

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Brown 2F-432**  
Surface Location: Brown Pad Sec.2-T6N-R63W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
Ground Elevation: 4710.0  
+N/-S      +E/-W      Northing      Easting      Latitude      Longitude      Slot  
0.0      0.0      1433931.32      3302430.50      40.519450      -104.412170  
RKB Ensign 32 - 15'      WELL @ 4725.0ft (RKB Ensign 32 - 15')

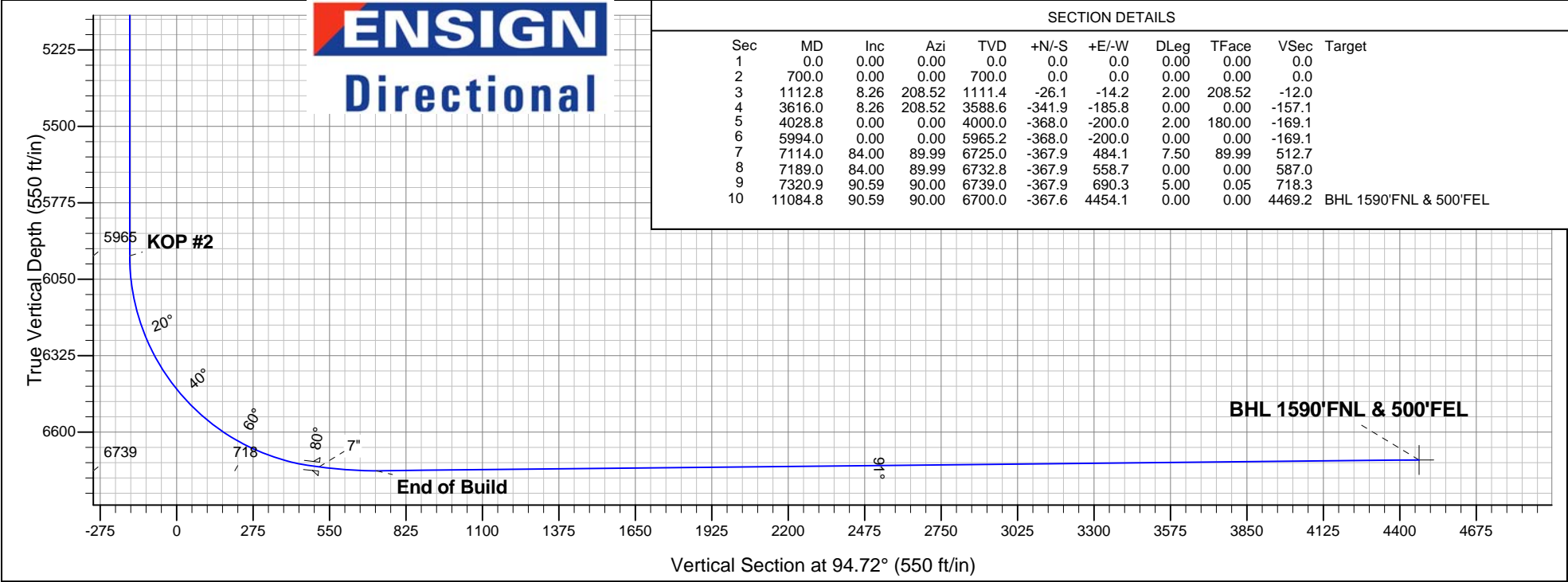
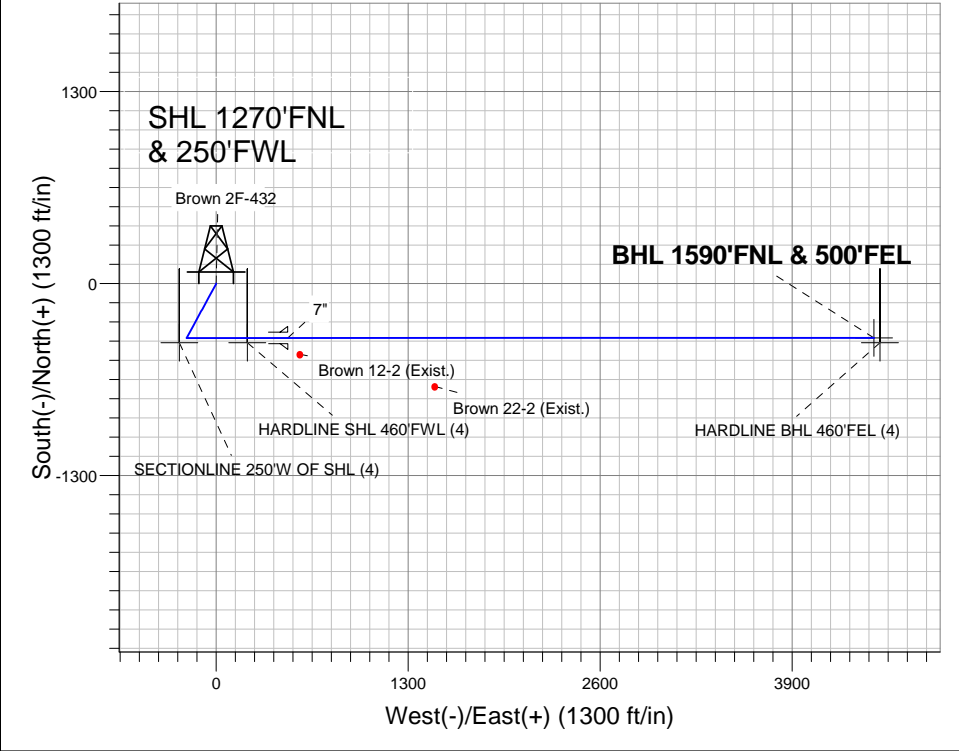
WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
HARDLINE BHL 460'FEL (4)	1.0	-400.0	4494.1	1433586.50	3306929.01	40.518351	-104.396006	Polygon
HARDLINE SHL 460'FWL (4)	1.0	-400.0	210.0	1433533.94	3302645.38	40.518352	-104.411415	Polygon
SECTIONLINE 250'W OF SHL (4)	1.0	-400.0	-250.0	1433528.30	3302185.43	40.518352	-104.413069	Polygon
BHL 1590'FNL & 500'FEL	6700.0	-367.6	4454.1	1433618.45	3306888.61	40.518440	-104.396150	Point

Azimuths to True North  
Magnetic North: 8.55°

Magnetic Field  
Strength: 53131.4snT  
Dip Angle: 67.17°  
Date: 5/29/2012  
Model: IGRF2010

ANNOTATIONS		
TVD	MD	Annotation
700.0	700.0	KOP #1
5965.2	5994.0	KOP #2
6739.0	7320.9	End of Build

Brown Pad Sec.2-T6N-R63W  
Brown 2F-432  
Plan #1 (5-29-12)  
11:08, June 04 2012





# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.2-T6N-R63W**

**Brown Pad Sec.2-T6N-R63W**

**Brown 2F-432**

**Wellbore #1**

**Plan: Plan #1 (5-29-12)**

## **Standard Planning Report**

**04 June, 2012**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Project:</b>	SEC.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (5-29-12)		

<b>Project</b>	SEC.2-T6N-R63W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site						Brown Pad Sec.2-T6N-R63W											
Site Position:						Northing:			1,433,964.08 ft			Latitude:			40.519540		
From:			Lat/Long			Easting:			3,302,427.32 ft			Longitude:			-104.412180		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.70 °		

Well	Brown 2F-432					
Well Position	+N/-S	-32.8 ft	Northing:	1,433,931.32 ft	Latitude:	40.519450
	+E/-W	2.8 ft	Easting:	3,302,430.50 ft	Longitude:	-104.412170
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,710.0 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	5/29/2012	8.56	67.17	53,131

<b>Design</b>	Plan #1 (5-29-12)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	94.72

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,112.8	8.26	208.52	1,111.4	-26.1	-14.2	2.00	2.00	0.00	208.52	
3,616.0	8.26	208.52	3,588.6	-341.9	-185.8	0.00	0.00	0.00	0.00	
4,028.8	0.00	0.00	4,000.0	-368.0	-200.0	2.00	-2.00	0.00	180.00	
5,994.0	0.00	0.00	5,965.2	-368.0	-200.0	0.00	0.00	0.00	0.00	
7,114.0	84.00	89.99	6,725.0	-367.9	484.1	7.50	7.50	0.00	89.99	
7,189.0	84.00	89.99	6,732.8	-367.9	558.7	0.00	0.00	0.00	0.00	
7,320.9	90.59	90.00	6,739.0	-367.9	690.3	5.00	5.00	0.00	0.05	
11,084.8	90.59	90.00	6,700.0	-367.6	4,454.1	0.00	0.00	0.00	0.00	BHL 1590'FNL & 5C

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Project:</b>	SEC.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (5-29-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SECTIONLINE 250'W OF SHL (4) - HARDLINE BHL 460'FEL (4) - HARDLINE SHL 460'FWL (4)									
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
720.0	0.40	208.52	720.0	-0.1	0.0	0.0	2.00	2.00	0.00
760.0	1.20	208.52	760.0	-0.6	-0.3	-0.3	2.00	2.00	0.00
800.0	2.00	208.52	800.0	-1.5	-0.8	-0.7	2.00	2.00	0.00
840.0	2.80	208.52	839.9	-3.0	-1.6	-1.4	2.00	2.00	0.00
880.0	3.60	208.52	879.9	-5.0	-2.7	-2.3	2.00	2.00	0.00
920.0	4.40	208.52	919.8	-7.4	-4.0	-3.4	2.00	2.00	0.00
960.0	5.20	208.52	959.6	-10.4	-5.6	-4.8	2.00	2.00	0.00
1,000.0	6.00	208.52	999.5	-13.8	-7.5	-6.3	2.00	2.00	0.00
1,040.0	6.80	208.52	1,039.2	-17.7	-9.6	-8.1	2.00	2.00	0.00
1,080.0	7.60	208.52	1,078.9	-22.1	-12.0	-10.2	2.00	2.00	0.00
1,112.8	8.26	208.52	1,111.4	-26.1	-14.2	-12.0	2.00	2.00	0.00
1,120.0	8.26	208.52	1,118.5	-27.0	-14.7	-12.4	0.00	0.00	0.00
1,160.0	8.26	208.52	1,158.1	-32.0	-17.4	-14.7	0.00	0.00	0.00
1,200.0	8.26	208.52	1,197.7	-37.1	-20.2	-17.0	0.00	0.00	0.00
1,240.0	8.26	208.52	1,237.3	-42.1	-22.9	-19.4	0.00	0.00	0.00
1,280.0	8.26	208.52	1,276.8	-47.2	-25.6	-21.7	0.00	0.00	0.00
1,320.0	8.26	208.52	1,316.4	-52.2	-28.4	-24.0	0.00	0.00	0.00
1,360.0	8.26	208.52	1,356.0	-57.3	-31.1	-26.3	0.00	0.00	0.00
1,400.0	8.26	208.52	1,395.6	-62.3	-33.9	-28.6	0.00	0.00	0.00
1,440.0	8.26	208.52	1,435.2	-67.4	-36.6	-30.9	0.00	0.00	0.00
1,480.0	8.26	208.52	1,474.8	-72.4	-39.4	-33.3	0.00	0.00	0.00
1,520.0	8.26	208.52	1,514.4	-77.5	-42.1	-35.6	0.00	0.00	0.00
1,560.0	8.26	208.52	1,553.9	-82.5	-44.8	-37.9	0.00	0.00	0.00
1,600.0	8.26	208.52	1,593.5	-87.6	-47.6	-40.2	0.00	0.00	0.00
1,640.0	8.26	208.52	1,633.1	-92.6	-50.3	-42.5	0.00	0.00	0.00
1,680.0	8.26	208.52	1,672.7	-97.6	-53.1	-44.9	0.00	0.00	0.00
1,720.0	8.26	208.52	1,712.3	-102.7	-55.8	-47.2	0.00	0.00	0.00
1,760.0	8.26	208.52	1,751.9	-107.7	-58.6	-49.5	0.00	0.00	0.00
1,800.0	8.26	208.52	1,791.5	-112.8	-61.3	-51.8	0.00	0.00	0.00
1,840.0	8.26	208.52	1,831.0	-117.8	-64.0	-54.1	0.00	0.00	0.00
1,880.0	8.26	208.52	1,870.6	-122.9	-66.8	-56.5	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Project:</b>	SEC.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (5-29-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,920.0	8.26	208.52	1,910.2	-127.9	-69.5	-58.8	0.00	0.00	0.00
1,960.0	8.26	208.52	1,949.8	-133.0	-72.3	-61.1	0.00	0.00	0.00
2,000.0	8.26	208.52	1,989.4	-138.0	-75.0	-63.4	0.00	0.00	0.00
2,040.0	8.26	208.52	2,029.0	-143.1	-77.8	-65.7	0.00	0.00	0.00
2,080.0	8.26	208.52	2,068.5	-148.1	-80.5	-68.0	0.00	0.00	0.00
2,120.0	8.26	208.52	2,108.1	-153.2	-83.2	-70.4	0.00	0.00	0.00
2,160.0	8.26	208.52	2,147.7	-158.2	-86.0	-72.7	0.00	0.00	0.00
2,200.0	8.26	208.52	2,187.3	-163.3	-88.7	-75.0	0.00	0.00	0.00
2,240.0	8.26	208.52	2,226.9	-168.3	-91.5	-77.3	0.00	0.00	0.00
2,280.0	8.26	208.52	2,266.5	-173.4	-94.2	-79.6	0.00	0.00	0.00
2,320.0	8.26	208.52	2,306.1	-178.4	-97.0	-82.0	0.00	0.00	0.00
2,360.0	8.26	208.52	2,345.6	-183.4	-99.7	-84.3	0.00	0.00	0.00
2,400.0	8.26	208.52	2,385.2	-188.5	-102.4	-86.6	0.00	0.00	0.00
2,440.0	8.26	208.52	2,424.8	-193.5	-105.2	-88.9	0.00	0.00	0.00
2,480.0	8.26	208.52	2,464.4	-198.6	-107.9	-91.2	0.00	0.00	0.00
2,520.0	8.26	208.52	2,504.0	-203.6	-110.7	-93.5	0.00	0.00	0.00
2,560.0	8.26	208.52	2,543.6	-208.7	-113.4	-95.9	0.00	0.00	0.00
2,600.0	8.26	208.52	2,583.2	-213.7	-116.2	-98.2	0.00	0.00	0.00
2,640.0	8.26	208.52	2,622.7	-218.8	-118.9	-100.5	0.00	0.00	0.00
2,680.0	8.26	208.52	2,662.3	-223.8	-121.6	-102.8	0.00	0.00	0.00
2,720.0	8.26	208.52	2,701.9	-228.9	-124.4	-105.1	0.00	0.00	0.00
2,760.0	8.26	208.52	2,741.5	-233.9	-127.1	-107.5	0.00	0.00	0.00
2,800.0	8.26	208.52	2,781.1	-239.0	-129.9	-109.8	0.00	0.00	0.00
2,840.0	8.26	208.52	2,820.7	-244.0	-132.6	-112.1	0.00	0.00	0.00
2,880.0	8.26	208.52	2,860.3	-249.1	-135.4	-114.4	0.00	0.00	0.00
2,920.0	8.26	208.52	2,899.8	-254.1	-138.1	-116.7	0.00	0.00	0.00
2,960.0	8.26	208.52	2,939.4	-259.1	-140.8	-119.1	0.00	0.00	0.00
3,000.0	8.26	208.52	2,979.0	-264.2	-143.6	-121.4	0.00	0.00	0.00
3,040.0	8.26	208.52	3,018.6	-269.2	-146.3	-123.7	0.00	0.00	0.00
3,080.0	8.26	208.52	3,058.2	-274.3	-149.1	-126.0	0.00	0.00	0.00
3,120.0	8.26	208.52	3,097.8	-279.3	-151.8	-128.3	0.00	0.00	0.00
3,160.0	8.26	208.52	3,137.4	-284.4	-154.6	-130.6	0.00	0.00	0.00
3,200.0	8.26	208.52	3,176.9	-289.4	-157.3	-133.0	0.00	0.00	0.00
3,240.0	8.26	208.52	3,216.5	-294.5	-160.0	-135.3	0.00	0.00	0.00
3,280.0	8.26	208.52	3,256.1	-299.5	-162.8	-137.6	0.00	0.00	0.00
3,320.0	8.26	208.52	3,295.7	-304.6	-165.5	-139.9	0.00	0.00	0.00
3,360.0	8.26	208.52	3,335.3	-309.6	-168.3	-142.2	0.00	0.00	0.00
3,400.0	8.26	208.52	3,374.9	-314.7	-171.0	-144.6	0.00	0.00	0.00
3,440.0	8.26	208.52	3,414.5	-319.7	-173.8	-146.9	0.00	0.00	0.00
3,480.0	8.26	208.52	3,454.0	-324.8	-176.5	-149.2	0.00	0.00	0.00
3,520.0	8.26	208.52	3,493.6	-329.8	-179.2	-151.5	0.00	0.00	0.00
3,560.0	8.26	208.52	3,533.2	-334.8	-182.0	-153.8	0.00	0.00	0.00
3,600.0	8.26	208.52	3,572.8	-339.9	-184.7	-156.1	0.00	0.00	0.00
3,616.0	8.26	208.52	3,588.6	-341.9	-185.8	-157.1	0.00	0.00	0.00
3,640.0	7.78	208.52	3,612.4	-344.9	-187.4	-158.4	2.00	-2.00	0.00
3,680.0	6.98	208.52	3,652.1	-349.4	-189.9	-160.5	2.00	-2.00	0.00
3,720.0	6.18	208.52	3,691.8	-353.4	-192.1	-162.3	2.00	-2.00	0.00
3,760.0	5.38	208.52	3,731.6	-356.9	-194.0	-164.0	2.00	-2.00	0.00
3,800.0	4.58	208.52	3,771.4	-360.0	-195.6	-165.4	2.00	-2.00	0.00
3,840.0	3.78	208.52	3,811.3	-362.5	-197.0	-166.6	2.00	-2.00	0.00
3,880.0	2.98	208.52	3,851.3	-364.6	-198.2	-167.5	2.00	-2.00	0.00
3,920.0	2.18	208.52	3,891.2	-366.2	-199.0	-168.2	2.00	-2.00	0.00
3,960.0	1.38	208.52	3,931.2	-367.3	-199.6	-168.7	2.00	-2.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Project:</b>	SEC.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (5-29-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,000.0	0.58	208.52	3,971.2	-367.9	-199.9	-169.0	2.00	-2.00	0.00
4,028.8	0.00	0.00	4,000.0	-368.0	-200.0	-169.1	2.00	-2.00	0.00
4,040.0	0.00	0.00	4,011.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,080.0	0.00	0.00	4,051.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,120.0	0.00	0.00	4,091.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,160.0	0.00	0.00	4,131.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,200.0	0.00	0.00	4,171.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,240.0	0.00	0.00	4,211.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,280.0	0.00	0.00	4,251.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,320.0	0.00	0.00	4,291.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,360.0	0.00	0.00	4,331.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,400.0	0.00	0.00	4,371.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,440.0	0.00	0.00	4,411.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,480.0	0.00	0.00	4,451.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,520.0	0.00	0.00	4,491.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,560.0	0.00	0.00	4,531.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,600.0	0.00	0.00	4,571.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,640.0	0.00	0.00	4,611.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,680.0	0.00	0.00	4,651.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,720.0	0.00	0.00	4,691.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,760.0	0.00	0.00	4,731.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,800.0	0.00	0.00	4,771.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,840.0	0.00	0.00	4,811.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,880.0	0.00	0.00	4,851.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,920.0	0.00	0.00	4,891.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
4,960.0	0.00	0.00	4,931.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,000.0	0.00	0.00	4,971.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,040.0	0.00	0.00	5,011.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,080.0	0.00	0.00	5,051.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,120.0	0.00	0.00	5,091.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,160.0	0.00	0.00	5,131.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,200.0	0.00	0.00	5,171.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,240.0	0.00	0.00	5,211.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,280.0	0.00	0.00	5,251.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,320.0	0.00	0.00	5,291.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,360.0	0.00	0.00	5,331.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,400.0	0.00	0.00	5,371.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,440.0	0.00	0.00	5,411.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,480.0	0.00	0.00	5,451.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,520.0	0.00	0.00	5,491.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,560.0	0.00	0.00	5,531.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,600.0	0.00	0.00	5,571.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,640.0	0.00	0.00	5,611.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,680.0	0.00	0.00	5,651.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,720.0	0.00	0.00	5,691.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,760.0	0.00	0.00	5,731.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,800.0	0.00	0.00	5,771.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,840.0	0.00	0.00	5,811.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,880.0	0.00	0.00	5,851.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,920.0	0.00	0.00	5,891.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,960.0	0.00	0.00	5,931.2	-368.0	-200.0	-169.1	0.00	0.00	0.00
5,994.0	0.00	0.00	5,965.2	-368.0	-200.0	-169.1	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Project:</b>	SEC.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (5-29-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
<b>KOP #2</b>									
6,000.0	0.45	89.99	5,971.2	-368.0	-200.0	-169.0	7.50	7.50	0.00
6,040.0	3.45	89.99	6,011.2	-368.0	-198.6	-167.7	7.50	7.50	0.00
6,080.0	6.45	89.99	6,051.0	-368.0	-195.2	-164.2	7.50	7.50	0.00
6,120.0	9.45	89.99	6,090.6	-368.0	-189.6	-158.7	7.50	7.50	0.00
6,160.0	12.45	89.99	6,129.9	-368.0	-182.0	-151.2	7.50	7.50	0.00
6,200.0	15.45	89.99	6,168.7	-368.0	-172.4	-141.5	7.50	7.50	0.00
6,240.0	18.45	89.99	6,207.0	-368.0	-160.7	-129.9	7.50	7.50	0.00
6,280.0	21.45	89.99	6,244.6	-368.0	-147.1	-116.3	7.50	7.50	0.00
6,320.0	24.45	89.99	6,281.4	-368.0	-131.5	-100.8	7.50	7.50	0.00
6,360.0	27.45	89.99	6,317.4	-368.0	-114.0	-83.3	7.50	7.50	0.00
6,400.0	30.45	89.99	6,352.4	-368.0	-94.6	-64.0	7.50	7.50	0.00
6,440.0	33.45	89.99	6,386.3	-368.0	-73.5	-43.0	7.50	7.50	0.00
6,480.0	36.45	89.99	6,419.1	-368.0	-50.6	-20.1	7.50	7.50	0.00
6,520.0	39.45	89.99	6,450.6	-368.0	-26.0	4.4	7.50	7.50	0.00
6,560.0	42.45	89.99	6,480.8	-368.0	0.3	30.5	7.50	7.50	0.00
6,600.0	45.45	89.99	6,509.6	-368.0	28.0	58.2	7.50	7.50	0.00
6,640.0	48.45	89.99	6,536.9	-368.0	57.2	87.3	7.50	7.50	0.00
6,680.0	51.45	89.99	6,562.7	-367.9	87.9	117.8	7.50	7.50	0.00
6,720.0	54.45	89.99	6,586.8	-367.9	119.8	149.6	7.50	7.50	0.00
6,760.0	57.45	89.99	6,609.1	-367.9	152.9	182.7	7.50	7.50	0.00
6,800.0	60.45	89.99	6,629.8	-367.9	187.2	216.8	7.50	7.50	0.00
6,840.0	63.45	89.99	6,648.6	-367.9	222.5	252.0	7.50	7.50	0.00
6,880.0	66.45	89.99	6,665.5	-367.9	258.7	288.1	7.50	7.50	0.00
6,920.0	69.45	89.99	6,680.5	-367.9	295.8	325.0	7.50	7.50	0.00
6,960.0	72.45	89.99	6,693.6	-367.9	333.6	362.7	7.50	7.50	0.00
7,000.0	75.45	89.99	6,704.6	-367.9	372.0	401.0	7.50	7.50	0.00
7,040.0	78.45	89.99	6,713.7	-367.9	411.0	439.8	7.50	7.50	0.00
7,080.0	81.45	89.99	6,720.7	-367.9	450.4	479.1	7.50	7.50	0.00
7,114.0	84.00	89.99	6,725.0	-367.9	484.1	512.7	7.50	7.50	0.00
<b>7"</b>									
7,120.0	84.00	89.99	6,725.6	-367.9	490.1	518.6	0.00	0.00	0.00
7,160.0	84.00	89.99	6,729.8	-367.9	529.8	558.3	0.00	0.00	0.00
7,189.0	84.00	89.99	6,732.8	-367.9	558.7	587.0	0.00	0.00	0.00
7,200.0	84.55	89.99	6,733.9	-367.9	569.6	597.9	5.00	5.00	0.00
7,240.0	86.55	89.99	6,737.0	-367.9	609.5	637.7	5.00	5.00	0.00
7,280.0	88.55	89.99	6,738.7	-367.9	649.5	677.5	5.00	5.00	0.00
7,320.0	90.55	90.00	6,739.0	-367.9	689.5	717.4	5.00	5.00	0.00
7,320.9	90.59	90.00	6,739.0	-367.9	690.4	718.3	4.90	4.90	0.00
<b>End of Build</b>									
7,360.0	90.59	90.00	6,738.6	-367.8	729.5	757.2	0.00	0.00	0.00
7,400.0	90.59	90.00	6,738.2	-367.8	769.5	797.1	0.00	0.00	0.00
7,440.0	90.59	90.00	6,737.8	-367.8	809.5	837.0	0.00	0.00	0.00
7,480.0	90.59	90.00	6,737.4	-367.8	849.5	876.8	0.00	0.00	0.00
7,520.0	90.59	90.00	6,737.0	-367.8	889.4	916.7	0.00	0.00	0.00
7,560.0	90.59	90.00	6,736.5	-367.8	929.4	956.5	0.00	0.00	0.00
7,600.0	90.59	90.00	6,736.1	-367.8	969.4	996.4	0.00	0.00	0.00
7,640.0	90.59	90.00	6,735.7	-367.8	1,009.4	1,036.3	0.00	0.00	0.00
7,680.0	90.59	90.00	6,735.3	-367.8	1,049.4	1,076.1	0.00	0.00	0.00
7,720.0	90.59	90.00	6,734.9	-367.8	1,089.4	1,116.0	0.00	0.00	0.00
7,760.0	90.59	90.00	6,734.5	-367.8	1,129.4	1,155.9	0.00	0.00	0.00
7,800.0	90.59	90.00	6,734.1	-367.8	1,169.4	1,195.7	0.00	0.00	0.00
7,840.0	90.59	90.00	6,733.6	-367.8	1,209.4	1,235.6	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Project:</b>	SEC.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (5-29-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,880.0	90.59	90.00	6,733.2	-367.8	1,249.4	1,275.4	0.00	0.00	0.00
7,920.0	90.59	90.00	6,732.8	-367.8	1,289.4	1,315.3	0.00	0.00	0.00
7,960.0	90.59	90.00	6,732.4	-367.8	1,329.4	1,355.2	0.00	0.00	0.00
8,000.0	90.59	90.00	6,732.0	-367.8	1,369.4	1,395.0	0.00	0.00	0.00
8,040.0	90.59	90.00	6,731.6	-367.8	1,409.4	1,434.9	0.00	0.00	0.00
8,080.0	90.59	90.00	6,731.1	-367.8	1,449.4	1,474.8	0.00	0.00	0.00
8,120.0	90.59	90.00	6,730.7	-367.8	1,489.4	1,514.6	0.00	0.00	0.00
8,160.0	90.59	90.00	6,730.3	-367.8	1,529.4	1,554.5	0.00	0.00	0.00
8,200.0	90.59	90.00	6,729.9	-367.8	1,569.4	1,594.3	0.00	0.00	0.00
8,240.0	90.59	90.00	6,729.5	-367.8	1,609.4	1,634.2	0.00	0.00	0.00
8,280.0	90.59	90.00	6,729.1	-367.8	1,649.4	1,674.1	0.00	0.00	0.00
8,320.0	90.59	90.00	6,728.7	-367.8	1,689.4	1,713.9	0.00	0.00	0.00
8,360.0	90.59	90.00	6,728.2	-367.8	1,729.4	1,753.8	0.00	0.00	0.00
8,400.0	90.59	90.00	6,727.8	-367.8	1,769.4	1,793.7	0.00	0.00	0.00
8,440.0	90.59	90.00	6,727.4	-367.8	1,809.4	1,833.5	0.00	0.00	0.00
8,480.0	90.59	90.00	6,727.0	-367.8	1,849.4	1,873.4	0.00	0.00	0.00
8,520.0	90.59	90.00	6,726.6	-367.8	1,889.4	1,913.2	0.00	0.00	0.00
8,560.0	90.59	90.00	6,726.2	-367.8	1,929.4	1,953.1	0.00	0.00	0.00
8,600.0	90.59	90.00	6,725.8	-367.7	1,969.4	1,993.0	0.00	0.00	0.00
8,640.0	90.59	90.00	6,725.3	-367.7	2,009.4	2,032.8	0.00	0.00	0.00
8,680.0	90.59	90.00	6,724.9	-367.7	2,049.4	2,072.7	0.00	0.00	0.00
8,720.0	90.59	90.00	6,724.5	-367.7	2,089.4	2,112.5	0.00	0.00	0.00
8,760.0	90.59	90.00	6,724.1	-367.7	2,129.4	2,152.4	0.00	0.00	0.00
8,800.0	90.59	90.00	6,723.7	-367.7	2,169.4	2,192.3	0.00	0.00	0.00
8,840.0	90.59	90.00	6,723.3	-367.7	2,209.4	2,232.1	0.00	0.00	0.00
8,880.0	90.59	90.00	6,722.9	-367.7	2,249.4	2,272.0	0.00	0.00	0.00
8,920.0	90.59	90.00	6,722.4	-367.7	2,289.4	2,311.9	0.00	0.00	0.00
8,960.0	90.59	90.00	6,722.0	-367.7	2,329.4	2,351.7	0.00	0.00	0.00
9,000.0	90.59	90.00	6,721.6	-367.7	2,369.4	2,391.6	0.00	0.00	0.00
9,040.0	90.59	90.00	6,721.2	-367.7	2,409.4	2,431.4	0.00	0.00	0.00
9,080.0	90.59	90.00	6,720.8	-367.7	2,449.4	2,471.3	0.00	0.00	0.00
9,120.0	90.59	90.00	6,720.4	-367.7	2,489.4	2,511.2	0.00	0.00	0.00
9,160.0	90.59	90.00	6,720.0	-367.7	2,529.4	2,551.0	0.00	0.00	0.00
9,200.0	90.59	90.00	6,719.5	-367.7	2,569.4	2,590.9	0.00	0.00	0.00
9,240.0	90.59	90.00	6,719.1	-367.7	2,609.4	2,630.8	0.00	0.00	0.00
9,280.0	90.59	90.00	6,718.7	-367.7	2,649.4	2,670.6	0.00	0.00	0.00
9,320.0	90.59	90.00	6,718.3	-367.7	2,689.4	2,710.5	0.00	0.00	0.00
9,360.0	90.59	90.00	6,717.9	-367.7	2,729.3	2,750.3	0.00	0.00	0.00
9,400.0	90.59	90.00	6,717.5	-367.7	2,769.3	2,790.2	0.00	0.00	0.00
9,440.0	90.59	90.00	6,717.1	-367.7	2,809.3	2,830.1	0.00	0.00	0.00
9,480.0	90.59	90.00	6,716.6	-367.7	2,849.3	2,869.9	0.00	0.00	0.00
9,520.0	90.59	90.00	6,716.2	-367.7	2,889.3	2,909.8	0.00	0.00	0.00
9,560.0	90.59	90.00	6,715.8	-367.7	2,929.3	2,949.7	0.00	0.00	0.00
9,600.0	90.59	90.00	6,715.4	-367.7	2,969.3	2,989.5	0.00	0.00	0.00
9,640.0	90.59	90.00	6,715.0	-367.7	3,009.3	3,029.4	0.00	0.00	0.00
9,680.0	90.59	90.00	6,714.6	-367.7	3,049.3	3,069.2	0.00	0.00	0.00
9,720.0	90.59	90.00	6,714.1	-367.7	3,089.3	3,109.1	0.00	0.00	0.00
9,760.0	90.59	90.00	6,713.7	-367.7	3,129.3	3,149.0	0.00	0.00	0.00
9,800.0	90.59	90.00	6,713.3	-367.7	3,169.3	3,188.8	0.00	0.00	0.00
9,840.0	90.59	90.00	6,712.9	-367.7	3,209.3	3,228.7	0.00	0.00	0.00
9,880.0	90.59	90.00	6,712.5	-367.6	3,249.3	3,268.5	0.00	0.00	0.00
9,920.0	90.59	90.00	6,712.1	-367.6	3,289.3	3,308.4	0.00	0.00	0.00
9,960.0	90.59	90.00	6,711.7	-367.6	3,329.3	3,348.3	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Project:</b>	SEC.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (5-29-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,000.0	90.59	90.00	6,711.2	-367.6	3,369.3	3,388.1	0.00	0.00	0.00
10,040.0	90.59	90.00	6,710.8	-367.6	3,409.3	3,428.0	0.00	0.00	0.00
10,080.0	90.59	90.00	6,710.4	-367.6	3,449.3	3,467.9	0.00	0.00	0.00
10,120.0	90.59	90.00	6,710.0	-367.6	3,489.3	3,507.7	0.00	0.00	0.00
10,160.0	90.59	90.00	6,709.6	-367.6	3,529.3	3,547.6	0.00	0.00	0.00
10,200.0	90.59	90.00	6,709.2	-367.6	3,569.3	3,587.4	0.00	0.00	0.00
10,240.0	90.59	90.00	6,708.8	-367.6	3,609.3	3,627.3	0.00	0.00	0.00
10,280.0	90.59	90.00	6,708.3	-367.6	3,649.3	3,667.2	0.00	0.00	0.00
10,320.0	90.59	90.00	6,707.9	-367.6	3,689.3	3,707.0	0.00	0.00	0.00
10,360.0	90.59	90.00	6,707.5	-367.6	3,729.3	3,746.9	0.00	0.00	0.00
10,400.0	90.59	90.00	6,707.1	-367.6	3,769.3	3,786.8	0.00	0.00	0.00
10,440.0	90.59	90.00	6,706.7	-367.6	3,809.3	3,826.6	0.00	0.00	0.00
10,480.0	90.59	90.00	6,706.3	-367.6	3,849.3	3,866.5	0.00	0.00	0.00
10,520.0	90.59	90.00	6,705.9	-367.6	3,889.3	3,906.3	0.00	0.00	0.00
10,560.0	90.59	90.00	6,705.4	-367.6	3,929.3	3,946.2	0.00	0.00	0.00
10,600.0	90.59	90.00	6,705.0	-367.6	3,969.3	3,986.1	0.00	0.00	0.00
10,640.0	90.59	90.00	6,704.6	-367.6	4,009.3	4,025.9	0.00	0.00	0.00
10,680.0	90.59	90.00	6,704.2	-367.6	4,049.3	4,065.8	0.00	0.00	0.00
10,720.0	90.59	90.00	6,703.8	-367.6	4,089.3	4,105.7	0.00	0.00	0.00
10,760.0	90.59	90.00	6,703.4	-367.6	4,129.3	4,145.5	0.00	0.00	0.00
10,800.0	90.59	90.00	6,703.0	-367.6	4,169.3	4,185.4	0.00	0.00	0.00
10,840.0	90.59	90.00	6,702.5	-367.6	4,209.3	4,225.2	0.00	0.00	0.00
10,880.0	90.59	90.00	6,702.1	-367.6	4,249.3	4,265.1	0.00	0.00	0.00
10,920.0	90.59	90.00	6,701.7	-367.6	4,289.3	4,305.0	0.00	0.00	0.00
10,960.0	90.59	90.00	6,701.3	-367.6	4,329.3	4,344.8	0.00	0.00	0.00
11,000.0	90.59	90.00	6,700.9	-367.6	4,369.3	4,384.7	0.00	0.00	0.00
11,040.0	90.59	90.00	6,700.5	-367.6	4,409.3	4,424.6	0.00	0.00	0.00
11,080.0	90.59	90.00	6,700.1	-367.6	4,449.3	4,464.4	0.00	0.00	0.00
11,084.8	90.59	90.00	6,700.0	-367.6	4,454.1	4,469.2	0.00	0.00	0.00
BHL 1590°FNL & 500°FEL									

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Project:</b>	SEC.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (5-29-12)		

## Targets

### Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL 1590'FNL & 500' - plan hits target center - Point	0.00	0.00	6,700.0	-367.6	4,454.1	1,433,618.45	3,306,888.61	40.518440	-104.396150
SECTIONLINE 250'W - plan misses target center by 471.7ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Polygon	0.00	0.00	1.0	-400.0	-250.0	1,433,528.30	3,302,185.43	40.518352	-104.413069
Point 1			1.0	0.0	0.0	1,433,528.30	3,302,185.43		
Point 2			1.0	500.0	0.0	1,434,028.24	3,302,179.30		
HARDLINE BHL 460'f - plan misses target center by 4511.9ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Polygon	0.00	0.00	1.0	-400.0	4,494.1	1,433,586.50	3,306,929.01	40.518351	-104.396006
Point 1			1.0	0.0	0.0	1,433,586.50	3,306,929.01		
Point 2			1.0	500.0	0.0	1,434,086.44	3,306,922.88		
HARDLINE SHL 460'f - plan misses target center by 451.8ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Polygon	0.00	0.00	1.0	-400.0	210.0	1,433,533.94	3,302,645.38	40.518352	-104.411415
Point 1			1.0	0.0	0.0	1,433,533.94	3,302,645.38		
Point 2			1.0	500.0	0.0	1,434,033.89	3,302,639.25		

## Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,114.0	6,725.0	7"	7	7-1/2

## Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
700.0	700.0	0.0	0.0	KOP #1
5,994.0	5,965.2	-368.0	-200.0	KOP #2
7,320.9	6,739.0	-367.9	690.4	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.2-T6N-R63W**

**Brown Pad Sec.2-T6N-R63W**

**Brown 2F-432**

**Wellbore #1**

**Plan #1 (5-29-12)**

## **Anticollision Report**

**04 June, 2012**



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Project:</b>	SEC.2-T6N-R63W	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Reference Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (5-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (5-29-12)		
<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 1,000.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	6/4/2012		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	11,084.8	Plan #1 (5-29-12) (Wellbore #1)	MWD	MWD - Standard

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (ft)</b>	<b>Offset Measured Depth (ft)</b>	<b>Distance Between Centres (ft)</b>	<b>Between Ellipses (ft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
Brown Pad Sec.2-T6N-R63W						
Brown 12-2 (Exist.) - Wellbore #1 - Design #1	7,197.5	6,733.7	109.4	71.9	2.918	CC
Brown 12-2 (Exist.) - Wellbore #1 - Design #1	7,200.0	6,733.9	109.4	71.9	2.915	ES, SF
Brown 22-2 (Exist.) - Wellbore #1 - Design #1	8,109.9	6,740.0	328.7	268.7	5.484	CC, ES
Brown 22-2 (Exist.) - Wellbore #1 - Design #1	8,200.0	6,740.0	340.8	278.5	5.468	SF
Brown 2F-202 - Wellbore #1 - Plan #2 (5-29-12)	700.0	700.0	29.1	26.2	9.975	CC, ES
Brown 2F-202 - Wellbore #1 - Plan #2 (5-29-12)	11,085.2	10,923.4	328.1	108.0	1.491	Level 3, SF
Brown 2G-212 - Wellbore #1 - Plan #1 (5-29-12)	300.0	300.0	29.1	28.0	25.934	CC, ES
Brown 2G-212 - Wellbore #1 - Plan #1 (5-29-12)	11,085.2	10,987.7	523.8	283.9	2.184	SF

<b>Offset Design</b>												
Brown Pad Sec.2-T6N-R63W - Brown 12-2 (Exist.) - Wellbore #1 - Design #1												
Survey Program: 0-MWD												
<b>Reference</b>		<b>Offset</b>		<b>Semi Major Axis</b>			<b>Distance</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>
0.0	0.0	0.0	0.0	0.0	0.0	130.08	-477.3	567.2	741.3			
100.0	100.0	100.0	100.0	0.1	0.1	130.08	-477.3	567.2	741.3	741.0	0.22	3,297.943
200.0	200.0	200.0	200.0	0.3	0.3	130.08	-477.3	567.2	741.3	740.6	0.67	1,099.314
300.0	300.0	300.0	300.0	0.6	0.6	130.08	-477.3	567.2	741.3	740.1	1.12	659.589
400.0	400.0	400.0	400.0	0.8	0.8	130.08	-477.3	567.2	741.3	739.7	1.57	471.135
500.0	500.0	500.0	500.0	1.0	1.0	130.08	-477.3	567.2	741.3	739.2	2.02	366.438
600.0	600.0	600.0	600.0	1.2	1.2	130.08	-477.3	567.2	741.3	738.8	2.47	299.813
700.0	700.0	700.0	700.0	1.5	1.5	130.08	-477.3	567.2	741.3	738.3	2.92	253.688
800.0	800.0	800.0	800.0	1.7	1.7	-78.58	-477.3	567.2	740.9	737.6	3.35	221.494
900.0	899.8	899.8	899.8	1.8	1.9	-79.00	-477.3	567.2	739.9	736.1	3.75	197.113
1,000.0	999.5	999.5	999.5	2.0	2.1	-79.69	-477.3	567.2	738.3	734.1	4.18	176.512
1,100.0	1,098.7	1,098.7	1,098.7	2.3	2.4	-80.66	-477.3	567.2	736.2	731.5	4.64	158.644
1,112.8	1,111.4	1,111.4	1,111.4	2.3	2.4	-80.80	-477.3	567.2	735.9	731.2	4.70	156.515
1,200.0	1,197.7	1,197.7	1,197.7	2.6	2.6	-81.76	-477.3	567.2	734.0	728.8	5.13	143.069
1,300.0	1,296.6	1,296.6	1,296.6	2.8	2.8	-82.86	-477.3	567.2	732.0	726.4	5.64	129.785
1,400.0	1,395.6	1,395.6	1,395.6	3.1	3.0	-83.97	-477.3	567.2	730.4	724.2	6.17	118.461
1,500.0	1,494.6	1,494.6	1,494.6	3.5	3.2	-85.08	-477.3	567.2	729.0	722.3	6.70	108.777
1,600.0	1,593.5	1,593.5	1,593.5	3.8	3.5	-86.19	-477.3	567.2	727.9	720.6	7.25	100.450

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 2F-432
<b>Project:</b>	SEC.2-T6N-R63W	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Reference Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (5-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Brown Pad Sec.2-T6N-R63W - Brown 12-2 (Exist.) - Wellbore #1 - Design #1												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	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,700.0	1,692.5	1,692.5	1,692.5	4.1	3.7	-87.31	-477.3	567.2	727.1	719.3	7.80	93.248	
1,800.0	1,791.5	1,791.5	1,791.5	4.4	3.9	-88.43	-477.3	567.2	726.5	718.2	8.35	86.980	
1,900.0	1,890.4	1,890.4	1,890.4	4.8	4.1	-89.55	-477.3	567.2	726.3	717.4	8.91	81.494	
1,940.1	1,930.1	1,930.1	1,930.1	4.9	4.2	-90.00	-477.3	567.2	726.2	717.1	9.14	79.484	
2,000.0	1,989.4	1,989.4	1,989.4	5.1	4.4	-90.67	-477.3	567.2	726.3	716.8	9.47	76.664	
2,100.0	2,088.3	2,088.3	2,088.3	5.5	4.6	-91.79	-477.3	567.2	726.6	716.6	10.04	72.390	
2,200.0	2,187.3	2,187.3	2,187.3	5.8	4.8	-92.91	-477.3	567.2	727.2	716.6	10.60	68.590	
2,300.0	2,286.3	2,286.3	2,286.3	6.1	5.0	-94.03	-477.3	567.2	728.1	716.9	11.17	65.196	
2,400.0	2,385.2	2,385.2	2,385.2	6.5	5.2	-95.14	-477.3	567.2	729.2	717.5	11.73	62.152	
2,500.0	2,484.2	2,484.2	2,484.2	6.8	5.5	-96.25	-477.3	567.2	730.7	718.4	12.30	59.412	
2,600.0	2,583.2	2,583.2	2,583.2	7.2	5.7	-97.36	-477.3	567.2	732.4	719.5	12.86	56.937	
2,700.0	2,682.1	2,682.1	2,682.1	7.5	5.9	-98.46	-477.3	567.2	734.4	721.0	13.43	54.695	
2,800.0	2,781.1	2,781.1	2,781.1	7.9	6.1	-99.55	-477.3	567.2	736.7	722.7	13.99	52.658	
2,900.0	2,880.1	2,880.1	2,880.1	8.2	6.4	-100.64	-477.3	567.2	739.2	724.7	14.55	50.802	
3,000.0	2,979.0	2,979.0	2,979.0	8.6	6.6	-101.72	-477.3	567.2	742.0	726.9	15.11	49.108	
3,100.0	3,078.0	3,078.0	3,078.0	8.9	6.8	-102.79	-477.3	567.2	745.1	729.4	15.67	47.557	
3,200.0	3,176.9	3,176.9	3,176.9	9.3	7.0	-103.85	-477.3	567.2	748.4	732.2	16.22	46.135	
3,300.0	3,275.9	3,275.9	3,275.9	9.7	7.3	-104.90	-477.3	567.2	752.0	735.3	16.78	44.829	
3,400.0	3,374.9	3,374.9	3,374.9	10.0	7.5	-105.94	-477.3	567.2	755.9	738.6	17.33	43.627	
3,500.0	3,473.8	3,473.8	3,473.8	10.4	7.7	-106.97	-477.3	567.2	760.0	742.1	17.87	42.519	
3,600.0	3,572.8	3,572.8	3,572.8	10.7	7.9	-107.99	-477.3	567.2	764.4	745.9	18.42	41.496	
3,616.0	3,588.6	3,588.6	3,588.6	10.8	8.0	-108.16	-477.3	567.2	765.1	746.6	18.51	41.340	
3,700.0	3,671.9	3,671.9	3,671.9	11.0	8.1	-108.98	-477.3	567.2	768.6	749.6	18.92	40.630	
3,800.0	3,771.4	3,771.4	3,771.4	11.2	8.4	-109.72	-477.3	567.2	771.8	752.5	19.34	39.914	
3,900.0	3,871.2	3,871.2	3,871.2	11.4	8.6	-110.20	-477.3	567.2	773.9	754.2	19.73	39.217	
4,000.0	3,971.2	3,971.2	3,971.2	11.6	8.8	-110.41	-477.3	567.2	774.9	754.8	20.11	38.531	
4,028.8	4,000.0	4,000.0	4,000.0	11.6	8.9	98.10	-477.3	567.2	774.9	756.8	18.17	42.659	
4,100.0	4,071.2	4,071.2	4,071.2	11.7	9.0	98.10	-477.3	567.2	774.9	756.5	18.46	41.983	
4,200.0	4,171.2	4,171.2	4,171.2	11.9	9.3	98.10	-477.3	567.2	774.9	756.1	18.86	41.088	
4,300.0	4,271.2	4,271.2	4,271.2	12.0	9.5	98.10	-477.3	567.2	774.9	755.7	19.26	40.226	
4,400.0	4,371.2	4,371.2	4,371.2	12.2	9.7	98.10	-477.3	567.2	774.9	755.3	19.67	39.396	
4,500.0	4,471.2	4,471.2	4,471.2	12.3	9.9	98.10	-477.3	567.2	774.9	754.9	20.08	38.596	
4,600.0	4,571.2	4,571.2	4,571.2	12.5	10.2	98.10	-477.3	567.2	774.9	754.4	20.49	37.824	
4,700.0	4,671.2	4,671.2	4,671.2	12.6	10.4	98.10	-477.3	567.2	774.9	754.0	20.90	37.081	
4,800.0	4,771.2	4,771.2	4,771.2	12.8	10.6	98.10	-477.3	567.2	774.9	753.6	21.31	36.363	
4,900.0	4,871.2	4,871.2	4,871.2	12.9	10.8	98.10	-477.3	567.2	774.9	753.2	21.72	35.670	
5,000.0	4,971.2	4,971.2	4,971.2	13.1	11.1	98.10	-477.3	567.2	774.9	752.8	22.14	35.001	
5,100.0	5,071.2	5,071.2	5,071.2	13.2	11.3	98.10	-477.3	567.2	774.9	752.4	22.56	34.355	
5,200.0	5,171.2	5,171.2	5,171.2	13.4	11.5	98.10	-477.3	567.2	774.9	752.0	22.97	33.731	
5,300.0	5,271.2	5,271.2	5,271.2	13.6	11.7	98.10	-477.3	567.2	774.9	751.5	23.39	33.127	
5,400.0	5,371.2	5,371.2	5,371.2	13.7	12.0	98.10	-477.3	567.2	774.9	751.1	23.81	32.543	
5,500.0	5,471.2	5,471.2	5,471.2	13.9	12.2	98.10	-477.3	567.2	774.9	750.7	24.23	31.977	
5,600.0	5,571.2	5,571.2	5,571.2	14.1	12.4	98.10	-477.3	567.2	774.9	750.3	24.66	31.430	
5,700.0	5,671.2	5,671.2	5,671.2	14.2	12.6	98.10	-477.3	567.2	774.9	749.9	25.08	30.900	
5,800.0	5,771.2	5,771.2	5,771.2	14.4	12.9	98.10	-477.3	567.2	774.9	749.4	25.50	30.387	
5,900.0	5,871.2	5,871.2	5,871.2	14.6	13.1	98.10	-477.3	567.2	774.9	749.0	25.93	29.889	
5,994.0	5,965.2	5,965.2	5,965.2	14.7	13.3	98.10	-477.3	567.2	774.9	748.6	26.33	29.435	
6,000.0	5,971.2	5,971.2	5,971.2	14.8	13.3	8.12	-477.3	567.2	774.9	747.1	27.82	27.857	
6,050.0	6,021.2	6,021.2	6,021.2	14.8	13.4	8.16	-477.3	567.2	772.9	745.0	27.94	27.666	
6,100.0	6,070.9	6,070.9	6,070.9	14.9	13.5	8.27	-477.3	567.2	767.7	739.7	27.96	27.459	
6,150.0	6,120.1	6,120.1	6,120.1	14.9	13.6	8.46	-477.3	567.2	759.2	731.3	27.88	27.233	

CC - Min centre to center distance or covergent 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 2F-432
<b>Project:</b>	SEC.2-T6N-R63W	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Reference Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (5-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Brown Pad Sec.2-T6N-R63W - Brown 12-2 (Exist.) - Wellbore #1 - Design #1													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	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,200.0	6,168.7	6,168.7	6,168.7	15.0	13.8	8.72	-477.3	567.2	567.2	747.6	719.9	27.70	26.988	
6,250.0	6,216.4	6,216.4	6,216.4	15.0	13.9	9.08	-477.3	567.2	567.2	732.9	705.5	27.43	26.718	
6,300.0	6,263.1	6,263.1	6,263.1	15.1	14.0	9.54	-477.3	567.2	567.2	715.1	688.0	27.07	26.419	
6,350.0	6,308.5	6,308.5	6,308.5	15.1	14.1	10.12	-477.3	567.2	567.2	694.4	667.8	26.62	26.083	
6,400.0	6,352.4	6,352.4	6,352.4	15.1	14.2	10.85	-477.3	567.2	567.2	670.8	644.7	26.10	25.700	
6,450.0	6,394.6	6,394.6	6,394.6	15.1	14.3	11.76	-477.3	567.2	567.2	644.4	618.9	25.51	25.257	
6,500.0	6,435.0	6,435.0	6,435.0	15.2	14.4	12.90	-477.3	567.2	567.2	615.4	590.6	24.88	24.734	
6,550.0	6,473.4	6,473.4	6,473.4	15.2	14.4	14.33	-477.3	567.2	567.2	584.0	559.7	24.23	24.101	
6,600.0	6,509.6	6,509.6	6,509.6	15.2	14.5	16.13	-477.3	567.2	567.2	550.1	526.5	23.59	23.317	
6,650.0	6,543.5	6,543.5	6,543.5	15.2	14.6	18.43	-477.3	567.2	567.2	514.2	491.1	23.03	22.322	
6,700.0	6,574.9	6,574.9	6,574.9	15.3	14.7	21.39	-477.3	567.2	567.2	476.2	453.6	22.64	21.034	
6,750.0	6,603.7	6,603.7	6,603.7	15.5	14.7	25.24	-477.3	567.2	567.2	436.6	414.0	22.55	19.358	
6,800.0	6,629.8	6,629.8	6,629.8	16.0	14.8	30.27	-477.3	567.2	567.2	395.4	372.5	22.97	17.217	
6,850.0	6,653.0	6,653.0	6,653.0	16.5	14.8	36.82	-477.3	567.2	567.2	353.1	329.0	24.11	14.646	
6,900.0	6,673.3	6,673.3	6,673.3	17.2	14.9	45.13	-477.3	567.2	567.2	310.0	283.9	26.11	11.873	
6,950.0	6,690.5	6,690.5	6,690.5	18.0	14.9	55.09	-477.3	567.2	567.2	266.6	237.8	28.79	9.259	
7,000.0	6,704.6	6,704.6	6,704.6	18.8	15.0	65.86	-477.3	567.2	567.2	223.7	192.1	31.58	7.085	
7,050.0	6,715.6	6,715.6	6,715.6	19.7	15.0	75.92	-477.3	567.2	567.2	182.7	148.9	33.83	5.401	
7,100.0	6,723.4	6,723.4	6,723.4	20.7	15.0	83.79	-477.3	567.2	567.2	146.2	110.8	35.38	4.132	
7,114.0	6,725.0	6,725.0	6,725.0	20.9	15.0	85.46	-477.3	567.2	567.2	137.4	101.6	35.72	3.846	
7,189.0	6,732.8	6,732.8	6,732.8	22.5	15.0	89.54	-477.3	567.2	567.2	109.7	72.4	37.31	2.941	
7,197.5	6,733.7	6,733.7	6,733.7	22.6	15.0	90.00	-477.3	567.2	567.2	109.4	71.9	37.48	2.918 CC	
7,200.0	6,733.9	6,733.9	6,733.9	22.7	15.0	90.12	-477.3	567.2	567.2	109.4	71.9	37.54	2.915 ES, SF	
7,300.0	6,739.0	6,739.0	6,739.0	24.9	15.0	90.42	-477.3	567.2	567.2	149.8	110.0	39.72	3.770	
7,320.9	6,739.0	6,739.0	6,739.0	25.3	15.0	89.33	-477.3	567.2	567.2	164.7	124.5	40.21	4.097	
7,400.0	6,738.2	6,738.2	6,738.2	27.2	15.0	88.90	-477.3	567.2	567.2	230.0	187.9	42.03	5.472	
7,500.0	6,737.2	6,737.2	6,737.2	29.5	15.0	88.36	-477.3	567.2	567.2	321.5	277.1	44.40	7.240	
7,600.0	6,736.1	6,736.1	6,736.1	32.0	15.0	87.82	-477.3	567.2	567.2	416.9	370.0	46.84	8.900	
7,700.0	6,735.1	6,735.1	6,735.1	34.5	15.0	87.28	-477.3	567.2	567.2	514.0	464.7	49.33	10.420	
7,800.0	6,734.1	6,734.1	6,734.1	37.0	15.0	86.73	-477.3	567.2	567.2	612.1	560.2	51.86	11.803	
7,900.0	6,733.0	6,733.0	6,733.0	39.6	15.0	86.19	-477.3	567.2	567.2	710.7	656.3	54.41	13.061	
8,000.0	6,732.0	6,732.0	6,732.0	42.2	15.0	85.65	-477.3	567.2	567.2	809.7	752.7	56.99	14.206	
8,100.0	6,730.9	6,730.9	6,730.9	44.8	15.0	85.11	-477.3	567.2	567.2	908.8	849.3	59.59	15.253	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Project:</b>	SEC.2-T6N-R63W	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Reference Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (5-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Brown Pad Sec.2-T6N-R63W - Brown 22-2 (Exist.) - Wellbore #1 - Design #1													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	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
7,189.0	6,732.8	6,740.0	6,740.0	22.5	15.0	70.08	-695.8	1,479.2	977.4	941.7	35.74	27.349		
7,200.0	6,733.9	6,740.0	6,740.0	22.7	15.0	71.44	-695.8	1,479.2	967.1	931.0	36.18	26.730		
7,300.0	6,739.0	6,740.0	6,740.0	24.9	15.0	83.84	-695.8	1,479.2	874.1	834.4	39.63	22.053		
7,320.9	6,739.0	6,740.0	6,740.0	25.3	15.0	86.36	-695.8	1,479.2	854.8	814.6	40.19	21.267		
7,400.0	6,738.2	6,740.0	6,740.0	27.2	15.0	86.36	-695.8	1,479.2	782.3	740.3	42.01	18.624		
7,500.0	6,737.2	6,740.0	6,740.0	29.5	15.0	86.36	-695.8	1,479.2	692.9	648.5	44.38	15.613		
7,600.0	6,736.1	6,740.0	6,740.0	32.0	15.0	86.36	-695.8	1,479.2	606.7	559.9	46.82	12.958		
7,700.0	6,735.1	6,740.0	6,740.0	34.5	15.0	86.36	-695.8	1,479.2	525.4	476.1	49.32	10.654		
7,800.0	6,734.1	6,740.0	6,740.0	37.0	15.0	86.36	-695.8	1,479.2	451.8	399.9	51.86	8.711		
7,900.0	6,733.0	6,740.0	6,740.0	39.6	15.0	86.36	-695.8	1,479.2	390.0	335.6	54.44	7.164		
8,000.0	6,732.0	6,740.0	6,740.0	42.2	15.0	86.36	-695.8	1,479.2	346.6	289.5	57.04	6.076		
8,100.0	6,730.9	6,740.0	6,740.0	44.8	15.0	86.36	-695.8	1,479.2	328.8	269.2	59.67	5.510		
8,109.9	6,730.8	6,740.0	6,740.0	45.1	15.0	86.36	-695.8	1,479.2	328.7	268.7	59.94	5.484 CC, ES		
8,200.0	6,729.9	6,740.0	6,740.0	47.5	15.0	86.36	-695.8	1,479.2	340.8	278.5	62.32	5.468 SF		
8,300.0	6,728.9	6,740.0	6,740.0	50.1	15.0	86.36	-695.8	1,479.2	379.7	314.7	64.99	5.842		
8,400.0	6,727.8	6,740.0	6,740.0	52.8	15.0	86.36	-695.8	1,479.2	438.4	370.7	67.67	6.478		
8,500.0	6,726.8	6,740.0	6,740.0	55.5	15.0	86.36	-695.8	1,479.2	510.1	439.7	70.37	7.249		
8,600.0	6,725.8	6,740.0	6,740.0	58.2	15.0	86.36	-695.8	1,479.2	590.1	517.0	73.07	8.076		
8,700.0	6,724.7	6,740.0	6,740.0	60.9	15.0	86.36	-695.8	1,479.2	675.4	599.7	75.78	8.913		
8,800.0	6,723.7	6,740.0	6,740.0	63.7	15.0	86.36	-695.8	1,479.2	764.3	685.8	78.50	9.737		
8,900.0	6,722.6	6,740.0	6,740.0	66.4	15.0	86.36	-695.8	1,479.2	855.7	774.5	81.23	10.534		
9,000.0	6,721.6	6,740.0	6,740.0	69.1	15.0	86.36	-695.8	1,479.2	948.8	864.9	83.96	11.300		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Project:</b>	SEC.2-T6N-R63W	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Reference Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (5-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Brown Pad Sec.2-T6N-R63W - Brown 2F-202 - Wellbore #1 - Plan #2 (5-29-12)													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	Offset	Semi Major Axis	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	0.00	0.00	29.1	0.0	29.1				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	0.00	29.1	0.0	29.1	28.9	0.22	129.671	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	0.00	29.1	0.0	29.1	28.5	0.67	43.224	
300.0	300.0	300.0	300.0	0.6	0.6	0.00	0.00	29.1	0.0	29.1	28.0	1.12	25.934	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	0.00	29.1	0.0	29.1	27.6	1.57	18.524	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	0.00	29.1	0.0	29.1	27.1	2.02	14.408	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	0.00	29.1	0.0	29.1	26.7	2.47	11.788	
700.0	700.0	700.0	700.0	1.5	1.5	0.00	0.00	29.1	0.0	29.1	26.2	2.92	9.975 CC, ES	
800.0	800.0	800.0	800.0	1.7	1.7	153.02	153.02	29.1	0.0	30.7	27.3	3.35	9.171	
900.0	899.8	899.8	899.8	1.8	1.9	156.82	156.82	29.1	0.0	35.4	31.7	3.75	9.440	
1,000.0	999.5	999.5	999.5	2.0	2.1	161.28	161.28	29.1	0.0	43.6	39.4	4.17	10.457	
1,100.0	1,098.7	1,098.7	1,098.7	2.3	2.4	165.28	165.28	29.1	0.0	55.3	50.7	4.59	12.052	
1,112.8	1,111.4	1,111.4	1,111.4	2.3	2.4	165.73	165.73	29.1	0.0	57.0	52.4	4.64	12.291	
1,200.0	1,197.7	1,197.7	1,197.7	2.6	2.6	168.29	168.29	29.1	0.0	69.2	64.2	5.01	13.808	
1,300.0	1,296.6	1,296.6	1,296.6	2.8	2.8	170.29	170.29	29.1	0.0	83.3	77.9	5.45	15.296	
1,400.0	1,395.6	1,395.6	1,395.6	3.1	3.0	171.71	171.71	29.1	0.0	97.5	91.6	5.89	16.563	
1,500.0	1,494.6	1,494.6	1,494.6	3.5	3.2	172.77	172.77	29.1	0.0	111.8	105.4	6.33	17.650	
1,600.0	1,593.5	1,593.5	1,593.5	3.8	3.5	173.59	173.59	29.1	0.0	126.0	119.3	6.78	18.590	
1,700.0	1,692.5	1,692.5	1,692.5	4.1	3.7	174.25	174.25	29.1	0.0	140.3	133.1	7.23	19.409	
1,800.0	1,791.5	1,791.5	1,791.5	4.4	3.9	174.78	174.78	29.1	0.0	154.6	146.9	7.68	20.129	
1,900.0	1,890.4	1,890.4	1,890.4	4.8	4.1	175.22	175.22	29.1	0.0	168.9	160.8	8.13	20.765	
2,000.0	1,989.4	1,989.4	1,989.4	5.1	4.4	175.60	175.60	29.1	0.0	183.2	174.6	8.59	21.332	
2,100.0	2,088.3	2,088.3	2,088.3	5.5	4.6	175.92	175.92	29.1	0.0	197.5	188.5	9.05	21.839	
2,200.0	2,187.3	2,187.3	2,187.3	5.8	4.8	176.19	176.19	29.1	0.0	211.9	202.4	9.50	22.295	
2,300.0	2,286.3	2,286.3	2,286.3	6.1	5.0	176.44	176.44	29.1	0.0	226.2	216.2	9.96	22.708	
2,400.0	2,385.2	2,385.2	2,385.2	6.5	5.2	176.65	176.65	29.1	0.0	240.5	230.1	10.42	23.083	
2,500.0	2,484.2	2,484.2	2,484.2	6.8	5.5	176.84	176.84	29.1	0.0	254.9	244.0	10.88	23.425	
2,600.0	2,583.2	2,583.2	2,583.2	7.2	5.7	177.01	177.01	29.1	0.0	269.2	257.9	11.34	23.738	
2,700.0	2,682.1	2,682.1	2,682.1	7.5	5.9	177.16	177.16	29.1	0.0	283.6	271.8	11.80	24.026	
2,800.0	2,781.1	2,781.1	2,781.1	7.9	6.1	177.29	177.29	29.1	0.0	297.9	285.6	12.26	24.291	
2,900.0	2,880.1	2,880.1	2,880.1	8.2	6.4	177.22	177.22	29.1	-1.2	311.7	299.0	12.72	24.500	
3,000.0	2,979.0	2,988.2	2,988.1	8.6	6.6	176.55	176.55	29.1	-6.2	324.1	310.9	13.18	24.593	
3,100.0	3,078.0	3,092.4	3,091.9	8.9	6.8	175.35	175.35	29.1	-14.9	334.9	321.3	13.64	24.556	
3,200.0	3,176.9	3,191.9	3,190.8	9.3	7.0	173.95	173.95	29.1	-25.3	345.1	331.0	14.10	24.468	
3,300.0	3,275.9	3,291.0	3,289.4	9.7	7.2	172.64	172.64	29.1	-35.7	355.5	340.9	14.58	24.383	
3,400.0	3,374.9	3,390.2	3,388.0	10.0	7.4	171.40	171.40	29.1	-46.1	366.0	351.0	15.06	24.301	
3,500.0	3,473.8	3,489.3	3,486.6	10.4	7.7	170.23	170.23	29.1	-56.5	376.7	361.2	15.55	24.221	
3,600.0	3,572.8	3,588.4	3,585.2	10.7	7.9	169.13	169.13	29.1	-66.8	387.6	371.6	16.05	24.145	
3,616.0	3,588.6	3,604.3	3,601.0	10.8	8.0	168.96	168.96	29.1	-68.5	389.4	373.2	16.13	24.133	
3,700.0	3,671.9	3,687.7	3,683.9	11.0	8.2	168.08	168.08	29.1	-77.2	397.4	380.8	16.57	23.986	
3,800.0	3,771.4	3,787.1	3,782.8	11.2	8.4	166.97	166.97	29.1	-87.7	404.0	386.9	17.05	23.691	
3,900.0	3,871.2	3,886.7	3,881.8	11.4	8.6	165.77	165.77	29.1	-98.1	407.3	389.8	17.52	23.249	
4,000.0	3,971.2	3,986.3	3,980.8	11.6	8.9	164.45	164.45	29.1	-108.5	407.5	389.5	17.97	22.673	
4,028.8	4,000.0	4,014.9	4,009.3	11.6	9.0	12.56	12.56	29.1	-111.5	407.0	386.8	20.15	20.193	
4,100.0	4,071.2	4,085.7	4,079.7	11.7	9.2	11.54	11.54	29.1	-118.9	405.4	385.0	20.39	19.883	
4,200.0	4,171.2	4,185.2	4,178.6	11.9	9.4	10.09	10.09	29.1	-129.3	403.5	382.7	20.71	19.481	
4,300.0	4,271.2	4,284.6	4,277.5	12.0	9.7	8.63	8.63	29.1	-139.8	401.7	380.7	21.03	19.103	
4,400.0	4,371.2	4,384.1	4,376.4	12.2	9.9	7.15	7.15	29.1	-150.2	400.3	378.9	21.35	18.748	
4,500.0	4,471.2	4,483.5	4,475.4	12.3	10.2	5.67	5.67	29.1	-160.6	399.1	377.4	21.67	18.415	
4,600.0	4,571.2	4,583.0	4,574.3	12.5	10.5	4.18	4.18	29.1	-171.0	398.2	376.2	22.00	18.102	
4,700.0	4,671.2	4,682.4	4,673.2	12.6	10.7	2.68	2.68	29.1	-181.4	397.6	375.3	22.32	17.810	

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 2F-432
<b>Project:</b>	SEC.2-T6N-R63W	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Reference Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (5-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Brown Pad Sec.2-T6N-R63W - Brown 2F-202 - Wellbore #1 - Plan #2 (5-29-12)													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	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,800.0	4,771.2	4,781.6	4,771.9	12.8	11.0	1.31	1.31	29.1	-190.9	397.3	374.6	22.65	17.542	
4,900.0	4,871.2	4,881.2	4,871.3	12.9	11.2	0.42	0.42	29.1	-197.1	397.2	374.2	22.97	17.289	
5,000.0	4,971.2	4,981.2	4,971.2	13.1	11.4	0.02	0.02	29.1	-199.9	397.1	373.8	23.31	17.037	
5,038.9	5,010.1	5,020.1	5,010.1	13.1	11.4	0.00	0.00	29.1	-200.0	397.1	373.7	23.45	16.937	
5,100.0	5,071.2	5,081.2	5,071.2	13.2	11.6	0.00	0.00	29.1	-200.0	397.1	373.5	23.67	16.777	
5,200.0	5,171.2	5,181.2	5,171.2	13.4	11.8	0.00	0.00	29.1	-200.0	397.1	373.1	24.05	16.510	
5,300.0	5,271.2	5,281.2	5,271.2	13.6	12.0	0.00	0.00	29.1	-200.0	397.1	372.7	24.44	16.249	
5,400.0	5,371.2	5,381.2	5,371.2	13.7	12.2	0.00	0.00	29.1	-200.0	397.1	372.3	24.83	15.995	
5,500.0	5,471.2	5,481.2	5,471.2	13.9	12.4	0.00	0.00	29.1	-200.0	397.1	371.9	25.22	15.747	
5,600.0	5,571.2	5,581.2	5,571.2	14.1	12.6	0.00	0.00	29.1	-200.0	397.1	371.5	25.61	15.506	
5,700.0	5,671.2	5,681.2	5,671.2	14.2	12.8	0.00	0.00	29.1	-200.0	397.1	371.1	26.01	15.271	
5,800.0	5,771.2	5,781.2	5,771.2	14.4	13.0	0.00	0.00	29.1	-200.0	397.1	370.7	26.40	15.042	
5,900.0	5,871.2	5,881.8	5,871.8	14.6	13.2	0.29	0.29	29.1	-198.0	397.1	370.3	26.80	14.819	
5,967.7	5,938.9	5,949.4	5,938.9	14.7	13.3	1.43	1.43	28.9	-190.1	397.0	369.9	27.08	14.663	
5,994.0	5,965.2	5,975.2	5,964.3	14.7	13.3	2.09	2.09	28.8	-185.5	397.0	369.9	27.19	14.604	
6,000.0	5,971.2	5,981.0	5,970.0	14.8	13.4	-87.74	-87.74	28.8	-184.4	397.1	370.5	26.55	14.954	
6,050.0	6,021.2	6,029.4	6,017.1	14.8	13.4	-86.38	-86.38	28.5	-173.2	397.3	370.6	26.65	14.905	
6,100.0	6,070.9	6,077.3	6,062.8	14.9	13.5	-85.04	-85.04	28.1	-159.2	397.6	370.9	26.74	14.871	
6,150.0	6,120.1	6,124.5	6,107.1	14.9	13.5	-83.73	-83.73	27.7	-142.5	398.1	371.3	26.82	14.846	
6,200.0	6,168.7	6,171.3	6,149.7	15.0	13.6	-82.46	-82.46	27.2	-123.4	398.7	371.8	26.89	14.827	
6,250.0	6,216.4	6,217.6	6,190.8	15.0	13.6	-81.22	-81.22	26.7	-102.0	399.4	372.4	26.97	14.809	
6,300.0	6,263.1	6,263.4	6,230.0	15.1	13.7	-80.03	-80.03	26.1	-78.3	400.2	373.1	27.06	14.786	
6,350.0	6,308.5	6,308.8	6,267.4	15.1	13.8	-78.87	-78.87	25.5	-52.6	401.0	373.9	27.18	14.753	
6,400.0	6,352.4	6,353.8	6,302.9	15.1	14.0	-77.77	-77.77	24.8	-25.0	401.9	374.6	27.34	14.702	
6,450.0	6,394.6	6,400.0	6,337.6	15.1	14.2	-76.69	-76.69	24.0	5.4	402.9	375.3	27.54	14.625	
6,500.0	6,435.0	6,442.7	6,368.0	15.2	14.4	-75.73	-75.73	23.3	35.5	403.8	376.0	27.81	14.520	
6,550.0	6,473.4	6,486.7	6,397.5	15.2	14.6	-74.79	-74.79	22.5	68.0	404.7	376.5	28.15	14.375	
6,600.0	6,509.6	6,530.4	6,424.9	15.2	15.0	-73.91	-73.91	21.6	102.0	405.5	376.9	28.58	14.190	
6,650.0	6,543.5	6,573.8	6,450.1	15.2	15.3	-73.09	-73.09	20.7	137.3	406.3	377.2	29.10	13.960	
6,700.0	6,574.9	6,616.9	6,473.2	15.3	15.8	-72.34	-72.34	19.8	173.8	407.0	377.2	29.74	13.687	
6,750.0	6,603.7	6,659.8	6,494.0	15.5	16.3	-71.65	-71.65	18.9	211.2	407.6	377.1	30.48	13.371	
6,800.0	6,629.8	6,700.0	6,511.6	16.0	16.8	-71.05	-71.05	18.0	247.4	408.1	376.7	31.32	13.029	
6,850.0	6,653.0	6,745.0	6,529.1	16.5	17.4	-70.46	-70.46	17.0	288.9	408.4	376.0	32.35	12.626	
6,900.0	6,673.3	6,787.4	6,543.2	17.2	18.1	-69.97	-69.97	16.0	328.8	408.6	375.1	33.47	12.209	
6,950.0	6,690.5	6,829.6	6,555.1	18.0	18.8	-69.55	-69.55	15.0	369.3	408.6	373.9	34.70	11.774	
7,000.0	6,704.6	6,871.7	6,564.7	18.8	19.6	-69.19	-69.19	13.9	410.3	408.5	372.4	36.05	11.330	
7,050.0	6,715.6	6,913.7	6,572.0	19.7	20.3	-68.91	-68.91	12.9	451.6	408.1	370.6	37.50	10.884	
7,100.0	6,723.4	6,955.7	6,577.0	20.7	21.2	-68.70	-68.70	11.9	493.2	407.6	368.6	39.04	10.441	
7,114.0	6,725.0	6,967.4	6,578.0	20.9	21.4	-68.65	-68.65	11.6	504.9	407.4	368.0	39.49	10.317	
7,146.8	6,728.4	6,994.8	6,579.6	21.6	22.0	-68.45	-68.45	10.9	532.3	407.2	366.6	40.59	10.032	
7,189.0	6,732.8	7,029.9	6,580.3	22.5	22.7	-68.01	-68.01	10.0	567.4	407.6	365.6	41.97	9.712	
7,200.0	6,733.9	7,039.6	6,580.2	22.7	22.9	-67.85	-67.85	9.8	577.1	407.8	365.5	42.32	9.636	
7,300.0	6,739.0	7,139.4	6,578.9	24.9	25.1	-66.87	-66.87	7.3	676.7	408.0	362.0	45.99	8.871	
7,320.9	6,739.0	7,160.2	6,578.6	25.3	25.6	-66.83	-66.83	6.8	697.6	407.6	360.8	46.82	8.705	
7,400.0	6,738.2	7,239.3	6,577.6	27.2	27.4	-66.69	-66.69	4.8	776.7	405.8	355.7	50.14	8.095	
7,500.0	6,737.2	7,339.3	6,576.3	29.5	29.8	-66.52	-66.52	2.3	876.6	403.7	349.2	54.46	7.412	
7,600.0	6,736.1	7,439.3	6,575.0	32.0	32.2	-66.34	-66.34	-0.2	976.5	401.5	342.6	58.91	6.815	
7,700.0	6,735.1	7,539.2	6,573.7	34.5	34.7	-66.17	-66.17	-2.7	1,076.5	399.3	335.8	63.44	6.293	
7,800.0	6,734.1	7,639.2	6,572.4	37.0	37.3	-65.99	-65.99	-5.2	1,176.4	397.1	329.0	68.05	5.836	
7,900.0	6,733.0	7,739.2	6,571.1	39.6	39.9	-65.81	-65.81	-7.7	1,276.3	394.9	322.2	72.70	5.432	
8,000.0	6,732.0	7,839.1	6,569.8	42.2	42.5	-65.62	-65.62	-10.2	1,376.2	392.7	315.3	77.40	5.074	

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 2F-432
<b>Project:</b>	SEC.2-T6N-R63W	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Reference Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (5-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Brown Pad Sec.2-T6N-R63W - Brown 2F-202 - Wellbore #1 - Plan #2 (5-29-12)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
8,100.0	6,730.9	7,939.1	6,568.5	44.8	45.1	-65.44	-12.6	1,476.2	390.6	308.4	82.13	4.756	
8,200.0	6,729.9	8,039.1	6,567.3	47.5	47.8	-65.25	-15.1	1,576.1	388.4	301.5	86.88	4.471	
8,300.0	6,728.9	8,139.0	6,566.0	50.1	50.5	-65.06	-17.6	1,676.0	386.2	294.6	91.64	4.215	
8,400.0	6,727.8	8,239.0	6,564.7	52.8	53.2	-64.87	-20.1	1,776.0	384.1	287.7	96.41	3.984	
8,500.0	6,726.8	8,339.0	6,563.4	55.5	55.9	-64.67	-22.6	1,875.9	381.9	280.7	101.19	3.774	
8,600.0	6,725.8	8,438.9	6,562.1	58.2	58.6	-64.48	-25.1	1,975.8	379.8	273.8	105.97	3.584	
8,700.0	6,724.7	8,538.9	6,560.8	60.9	61.3	-64.28	-27.6	2,075.7	377.6	266.9	110.75	3.410	
8,800.0	6,723.7	8,638.9	6,559.5	63.7	64.0	-64.08	-30.1	2,175.7	375.5	260.0	115.53	3.250	
8,900.0	6,722.6	8,738.9	6,558.2	66.4	66.8	-63.88	-32.6	2,275.6	373.4	253.1	120.30	3.104	
9,000.0	6,721.6	8,838.8	6,556.9	69.1	69.5	-63.67	-35.1	2,375.5	371.2	246.2	125.06	2.969	
9,100.0	6,720.6	8,938.8	6,555.6	71.9	72.3	-63.46	-37.6	2,475.5	369.1	239.3	129.81	2.843	
9,200.0	6,719.5	9,038.8	6,554.3	74.6	75.0	-63.25	-40.0	2,575.4	367.0	232.4	134.55	2.728	
9,300.0	6,718.5	9,138.7	6,553.1	77.4	77.8	-63.04	-42.5	2,675.3	364.9	225.6	139.28	2.620	
9,400.0	6,717.5	9,238.7	6,551.8	80.1	80.5	-62.83	-45.0	2,775.3	362.8	218.8	143.99	2.519	
9,500.0	6,716.4	9,338.7	6,550.5	82.9	83.3	-62.61	-47.5	2,875.2	360.7	212.0	148.68	2.426	
9,600.0	6,715.4	9,438.6	6,549.2	85.6	86.1	-62.39	-50.0	2,975.1	358.6	205.2	153.36	2.338	
9,700.0	6,714.4	9,538.6	6,547.9	88.4	88.8	-62.17	-52.5	3,075.0	356.5	198.4	158.02	2.256	
9,800.0	6,713.3	9,638.6	6,546.6	91.2	91.6	-61.94	-55.0	3,175.0	354.4	191.7	162.66	2.179	
9,900.0	6,712.3	9,738.5	6,545.3	93.9	94.4	-61.71	-57.5	3,274.9	352.3	185.0	167.28	2.106	
10,000.0	6,711.2	9,838.5	6,544.0	96.7	97.2	-61.48	-60.0	3,374.8	350.2	178.3	171.88	2.038	
10,100.0	6,710.2	9,938.5	6,542.7	99.5	100.0	-61.25	-62.5	3,474.8	348.1	171.7	176.46	1.973	
10,200.0	6,709.2	10,038.4	6,541.4	102.3	102.7	-61.01	-65.0	3,574.7	346.1	165.1	181.01	1.912	
10,300.0	6,708.1	10,138.4	6,540.1	105.0	105.5	-60.77	-67.5	3,674.6	344.0	158.5	185.53	1.854	
10,400.0	6,707.1	10,238.4	6,538.9	107.8	108.3	-60.53	-69.9	3,774.5	342.0	151.9	190.03	1.799	
10,500.0	6,706.1	10,338.3	6,537.6	110.6	111.1	-60.29	-72.4	3,874.5	339.9	145.4	194.51	1.748	
10,600.0	6,705.0	10,438.3	6,536.3	113.4	113.9	-60.04	-74.9	3,974.4	337.9	138.9	198.95	1.698	
10,700.0	6,704.0	10,538.3	6,535.0	116.2	116.7	-59.79	-77.4	4,074.3	335.8	132.5	203.37	1.651	
10,800.0	6,703.0	10,638.3	6,533.7	119.0	119.5	-59.54	-79.9	4,174.3	333.8	126.0	207.76	1.607	
10,900.0	6,701.9	10,738.2	6,532.4	121.7	122.2	-59.28	-82.4	4,274.2	331.8	119.7	212.11	1.564	
11,000.0	6,700.9	10,838.2	6,531.1	124.5	125.0	-59.02	-84.9	4,374.1	329.8	113.3	216.44	1.524	
11,084.8	6,700.0	10,923.0	6,530.0	126.9	127.4	-58.80	-87.0	4,458.9	328.1	108.0	220.08	1.491 Level 3	
11,085.2	6,700.0	10,923.4	6,530.0	126.9	127.4	-58.79	-87.0	4,459.3	328.1	108.0	220.09	1.491 Level 3, SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Project:</b>	SEC.2-T6N-R63W	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Reference Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (5-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Brown Pad Sec.2-T6N-R63W - Brown 2G-212 - Wellbore #1 - Plan #1 (5-29-12)		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)					
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-29.1	0.0	29.1							
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-29.1	0.0	29.1	28.9	0.22	129.671				
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-29.1	0.0	29.1	28.5	0.67	43.224				
300.0	300.0	300.0	300.0	0.6	0.6	-180.00	-29.1	0.0	29.1	28.0	1.12	25.934 CC, ES				
400.0	400.0	399.0	399.0	0.8	0.8	-179.26	-30.8	-0.4	30.8	29.3	1.55	19.925				
500.0	500.0	497.7	497.6	1.0	1.0	-177.44	-35.8	-1.6	35.9	33.9	1.97	18.230				
600.0	600.0	596.0	595.5	1.2	1.2	-175.35	-44.0	-3.6	44.4	42.0	2.41	18.398				
700.0	700.0	693.6	692.4	1.5	1.4	-173.49	-55.4	-6.3	56.3	53.4	2.87	19.584				
800.0	800.0	790.5	788.1	1.7	1.8	-20.93	-69.9	-9.8	69.9	66.7	3.27	21.362				
900.0	899.8	887.0	882.9	1.8	2.1	-20.77	-87.4	-14.0	83.7	80.0	3.68	22.725				
1,000.0	999.5	986.3	980.1	2.0	2.5	-21.29	-107.0	-18.8	95.9	91.8	4.11	23.316				
1,100.0	1,098.7	1,085.8	1,077.6	2.3	2.9	-22.40	-126.7	-23.5	104.9	100.3	4.56	22.998				
1,112.8	1,111.4	1,098.6	1,090.1	2.3	3.0	-22.58	-129.2	-24.1	105.8	101.2	4.62	22.906				
1,200.0	1,197.7	1,185.5	1,175.2	2.6	3.3	-23.82	-146.4	-28.3	111.9	106.9	5.04	22.198				
1,300.0	1,296.6	1,285.3	1,272.8	2.8	3.8	-25.09	-166.1	-33.0	119.0	113.4	5.54	21.472				
1,400.0	1,395.6	1,385.0	1,370.5	3.1	4.2	-26.22	-185.8	-37.8	126.1	120.1	6.05	20.832				
1,500.0	1,494.6	1,484.7	1,468.1	3.5	4.6	-27.22	-205.5	-42.5	133.3	126.7	6.58	20.253				
1,600.0	1,593.5	1,584.4	1,565.7	3.8	5.1	-28.12	-225.3	-47.3	140.5	133.4	7.12	19.738				
1,700.0	1,692.5	1,684.1	1,663.4	4.1	5.5	-28.94	-245.0	-52.0	147.7	140.0	7.66	19.278				
1,800.0	1,791.5	1,783.8	1,761.0	4.4	6.0	-29.67	-264.7	-56.8	155.0	146.8	8.22	18.864				
1,900.0	1,890.4	1,883.6	1,858.6	4.8	6.4	-30.35	-284.4	-61.5	162.3	153.5	8.78	18.491				
2,000.0	1,989.4	1,983.3	1,956.3	5.1	6.9	-30.96	-304.1	-66.3	169.6	160.2	9.34	18.153				
2,100.0	2,088.3	2,083.0	2,053.9	5.5	7.3	-31.52	-323.8	-71.0	176.9	167.0	9.91	17.846				
2,200.0	2,187.3	2,182.7	2,151.5	5.8	7.8	-32.04	-343.5	-75.8	184.2	173.7	10.49	17.567				
2,300.0	2,286.3	2,282.4	2,249.2	6.1	8.2	-32.52	-363.2	-80.5	191.6	180.5	11.07	17.312				
2,400.0	2,385.2	2,382.1	2,346.8	6.5	8.6	-32.96	-382.9	-85.3	199.0	187.3	11.65	17.078				
2,500.0	2,484.2	2,481.9	2,444.4	6.8	9.1	-33.37	-402.6	-90.0	206.3	194.1	12.24	16.863				
2,600.0	2,583.2	2,581.6	2,542.1	7.2	9.5	-33.76	-422.4	-94.8	213.7	200.9	12.82	16.664				
2,700.0	2,682.1	2,681.3	2,639.7	7.5	10.0	-34.12	-442.1	-99.5	221.1	207.7	13.42	16.481				
2,800.0	2,781.1	2,781.0	2,737.4	7.9	10.4	-34.45	-461.8	-104.2	228.5	214.5	14.01	16.311				
2,900.0	2,880.1	2,880.7	2,835.0	8.2	10.9	-34.76	-481.5	-109.0	235.9	221.3	14.61	16.153				
3,000.0	2,979.0	2,980.4	2,932.6	8.6	11.3	-35.06	-501.2	-113.7	243.3	228.1	15.20	16.006				
3,100.0	3,078.0	3,080.2	3,030.3	8.9	11.8	-35.33	-520.9	-118.5	250.8	235.0	15.80	15.868				
3,200.0	3,176.9	3,179.9	3,127.9	9.3	12.2	-35.59	-540.6	-123.2	258.2	241.8	16.40	15.740				
3,300.0	3,275.9	3,279.6	3,225.5	9.7	12.7	-35.84	-560.3	-128.0	265.6	248.6	17.01	15.619				
3,400.0	3,374.9	3,379.3	3,323.2	10.0	13.1	-36.07	-580.0	-132.7	273.1	255.5	17.61	15.506				
3,500.0	3,473.8	3,479.0	3,420.8	10.4	13.6	-36.29	-599.8	-137.5	280.5	262.3	18.22	15.400				
3,600.0	3,572.8	3,578.7	3,518.4	10.7	14.0	-36.50	-619.5	-142.2	288.0	269.1	18.82	15.299				
3,616.0	3,588.6	3,594.7	3,534.0	10.8	14.1	-36.54	-622.6	-143.0	289.1	270.2	18.92	15.284				
3,700.0	3,671.9	3,678.4	3,616.0	11.0	14.5	-36.65	-639.2	-147.0	296.4	277.0	19.38	15.295				
3,800.0	3,771.4	3,777.7	3,713.3	11.2	14.9	-36.45	-658.8	-151.7	307.6	287.8	19.83	15.511				
3,900.0	3,871.2	3,876.7	3,810.1	11.4	15.4	-35.94	-678.4	-156.4	321.6	301.4	20.21	15.911				
4,000.0	3,971.2	3,975.1	3,906.5	11.6	15.8	-35.17	-697.8	-161.1	338.4	317.9	20.53	16.487				
4,028.8	4,000.0	4,003.3	3,934.1	11.6	15.9	173.61	-703.4	-162.5	343.8	317.7	26.19	13.130				
4,100.0	4,071.2	4,073.0	4,002.4	11.7	16.2	174.40	-717.2	-165.8	357.5	330.8	26.68	13.400				
4,200.0	4,171.2	4,170.9	4,098.2	11.9	16.7	175.42	-736.5	-170.5	376.8	349.5	27.35	13.777				
4,300.0	4,271.2	4,268.8	4,194.1	12.0	17.1	176.33	-755.9	-175.1	396.2	368.2	28.01	14.144				
4,400.0	4,371.2	4,366.8	4,290.0	12.2	17.6	177.16	-775.2	-179.8	415.7	387.1	28.67	14.501				
4,500.0	4,471.2	4,464.7	4,385.8	12.3	18.0	177.91	-794.6	-184.4	435.3	406.0	29.32	14.846				
4,600.0	4,571.2	4,574.5	4,493.5	12.5	18.4	178.65	-815.3	-189.4	454.1	424.2	29.91	15.184				
4,700.0	4,671.2	4,691.5	4,609.1	12.6	18.7	179.23	-833.1	-193.7	469.3	438.8	30.42	15.427				

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 2F-432
<b>Project:</b>	SEC.2-T6N-R63W	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Reference Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (5-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Brown Pad Sec.2-T6N-R63W - Brown 2G-212 - Wellbore #1 - Plan #1 (5-29-12)													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	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
4,800.0	4,771.2	4,809.9	4,726.7	12.8	19.0	179.63	-846.4	-196.9	480.5	449.6	30.87	15.566		
4,900.0	4,871.2	4,929.2	4,845.7	12.9	19.2	179.89	-855.1	-199.0	487.8	456.5	31.26	15.604		
5,000.0	4,971.2	5,049.0	4,965.4	13.1	19.3	179.99	-858.9	-200.0	491.0	459.4	31.60	15.538		
5,100.0	5,071.2	5,154.8	5,071.2	13.2	19.4	-180.00	-859.1	-200.0	491.1	459.3	31.88	15.406		
5,200.0	5,171.2	5,254.8	5,171.2	13.4	19.5	-180.00	-859.1	-200.0	491.1	459.0	32.15	15.278		
5,300.0	5,271.2	5,354.8	5,271.2	13.6	19.6	-180.00	-859.1	-200.0	491.1	458.7	32.42	15.151		
5,400.0	5,371.2	5,454.8	5,371.2	13.7	19.7	-180.00	-859.1	-200.0	491.1	458.5	32.69	15.024		
5,500.0	5,471.2	5,554.8	5,471.2	13.9	19.9	-180.00	-859.1	-200.0	491.1	458.2	32.97	14.898		
5,600.0	5,571.2	5,654.8	5,571.2	14.1	20.0	-180.00	-859.1	-200.0	491.1	457.9	33.25	14.772		
5,700.0	5,671.2	5,754.8	5,671.2	14.2	20.1	-180.00	-859.1	-200.0	491.1	457.6	33.53	14.646		
5,800.0	5,771.2	5,854.8	5,771.2	14.4	20.2	-180.00	-859.1	-200.0	491.1	457.3	33.82	14.522		
5,849.8	5,821.0	5,904.5	5,821.0	14.5	20.2	-180.00	-859.1	-200.0	491.1	457.2	33.97	14.460		
5,900.0	5,871.2	5,954.7	5,871.1	14.6	20.3	179.81	-859.1	-198.4	491.1	457.0	34.10	14.403		
5,994.0	5,965.2	6,047.1	5,962.7	14.7	20.4	178.45	-859.1	-186.7	491.3	457.1	34.28	14.333		
6,000.0	5,971.2	6,052.9	5,968.4	14.8	20.4	88.34	-859.1	-185.6	491.4	463.7	27.68	17.751		
6,050.0	6,021.2	6,100.8	6,015.1	14.8	20.4	87.28	-859.1	-174.9	491.7	463.8	27.91	17.620		
6,100.0	6,070.9	6,148.3	6,060.6	14.9	20.4	86.25	-859.1	-161.5	492.2	464.1	28.11	17.512		
6,150.0	6,120.1	6,195.2	6,104.6	14.9	20.4	85.23	-859.1	-145.4	492.9	464.6	28.28	17.427		
6,200.0	6,168.7	6,241.6	6,147.2	15.0	20.5	84.24	-859.1	-126.9	493.7	465.3	28.44	17.362		
6,250.0	6,216.4	6,287.6	6,188.2	15.0	20.5	83.28	-859.2	-106.0	494.7	466.1	28.57	17.313		
6,300.0	6,263.1	6,333.2	6,227.5	15.1	20.5	82.35	-859.2	-82.9	495.7	467.0	28.69	17.276		
6,350.0	6,308.5	6,378.4	6,265.0	15.1	20.5	81.46	-859.2	-57.7	496.8	468.0	28.81	17.244		
6,400.0	6,352.4	6,423.2	6,300.7	15.1	20.5	80.60	-859.2	-30.6	498.0	469.1	28.94	17.209		
6,450.0	6,394.6	6,467.7	6,334.5	15.1	20.5	79.79	-859.2	-1.7	499.3	470.2	29.09	17.161		
6,500.0	6,435.0	6,511.9	6,366.3	15.2	20.6	79.02	-859.2	28.9	500.5	471.2	29.28	17.096		
6,550.0	6,473.4	6,555.7	6,396.1	15.2	20.6	78.29	-859.2	61.1	501.8	472.3	29.55	16.981		
6,600.0	6,509.6	6,600.0	6,424.3	15.2	20.7	77.61	-859.2	95.3	503.1	473.2	29.89	16.831		
6,650.0	6,543.5	6,642.7	6,449.5	15.2	20.7	76.99	-859.2	129.7	504.3	474.0	30.34	16.624		
6,700.0	6,574.9	6,685.8	6,473.0	15.3	20.8	76.41	-859.2	165.8	505.5	474.6	30.91	16.356		
6,750.0	6,603.7	6,728.8	6,494.3	15.5	20.9	75.89	-859.2	203.1	506.7	475.0	31.61	16.027		
6,800.0	6,629.8	6,771.5	6,513.5	16.0	21.0	75.41	-859.2	241.3	507.7	475.2	32.47	15.639		
6,850.0	6,653.0	6,814.1	6,530.4	16.5	21.2	75.00	-859.2	280.4	508.7	475.2	33.47	15.197		
6,900.0	6,673.3	6,856.6	6,545.0	17.2	21.4	74.63	-859.2	320.3	509.5	474.9	34.64	14.710		
6,950.0	6,690.5	6,900.0	6,557.7	18.0	21.8	74.32	-859.2	361.8	510.3	474.3	35.98	14.184		
7,000.0	6,704.6	6,941.2	6,567.5	18.8	22.1	74.08	-859.2	401.8	510.9	473.5	37.44	13.646		
7,050.0	6,715.6	6,983.4	6,575.3	19.7	22.6	73.88	-859.2	443.2	511.4	472.4	39.05	13.095		
7,100.0	6,723.4	7,025.5	6,580.8	20.7	23.2	73.74	-859.2	485.0	511.8	471.0	40.79	12.546		
7,114.0	6,725.0	7,037.3	6,582.0	20.9	23.4	73.72	-859.2	496.7	511.8	470.5	41.29	12.395		
7,189.0	6,732.8	7,100.0	6,584.9	22.5	24.4	73.33	-859.2	559.4	513.1	469.2	43.89	11.689		
7,200.0	6,733.9	7,109.3	6,584.9	22.7	24.5	73.21	-859.2	568.7	513.4	469.1	44.30	11.590		
7,300.0	6,739.0	7,207.5	6,583.3	24.9	26.4	72.42	-859.2	666.8	515.4	467.0	48.43	10.644		
7,320.9	6,739.0	7,228.4	6,583.0	25.3	26.8	72.38	-859.2	687.7	515.5	466.2	49.35	10.445		
7,400.0	6,738.2	7,307.5	6,581.6	27.2	28.4	72.33	-859.2	766.8	515.7	462.9	52.78	9.771		
7,500.0	6,737.2	7,407.5	6,580.0	29.5	30.6	72.26	-859.2	866.8	515.9	458.6	57.26	9.009		
7,600.0	6,736.1	7,507.5	6,578.3	32.0	33.0	72.19	-859.2	966.8	516.1	454.2	61.88	8.340		
7,700.0	6,735.1	7,607.5	6,576.6	34.5	35.4	72.12	-859.2	1,066.8	516.3	449.7	66.61	7.751		
7,800.0	6,734.1	7,707.5	6,574.9	37.0	37.8	72.06	-859.2	1,166.7	516.5	445.1	71.42	7.232		
7,900.0	6,733.0	7,807.5	6,573.3	39.6	40.3	71.99	-859.2	1,266.7	516.7	440.4	76.30	6.773		
8,000.0	6,732.0	7,907.5	6,571.6	42.2	42.9	71.92	-859.2	1,366.7	516.9	435.7	81.23	6.364		
8,100.0	6,730.9	8,007.5	6,569.9	44.8	45.4	71.86	-859.2	1,466.7	517.2	430.9	86.21	5.999		
8,200.0	6,729.9	8,107.5	6,568.2	47.5	48.0	71.79	-859.2	1,566.7	517.4	426.1	91.22	5.672		

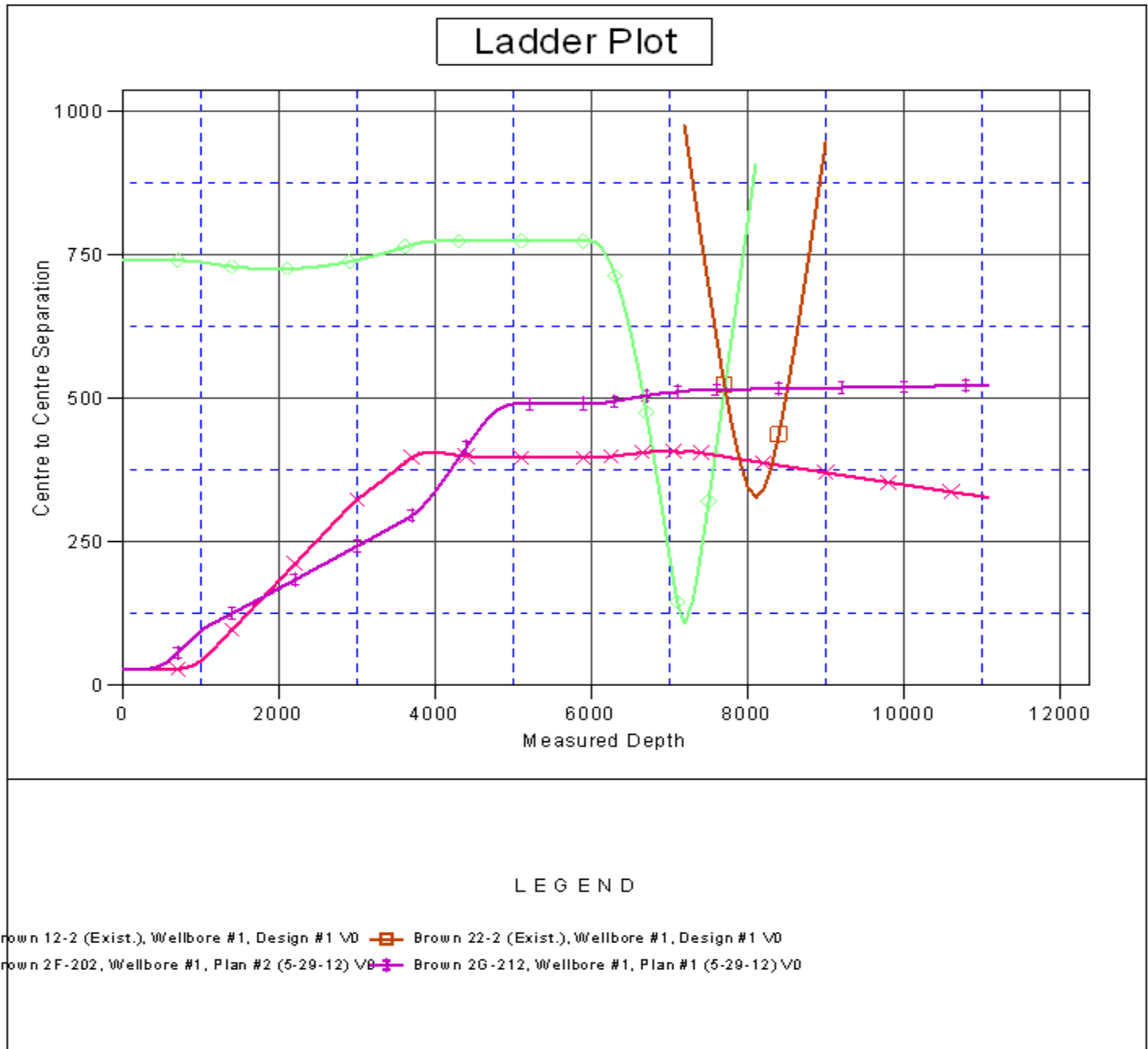
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Project:</b>	SEC.2-T6N-R63W	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Reference Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (5-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Brown Pad Sec.2-T6N-R63W - Brown 2G-212 - Wellbore #1 - Plan #1 (5-29-12)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
8,300.0	6,728.9	8,207.5	6,566.6	50.1	50.7	71.72	-859.2	1,666.7	517.6	421.3	96.26	5.377	
8,400.0	6,727.8	8,307.5	6,564.9	52.8	53.3	71.66	-859.2	1,766.6	517.8	416.5	101.33	5.110	
8,500.0	6,726.8	8,407.5	6,563.2	55.5	56.0	71.59	-859.3	1,866.6	518.0	411.6	106.42	4.868	
8,600.0	6,725.8	8,507.5	6,561.5	58.2	58.6	71.52	-859.3	1,966.6	518.2	406.7	111.53	4.647	
8,700.0	6,724.7	8,607.5	6,559.9	60.9	61.3	71.46	-859.3	2,066.6	518.4	401.8	116.65	4.444	
8,800.0	6,723.7	8,707.5	6,558.2	63.7	64.0	71.39	-859.3	2,166.6	518.7	396.9	121.78	4.259	
8,900.0	6,722.6	8,807.4	6,556.5	66.4	66.7	71.32	-859.3	2,266.6	518.9	391.9	126.92	4.088	
9,000.0	6,721.6	8,907.4	6,554.8	69.1	69.4	71.26	-859.3	2,366.5	519.1	387.0	132.08	3.930	
9,100.0	6,720.6	9,007.4	6,553.2	71.9	72.2	71.19	-859.3	2,466.5	519.3	382.1	137.23	3.784	
9,200.0	6,719.5	9,107.4	6,551.5	74.6	74.9	71.12	-859.3	2,566.5	519.5	377.1	142.40	3.648	
9,300.0	6,718.5	9,207.4	6,549.8	77.4	77.6	71.06	-859.3	2,666.5	519.7	372.2	147.57	3.522	
9,400.0	6,717.5	9,307.4	6,548.1	80.1	80.4	70.99	-859.3	2,766.5	520.0	367.2	152.74	3.404	
9,500.0	6,716.4	9,407.4	6,546.5	82.9	83.1	70.93	-859.3	2,866.5	520.2	362.3	157.92	3.294	
9,600.0	6,715.4	9,507.4	6,544.8	85.6	85.9	70.86	-859.3	2,966.5	520.4	357.3	163.10	3.191	
9,700.0	6,714.4	9,607.4	6,543.1	88.4	88.6	70.79	-859.3	3,066.4	520.6	352.4	168.28	3.094	
9,800.0	6,713.3	9,707.4	6,541.4	91.2	91.4	70.73	-859.3	3,166.4	520.9	347.4	173.46	3.003	
9,900.0	6,712.3	9,807.4	6,539.8	93.9	94.1	70.66	-859.3	3,266.4	521.1	342.4	178.64	2.917	
10,000.0	6,711.2	9,907.4	6,538.1	96.7	96.9	70.60	-859.3	3,366.4	521.3	337.5	183.82	2.836	
10,100.0	6,710.2	10,007.4	6,536.4	99.5	99.7	70.53	-859.3	3,466.4	521.5	332.5	189.00	2.759	
10,200.0	6,709.2	10,107.4	6,534.7	102.3	102.4	70.47	-859.3	3,566.4	521.7	327.6	194.19	2.687	
10,300.0	6,708.1	10,207.4	6,533.1	105.0	105.2	70.40	-859.3	3,666.3	522.0	322.6	199.37	2.618	
10,400.0	6,707.1	10,307.4	6,531.4	107.8	108.0	70.33	-859.4	3,766.3	522.2	317.7	204.55	2.553	
10,500.0	6,706.1	10,407.4	6,529.7	110.6	110.7	70.27	-859.4	3,866.3	522.4	312.7	209.72	2.491	
10,600.0	6,705.0	10,507.4	6,528.0	113.4	113.5	70.20	-859.4	3,966.3	522.7	307.8	214.90	2.432	
10,700.0	6,704.0	10,607.4	6,526.4	116.2	116.3	70.14	-859.4	4,066.3	522.9	302.8	220.08	2.376	
10,800.0	6,703.0	10,707.4	6,524.7	119.0	119.1	70.07	-859.4	4,166.3	523.1	297.9	225.25	2.322	
10,900.0	6,701.9	10,807.4	6,523.0	121.7	121.8	70.01	-859.4	4,266.2	523.3	292.9	230.42	2.271	
11,000.0	6,700.9	10,907.4	6,521.3	124.5	124.6	69.94	-859.4	4,366.2	523.6	288.0	235.59	2.222	
11,084.8	6,700.0	10,987.7	6,520.0	126.9	126.8	69.89	-859.4	4,446.5	523.8	283.9	239.85	2.184	
11,085.2	6,700.0	10,987.7	6,520.0	126.9	126.8	69.89	-859.4	4,446.5	523.8	283.9	239.86	2.184 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Project:</b>	SEC.2-T6N-R63W	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Reference Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (5-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4725.0ft (RKB Ensign 32 - 1 Coordinates are relative to: Brown 2F-432  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.70°





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Brown 2F-432
<b>Project:</b>	SEC.2-T6N-R63W	<b>TVD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Reference Site:</b>	Brown Pad Sec.2-T6N-R63W	<b>MD Reference:</b>	WELL @ 4725.0ft (RKB Ensign 32 - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Brown 2F-432	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (5-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4725.0ft (RKB Ensign 32 - 1 Coordinates are relative to: Brown 2F-432  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.70°

