,788.1	13,636.0	6,859.1	145.7	146.1	94.65	7,612.6	822.1	875.1	584.9	290.21	3.016	
13,400.0	6,787.8	13,736.0	6,858.7	147.7	148.0	94.65	7,712.6	822.1	875.1	581.1	294.02	2.976	
13,500.0	6,787.5	13,836.0	6,858.4	149.6	149.9	94.65	7,812.6	822.1	875.1	577.3	297.83	2.938	
13,600.0	6,787.2	13,936.0	6,858.0	151.5	151.8	94.64	7,912.6	822.1	875.1	573.5	301.64	2.901	
13,700.0	6,786.9	14,036.0	6,857.6	153.4	153.7	94.64	8,012.6	822.1	875.1	569.7	305.45	2.865	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Brown 5N65W23 Pad Sec.23-T5N-R65W - Brown 23X-341 - Wellbore #1 - Plan #1 (9-2-15)										Offset Site Error:		0.0 ft	
Survey Program: 0-MWD												Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
13,800.0	6,786.5	14,136.0	6,857.3	155.3	155.6	94.64	8,112.6	822.1	875.1	565.9	309.26	2.830			
13,900.0	6,786.2	14,236.0	6,856.9	157.2	157.5	94.63	8,212.6	822.1	875.1	562.0	313.07	2.795			
14,000.0	6,785.9	14,336.0	6,856.5	159.1	159.4	94.63	8,312.6	822.1	875.1	558.2	316.88	2.762			
14,100.0	6,785.6	14,436.0	6,856.2	161.0	161.3	94.63	8,412.6	822.1	875.1	554.4	320.69	2.729			
14,200.0	6,785.3	14,536.0	6,855.8	162.9	163.2	94.62	8,512.6	822.1	875.1	550.6	324.50	2.697			
14,300.0	6,785.0	14,636.0	6,855.4	164.9	165.1	94.62	8,612.6	822.1	875.1	546.8	328.32	2.665			
14,400.0	6,784.7	14,736.0	6,855.1	166.8	167.0	94.62	8,712.6	822.1	875.1	543.0	332.13	2.635			
14,500.0	6,784.3	14,836.0	6,854.7	168.7	168.9	94.61	8,812.6	822.1	875.1	539.1	335.94	2.605			
14,600.0	6,784.0	14,936.0	6,854.3	170.6	170.8	94.61	8,912.6	822.1	875.1	535.3	339.76	2.576			
14,700.0	6,783.7	15,036.0	6,854.0	172.5	172.7	94.60	9,012.6	822.1	875.1	531.5	343.57	2.547			
14,800.0	6,783.4	15,136.0	6,853.6	174.4	174.6	94.60	9,112.6	822.1	875.1	527.7	347.39	2.519			
14,900.0	6,783.1	15,236.0	6,853.2	176.3	176.6	94.60	9,212.6	822.1	875.1	523.9	351.20	2.492			
15,000.0	6,782.8	15,336.0	6,852.9	178.2	178.5	94.59	9,312.6	822.1	875.1	520.0	355.02	2.465			
15,100.0	6,782.5	15,436.0	6,852.5	180.2	180.4	94.59	9,412.6	822.1	875.1	516.2	358.83	2.439			
15,200.0	6,782.1	15,536.0	6,852.1	182.1	182.3	94.59	9,512.6	822.1	875.0	512.4	362.65	2.413			
15,231.0	6,782.0	15,567.0	6,852.0	182.7	182.9	94.59	9,543.7	822.1	875.0	511.2	363.84	2.405			
15,243.9	6,782.0	15,571.6	6,852.0	182.9	183.0	94.59	9,548.3	822.1	875.1	510.9	364.17	2.403 SF			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Sec. 23-T5N-R65W - Cass 1 (Exist.) - Wellbore #1 - Wellbore #1											Offset Site Error:		0.0 ft
Survey Program:		7121-UNKNOWN											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
12,200.0	6,791.6	6,750.6	6,750.6	124.8	135.0	-90.44	7,398.8	-414.2	958.2	698.5	259.76	3.689			
12,300.0	6,791.2	6,750.2	6,750.2	126.7	135.0	-90.39	7,398.8	-414.2	866.6	604.9	261.66	3.312			
12,400.0	6,790.9	6,749.9	6,749.9	128.6	135.0	-90.34	7,398.8	-414.2	777.0	513.4	263.56	2.948			
12,500.0	6,790.6	6,749.6	6,749.6	130.5	135.0	-90.29	7,398.8	-414.2	690.2	424.7	265.46	2.600			
12,600.0	6,790.3	6,749.3	6,749.3	132.4	135.0	-90.24	7,398.8	-414.2	607.5	340.2	267.37	2.272			
12,700.0	6,790.0	6,749.0	6,749.0	134.3	135.0	-90.19	7,398.8	-414.2	530.9	261.6	269.27	1.972			
12,800.0	6,789.7	6,748.7	6,748.7	136.2	135.0	-90.14	7,398.8	-414.2	463.2	192.0	271.17	1.708			
12,900.0	6,789.4	6,748.4	6,748.4	138.1	135.0	-90.09	7,398.8	-414.2	409.0	135.9	273.07	1.498	Level 3		
13,000.0	6,789.0	6,748.0	6,748.0	140.0	135.0	-90.04	7,398.8	-414.2	374.1	99.2	274.98	1.361	Level 3		
13,086.4	6,788.8	6,747.8	6,747.8	141.7	135.0	-90.00	7,398.8	-414.2	364.0	87.4	276.62	1.316	Level 3, CC		
13,100.0	6,788.7	6,747.7	6,747.7	141.9	135.0	-89.99	7,398.8	-414.2	364.3	87.4	276.88	1.316	Level 3, ES, SF		
13,200.0	6,788.4	6,747.4	6,747.4	143.8	134.9	-89.94	7,398.8	-414.2	381.3	102.6	278.78	1.368	Level 3		
13,300.0	6,788.1	6,747.1	6,747.1	145.7	134.9	-89.89	7,398.8	-414.2	422.1	141.4	280.68	1.504			
13,400.0	6,787.8	6,746.8	6,746.8	147.7	134.9	-89.84	7,398.8	-414.2	480.5	197.9	282.59	1.700			
13,500.0	6,787.5	6,746.5	6,746.5	149.6	134.9	-89.80	7,398.8	-414.2	551.0	266.5	284.49	1.937			
13,600.0	6,787.2	6,746.2	6,746.2	151.5	134.9	-89.75	7,398.8	-414.2	629.5	343.1	286.39	2.198			
13,700.0	6,786.9	6,745.9	6,745.9	153.4	134.9	-89.70	7,398.8	-414.2	713.4	425.1	288.30	2.475			
13,800.0	6,786.5	6,745.5	6,745.5	155.3	134.9	-89.65	7,398.8	-414.2	801.1	510.9	290.20	2.760			
13,900.0	6,786.2	6,745.2	6,745.2	157.2	134.9	-89.60	7,398.8	-414.2	891.3	599.2	292.10	3.051			
14,000.0	6,785.9	6,744.9	6,744.9	159.1	134.9	-89.55	7,398.8	-414.2	983.4	689.4	294.01	3.345			

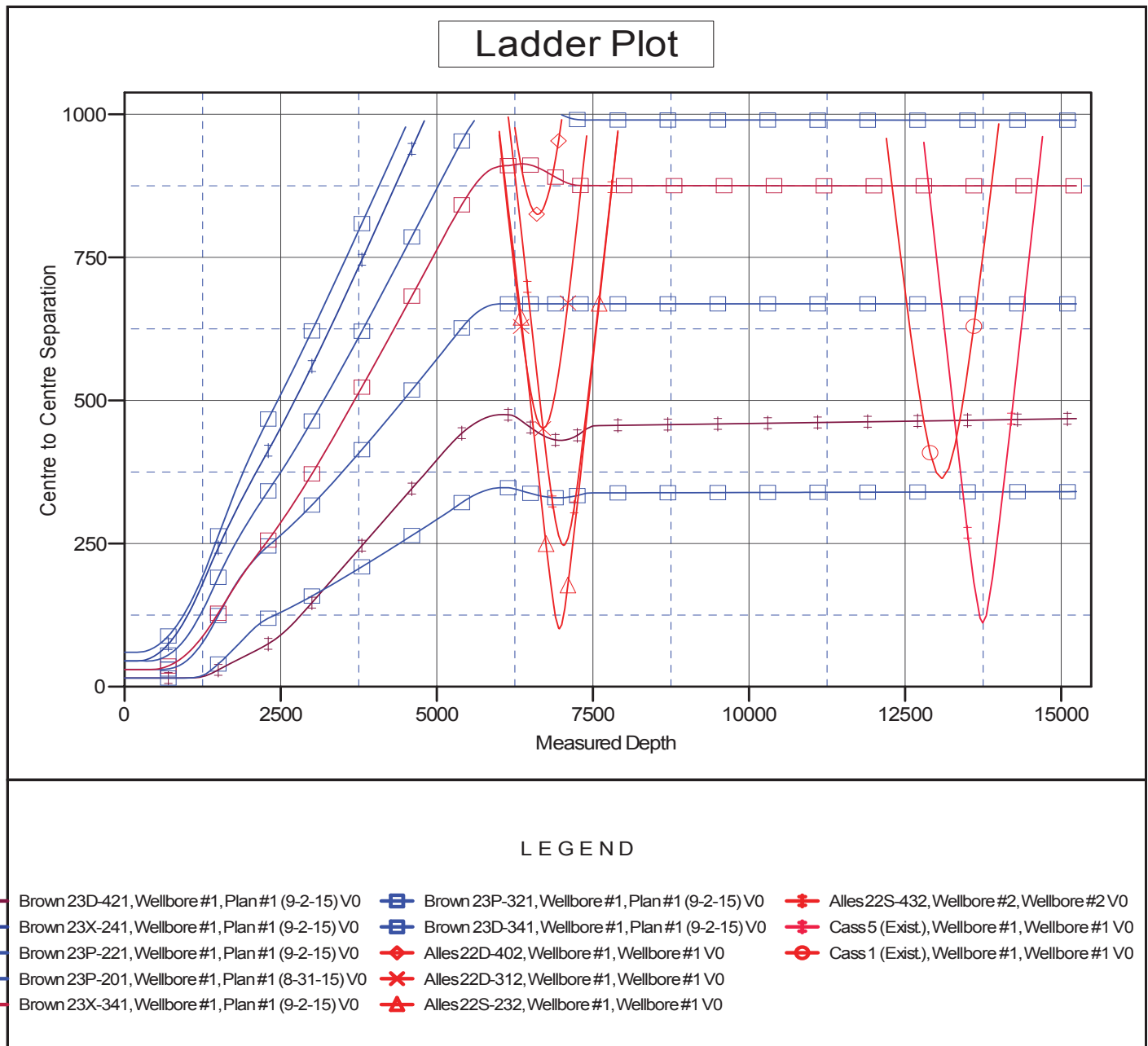
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Existing Sec. 23-T5N-R65W - Cass 5 (Exist.) - Wellbore #1 - Wellbore #1													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 100-NS-GYRO-MS													<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
12,800.0	6,789.7	6,768.2	6,766.9	136.2	12.1	101.25	8,056.8	61.4	951.2	805.5	145.74	6.527		
12,900.0	6,789.4	6,765.7	6,764.4	138.1	12.1	100.02	8,056.9	61.4	852.0	703.9	148.14	5.751		
13,000.0	6,789.0	6,763.2	6,761.9	140.0	12.1	98.77	8,056.9	61.3	753.0	602.5	150.50	5.003		
13,100.0	6,788.7	6,760.7	6,759.4	141.9	12.0	97.52	8,057.0	61.3	654.3	501.5	152.81	4.282		
13,200.0	6,788.4	6,758.2	6,756.9	143.8	12.0	96.26	8,057.1	61.3	556.0	401.0	155.06	3.586		
13,300.0	6,788.1	6,755.7	6,754.4	145.7	12.0	94.99	8,057.1	61.2	458.5	301.3	157.26	2.916		
13,400.0	6,787.8	6,753.2	6,752.0	147.7	12.0	93.72	8,057.2	61.2	362.4	203.0	159.39	2.273		
13,500.0	6,787.5	6,750.8	6,749.5	149.6	12.0	92.45	8,057.2	61.2	269.0	107.5	161.47	1.666		
13,600.0	6,787.2	6,748.3	6,747.0	151.5	12.0	91.17	8,057.3	61.2	182.7	19.2	163.47	1.118	Level 2	
13,700.0	6,786.9	6,745.8	6,744.5	153.4	12.0	89.88	8,057.3	61.1	120.0	-45.4	165.40	0.725	Level 1	
13,745.0	6,786.7	6,744.7	6,743.4	154.2	12.0	89.31	8,057.3	61.1	111.3	-55.0	166.25	0.669	Level 1, CC, ES, SF	
13,800.0	6,786.5	6,743.3	6,742.0	155.3	12.0	88.60	8,057.4	61.1	124.1	-43.2	167.26	0.742	Level 1	
13,900.0	6,786.2	6,740.8	6,739.5	157.2	12.0	87.32	8,057.4	61.1	190.8	21.7	169.05	1.129	Level 2	
14,000.0	6,785.9	6,738.3	6,737.0	159.1	12.0	86.04	8,057.5	61.0	278.2	107.4	170.75	1.629		
14,100.0	6,785.6	6,735.8	6,734.5	161.0	12.0	84.77	8,057.5	61.0	372.0	199.6	172.38	2.158		
14,200.0	6,785.3	6,733.3	6,732.0	162.9	12.0	83.49	8,057.6	61.0	468.3	294.4	173.92	2.693		
14,300.0	6,785.0	6,730.8	6,729.5	164.9	12.0	82.23	8,057.7	60.9	565.9	390.5	175.39	3.227		
14,400.0	6,784.7	6,728.3	6,727.1	166.8	12.0	80.97	8,057.7	60.9	664.2	487.4	176.77	3.758		
14,500.0	6,784.3	6,725.9	6,724.6	168.7	12.0	79.72	8,057.8	60.9	763.0	584.9	178.07	4.285		
14,600.0	6,784.0	6,723.4	6,722.1	170.6	12.0	78.48	8,057.8	60.9	862.0	682.7	179.29	4.808		
14,700.0	6,783.7	6,720.9	6,719.6	172.5	12.0	77.25	8,057.9	60.8	961.2	780.8	180.42	5.327		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4656.0ft (Original Well Elev)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000

Coordinates are relative to: Brown 23D-201  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.56°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 23D-201
<b>Project:</b>	SEC.23-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Reference Site:</b>	Brown 5N65W23 Pad Sec.23-T5N-R65W	<b>MD Reference:</b>	WELL @ 4656.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 23D-201	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-2-15)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4656.0ft (Original Well Elev)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000

Coordinates are relative to: Brown 23D-201  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
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