

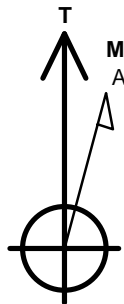
PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Rio-LA 6F-414**

Surface Location: Rio-LA 1S67W6E Pad Sec.6-T1S-R67W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 5070.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1242799.82 3156947.23 39.998510 -104.939790
 RKB - 13' WELL @ 5083.0ft (RKB - 13')

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' N/S Hardline (6F-414)	1.0	4.1	-2865.5	Rectangle (Sides: L4215.1 W100.0)
SHL 669'FNL & 152'FWL, Sec.6	1.0	0.0	0.0	Point
BHL 662'FNL & 500'FWL,Sec.1	7911.0	4.1	-4973.0	Point



Azimuths to True North
 Magnetic North: 8.37°

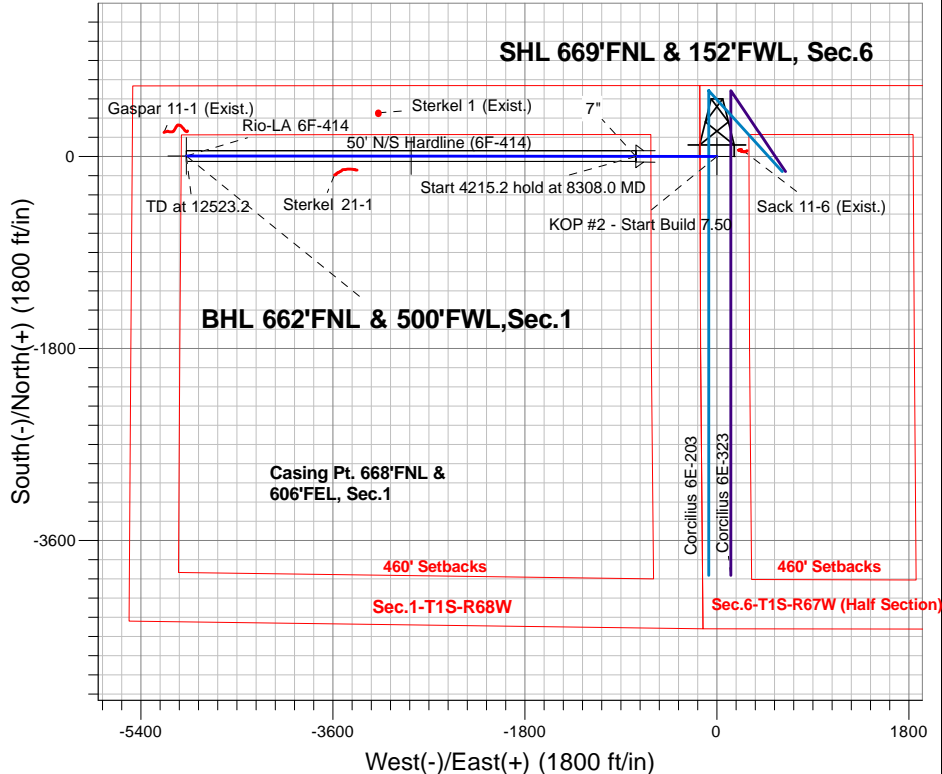
Magnetic Field
 Strength: 52464.4snT
 Dip Angle: 66.56°
 Date: 8/4/2015
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
7114.0	7114.0	KOP #2 - Start Build 7.50
7877.9	8308.0	Start 4215.2 hold at 8308.0 MD
7911.0	12523.2	TD at 12523.2

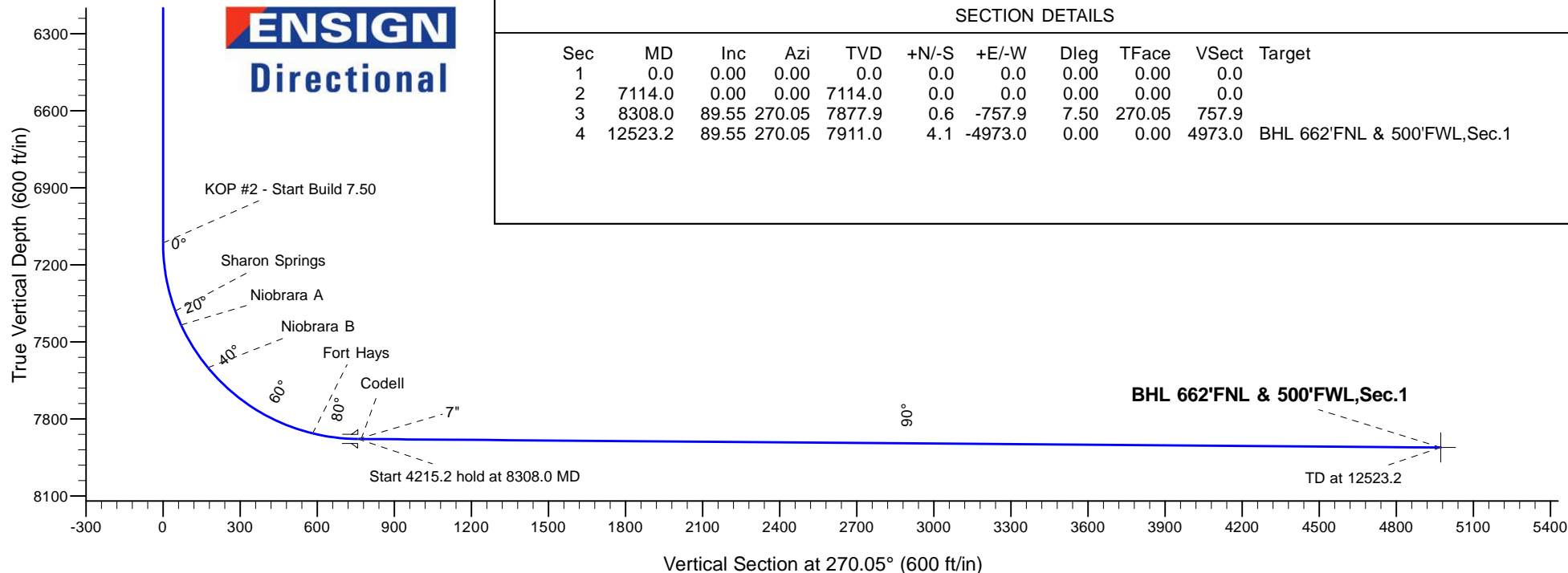
Rio-LA 1S67W6E Pad Sec.6-T1S-R67W
 Rio-LA 6F-414
 Plan #1 (8-4-15)

South(-)/North(+) (1800 ft/in)



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	7114.0	0.00	0.00	7114.0	0.0	0.0	0.00	0.00	0.0	
3	8308.0	89.55	270.05	7877.9	0.6	-757.9	7.50	270.05	757.9	
4	12523.2	89.55	270.05	7911.0	4.1	-4973.0	0.00	0.00	4973.0	BHL 662'FNL & 500'FWL,Sec.1





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.6-T1S-R67W

Rio-LA 1S67W6E Pad Sec.6-T1S-R67W

Rio-LA 6F-414

Wellbore #1

Plan: Plan #1 (8-4-15)

Standard Planning Report

11 August, 2015

Database:	US_EDM	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-4-15)		

Project	SEC.6-T1S-R67W, Adams County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W		
Site Position:		Northing:	1,242,767.06 usft
From:	Lat/Long	Easting:	3,156,950.24 usft
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "
		Latitude:	39.998420
		Longitude:	-104.939780
		Grid Convergence:	0.36 °

Well	Rio-LA 6F-414		
Well Position	+N/-S	32.8 ft	Northing:
	+E/-W	-2.8 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			0.0 ft
			Latitude:
			39.998510
			Longitude:
			-104.939790
			Ground Level:
			5,070.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/4/2015	8.37	66.56	52,464

Design	Plan #1 (8-4-15)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	270.05

Plan Sections										
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	
7,114.0	0.00	0.00	7,114.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,308.0	89.55	270.05	7,877.9	0.6	-757.9	7.50	7.50	0.00	270.05	
12,523.2	89.55	270.05	7,911.0	4.1	-4,973.0	0.00	0.00	0.00	0.00	BHL 662'FNL & 500'F

Database:	US_EDM	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-4-15)		

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
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
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-4-15)		

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)
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,114.0	0.00	0.00	7,114.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #2 - Start Build 7.50									
7,200.0	6.45	270.05	7,199.8	0.0	-4.8	4.8	7.50	7.50	0.00
7,300.0	13.95	270.05	7,298.2	0.0	-22.5	22.5	7.50	7.50	0.00
7,400.0	21.45	270.05	7,393.4	0.0	-52.9	52.9	7.50	7.50	0.00
7,500.0	28.95	270.05	7,483.8	0.1	-95.5	95.5	7.50	7.50	0.00
7,600.0	36.45	270.05	7,567.9	0.1	-149.5	149.5	7.50	7.50	0.00
7,700.0	43.95	270.05	7,644.2	0.2	-214.0	214.0	7.50	7.50	0.00
7,800.0	51.45	270.05	7,711.4	0.2	-287.9	287.9	7.50	7.50	0.00
7,900.0	58.95	270.05	7,768.5	0.3	-369.9	369.9	7.50	7.50	0.00
8,000.0	66.45	270.05	7,814.3	0.4	-458.7	458.7	7.50	7.50	0.00
8,100.0	73.95	270.05	7,848.1	0.5	-552.8	552.8	7.50	7.50	0.00
8,200.0	81.45	270.05	7,869.4	0.5	-650.4	650.4	7.50	7.50	0.00
8,300.0	88.95	270.05	7,877.8	0.6	-750.0	750.0	7.50	7.50	0.00
8,308.0	89.55	270.05	7,877.9	0.6	-758.0	758.0	7.48	7.48	0.00
Start 4215.2 hold at 8308.0 MD - 7"									
8,400.0	89.55	270.05	7,878.6	0.7	-850.0	850.0	0.00	0.00	0.00
8,500.0	89.55	270.05	7,879.4	0.8	-950.0	950.0	0.00	0.00	0.00
8,600.0	89.55	270.05	7,880.2	0.9	-1,050.0	1,050.0	0.00	0.00	0.00
8,700.0	89.55	270.05	7,881.0	1.0	-1,150.0	1,150.0	0.00	0.00	0.00
8,800.0	89.55	270.05	7,881.8	1.0	-1,250.0	1,250.0	0.00	0.00	0.00
8,900.0	89.55	270.05	7,882.5	1.1	-1,350.0	1,350.0	0.00	0.00	0.00
9,000.0	89.55	270.05	7,883.3	1.2	-1,449.9	1,449.9	0.00	0.00	0.00
9,100.0	89.55	270.05	7,884.1	1.3	-1,549.9	1,549.9	0.00	0.00	0.00
9,200.0	89.55	270.05	7,884.9	1.4	-1,649.9	1,649.9	0.00	0.00	0.00
9,300.0	89.55	270.05	7,885.7	1.5	-1,749.9	1,749.9	0.00	0.00	0.00
9,400.0	89.55	270.05	7,886.5	1.5	-1,849.9	1,849.9	0.00	0.00	0.00
9,500.0	89.55	270.05	7,887.3	1.6	-1,949.9	1,949.9	0.00	0.00	0.00
9,600.0	89.55	270.05	7,888.0	1.7	-2,049.9	2,049.9	0.00	0.00	0.00
9,700.0	89.55	270.05	7,888.8	1.8	-2,149.9	2,149.9	0.00	0.00	0.00
9,800.0	89.55	270.05	7,889.6	1.9	-2,249.9	2,249.9	0.00	0.00	0.00
9,900.0	89.55	270.05	7,890.4	2.0	-2,349.9	2,349.9	0.00	0.00	0.00
10,000.0	89.55	270.05	7,891.2	2.0	-2,449.9	2,449.9	0.00	0.00	0.00
10,100.0	89.55	270.05	7,892.0	2.1	-2,549.9	2,549.9	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-4-15)		

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)
10,200.0	89.55	270.05	7,892.8	2.2	-2,649.9	2,649.9	0.00	0.00	0.00
10,300.0	89.55	270.05	7,893.5	2.3	-2,749.9	2,749.9	0.00	0.00	0.00
10,400.0	89.55	270.05	7,894.3	2.4	-2,849.9	2,849.9	0.00	0.00	0.00
10,500.0	89.55	270.05	7,895.1	2.5	-2,949.9	2,949.9	0.00	0.00	0.00
10,600.0	89.55	270.05	7,895.9	2.5	-3,049.9	3,049.9	0.00	0.00	0.00
10,700.0	89.55	270.05	7,896.7	2.6	-3,149.9	3,149.9	0.00	0.00	0.00
10,800.0	89.55	270.05	7,897.5	2.7	-3,249.9	3,249.9	0.00	0.00	0.00
10,900.0	89.55	270.05	7,898.3	2.8	-3,349.9	3,349.9	0.00	0.00	0.00
11,000.0	89.55	270.05	7,899.0	2.9	-3,449.9	3,449.9	0.00	0.00	0.00
11,100.0	89.55	270.05	7,899.8	3.0	-3,549.9	3,549.9	0.00	0.00	0.00
11,200.0	89.55	270.05	7,900.6	3.0	-3,649.9	3,649.9	0.00	0.00	0.00
11,300.0	89.55	270.05	7,901.4	3.1	-3,749.9	3,749.9	0.00	0.00	0.00
11,400.0	89.55	270.05	7,902.2	3.2	-3,849.9	3,849.9	0.00	0.00	0.00
11,500.0	89.55	270.05	7,903.0	3.3	-3,949.9	3,949.9	0.00	0.00	0.00
11,600.0	89.55	270.05	7,903.7	3.4	-4,049.9	4,049.9	0.00	0.00	0.00
11,700.0	89.55	270.05	7,904.5	3.5	-4,149.9	4,149.9	0.00	0.00	0.00
11,800.0	89.55	270.05	7,905.3	3.5	-4,249.9	4,249.9	0.00	0.00	0.00
11,900.0	89.55	270.05	7,906.1	3.6	-4,349.9	4,349.9	0.00	0.00	0.00
12,000.0	89.55	270.05	7,906.9	3.7	-4,449.9	4,449.9	0.00	0.00	0.00
12,100.0	89.55	270.05	7,907.7	3.8	-4,549.9	4,549.9	0.00	0.00	0.00
12,200.0	89.55	270.05	7,908.5	3.9	-4,649.8	4,649.9	0.00	0.00	0.00
12,300.0	89.55	270.05	7,909.2	4.0	-4,749.8	4,749.8	0.00	0.00	0.00
12,400.0	89.55	270.05	7,910.0	4.0	-4,849.8	4,849.8	0.00	0.00	0.00
12,500.0	89.55	270.05	7,910.8	4.1	-4,949.8	4,949.8	0.00	0.00	0.00
12,523.2	89.55	270.05	7,911.0	4.1	-4,973.0	4,973.0	0.00	0.00	0.00
TD at 12523.2									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
50' N/S Hardline (6F-414)	0.00	0.00	1.0	4.1	-2,865.4	1,242,785.81	3,154,081.91	39.998521	-104.950018
- plan misses target center by 2865.5ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Rectangle (sides W100.0 H4,215.1 D0.0)									
SHL 669'FNL & 152'FWL	0.00	0.00	1.0	0.0	0.0	1,242,799.83	3,156,947.23	39.998510	-104.939790
- plan hits target center									
- Point									
BHL 662'FNL & 500'FWL	0.00	0.00	7,911.0	4.1	-4,973.0	1,242,772.55	3,151,974.47	39.998520	-104.957540
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
8,308.0	7,877.9	7"	7	8-3/4	

Database:	US_EDM	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-4-15)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,430.0	4,430.0	Parkman		0.00		
4,800.0	4,800.0	Sussex		0.00		
5,380.0	5,380.0	Shannon		0.00		
7,384.6	7,379.0	Sharon Springs		0.00		
7,444.2	7,434.0	Niobrara A		0.00		
7,640.8	7,600.0	Niobrara B		0.00		
7,818.8	7,723.0	Niobrara C		0.00		
8,130.5	7,856.0	Fort Hays		0.00		
8,321.4	7,878.0	Codell		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
7,114.0	7,114.0	0.0	0.0	KOP #2 - Start Build 7.50	
8,308.0	7,877.9	0.6	-757.9	Start 4215.2 hold at 8308.0 MD	
12,523.2	7,911.0	4.1	-4,973.0	TD at 12523.2	



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.6-T1S-R67W

Rio-LA 1S67W6E Pad Sec.6-T1S-R67W

Rio-LA 6F-414

Wellbore #1

Plan #1 (8-4-15)

Anticollision Report

11 August, 2015



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (8-4-15)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 8/11/2015			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,523.2	Plan #1 (8-4-15) (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
Offset Well - Wellbore - Design						
Corcilus 1S67W6J Pad Sec.6-T1S-R67W						
Corcilus 6E-203 - Wellbore #1 - Plan #1 (4-29-15)	7,600.0	8,006.3	102.1	70.4	3.220	SF
Corcilus 6E-203 - Wellbore #1 - Plan #1 (4-29-15)	7,610.7	8,008.2	101.5	70.0	3.228	CC, ES
Corcilus 6E-323 - Wellbore #1 - Plan #1 (4-29-15)	7,500.0	8,036.4	334.3	301.2	10.093	SF
Corcilus 6E-323 - Wellbore #1 - Plan #1 (4-29-15)	7,571.5	8,059.4	323.9	292.1	10.206	CC, ES
Existing Pad Sec.12-T1S-R68W						
Gaspar 11-1 (Exist.) - Wellbore #1 - Wellbore #1	12,523.2	7,915.9	300.2	144.2	1.924	CC, ES, SF
Sterkel 1 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Sterkel 21-1 - Wellbore #1 - Wellbore #1	11,122.2	7,905.8	173.8	54.7	1.459	Level 3, CC, ES, SF
Existing Wells Sec.6-T1S-R67W						
Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1	6,201.5	6,186.3	211.0	182.2	7.322	CC
Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1	6,300.0	6,284.3	211.2	182.0	7.249	ES
Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1	7,114.0	7,096.1	217.7	186.4	6.964	SF
Rio-LA 1S67W6E Pad Sec.6-T1S-R67W						
Rio-LA 6E-234 - Wellbore #1 - Plan #1 (8-4-15)	1,800.0	1,800.0	14.6	6.7	1.852	CC, ES
Rio-LA 6E-234 - Wellbore #1 - Plan #1 (8-4-15)	1,900.0	1,899.8	15.4	7.0	1.847	SF
Rio-LA 6E-304 - Wellbore #1 - Plan #1 (8-4-15)	1,000.0	1,000.0	29.3	25.0	6.856	CC, ES
Rio-LA 6E-304 - Wellbore #1 - Plan #1 (8-4-15)	12,523.2	12,277.5	593.5	330.8	2.259	SF
Rio-LA 6F-204 - Wellbore #1 - Plan #1 (8-4-15)	800.0	800.0	32.9	29.5	9.759	CC, ES
Rio-LA 6F-204 - Wellbore #1 - Plan #1 (8-4-15)	12,523.2	12,443.4	605.7	356.2	2.428	SF
Rio-LA 6F-314 - Wellbore #1 - Plan #1 (8-4-15)	1,400.0	1,400.0	18.4	12.4	3.037	CC, ES
Rio-LA 6F-314 - Wellbore #1 - Plan #1 (8-4-15)	12,523.2	12,529.8	322.3	84.0	1.352	Level 3, SF
Rio-LA 6F-334 - Wellbore #1 - Plan #1 (8-4-15)	400.0	400.0	47.7	46.1	30.312	CC, ES
Rio-LA 6F-334 - Wellbore #1 - Plan #1 (8-4-15)	12,523.2	12,591.9	912.3	639.8	3.348	SF
Rio-LA 6F-434 - Wellbore #1 - Plan #1 (8-4-15)	200.0	200.0	62.2	61.5	92.229	CC, ES
Rio-LA 6F-434 - Wellbore #1 - Plan #1 (8-4-15)	1,000.0	986.5	117.1	112.7	26.582	SF

Corcilus 1S67W6J Pad Sec.6-T1S-R67W - Corcilus 6E-203 - Wellbore #1 - Plan #1 (4-29-15)													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	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	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	103.04	-142.1	613.6	629.9					
100.0	100.0	91.0	91.0	0.1	0.1	103.04	-142.1	613.6	629.8	629.6	0.21	2,933.843		
200.0	200.0	191.0	191.0	0.3	0.3	103.04	-142.1	613.6	629.8	629.2	0.65	962.906		
300.0	300.0	305.2	305.2	0.6	0.6	102.96	-141.0	612.6	628.8	627.6	1.13	554.519		
400.0	400.0	420.7	420.6	0.8	0.8	102.70	-137.3	609.3	625.3	623.7	1.62	385.004		
500.0	500.0	535.8	535.3	1.0	1.1	102.26	-131.1	603.7	619.3	617.2	2.13	291.082		
600.0	600.0	650.2	649.2	1.2	1.4	101.61	-122.4	595.8	611.0	608.3	2.65	230.487		
700.0	700.0	763.8	761.8	1.5	1.8	100.76	-111.3	585.6	600.3	597.1	3.20	187.779		
800.0	800.0	876.5	873.0	1.7	2.1	99.68	-97.8	573.4	587.4	583.7	3.77	155.964		
900.0	900.0	975.3	970.2	1.9	2.5	98.60	-84.9	561.7	573.5	569.2	4.31	133.113		
1,000.0	1,000.0	1,073.7	1,067.0	2.1	2.9	97.46	-72.0	549.9	559.8	555.0	4.85	115.443		
1,100.0	1,100.0	1,172.1	1,163.9	2.4	3.3	96.27	-59.1	538.2	546.4	541.0	5.39	101.376		
1,200.0	1,200.0	1,270.5	1,260.8	2.6	3.6	95.02	-46.2	526.5	533.1	527.2	5.93	89.957		
1,300.0	1,300.0	1,369.0	1,357.7	2.8	4.0	93.71	-33.3	514.8	520.2	513.7	6.46	80.533		
1,400.0	1,400.0	1,467.4	1,454.5	3.0	4.4	92.33	-20.5	503.1	507.5	500.5	6.99	72.646		
1,500.0	1,500.0	1,565.8	1,551.4	3.3	4.8	90.88	-7.6	491.4	495.2	487.7	7.51	65.966		
1,600.0	1,600.0	1,664.2	1,648.3	3.5	5.2	89.36	5.3	479.7	483.1	475.1	8.02	60.251		
1,700.0	1,700.0	1,762.6	1,745.1	3.7	5.6	87.77	18.2	468.0	471.5	463.0	8.52	55.322		
1,800.0	1,800.0	1,861.1	1,842.0	3.9	6.0	86.10	31.1	456.3	460.2	451.2	9.02	51.039		
1,900.0	1,900.0	1,959.5	1,938.9	4.2	6.4	84.35	44.0	444.6	449.3	439.8	9.50	47.296		
2,000.0	2,000.0	2,057.9	2,035.7	4.4	6.7	82.51	56.9	432.9	438.9	428.9	9.97	44.007		
2,100.0	2,100.0	2,156.3	2,132.6	4.6	7.1	80.59	69.8	421.2	428.9	418.5	10.43	41.106		
2,200.0	2,200.0	2,254.8	2,229.5	4.8	7.5	78.59	82.7	409.5	419.5	408.6	10.89	38.538		
2,300.0	2,300.0	2,353.2	2,326.4	5.1	7.9	76.49	95.6	397.8	410.6	399.3	11.32	36.259		
2,400.0	2,400.0	2,451.6	2,423.2	5.3	8.3	74.31	108.4	386.1	402.3	390.5	11.75	34.231		
2,500.0	2,500.0	2,550.0	2,520.1	5.5	8.7	72.04	121.3	374.3	394.6	382.4	12.17	32.424		
2,600.0	2,600.0	2,648.4	2,617.0	5.7	9.1	69.69	134.2	362.6	387.6	375.0	12.58	30.810		
2,700.0	2,700.0	2,746.9	2,713.8	6.0	9.5	67.26	147.1	350.9	381.2	368.2	12.98	29.367		
2,800.0	2,800.0	2,845.3	2,810.7	6.2	9.9	64.75	160.0	339.2	375.6	362.2	13.38	28.075		
2,900.0	2,900.0	2,943.7	2,907.6	6.4	10.3	62.17	172.9	327.5	370.7	356.9	13.77	26.916		
3,000.0	3,000.0	3,042.1	3,004.4	6.6	10.7	59.53	185.8	315.8	366.6	352.5	14.17	25.874		
3,100.0	3,100.0	3,140.6	3,101.3	6.9	11.1	56.84	198.7	304.1	363.4	348.8	14.57	24.935		
3,200.0	3,200.0	3,239.0	3,198.2	7.1	11.5	54.11	211.6	292.4	361.0	346.0	14.99	24.087		
3,300.0	3,300.0	3,337.4	3,295.1	7.3	11.9	51.35	224.5	280.7	359.4	344.0	15.41	23.319		
3,400.0	3,400.0	3,435.8	3,391.9	7.5	12.2	48.58	237.3	269.0	358.7	342.9	15.86	22.621		
3,429.6	3,429.6	3,464.9	3,420.6	7.6	12.4	47.75	241.2	265.5	358.7	342.7	15.99	22.427		
3,500.0	3,500.0	3,534.3	3,488.8	7.8	12.6	45.80	250.2	257.3	358.9	342.6	16.32	21.986		
3,600.0	3,600.0	3,632.7	3,585.7	8.0	13.0	43.02	263.1	245.6	359.9	343.1	16.81	21.408		
3,700.0	3,700.0	3,731.1	3,682.5	8.2	13.4	40.27	276.0	233.9	361.9	344.5	17.33	20.881		
3,800.0	3,800.0	3,829.5	3,779.4	8.4	13.8	37.56	288.9	222.2	364.6	346.7	17.87	20.401		
3,900.0	3,900.0	3,927.9	3,876.3	8.7	14.2	34.89	301.8	210.4	368.2	349.8	18.44	19.966		
4,000.0	4,000.0	4,026.4	3,973.1	8.9	14.6	32.27	314.7	198.7	372.6	353.6	19.04	19.573		
4,100.0	4,100.0	4,124.8	4,070.0	9.1	15.0	29.72	327.6	187.0	377.8	358.1	19.66	19.220		
4,200.0	4,200.0	4,223.2	4,166.9	9.3	15.4	27.25	340.5	175.3	383.7	363.4	20.30	18.906		
4,300.0	4,300.0	4,321.6	4,263.8	9.6	15.8	24.85	353.3	163.6	390.3	369.4	20.95	18.628		
4,400.0	4,400.0	4,420.1	4,360.6	9.8	16.2	22.53	366.2	151.9	397.7	376.0	21.63	18.384		
4,500.0	4,500.0	4,518.5	4,457.5	10.0	16.6	20.29	379.1	140.2	405.6	383.3	22.32	18.173		
4,600.0	4,600.0	4,616.9	4,554.4	10.2	17.0	18.15	392.0	128.5	414.2	391.1	23.02	17.992		
4,700.0	4,700.0	4,715.3	4,651.2	10.5	17.4	16.09	404.9	116.8	423.3	399.6	23.73	17.839		
4,800.0	4,800.0	4,813.7	4,748.1	10.7	17.8	14.12	417.8	105.1	432.9	408.5	24.44	17.713		
4,900.0	4,900.0	4,912.2	4,845.0	10.9	18.2	12.23	430.7	93.4	443.1	417.9	25.16	17.610		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference													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	5,000.0	5,010.6	4,941.8	11.1	18.6	10.43	443.6	81.7	453.7	427.8	25.88	17.529		
5,100.0	5,100.0	5,109.0	5,038.7	11.4	18.9	8.71	456.5	70.0	464.7	438.1	26.61	17.467		
5,200.0	5,200.0	5,207.4	5,135.6	11.6	19.3	7.08	469.4	58.3	476.2	448.9	27.33	17.424		
5,300.0	5,300.0	5,305.9	5,232.5	11.8	19.7	5.51	482.2	46.5	488.0	460.0	28.05	17.396		
5,400.0	5,400.0	5,404.3	5,329.3	12.0	20.1	4.02	495.1	34.8	500.2	471.4	28.77	17.383		
5,500.0	5,500.0	5,502.7	5,426.2	12.2	20.5	2.61	508.0	23.1	512.7	483.2	29.49	17.382		
5,600.0	5,600.0	5,601.1	5,523.1	12.5	20.9	1.26	520.9	11.4	525.4	495.2	30.21	17.393		
5,700.0	5,700.0	5,699.5	5,619.9	12.7	21.3	-0.03	533.8	-0.3	538.5	507.6	30.93	17.413		
5,800.0	5,800.0	5,798.0	5,716.8	12.9	21.7	-1.26	546.7	-12.0	551.8	520.2	31.64	17.443		
5,900.0	5,900.0	5,896.4	5,813.7	13.1	22.1	-2.42	559.6	-23.7	565.4	533.1	32.34	17.480		
6,000.0	6,000.0	5,994.8	5,910.5	13.4	22.5	-3.54	572.5	-35.4	579.2	546.1	33.05	17.524		
6,100.0	6,100.0	6,096.1	6,010.2	13.6	22.9	-4.63	585.7	-47.4	593.1	559.4	33.76	17.570		
6,200.0	6,200.0	6,214.9	6,127.6	13.8	23.2	-5.67	598.9	-59.4	605.2	570.8	34.42	17.581		
6,300.0	6,300.0	6,334.9	6,247.0	14.0	23.5	-6.40	608.6	-68.2	614.0	579.0	35.00	17.541		
6,400.0	6,400.0	6,455.9	6,367.7	14.3	23.7	-6.84	614.7	-73.7	619.5	584.0	35.51	17.448		
6,500.0	6,500.0	6,577.3	6,489.1	14.5	23.9	-7.00	616.9	-75.8	621.5	585.6	35.93	17.300		
6,600.0	6,600.0	6,679.3	6,591.0	14.7	24.0	-7.00	616.9	-75.8	621.6	585.3	36.30	17.125		
6,700.0	6,700.0	6,779.3	6,691.0	14.9	24.2	-7.00	616.9	-75.8	621.6	584.9	36.66	16.953		
6,800.0	6,800.0	6,879.3	6,791.0	15.2	24.3	-7.00	616.9	-75.8	621.6	584.5	37.03	16.784		
6,900.0	6,900.0	7,019.6	6,931.3	15.4	24.5	-7.02	615.3	-75.8	621.2	583.8	37.44	16.595		
7,000.0	7,000.0	7,459.1	7,338.0	15.6	23.8	-9.25	465.4	-75.8	585.5	548.4	37.04	15.809		
7,100.0	7,100.0	7,702.4	7,506.8	15.8	22.9	-14.56	291.6	-75.8	513.5	476.8	36.75	13.972		
7,114.0	7,114.0	7,725.3	7,519.7	15.9	22.8	-15.53	272.7	-75.8	502.1	465.3	36.77	13.654		
7,150.0	7,150.0	7,776.0	7,546.1	16.0	22.6	76.30	229.4	-75.8	471.6	435.7	35.90	13.137		
7,200.0	7,199.8	7,830.8	7,571.4	16.1	22.4	81.24	180.8	-75.8	427.3	390.8	36.50	11.707		
7,250.0	7,249.3	7,872.6	7,588.3	16.2	22.2	89.54	142.6	-75.8	381.4	344.2	37.21	10.250		
7,300.0	7,298.2	7,905.3	7,600.0	16.3	22.1	101.70	112.1	-75.8	334.7	296.9	37.85	8.842		
7,350.0	7,346.3	7,931.3	7,608.4	16.4	22.0	117.06	87.5	-75.8	287.7	249.7	37.98	7.574		
7,400.0	7,393.4	7,952.3	7,614.6	16.5	22.0	133.06	67.4	-75.8	241.0	203.7	37.25	6.470		
7,450.0	7,439.3	7,969.6	7,619.3	16.6	21.9	146.90	50.7	-75.8	195.7	159.8	35.91	5.451		
7,500.0	7,483.8	7,984.0	7,622.9	16.8	21.8	157.56	36.8	-75.8	153.8	119.4	34.43	4.469		
7,550.0	7,526.7	7,996.1	7,625.7	17.0	21.8	165.47	25.1	-75.8	119.7	86.7	33.02	3.626		
7,600.0	7,567.9	8,006.3	7,627.9	17.2	21.8	171.46	15.1	-75.8	102.1	70.4	31.71	3.220 SF		
7,610.7	7,576.4	8,008.2	7,628.3	17.2	21.8	172.56	13.2	-75.8	101.5	70.0	31.44	3.228 CC, ES		
7,650.0	7,607.1	8,014.9	7,629.7	17.4	21.7	176.25	6.6	-75.8	109.6	79.1	30.46	3.597		
7,700.0	7,644.2	8,022.3	7,631.2	17.7	21.7	-179.60	-0.6	-75.8	138.3	109.0	29.27	4.724		
7,750.0	7,679.0	8,028.7	7,632.3	18.0	21.7	-175.59	-6.8	-75.8	178.2	150.1	28.15	6.332		
7,800.0	7,711.4	8,034.1	7,633.3	18.4	21.7	-171.11	-12.2	-75.8	223.4	196.2	27.21	8.210		
7,850.0	7,741.3	8,038.7	7,634.1	18.8	21.7	-165.16	-16.7	-75.8	271.2	244.4	26.79	10.121		
7,900.0	7,768.5	8,042.6	7,634.8	19.3	21.7	-155.29	-20.6	-75.8	320.2	292.2	27.95	11.457		
7,950.0	7,792.8	8,050.0	7,636.0	19.9	21.6	-130.14	-27.9	-75.8	369.9	334.9	34.97	10.577		
8,000.0	7,814.3	8,050.0	7,636.0	20.6	21.6	-85.47	-27.9	-75.8	419.7	378.2	41.51	10.110		
8,050.0	7,832.8	8,050.0	7,636.0	21.3	21.6	-41.80	-27.9	-75.8	469.6	437.9	31.70	14.813		
8,100.0	7,848.1	8,050.0	7,636.0	22.1	21.6	-23.77	-27.9	-75.8	519.2	495.0	24.28	21.388		
8,150.0	7,860.4	8,050.0	7,636.0	22.9	21.6	-15.82	-27.9	-75.8	568.6	548.0	20.65	27.539		
8,200.0	7,869.4	8,050.0	7,636.0	23.8	21.6	-11.56	-27.9	-75.8	617.6	599.1	18.52	33.347		
8,250.0	7,875.2	8,056.0	7,636.9	24.8	21.6	-10.86	-33.8	-75.8	666.0	648.3	17.71	37.603		
8,300.0	7,877.8	8,056.2	7,636.9	25.7	21.6	-8.83	-34.0	-75.8	713.8	697.1	16.70	42.734		
8,308.0	7,877.9	8,056.3	7,636.9	25.9	21.6	-8.56	-34.0	-75.8	721.4	704.8	16.59	43.495		
8,400.0	7,878.6	8,056.3	7,636.9	27.8	21.6	-8.56	-34.1	-75.8	809.2	792.0	17.20	47.059		
8,500.0	7,879.4	8,056.3	7,636.9	30.0	21.6	-8.57	-34.1	-75.8	905.5	887.6	17.89	50.619		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Corcilus 1S67W6J Pad Sec.6-T1S-R67W - Corcilus 6E-323 - Wellbore #1 - Plan #1 (4-29-15)													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	102.43	-142.1	644.4	659.9					
100.0	100.0	91.0	91.0	0.1	0.1	102.43	-142.1	644.4	659.9	659.7	0.21	3,073.877		
200.0	200.0	191.0	191.0	0.3	0.3	102.43	-142.1	644.4	659.9	659.2	0.65	1,008.866		
300.0	300.0	291.0	291.0	0.6	0.5	102.43	-142.1	644.4	659.9	658.8	1.10	597.922		
400.0	400.0	391.0	391.0	0.8	0.8	102.43	-142.1	644.4	659.9	658.3	1.55	424.862		
500.0	500.0	504.0	504.0	1.0	1.0	102.35	-140.9	643.6	659.0	656.9	2.03	324.528		
600.0	600.0	618.1	618.0	1.2	1.3	102.06	-136.9	640.9	655.9	653.4	2.51	260.851		
700.0	700.0	731.9	731.4	1.5	1.5	101.56	-130.1	636.3	650.7	647.7	3.01	216.409		
800.0	800.0	845.0	844.0	1.7	1.8	100.84	-120.6	629.9	643.5	640.0	3.51	183.226		
900.0	900.0	957.4	955.4	1.9	2.2	99.90	-108.4	621.6	634.3	630.3	4.03	157.296		
1,000.0	1,000.0	1,068.8	1,065.4	2.1	2.5	98.71	-93.7	611.7	623.3	618.7	4.57	136.392		
1,100.0	1,100.0	1,169.8	1,164.7	2.4	2.9	97.45	-78.7	601.5	611.1	606.0	5.09	120.075		
1,200.0	1,200.0	1,268.1	1,261.5	2.6	3.2	96.17	-64.0	591.6	599.2	593.6	5.60	106.979		
1,300.0	1,300.0	1,366.5	1,358.2	2.8	3.6	94.84	-49.3	581.6	587.6	581.5	6.11	96.133		
1,400.0	1,400.0	1,464.9	1,455.0	3.0	4.0	93.46	-34.6	571.7	576.3	569.7	6.62	87.043		
1,500.0	1,500.0	1,563.2	1,551.7	3.3	4.3	92.03	-19.9	561.8	565.4	558.3	7.13	79.345		
1,600.0	1,600.0	1,661.6	1,648.5	3.5	4.7	90.54	-5.2	551.8	554.8	547.2	7.63	72.764		
1,700.0	1,700.0	1,760.0	1,745.2	3.7	5.1	89.00	9.5	541.9	544.7	536.5	8.12	67.090		
1,800.0	1,800.0	1,858.3	1,842.0	3.9	5.5	87.40	24.2	531.9	534.9	526.3	8.61	62.163		
1,900.0	1,900.0	1,956.7	1,938.7	4.2	5.9	85.74	38.8	522.0	525.6	516.5	9.08	57.858		
2,000.0	2,000.0	2,055.0	2,035.5	4.4	6.3	84.03	53.5	512.1	516.8	507.2	9.56	54.075		
2,100.0	2,100.0	2,153.4	2,132.2	4.6	6.7	82.26	68.2	502.1	508.4	498.4	10.02	50.735		
2,200.0	2,200.0	2,251.8	2,229.0	4.8	7.0	80.44	82.9	492.2	500.6	490.1	10.48	47.774		
2,300.0	2,300.0	2,350.1	2,325.7	5.1	7.4	78.56	97.6	482.3	493.3	482.3	10.93	45.138		
2,400.0	2,400.0	2,448.5	2,422.5	5.3	7.8	76.63	112.3	472.3	486.5	475.1	11.37	42.784		
2,500.0	2,500.0	2,546.8	2,519.2	5.5	8.2	74.64	127.0	462.4	480.3	468.5	11.81	40.676		
2,600.0	2,600.0	2,645.2	2,616.0	5.7	8.6	72.61	141.7	452.4	474.8	462.5	12.24	38.782		
2,700.0	2,700.0	2,743.6	2,712.7	6.0	9.0	70.54	156.4	442.5	469.8	457.1	12.67	37.076		
2,800.0	2,800.0	2,841.9	2,809.5	6.2	9.4	68.42	171.0	432.6	465.5	452.4	13.10	35.535		
2,900.0	2,900.0	2,940.3	2,906.2	6.4	9.8	66.28	185.7	422.6	461.9	448.4	13.53	34.140		
3,000.0	3,000.0	3,038.6	3,003.0	6.6	10.2	64.10	200.4	412.7	458.9	445.0	13.96	32.874		
3,100.0	3,100.0	3,137.0	3,099.7	6.9	10.6	61.89	215.1	402.7	456.7	442.3	14.40	31.721		
3,200.0	3,200.0	3,235.4	3,196.5	7.1	11.0	59.67	229.8	392.8	455.1	440.3	14.84	30.669		
3,300.0	3,300.0	3,333.7	3,293.2	7.3	11.4	57.44	244.5	382.9	454.3	439.0	15.29	29.707		
3,367.9	3,367.9	3,400.5	3,358.9	7.5	11.7	55.92	254.5	376.1	454.1	438.5	15.61	29.100		
3,400.0	3,400.0	3,432.1	3,390.0	7.5	11.8	55.20	259.2	372.9	454.2	438.4	15.76	28.825		
3,500.0	3,500.0	3,530.4	3,486.7	7.8	12.2	52.97	273.9	363.0	454.7	438.5	16.23	28.016		
3,600.0	3,600.0	3,628.8	3,583.5	8.0	12.6	50.74	288.6	353.1	456.0	439.3	16.72	27.271		
3,700.0	3,700.0	3,727.2	3,680.2	8.2	13.0	48.53	303.2	343.1	458.0	440.8	17.23	26.585		
3,800.0	3,800.0	3,825.5	3,777.0	8.4	13.4	46.34	317.9	333.2	460.8	443.0	17.75	25.953		
3,900.0	3,900.0	3,923.9	3,873.7	8.7	13.8	44.18	332.6	323.2	464.1	445.8	18.29	25.371		
4,000.0	4,000.0	4,022.3	3,970.4	8.9	14.2	42.05	347.3	313.3	468.2	449.3	18.85	24.836		
4,100.0	4,100.0	4,120.6	4,067.2	9.1	14.6	39.96	362.0	303.4	472.9	453.5	19.43	24.344		
4,200.0	4,200.0	4,219.0	4,163.9	9.3	15.0	37.92	376.7	293.4	478.3	458.2	20.02	23.893		
4,300.0	4,300.0	4,317.3	4,260.7	9.6	15.4	35.92	391.4	283.5	484.2	463.6	20.62	23.481		
4,400.0	4,400.0	4,415.7	4,357.4	9.8	15.8	33.97	406.1	273.6	490.8	469.5	21.24	23.104		
4,500.0	4,500.0	4,514.1	4,454.2	10.0	16.1	32.07	420.8	263.6	497.9	476.0	21.87	22.761		
4,600.0	4,600.0	4,612.4	4,550.9	10.2	16.5	30.22	435.5	253.7	505.5	483.0	22.52	22.451		
4,700.0	4,700.0	4,710.8	4,647.7	10.5	16.9	28.43	450.1	243.7	513.7	490.6	23.17	22.170		
4,800.0	4,800.0	4,809.1	4,744.4	10.7	17.3	26.70	464.8	233.8	522.4	498.6	23.83	21.918		
4,900.0	4,900.0	4,907.5	4,841.2	10.9	17.7	25.03	479.5	223.9	531.5	507.0	24.50	21.691		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Corcilus 1S67W6J Pad Sec.6-T1S-R67W - Corcilus 6E-323 - Wellbore #1 - Plan #1 (4-29-15)													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		
5,000.0	5,000.0	5,005.9	4,937.9	11.1	18.1	23.41	494.2	213.9	541.1	515.9	25.18	21.489		
5,100.0	5,100.0	5,104.2	5,034.7	11.4	18.5	21.84	508.9	204.0	551.1	525.3	25.86	21.310		
5,200.0	5,200.0	5,202.6	5,131.4	11.6	18.9	20.34	523.6	194.1	561.6	535.0	26.55	21.151		
5,300.0	5,300.0	5,300.9	5,228.2	11.8	19.3	18.88	538.3	184.1	572.4	545.1	27.24	21.012		
5,400.0	5,400.0	5,399.3	5,324.9	12.0	19.7	17.48	553.0	174.2	583.5	555.6	27.93	20.891		
5,500.0	5,500.0	5,497.7	5,421.7	12.2	20.1	16.14	567.7	164.2	595.0	566.4	28.62	20.786		
5,600.0	5,600.0	5,601.8	5,524.2	12.5	20.5	14.79	583.0	153.9	606.6	577.3	29.33	20.683		
5,700.0	5,700.0	5,717.3	5,638.4	12.7	20.8	13.60	596.9	144.4	616.4	586.4	29.97	20.566		
5,800.0	5,800.0	5,833.9	5,754.3	12.9	21.1	12.76	607.2	137.5	623.6	593.1	30.55	20.417		
5,900.0	5,900.0	5,951.4	5,871.5	13.1	21.3	12.25	613.5	133.2	628.1	597.1	31.04	20.234		
6,000.0	6,000.0	6,069.2	5,989.4	13.4	21.5	12.06	615.9	131.6	629.8	598.3	31.47	20.013		
6,100.0	6,100.0	6,170.9	6,091.0	13.6	21.6	12.06	615.9	131.6	629.8	598.0	31.85	19.776		
6,200.0	6,200.0	6,270.9	6,191.0	13.8	21.8	12.06	615.9	131.6	629.8	597.6	32.23	19.542		
6,300.0	6,300.0	6,370.9	6,291.0	14.0	21.9	12.06	615.9	131.6	629.8	597.2	32.61	19.313		
6,400.0	6,400.0	6,470.9	6,391.0	14.3	22.0	12.06	615.9	131.6	629.8	596.8	33.00	19.088		
6,500.0	6,500.0	6,570.9	6,491.0	14.5	22.2	12.06	615.9	131.6	629.8	596.4	33.38	18.868		
6,600.0	6,600.0	6,670.9	6,591.0	14.7	22.3	12.06	615.9	131.6	629.8	596.1	33.77	18.652		
6,700.0	6,700.0	6,770.9	6,691.0	14.9	22.5	12.06	615.9	131.6	629.8	595.7	34.15	18.440		
6,800.0	6,800.0	6,870.9	6,791.0	15.2	22.6	12.06	615.9	131.6	629.8	595.3	34.54	18.233		
6,900.0	6,900.0	6,970.9	6,891.0	15.4	22.7	12.06	615.9	131.6	629.8	594.9	34.93	18.029		
7,000.0	7,000.0	7,125.5	7,045.5	15.6	22.9	12.12	612.9	131.6	629.3	593.9	35.37	17.793		
7,100.0	7,100.0	7,556.3	7,441.8	15.8	22.2	16.00	458.9	131.6	592.4	557.8	34.62	17.111		
7,114.0	7,114.0	7,599.8	7,475.6	15.9	22.0	16.96	431.5	131.6	583.8	549.4	34.47	16.939		
7,150.0	7,150.0	7,694.8	7,543.6	16.0	21.7	112.45	365.3	131.6	559.5	522.7	36.86	15.181		
7,200.0	7,199.8	7,793.7	7,605.1	16.1	21.3	122.27	288.0	131.6	522.7	485.6	37.06	14.104		
7,250.0	7,249.3	7,865.4	7,643.2	16.2	21.0	133.07	227.3	131.6	484.4	447.5	36.91	13.123		
7,300.0	7,298.2	7,918.6	7,667.7	16.3	20.8	143.19	180.0	131.6	446.6	410.2	36.42	12.263		
7,350.0	7,346.3	7,959.2	7,684.2	16.4	20.7	151.66	142.9	131.6	411.0	375.3	35.71	11.509		
7,400.0	7,393.4	7,990.8	7,695.6	16.5	20.6	158.31	113.4	131.6	379.2	344.3	34.90	10.866		
7,450.0	7,439.3	8,016.0	7,703.9	16.6	20.5	163.42	89.6	131.6	353.0	319.0	34.04	10.372		
7,500.0	7,483.8	8,036.4	7,710.0	16.8	20.4	167.32	70.2	131.6	334.3	301.2	33.12	10.093 SF		
7,550.0	7,526.7	8,053.1	7,714.5	17.0	20.4	170.35	54.1	131.6	324.8	292.7	32.16	10.100		
7,571.5	7,544.6	8,059.4	7,716.2	17.0	20.4	171.45	48.1	131.6	323.9	292.1	31.73	10.206 CC, ES		
7,600.0	7,567.9	8,067.0	7,718.1	17.2	20.4	172.74	40.7	131.6	325.6	294.4	31.14	10.454		
7,650.0	7,607.1	8,078.5	7,720.9	17.4	20.3	174.67	29.5	131.6	336.6	306.6	30.06	11.198		
7,700.0	7,644.2	8,088.3	7,723.1	17.7	20.3	176.29	20.0	131.6	357.1	328.2	28.92	12.350		
7,750.0	7,679.0	8,096.5	7,724.8	18.0	20.3	177.68	12.0	131.6	385.5	357.8	27.71	13.911		
7,800.0	7,711.4	8,103.5	7,726.3	18.4	20.2	178.93	5.1	131.6	420.2	393.7	26.47	15.876		
7,850.0	7,741.3	8,109.4	7,727.4	18.8	20.2	-179.88	-0.7	131.6	459.6	434.4	25.19	18.247		
7,900.0	7,768.5	8,114.4	7,728.4	19.3	20.2	-178.65	-5.6	131.6	502.5	478.6	23.90	21.024		
7,950.0	7,792.8	8,118.6	7,729.2	19.9	20.2	-177.27	-9.7	131.6	548.0	525.4	22.65	24.195		
8,000.0	7,814.3	8,122.1	7,729.8	20.6	20.2	-175.53	-13.1	131.6	595.3	573.8	21.51	27.678		
8,050.0	7,832.8	8,125.0	7,730.3	21.3	20.2	-172.92	-16.0	131.6	643.8	623.2	20.67	31.151		
8,100.0	7,848.1	8,127.3	7,730.7	22.1	20.2	-167.96	-18.2	131.6	693.2	672.3	20.81	33.302		
8,150.0	7,860.4	8,129.0	7,731.0	22.9	20.2	-152.69	-20.0	131.6	742.9	716.8	26.10	28.470		
8,200.0	7,869.4	8,130.3	7,731.2	23.8	20.2	-61.22	-21.2	131.6	792.9	754.8	38.07	20.830		
8,250.0	7,875.2	8,131.1	7,731.3	24.8	20.2	-18.61	-22.0	131.6	842.8	822.5	20.28	41.567		
8,300.0	7,877.8	8,131.4	7,731.4	25.7	20.2	-10.36	-22.3	131.6	892.5	875.5	17.04	52.368		
8,308.0	7,877.9	8,131.4	7,731.4	25.9	20.2	-9.64	-22.3	131.6	900.4	883.6	16.81	53.573		
8,400.0	7,878.6	8,131.4	7,731.4	27.8	20.2	-9.66	-22.3	131.6	991.5	974.1	17.43	56.871		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 100- Existing Pad Sec.12-T1S-R68W - Gaspar 11-1 (Exist.) - Wellbore #1 - Wellbore #1													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		
11,800.0	7,905.3	7,885.8	7,880.4	117.8	18.2	80.17	230.3	-5,169.2	947.4	813.3	134.17	7.061		
11,900.0	7,906.1	7,890.1	7,884.7	120.6	18.2	81.23	230.3	-5,169.3	850.7	713.4	137.31	6.196		
12,000.0	7,906.9	7,894.4	7,888.9	123.4	18.2	82.28	230.3	-5,169.5	754.9	614.5	140.41	5.376		
12,100.0	7,907.7	7,898.5	7,893.1	126.1	18.2	83.32	230.4	-5,169.6	660.2	516.8	143.48	4.602		
12,200.0	7,908.5	7,902.6	7,897.2	128.9	18.2	84.35	230.4	-5,169.8	567.4	420.9	146.51	3.873		
12,300.0	7,909.2	7,906.7	7,901.3	131.7	18.3	85.38	230.4	-5,169.9	477.4	327.9	149.51	3.193		
12,400.0	7,910.0	7,910.8	7,905.4	134.5	18.3	86.42	230.4	-5,170.0	392.3	239.8	152.47	2.573		
12,500.0	7,910.8	7,915.0	7,909.5	137.3	18.3	87.46	230.4	-5,170.2	316.0	160.6	155.39	2.033		
12,523.2	7,911.0	7,915.9	7,910.5	137.9	18.3	87.70	230.4	-5,170.2	300.2	144.2	156.07	1.924 CC, ES, SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Pad Sec.12-T1S-R68W - Sterkel 21-1 - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-Reference													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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,200.0	7,892.8	7,868.5	7,865.2	73.8	20.0	-76.73	-170.0	-3,570.9	937.6	846.2	91.39	10.259		
10,300.0	7,893.5	7,872.0	7,868.7	76.5	20.0	-77.85	-170.1	-3,571.0	839.6	745.1	94.44	8.890		
10,400.0	7,894.3	7,875.7	7,872.4	79.3	20.0	-79.01	-170.1	-3,571.1	742.1	644.6	97.50	7.611		
10,500.0	7,895.1	7,879.4	7,876.1	82.0	20.0	-80.22	-170.2	-3,571.3	645.4	544.8	100.57	6.418		
10,600.0	7,895.9	7,883.3	7,880.0	84.7	20.0	-81.48	-170.3	-3,571.4	549.8	446.2	103.62	5.306		
10,700.0	7,896.7	7,887.3	7,884.0	87.5	20.0	-82.78	-170.4	-3,571.5	456.1	349.5	106.66	4.277		
10,800.0	7,897.5	7,891.5	7,888.2	90.2	20.0	-84.13	-170.5	-3,571.7	365.8	256.1	109.68	3.335		
10,900.0	7,898.3	7,895.7	7,892.5	93.0	20.0	-85.54	-170.5	-3,571.9	281.9	169.2	112.66	2.502		
11,000.0	7,899.0	7,900.2	7,896.9	95.7	20.0	-87.00	-170.6	-3,572.0	212.3	96.7	115.60	1.837		
11,100.0	7,899.8	7,904.8	7,901.5	98.5	20.1	-88.52	-170.7	-3,572.2	175.2	56.7	118.48	1.478 Level 3		
11,122.2	7,900.0	7,905.8	7,902.5	99.1	20.1	-88.86	-170.8	-3,572.2	173.8	54.7	119.11	1.459 Level 3, CC, ES, SF		
11,200.0	7,900.6	7,909.5	7,906.2	101.2	20.1	-90.06	-170.8	-3,572.4	190.4	69.1	121.29	1.569		
11,300.0	7,901.4	7,914.2	7,910.8	104.0	20.1	-91.60	-170.9	-3,572.6	248.5	124.5	124.02	2.004		
11,400.0	7,902.2	7,918.9	7,915.6	106.8	20.1	-93.15	-171.0	-3,572.7	327.4	200.8	126.67	2.585		
11,500.0	7,903.0	7,923.6	7,920.3	109.5	20.1	-94.70	-171.1	-3,572.9	415.5	286.3	129.22	3.215		
11,600.0	7,903.7	7,928.4	7,925.1	112.3	20.1	-96.25	-171.2	-3,573.1	507.9	376.3	131.67	3.858		
11,700.0	7,904.5	7,933.2	7,929.9	115.1	20.1	-97.80	-171.3	-3,573.3	602.8	468.8	134.02	4.498		
11,800.0	7,905.3	7,938.1	7,934.7	117.8	20.1	-99.35	-171.4	-3,573.5	699.0	562.8	136.26	5.130		
11,900.0	7,906.1	7,942.9	7,939.6	120.6	20.2	-100.90	-171.5	-3,573.7	796.2	657.8	138.38	5.753		
12,000.0	7,906.9	7,947.8	7,944.5	123.4	20.2	-102.43	-171.5	-3,573.9	893.9	753.5	140.40	6.367		
12,100.0	7,907.7	7,952.8	7,949.4	126.1	20.2	-103.96	-171.6	-3,574.1	992.1	849.8	142.29	6.972		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T1S-R67W - Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													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	79.18	54.6	285.8	291.4					
100.0	100.0	87.0	87.0	0.1	0.1	79.19	54.5	285.3	290.5	290.3	0.23	1,274.620		
200.0	200.0	187.1	187.1	0.3	0.4	79.24	54.0	284.3	289.4	288.7	0.70	413.725		
300.0	300.0	285.8	285.8	0.6	0.6	79.34	53.4	283.5	288.5	287.3	1.18	244.518		
400.0	400.0	385.7	385.7	0.8	0.9	79.44	52.8	283.1	287.9	286.3	1.66	172.972		
500.0	500.0	486.7	486.7	1.0	1.1	79.48	52.5	282.4	287.2	285.0	2.15	133.846		
600.0	600.0	587.9	587.9	1.2	1.4	79.45	52.3	281.2	286.0	283.4	2.62	109.021		
700.0	700.0	688.5	688.4	1.5	1.6	79.50	51.8	279.8	284.6	281.5	3.11	91.529		
800.0	800.0	788.3	788.2	1.7	1.9	79.69	50.7	278.4	283.0	279.5	3.59	78.768		
900.0	900.0	888.1	888.0	1.9	2.2	79.94	49.2	277.2	281.6	277.5	4.08	69.098		
1,000.0	1,000.0	987.7	987.6	2.1	2.4	80.16	47.9	276.1	280.2	275.7	4.56	61.473		
1,100.0	1,100.0	1,087.9	1,087.8	2.4	2.7	80.34	46.8	274.9	278.9	273.9	5.05	55.264		
1,200.0	1,200.0	1,187.8	1,187.7	2.6	3.0	80.44	46.1	273.7	277.6	272.0	5.54	50.146		
1,300.0	1,300.0	1,287.6	1,287.5	2.8	3.2	80.51	45.6	272.5	276.3	270.3	6.02	45.871		
1,400.0	1,400.0	1,387.4	1,387.3	3.0	3.5	80.61	44.9	271.3	275.1	268.5	6.51	42.236		
1,500.0	1,500.0	1,486.8	1,486.6	3.3	3.7	80.71	44.2	270.4	274.0	267.0	7.00	39.134		
1,600.0	1,600.0	1,587.4	1,587.3	3.5	4.0	80.80	43.6	269.4	272.9	265.4	7.49	36.435		
1,700.0	1,700.0	1,687.4	1,687.3	3.7	4.3	80.82	43.3	268.2	271.7	263.7	7.97	34.082		
1,800.0	1,800.0	1,787.8	1,787.6	3.9	4.5	80.79	43.3	266.9	270.4	262.0	8.44	32.024		
1,900.0	1,900.0	1,888.4	1,888.2	4.2	4.8	80.71	43.4	265.4	269.0	260.1	8.91	30.185		
2,000.0	2,000.0	1,988.6	1,988.4	4.4	5.0	80.60	43.7	263.8	267.4	258.0	9.37	28.522		
2,100.0	2,100.0	2,089.0	2,088.8	4.6	5.2	80.48	43.9	262.0	265.7	255.8	9.84	26.995		
2,200.0	2,200.0	2,190.0	2,189.7	4.8	5.5	80.37	44.1	259.9	263.7	253.4	10.32	25.559		
2,300.0	2,300.0	2,290.2	2,289.9	5.1	5.7	80.30	44.1	257.6	261.4	250.6	10.80	24.216		
2,400.0	2,400.0	2,390.4	2,390.2	5.3	6.0	80.20	44.1	255.3	259.1	247.8	11.28	22.980		
2,500.0	2,500.0	2,490.4	2,490.1	5.5	6.2	80.07	44.3	252.8	256.7	245.0	11.75	21.845		
2,600.0	2,600.0	2,590.5	2,590.2	5.7	6.5	79.89	44.6	250.3	254.3	242.1	12.23	20.801		
2,700.0	2,700.0	2,690.4	2,690.1	6.0	6.7	79.63	45.3	247.7	251.9	239.2	12.69	19.846		
2,800.0	2,800.0	2,790.8	2,790.4	6.2	7.0	79.33	46.2	245.0	249.4	236.3	13.16	18.954		
2,900.0	2,900.0	2,890.5	2,890.1	6.4	7.2	79.05	46.9	242.3	246.9	233.3	13.63	18.116		
3,000.0	3,000.0	2,989.5	2,989.1	6.6	7.5	78.85	47.3	239.9	244.6	230.5	14.10	17.345		
3,100.0	3,100.0	3,088.3	3,087.8	6.9	7.7	78.82	47.1	238.1	242.8	228.2	14.59	16.644		
3,200.0	3,200.0	3,187.3	3,186.8	7.1	8.0	78.89	46.5	236.9	241.4	226.3	15.07	16.017		
3,300.0	3,300.0	3,286.4	3,285.9	7.3	8.3	78.95	46.1	236.0	240.4	224.9	15.56	15.457		
3,400.0	3,400.0	3,385.7	3,385.2	7.5	8.5	79.01	45.7	235.4	239.8	223.8	16.04	14.953		
3,500.0	3,500.0	3,485.6	3,485.0	7.8	8.8	79.05	45.5	235.0	239.4	222.8	16.52	14.486		
3,600.0	3,600.0	3,585.0	3,584.5	8.0	9.0	79.00	45.6	234.6	239.0	222.1	16.96	14.095		
3,673.8	3,673.8	3,658.3	3,657.8	8.1	9.1	78.88	46.1	234.5	239.0	221.7	17.22	13.873		
3,700.0	3,700.0	3,684.4	3,683.8	8.2	9.1	78.83	46.3	234.4	239.0	221.6	17.31	13.801		
3,800.0	3,800.0	3,784.2	3,783.7	8.4	9.2	78.66	47.0	234.4	239.1	221.4	17.64	13.555		
3,900.0	3,900.0	3,884.8	3,884.2	8.7	9.4	78.57	47.4	234.4	239.1	221.1	18.02	13.268		
4,000.0	4,000.0	3,984.9	3,984.3	8.9	9.6	78.58	47.3	234.2	239.0	220.5	18.49	12.925		
4,100.0	4,100.0	4,086.4	4,085.9	9.1	9.9	78.54	47.4	233.8	238.6	219.6	18.98	12.573		
4,200.0	4,200.0	4,186.7	4,186.2	9.3	10.1	78.39	47.8	232.8	237.7	218.2	19.44	12.225		
4,300.0	4,300.0	4,287.2	4,286.6	9.6	10.3	78.18	48.5	231.6	236.7	216.8	19.90	11.891		
4,400.0	4,400.0	4,387.7	4,387.1	9.8	10.6	77.93	49.2	230.2	235.5	215.1	20.37	11.561		
4,500.0	4,500.0	4,488.6	4,488.0	10.0	10.8	77.66	50.0	228.5	233.9	213.1	20.84	11.228		
4,600.0	4,600.0	4,589.5	4,588.9	10.2	11.1	77.36	50.8	226.3	232.0	210.7	21.31	10.886		
4,700.0	4,700.0	4,689.8	4,689.1	10.5	11.3	76.99	51.7	223.9	229.8	208.0	21.79	10.549		
4,800.0	4,800.0	4,789.1	4,788.4	10.7	11.6	76.58	52.8	221.4	227.7	205.4	22.25	10.232		
4,900.0	4,900.0	4,889.1	4,888.4	10.9	11.8	76.14	54.1	219.2	225.8	203.1	22.72	9.937		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T1S-R67W - Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													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	5,000.0	4,989.1	4,988.4	11.1	12.1	75.70	55.3	216.9	223.8	200.6	23.19	9.653		
5,100.0	5,100.0	5,089.5	5,088.7	11.4	12.3	75.30	56.3	214.5	221.8	198.2	23.66	9.373		
5,200.0	5,200.0	5,190.3	5,189.5	11.6	12.6	74.95	57.0	211.9	219.5	195.4	24.15	9.091		
5,300.0	5,300.0	5,289.8	5,288.9	11.8	12.8	74.65	57.5	209.3	217.1	192.5	24.63	8.814		
5,400.0	5,400.0	5,387.6	5,386.8	12.0	13.1	74.48	57.6	207.4	215.3	190.2	25.12	8.573		
5,500.0	5,500.0	5,486.7	5,485.8	12.2	13.3	74.47	57.4	206.5	214.3	188.7	25.60	8.371		
5,600.0	5,600.0	5,586.0	5,585.1	12.5	13.6	74.52	57.0	205.9	213.6	187.5	26.07	8.194		
5,700.0	5,700.0	5,685.4	5,684.6	12.7	13.8	74.56	56.8	205.5	213.2	186.7	26.53	8.037		
5,800.0	5,800.0	5,785.8	5,785.0	12.9	14.1	74.63	56.4	205.3	212.9	185.9	26.98	7.891		
5,900.0	5,900.0	5,885.9	5,885.0	13.1	14.3	74.73	56.0	204.9	212.4	185.0	27.43	7.744		
6,000.0	6,000.0	5,986.0	5,985.1	13.4	14.5	74.75	55.7	204.5	211.9	184.0	27.91	7.593		
6,100.0	6,100.0	6,086.1	6,085.3	13.6	14.8	74.76	55.6	203.9	211.3	183.0	28.40	7.443		
6,200.0	6,200.0	6,184.9	6,184.0	13.8	15.0	74.74	55.5	203.6	211.0	182.2	28.81	7.324		
6,201.5	6,201.5	6,186.3	6,185.5	13.8	15.0	74.74	55.6	203.6	211.0	182.2	28.82	7.322 CC		
6,300.0	6,300.0	6,284.3	6,283.4	14.0	15.1	74.65	55.9	203.6	211.2	182.0	29.13	7.249 ES		
6,400.0	6,400.0	6,383.9	6,383.1	14.3	15.1	74.57	56.3	203.9	211.5	182.1	29.40	7.194		
6,500.0	6,500.0	6,484.0	6,483.2	14.5	15.2	74.47	56.8	204.2	212.0	182.3	29.68	7.142		
6,600.0	6,600.0	6,583.8	6,582.9	14.7	15.3	74.30	57.5	204.5	212.4	182.4	29.97	7.086		
6,700.0	6,700.0	6,682.8	6,682.0	14.9	15.3	74.17	58.1	205.0	213.1	182.9	30.25	7.046		
6,800.0	6,800.0	6,782.8	6,781.9	15.2	15.3	74.15	58.5	206.0	214.1	183.6	30.49	7.023		
6,900.0	6,900.0	6,882.8	6,881.9	15.4	15.3	74.15	58.8	206.9	215.1	184.4	30.72	7.001		
7,000.0	7,000.0	6,982.2	6,981.3	15.6	15.3	74.14	59.1	208.0	216.2	185.2	30.97	6.982		
7,100.0	7,100.0	7,082.1	7,081.2	15.8	15.4	74.07	59.7	209.1	217.5	186.3	31.22	6.966		
7,114.0	7,114.0	7,096.1	7,095.2	15.9	15.4	74.05	59.8	209.3	217.7	186.4	31.26	6.964 SF		
7,150.0	7,150.0	7,132.0	7,131.1	16.0	15.4	164.00	60.1	209.7	219.0	187.7	31.32	6.992		
7,200.0	7,199.8	7,181.7	7,180.8	16.1	15.4	164.17	60.3	210.3	223.5	192.2	31.30	7.141		
7,250.0	7,249.3	7,231.0	7,230.1	16.2	15.4	164.51	60.5	211.0	231.1	200.0	31.15	7.419		
7,300.0	7,298.2	7,279.8	7,278.9	16.3	15.4	164.96	60.7	211.6	241.9	211.0	30.88	7.833		
7,350.0	7,346.3	7,327.5	7,326.6	16.4	15.5	165.47	60.8	212.2	255.8	225.3	30.49	8.390		
7,400.0	7,393.4	7,373.9	7,372.9	16.5	15.5	166.01	61.1	212.9	272.8	242.8	29.97	9.103		
7,450.0	7,439.3	7,419.1	7,418.2	16.6	15.5	166.53	61.3	213.7	292.9	263.6	29.33	9.987		
7,500.0	7,483.8	7,463.2	7,462.2	16.8	15.5	167.04	61.6	214.4	316.0	287.4	28.57	11.058		
7,550.0	7,526.7	7,505.6	7,504.6	17.0	15.5	167.49	61.9	215.1	341.9	314.2	27.70	12.342		
7,600.0	7,567.9	7,546.3	7,545.4	17.2	15.5	167.88	62.1	215.8	370.5	343.8	26.72	13.867		
7,650.0	7,607.1	7,585.1	7,584.1	17.4	15.6	168.18	62.3	216.4	401.8	376.2	25.64	15.670		
7,700.0	7,644.2	7,621.7	7,620.7	17.7	15.6	168.39	62.5	217.0	435.6	411.1	24.48	17.795		
7,750.0	7,679.0	7,655.9	7,654.9	18.0	15.6	168.48	62.7	217.6	471.7	448.4	23.24	20.297		
7,800.0	7,711.4	7,687.6	7,686.6	18.4	15.6	168.45	62.8	218.1	510.0	488.0	21.94	23.238		
7,850.0	7,741.3	7,717.0	7,716.0	18.8	15.6	168.27	63.0	218.6	550.3	529.7	20.62	26.683		
7,900.0	7,768.5	7,743.7	7,742.7	19.3	15.6	167.91	63.1	219.1	592.4	573.1	19.31	30.684		
7,950.0	7,792.8	7,767.6	7,766.6	19.9	15.7	167.31	63.1	219.5	636.2	618.2	18.06	35.237		
8,000.0	7,814.3	7,788.6	7,787.6	20.6	15.7	166.36	63.2	219.8	681.5	664.6	16.96	40.184		
8,050.0	7,832.8	7,806.5	7,805.5	21.3	15.7	164.90	63.2	220.1	728.1	711.9	16.18	44.996		
8,100.0	7,848.1	7,821.2	7,820.2	22.1	15.7	162.58	63.3	220.3	775.7	759.7	16.02	48.432		
8,150.0	7,860.4	7,832.7	7,831.7	22.9	15.7	158.68	63.3	220.5	824.2	807.1	17.05	48.340		
8,200.0	7,869.4	7,841.0	7,840.0	23.8	15.7	151.35	63.3	220.6	873.3	852.8	20.53	42.541		
8,250.0	7,875.2	7,846.1	7,845.1	24.8	15.7	134.73	63.3	220.7	923.0	893.7	29.25	31.551		
8,300.0	7,877.8	7,847.9	7,846.9	25.7	15.7	92.57	63.3	220.7	972.8	931.4	41.40	23.498		
8,308.0	7,877.9	7,847.9	7,846.9	25.9	15.7	83.41	63.3	220.7	980.8	939.4	41.35	23.716		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	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	0.00	14.6	0.0	14.6	14.6	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	0.00	14.6	0.0	14.6	14.3	0.22	64.830		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	14.6	0.0	14.6	13.9	0.67	21.610		
300.0	300.0	300.0	300.0	0.6	0.6	0.00	14.6	0.0	14.6	13.4	1.12	12.966		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	14.6	0.0	14.6	13.0	1.57	9.261		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	14.6	0.0	14.6	12.5	2.02	7.203		
600.0	600.0	600.0	600.0	1.2	1.2	0.00	14.6	0.0	14.6	12.1	2.47	5.894		
700.0	700.0	700.0	700.0	1.5	1.5	0.00	14.6	0.0	14.6	11.6	2.92	4.987		
800.0	800.0	800.0	800.0	1.7	1.7	0.00	14.6	0.0	14.6	11.2	3.37	4.322		
900.0	900.0	900.0	900.0	1.9	1.9	0.00	14.6	0.0	14.6	10.8	3.82	3.814		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	14.6	0.0	14.6	10.3	4.27	3.412		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	0.00	14.6	0.0	14.6	9.9	4.72	3.087		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	0.00	14.6	0.0	14.6	9.4	5.17	2.819		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	0.00	14.6	0.0	14.6	9.0	5.62	2.593		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	0.00	14.6	0.0	14.6	8.5	6.07	2.401		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	0.00	14.6	0.0	14.6	8.1	6.52	2.236		
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	0.00	14.6	0.0	14.6	7.6	6.97	2.091		
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	0.00	14.6	0.0	14.6	7.2	7.42	1.965		
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	0.00	14.6	0.0	14.6	6.7	7.87	1.852 CC, ES		
1,900.0	1,900.0	1,899.8	1,899.8	4.2	4.2	1.47	15.3	0.4	15.4	7.0	8.31	1.847 SF		
2,000.0	2,000.0	1,999.5	1,999.4	4.4	4.4	5.08	17.7	1.6	17.7	9.0	8.76	2.026		
2,100.0	2,100.0	2,099.0	2,098.9	4.6	4.6	9.31	21.5	3.5	21.8	12.6	9.20	2.373		
2,200.0	2,200.0	2,198.5	2,198.1	4.8	4.8	13.10	26.9	6.3	27.7	18.1	9.65	2.871		
2,300.0	2,300.0	2,297.6	2,297.0	5.1	5.0	16.10	33.8	9.8	35.3	25.2	10.10	3.499		
2,400.0	2,400.0	2,396.5	2,395.4	5.3	5.3	18.38	42.2	14.0	44.7	34.2	10.55	4.239		
2,500.0	2,500.0	2,495.6	2,494.0	5.5	5.5	20.03	51.8	18.9	55.5	44.5	11.02	5.039		
2,600.0	2,600.0	2,595.0	2,592.8	5.7	5.8	21.16	61.6	23.8	66.4	54.9	11.49	5.782		
2,700.0	2,700.0	2,694.4	2,691.6	6.0	6.0	21.97	71.3	28.8	77.3	65.4	11.96	6.465		
2,800.0	2,800.0	2,793.8	2,790.4	6.2	6.3	22.58	81.0	33.7	88.3	75.8	12.44	7.095		
2,900.0	2,900.0	2,893.2	2,889.2	6.4	6.5	23.06	90.7	38.6	99.2	86.3	12.92	7.676		
3,000.0	3,000.0	2,992.6	2,988.0	6.6	6.8	23.44	100.4	43.5	110.1	96.7	13.41	8.214		
3,100.0	3,100.0	3,092.0	3,086.7	6.9	7.0	23.75	110.1	48.5	121.1	107.2	13.89	8.713		
3,200.0	3,200.0	3,191.4	3,185.5	7.1	7.3	24.01	119.9	53.4	132.0	117.6	14.39	9.177		
3,300.0	3,300.0	3,290.8	3,284.3	7.3	7.6	24.23	129.6	58.3	143.0	128.1	14.88	9.608		
3,400.0	3,400.0	3,390.2	3,383.1	7.5	7.8	24.42	139.3	63.3	153.9	138.5	15.37	10.011		
3,500.0	3,500.0	3,489.6	3,481.9	7.8	8.1	24.59	149.0	68.2	164.9	149.0	15.87	10.387		
3,600.0	3,600.0	3,589.0	3,580.7	8.0	8.4	24.73	158.7	73.1	175.8	159.4	16.37	10.739		
3,700.0	3,700.0	3,688.4	3,679.5	8.2	8.7	24.86	168.4	78.0	186.8	169.9	16.87	11.070		
3,800.0	3,800.0	3,787.8	3,778.3	8.4	8.9	24.97	178.2	83.0	197.7	180.3	17.37	11.381		
3,900.0	3,900.0	3,887.2	3,877.1	8.7	9.2	25.07	187.9	87.9	208.7	190.8	17.88	11.673		
4,000.0	4,000.0	3,986.6	3,975.9	8.9	9.5	25.16	197.6	92.8	219.6	201.3	18.38	11.948		
4,100.0	4,100.0	4,086.0	4,074.7	9.1	9.8	25.24	207.3	97.7	230.6	211.7	18.89	12.209		
4,200.0	4,200.0	4,185.4	4,173.5	9.3	10.1	25.32	217.0	102.7	241.5	222.2	19.39	12.455		
4,300.0	4,300.0	4,293.1	4,280.8	9.6	10.3	25.38	226.2	107.3	251.1	231.2	19.86	12.640		
4,400.0	4,400.0	4,402.7	4,390.2	9.8	10.5	25.42	231.8	110.1	256.8	236.5	20.30	12.649		
4,500.0	4,500.0	4,512.6	4,500.0	10.0	10.7	25.43	233.6	111.1	258.7	238.0	20.72	12.487		
4,600.0	4,600.0	4,612.6	4,600.0	10.2	10.9	25.43	233.6	111.1	258.7	237.6	21.13	12.245		
4,700.0	4,700.0	4,712.6	4,700.0	10.5	11.1	25.43	233.6	111.1	258.7	237.2	21.56	12.002		
4,800.0	4,800.0	4,812.6	4,800.0	10.7	11.3	25.43	233.6	111.1	258.7	236.7	21.99	11.767		
4,900.0	4,900.0	4,912.6	4,900.0	10.9	11.5	25.43	233.6	111.1	258.7	236.3	22.42	11.542		
5,000.0	5,000.0	5,012.6	5,000.0	11.1	11.7	25.43	233.6	111.1	258.7	235.9	22.85	11.324		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	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			
5,100.0	5,100.0	5,112.6	5,100.0	11.4	11.9	25.43	233.6	111.1	258.7	235.4	23.28	11.115			
5,200.0	5,200.0	5,212.6	5,200.0	11.6	12.1	25.43	233.6	111.1	258.7	235.0	23.71	10.912			
5,300.0	5,300.0	5,312.6	5,300.0	11.8	12.3	25.43	233.6	111.1	258.7	234.6	24.14	10.717			
5,400.0	5,400.0	5,412.6	5,400.0	12.0	12.6	25.43	233.6	111.1	258.7	234.1	24.57	10.528			
5,500.0	5,500.0	5,512.6	5,500.0	12.2	12.8	25.43	233.6	111.1	258.7	233.7	25.01	10.345			
5,600.0	5,600.0	5,612.6	5,600.0	12.5	13.0	25.43	233.6	111.1	258.7	233.3	25.44	10.169			
5,700.0	5,700.0	5,712.6	5,700.0	12.7	13.2	25.43	233.6	111.1	258.7	232.8	25.88	9.998			
5,800.0	5,800.0	5,812.6	5,800.0	12.9	13.4	25.43	233.6	111.1	258.7	232.4	26.31	9.833			
5,900.0	5,900.0	5,912.6	5,900.0	13.1	13.6	25.43	233.6	111.1	258.7	232.0	26.75	9.672			
6,000.0	6,000.0	6,012.6	6,000.0	13.4	13.8	25.43	233.6	111.1	258.7	231.5	27.18	9.517			
6,100.0	6,100.0	6,112.6	6,100.0	13.6	14.0	25.43	233.6	111.1	258.7	231.1	27.62	9.367			
6,200.0	6,200.0	6,212.6	6,200.0	13.8	14.2	25.43	233.6	111.1	258.7	230.7	28.06	9.221			
6,300.0	6,300.0	6,312.6	6,300.0	14.0	14.5	25.43	233.6	111.1	258.7	230.2	28.49	9.080			
6,400.0	6,400.0	6,412.6	6,400.0	14.3	14.7	25.43	233.6	111.1	258.7	229.8	28.93	8.942			
6,500.0	6,500.0	6,512.6	6,500.0	14.5	14.9	25.43	233.6	111.1	258.7	229.3	29.37	8.809			
6,600.0	6,600.0	6,612.6	6,600.0	14.7	15.1	25.43	233.6	111.1	258.7	228.9	29.81	8.679			
6,700.0	6,700.0	6,712.6	6,700.0	14.9	15.3	25.43	233.6	111.1	258.7	228.5	30.25	8.554			
6,800.0	6,800.0	6,812.6	6,800.0	15.2	15.5	25.43	233.6	111.1	258.7	228.0	30.69	8.431			
6,900.0	6,900.0	6,914.0	6,901.5	15.4	15.7	25.42	233.6	111.0	258.7	227.6	31.13	8.311			
7,000.0	7,000.0	7,029.9	7,016.8	15.6	15.9	23.32	233.6	100.7	255.0	223.4	31.55	8.081			
7,100.0	7,100.0	7,140.2	7,123.9	15.8	16.1	17.76	233.6	74.9	246.5	214.6	31.94	7.718			
7,114.0	7,114.0	7,155.0	7,137.9	15.9	16.1	16.73	233.6	70.2	245.1	213.2	31.99	7.663			
7,150.0	7,150.0	7,192.4	7,173.0	16.0	16.2	104.16	233.6	57.3	241.9	210.1	31.76	7.615			
7,200.0	7,199.8	7,243.3	7,219.7	16.1	16.2	100.56	233.6	37.0	238.2	206.2	31.97	7.451			
7,250.0	7,249.3	7,293.1	7,263.9	16.2	16.3	96.88	233.6	14.1	235.6	203.4	32.19	7.318			
7,300.0	7,298.2	7,341.8	7,305.6	16.3	16.4	93.15	233.6	-11.0	234.0	201.6	32.44	7.215			
7,343.3	7,339.9	7,383.1	7,339.8	16.4	16.4	89.91	233.6	-34.3	233.6	201.0	32.67	7.151			
7,350.0	7,346.3	7,389.5	7,344.9	16.4	16.4	89.41	233.6	-38.0	233.6	200.9	32.71	7.143			
7,400.0	7,393.4	7,436.2	7,381.6	16.5	16.6	85.71	233.6	-66.9	234.3	201.3	32.99	7.103			
7,450.0	7,439.3	7,482.1	7,415.9	16.6	16.8	82.08	233.6	-97.4	236.0	202.8	33.28	7.093			
7,500.0	7,483.8	7,527.2	7,447.8	16.8	17.0	78.57	233.6	-129.3	238.7	205.2	33.56	7.114			
7,550.0	7,526.7	7,571.6	7,477.2	17.0	17.3	75.19	233.6	-162.5	242.3	208.5	33.82	7.164			
7,600.0	7,567.9	7,615.2	7,504.3	17.2	17.6	71.97	233.6	-196.8	246.6	212.6	34.06	7.241			
7,650.0	7,607.1	7,658.3	7,529.0	17.4	18.0	68.93	233.6	-232.0	251.6	217.3	34.26	7.343			
7,700.0	7,644.2	7,700.0	7,551.0	17.7	18.4	66.13	233.6	-267.4	257.0	222.6	34.43	7.465			
7,750.0	7,679.0	7,742.6	7,571.5	18.0	18.9	63.43	233.6	-304.8	262.8	228.3	34.59	7.600			
7,800.0	7,711.4	7,784.1	7,589.3	18.4	19.4	60.98	233.6	-342.2	269.0	234.2	34.73	7.745			
7,850.0	7,741.3	7,825.0	7,605.0	18.8	20.0	58.72	233.6	-380.1	275.2	240.4	34.87	7.894			
7,900.0	7,768.5	7,865.6	7,618.5	19.3	20.5	56.64	233.6	-418.3	281.6	246.6	35.02	8.040			
7,950.0	7,792.8	7,905.8	7,629.8	19.9	21.2	54.75	233.6	-456.9	287.9	252.7	35.21	8.177			
8,000.0	7,814.3	7,950.0	7,639.9	20.6	21.9	52.90	233.6	-499.9	294.2	258.7	35.46	8.296			
8,050.0	7,832.8	7,985.1	7,646.1	21.3	22.5	51.49	233.6	-534.5	300.1	264.4	35.76	8.393			
8,100.0	7,848.1	8,024.3	7,651.2	22.1	23.2	50.09	233.6	-573.4	305.9	269.8	36.15	8.462			
8,150.0	7,860.4	8,063.3	7,654.3	22.9	24.0	48.85	233.6	-612.2	311.4	274.8	36.63	8.500			
8,200.0	7,869.4	8,102.0	7,655.3	23.8	24.7	47.74	233.6	-650.9	316.5	279.3	37.22	8.503			
8,250.0	7,875.2	8,150.1	7,655.1	24.8	25.7	46.75	233.6	-699.0	320.6	282.5	38.07	8.421			
8,300.0	7,877.8	8,200.0	7,654.9	25.7	26.7	46.28	233.6	-748.9	322.5	283.2	39.27	8.210			
8,308.0	7,877.9	8,208.0	7,654.9	25.9	26.9	46.26	233.6	-756.9	322.6	283.0	39.51	8.164			
8,400.0	7,878.6	8,300.0	7,654.4	27.8	28.9	46.10	233.6	-848.9	323.3	281.0	42.33	7.638			
8,500.0	7,879.4	8,400.0	7,654.0	30.0	31.2	45.93	233.6	-948.9	324.1	278.6	45.54	7.117			
8,600.0	7,880.2	8,500.0	7,653.5	32.3	33.6	45.76	233.6	-1,048.9	324.9	276.1	48.86	6.650			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	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		
8,700.0	7,881.0	8,600.0	7,653.0	34.6	36.0	45.59	233.6	-1,148.9	325.7	273.5	52.27	6.232		
8,800.0	7,881.8	8,700.0	7,652.5	37.0	38.4	45.42	233.6	-1,248.9	326.6	270.8	55.75	5.858		
8,900.0	7,882.5	8,800.0	7,652.1	39.5	41.0	45.26	233.6	-1,348.9	327.4	268.1	59.27	5.523		
9,000.0	7,883.3	8,900.0	7,651.6	42.0	43.5	45.09	233.6	-1,448.9	328.2	265.4	62.84	5.223		
9,100.0	7,884.1	9,000.0	7,651.1	44.6	46.1	44.93	233.6	-1,548.8	329.0	262.6	66.44	4.953		
9,200.0	7,884.9	9,100.0	7,650.7	47.1	48.7	44.76	233.6	-1,648.8	329.9	259.8	70.05	4.709		
9,300.0	7,885.7	9,200.0	7,650.2	49.7	51.3	44.60	233.6	-1,748.8	330.7	257.0	73.68	4.488		
9,400.0	7,886.5	9,299.9	7,649.7	52.4	54.0	44.43	233.6	-1,848.8	331.5	254.2	77.32	4.288		
9,500.0	7,887.3	9,399.9	7,649.3	55.0	56.6	44.27	233.6	-1,948.8	332.4	251.4	80.97	4.105		
9,600.0	7,888.0	9,499.9	7,648.8	57.6	59.3	44.11	233.6	-2,048.8	333.2	248.6	84.61	3.938		
9,700.0	7,888.8	9,599.9	7,648.3	60.3	62.0	43.95	233.6	-2,148.8	334.1	245.8	88.26	3.785		
9,800.0	7,889.6	9,699.9	7,647.8	63.0	64.7	43.79	233.6	-2,248.8	334.9	243.0	91.90	3.644		
9,900.0	7,890.4	9,799.9	7,647.4	65.7	67.4	43.63	233.6	-2,348.8	335.8	240.2	95.54	3.514		
10,000.0	7,891.2	9,899.9	7,646.9	68.4	70.1	43.48	233.6	-2,448.8	336.6	237.5	99.17	3.394		
10,100.0	7,892.0	9,999.9	7,646.4	71.1	72.8	43.32	233.6	-2,548.8	337.5	234.7	102.80	3.283		
10,200.0	7,892.8	10,099.9	7,646.0	73.8	75.5	43.16	233.6	-2,648.7	338.3	231.9	106.41	3.180		
10,300.0	7,893.5	10,199.9	7,645.5	76.5	78.3	43.01	233.6	-2,748.7	339.2	229.2	110.02	3.083		
10,400.0	7,894.3	10,299.9	7,645.0	79.3	81.0	42.85	233.6	-2,848.7	340.1	226.5	113.61	2.993		
10,500.0	7,895.1	10,399.9	7,644.5	82.0	83.7	42.70	233.6	-2,948.7	340.9	223.7	117.19	2.909		
10,600.0	7,895.9	10,499.9	7,644.1	84.7	86.5	42.54	233.6	-3,048.7	341.8	221.0	120.76	2.830		
10,700.0	7,896.7	10,599.8	7,643.6	87.5	89.2	42.39	233.6	-3,148.7	342.7	218.3	124.32	2.756		
10,800.0	7,897.5	10,699.8	7,643.1	90.2	92.0	42.24	233.6	-3,248.7	343.5	215.7	127.87	2.687		
10,900.0	7,898.3	10,799.8	7,642.7	93.0	94.7	42.09	233.6	-3,348.7	344.4	213.0	131.40	2.621		
11,000.0	7,899.0	10,899.8	7,642.2	95.7	97.5	41.94	233.6	-3,448.7	345.3	210.4	134.91	2.559		
11,100.0	7,899.8	10,999.8	7,641.7	98.5	100.2	41.79	233.6	-3,548.7	346.2	207.8	138.42	2.501		
11,200.0	7,900.6	11,099.8	7,641.2	101.2	103.0	41.64	233.6	-3,648.7	347.1	205.2	141.91	2.446		
11,300.0	7,901.4	11,199.8	7,640.8	104.0	105.8	41.49	233.6	-3,748.6	347.9	202.6	145.38	2.393		
11,400.0	7,902.2	11,299.8	7,640.3	106.8	108.5	41.35	233.6	-3,848.6	348.8	200.0	148.84	2.344		
11,500.0	7,903.0	11,399.8	7,639.8	109.5	111.3	41.20	233.6	-3,948.6	349.7	197.4	152.28	2.297		
11,600.0	7,903.7	11,499.8	7,639.4	112.3	114.1	41.06	233.6	-4,048.6	350.6	194.9	155.71	2.252		
11,700.0	7,904.5	11,599.8	7,638.9	115.1	116.9	40.91	233.6	-4,148.6	351.5	192.4	159.12	2.209		
11,800.0	7,905.3	11,699.8	7,638.4	117.8	119.6	40.77	233.6	-4,248.6	352.4	189.9	162.52	2.168		
11,900.0	7,906.1	11,799.7	7,637.9	120.6	122.4	40.62	233.6	-4,348.6	353.3	187.4	165.90	2.130		
12,000.0	7,906.9	11,899.7	7,637.5	123.4	125.2	40.48	233.6	-4,448.6	354.2	184.9	169.27	2.093		
12,100.0	7,907.7	11,999.7	7,637.0	126.1	128.0	40.34	233.6	-4,548.6	355.1	182.5	172.62	2.057		
12,200.0	7,908.5	12,099.7	7,636.5	128.9	130.7	40.20	233.6	-4,648.6	356.0	180.1	175.96	2.023		
12,300.0	7,909.2	12,199.7	7,636.1	131.7	133.5	40.06	233.6	-4,748.6	356.9	177.6	179.28	1.991		
12,400.0	7,910.0	12,299.7	7,635.6	134.5	136.3	39.92	233.6	-4,848.5	357.8	175.2	182.58	1.960		
12,500.0	7,910.8	12,399.7	7,635.1	137.3	139.1	39.78	233.6	-4,948.5	358.7	172.9	185.87	1.930		
12,523.2	7,911.0	12,422.9	7,635.0	137.9	139.7	39.75	233.6	-4,971.7	358.9	172.3	186.63	1.923		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Rio-LA 1S67W6E Pad Sec.6-T1S-R67W - Rio-LA 6E-304 - Wellbore #1 - Plan #1 (8-4-15)													
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	-5.49	29.1	-2.8	29.3				
100.0	100.0	100.0	100.0	0.1	0.1	-5.49	29.1	-2.8	29.3	29.1	0.22	130.257	
200.0	200.0	200.0	200.0	0.3	0.3	-5.49	29.1	-2.8	29.3	28.6	0.67	43.419	
300.0	300.0	300.0	300.0	0.6	0.6	-5.49	29.1	-2.8	29.3	28.2	1.12	26.051	
400.0	400.0	400.0	400.0	0.8	0.8	-5.49	29.1	-2.8	29.3	27.7	1.57	18.608	
500.0	500.0	500.0	500.0	1.0	1.0	-5.49	29.1	-2.8	29.3	27.3	2.02	14.473	
600.0	600.0	600.0	600.0	1.2	1.2	-5.49	29.1	-2.8	29.3	26.8	2.47	11.842	
700.0	700.0	700.0	700.0	1.5	1.5	-5.49	29.1	-2.8	29.3	26.4	2.92	10.020	
800.0	800.0	800.0	800.0	1.7	1.7	-5.49	29.1	-2.8	29.3	25.9	3.37	8.684	
900.0	900.0	900.0	900.0	1.9	1.9	-5.49	29.1	-2.8	29.3	25.5	3.82	7.662	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-5.49	29.1	-2.8	29.3	25.0	4.27	6.856 CC, ES	
1,100.0	1,100.0	1,099.5	1,099.5	2.4	2.4	-5.82	30.0	-3.1	30.1	25.4	4.72	6.386	
1,200.0	1,200.0	1,198.9	1,198.9	2.6	2.6	-6.72	32.4	-3.8	32.7	27.5	5.16	6.329	
1,300.0	1,300.0	1,298.2	1,298.1	2.8	2.8	-7.93	36.6	-5.1	37.0	31.3	5.61	6.586	
1,400.0	1,400.0	1,397.4	1,397.1	3.0	3.0	-9.23	42.3	-6.9	43.0	36.9	6.06	7.087	
1,500.0	1,500.0	1,496.3	1,495.6	3.3	3.3	-10.44	49.7	-9.1	50.7	44.2	6.52	7.777	
1,600.0	1,600.0	1,594.9	1,593.8	3.5	3.5	-11.49	58.6	-11.9	60.1	53.2	6.98	8.615	
1,700.0	1,700.0	1,693.1	1,691.4	3.7	3.7	-12.38	69.1	-15.2	71.3	63.9	7.45	9.567	
1,800.0	1,800.0	1,791.0	1,788.4	3.9	4.0	-13.10	81.2	-18.9	84.2	76.2	7.94	10.603	
1,900.0	1,900.0	1,888.3	1,884.8	4.2	4.3	-13.70	94.8	-23.1	98.8	90.3	8.44	11.701	
2,000.0	2,000.0	1,985.2	1,980.3	4.4	4.6	-14.18	109.9	-27.8	115.0	106.1	8.96	12.841	
2,100.0	2,100.0	2,083.6	2,077.3	4.6	4.9	-14.57	126.0	-32.8	132.2	122.7	9.49	13.924	
2,200.0	2,200.0	2,182.1	2,174.3	4.8	5.2	-14.87	142.2	-37.8	149.4	139.4	10.04	14.878	
2,300.0	2,300.0	2,280.6	2,271.3	5.1	5.5	-15.11	158.4	-42.8	166.6	156.0	10.60	15.722	
2,400.0	2,400.0	2,379.1	2,368.4	5.3	5.9	-15.31	174.6	-47.8	183.8	172.6	11.16	16.472	
2,500.0	2,500.0	2,477.6	2,465.4	5.5	6.2	-15.47	190.8	-52.8	201.0	189.3	11.72	17.143	
2,600.0	2,600.0	2,576.1	2,562.5	5.7	6.6	-15.60	207.0	-57.8	218.2	205.9	12.30	17.746	
2,700.0	2,700.0	2,674.6	2,659.5	6.0	6.9	-15.72	223.2	-62.8	235.4	222.5	12.87	18.289	
2,800.0	2,800.0	2,773.1	2,756.5	6.2	7.3	-15.82	239.4	-67.8	252.6	239.2	13.45	18.782	
2,900.0	2,900.0	2,871.6	2,853.6	6.4	7.6	-15.90	255.6	-72.8	269.8	255.8	14.03	19.229	
3,000.0	3,000.0	2,970.2	2,950.6	6.6	8.0	-15.98	271.8	-77.8	287.0	272.4	14.62	19.638	
3,100.0	3,100.0	3,068.7	3,047.6	6.9	8.3	-16.05	288.0	-82.9	304.2	289.0	15.20	20.013	
3,200.0	3,200.0	3,167.2	3,144.7	7.1	8.7	-16.11	304.2	-87.9	321.4	305.6	15.79	20.358	
3,300.0	3,300.0	3,265.7	3,241.7	7.3	9.1	-16.16	320.4	-92.9	338.6	322.3	16.38	20.675	
3,400.0	3,400.0	3,364.2	3,338.8	7.5	9.4	-16.21	336.6	-97.9	355.9	338.9	16.97	20.969	
3,500.0	3,500.0	3,462.7	3,435.8	7.8	9.8	-16.26	352.8	-102.9	373.1	355.5	17.56	21.242	
3,600.0	3,600.0	3,561.2	3,532.8	8.0	10.2	-16.30	369.0	-107.9	390.3	372.1	18.16	21.495	
3,700.0	3,700.0	3,659.7	3,629.9	8.2	10.6	-16.34	385.2	-112.9	407.5	388.7	18.75	21.731	
3,800.0	3,800.0	3,758.2	3,726.9	8.4	10.9	-16.37	401.4	-117.9	424.7	405.3	19.35	21.952	
3,900.0	3,900.0	3,856.7	3,824.0	8.7	11.3	-16.40	417.6	-122.9	441.9	422.0	19.94	22.158	
4,000.0	4,000.0	3,955.2	3,921.0	8.9	11.7	-16.43	433.8	-127.9	459.1	438.6	20.54	22.352	
4,100.0	4,100.0	4,053.7	4,018.0	9.1	12.0	-16.46	450.0	-132.9	476.3	455.2	21.14	22.534	
4,200.0	4,200.0	4,152.2	4,115.1	9.3	12.4	-16.48	466.2	-137.9	493.5	471.8	21.74	22.705	
4,300.0	4,300.0	4,250.8	4,212.1	9.6	12.8	-16.51	482.4	-143.0	510.7	488.4	22.34	22.867	
4,400.0	4,400.0	4,349.3	4,309.1	9.8	13.2	-16.53	498.6	-148.0	527.9	505.0	22.94	23.019	
4,500.0	4,500.0	4,447.8	4,406.2	10.0	13.5	-16.55	514.8	-153.0	545.2	521.6	23.54	23.164	
4,600.0	4,600.0	4,546.3	4,503.2	10.2	13.9	-16.57	531.0	-158.0	562.4	538.2	24.14	23.300	
4,700.0	4,700.0	4,668.7	4,624.2	10.5	14.3	-16.59	548.8	-163.5	577.6	552.9	24.73	23.360	
4,800.0	4,800.0	4,793.6	4,748.3	10.7	14.6	-16.60	561.9	-167.5	588.6	563.3	25.26	23.305	
4,900.0	4,900.0	4,919.3	4,873.8	10.9	14.8	-16.61	569.8	-170.0	595.2	569.4	25.73	23.134	
5,000.0	5,000.0	5,045.6	5,000.0	11.1	15.0	-16.61	572.4	-170.8	597.4	571.2	26.15	22.846	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	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	
5,100.0	5,100.0	5,145.6	5,100.0	11.4	15.2	-16.61	572.4	-170.8	597.4	570.8	26.52	22.521		
5,200.0	5,200.0	5,245.6	5,200.0	11.6	15.3	-16.61	572.4	-170.8	597.4	570.5	26.91	22.199		
5,300.0	5,300.0	5,345.6	5,300.0	11.8	15.5	-16.61	572.4	-170.8	597.4	570.1	27.30	21.885		
5,400.0	5,400.0	5,445.6	5,400.0	12.0	15.7	-16.61	572.4	-170.8	597.4	569.7	27.68	21.578		
5,500.0	5,500.0	5,545.6	5,500.0	12.2	15.8	-16.61	572.4	-170.8	597.4	569.3	28.07	21.278		
5,600.0	5,600.0	5,645.6	5,600.0	12.5	16.0	-16.61	572.4	-170.8	597.4	568.9	28.47	20.986		
5,700.0	5,700.0	5,745.6	5,700.0	12.7	16.2	-16.61	572.4	-170.8	597.4	568.5	28.86	20.700		
5,800.0	5,800.0	5,845.6	5,800.0	12.9	16.3	-16.61	572.4	-170.8	597.4	568.1	29.25	20.421		
5,900.0	5,900.0	5,945.6	5,900.0	13.1	16.5	-16.61	572.4	-170.8	597.4	567.7	29.65	20.149		
6,000.0	6,000.0	6,045.6	6,000.0	13.4	16.7	-16.61	572.4	-170.8	597.4	567.3	30.04	19.883		
6,100.0	6,100.0	6,145.6	6,100.0	13.6	16.8	-16.61	572.4	-170.8	597.4	566.9	30.44	19.623		
6,200.0	6,200.0	6,245.6	6,200.0	13.8	17.0	-16.61	572.4	-170.8	597.4	566.5	30.84	19.369		
6,300.0	6,300.0	6,345.6	6,300.0	14.0	17.2	-16.61	572.4	-170.8	597.4	566.1	31.24	19.121		
6,400.0	6,400.0	6,445.6	6,400.0	14.3	17.4	-16.61	572.4	-170.8	597.4	565.7	31.64	18.879		
6,500.0	6,500.0	6,545.6	6,500.0	14.5	17.6	-16.61	572.4	-170.8	597.4	565.3	32.05	18.642		
6,600.0	6,600.0	6,645.6	6,600.0	14.7	17.7	-16.61	572.4	-170.8	597.4	564.9	32.45	18.410		
6,700.0	6,700.0	6,745.6	6,700.0	14.9	17.9	-16.61	572.4	-170.8	597.4	564.5	32.85	18.183		
6,800.0	6,800.0	6,845.6	6,800.0	15.2	18.1	-16.61	572.4	-170.8	597.4	564.1	33.26	17.961		
6,900.0	6,900.0	6,945.6	6,900.0	15.4	18.3	-16.61	572.4	-170.8	597.4	563.7	33.67	17.745		
6,965.2	6,965.2	7,010.8	6,965.2	15.5	18.4	-16.61	572.4	-170.8	597.4	563.4	33.93	17.606		
7,000.0	7,000.0	7,044.8	6,999.2	15.6	18.5	-16.61	572.4	-170.8	597.4	563.3	34.07	17.533		
7,100.0	7,100.0	7,126.2	7,080.4	15.8	18.6	-17.05	572.4	-175.5	599.1	564.6	34.45	17.390		
7,114.0	7,114.0	7,137.5	7,091.6	15.9	18.6	-17.17	572.4	-176.8	599.5	565.0	34.50	17.377		
7,150.0	7,150.0	7,166.4	7,120.2	16.0	18.7	72.37	572.4	-181.0	600.9	568.8	32.02	18.768		
7,200.0	7,199.8	7,206.4	7,159.5	16.1	18.8	71.85	572.4	-188.6	602.5	570.3	32.21	18.705		
7,250.0	7,249.3	7,250.0	7,201.8	16.2	18.9	71.37	572.4	-199.1	604.1	571.7	32.41	18.638		
7,300.0	7,298.2	7,285.9	7,236.2	16.3	19.0	71.01	572.4	-209.6	605.4	572.8	32.58	18.579		
7,350.0	7,346.3	7,325.5	7,273.4	16.4	19.1	70.68	572.4	-223.0	606.5	573.8	32.76	18.512		
7,400.0	7,393.4	7,365.0	7,309.8	16.5	19.2	70.42	572.4	-238.3	607.4	574.5	32.94	18.439		
7,450.0	7,439.3	7,400.0	7,341.4	16.6	19.4	70.23	572.4	-253.5	608.2	575.0	33.12	18.364		
7,500.0	7,483.8	7,443.7	7,379.8	16.8	19.5	70.09	572.4	-274.3	608.6	575.3	33.34	18.254		
7,550.0	7,526.7	7,483.0	7,413.2	17.0	19.7	70.02	572.4	-295.0	608.8	575.2	33.58	18.129		
7,600.0	7,567.9	7,522.3	7,445.6	17.2	19.9	70.02	572.4	-317.3	608.8	574.9	33.87	17.975		
7,650.0	7,607.1	7,561.7	7,476.8	17.4	20.1	70.09	572.4	-341.2	608.6	574.3	34.22	17.785		
7,700.0	7,644.2	7,600.0	7,505.9	17.7	20.3	70.21	572.4	-366.1	608.1	573.4	34.63	17.557		
7,750.0	7,679.0	7,640.4	7,535.3	18.0	20.5	70.41	572.4	-393.9	607.3	572.2	35.16	17.271		
7,800.0	7,711.4	7,679.9	7,562.5	18.4	20.8	70.67	572.4	-422.5	606.4	570.6	35.80	16.940		
7,850.0	7,741.3	7,719.5	7,588.3	18.8	21.1	71.00	572.4	-452.5	605.2	568.7	36.55	16.559		
7,900.0	7,768.5	7,759.2	7,612.5	19.3	21.5	71.39	572.4	-483.9	603.9	566.4	37.44	16.131		
7,950.0	7,792.8	7,800.0	7,635.7	19.9	21.8	71.85	572.4	-517.5	602.3	563.8	38.47	15.656		
8,000.0	7,814.3	7,839.0	7,656.2	20.6	22.3	72.36	572.4	-550.7	600.6	561.0	39.64	15.152		
8,050.0	7,832.8	7,879.1	7,675.4	21.3	22.7	72.94	572.4	-585.9	598.7	557.8	40.96	14.618		
8,100.0	7,848.1	7,919.5	7,692.9	22.1	23.3	73.58	572.4	-622.3	596.7	554.3	42.42	14.068		
8,150.0	7,860.4	7,960.1	7,708.5	22.9	23.8	74.28	572.4	-659.8	594.6	550.6	44.01	13.513		
8,200.0	7,869.4	8,000.0	7,721.9	23.8	24.4	75.03	572.4	-697.4	592.5	546.8	45.69	12.966		
8,250.0	7,875.2	8,042.1	7,733.9	24.8	25.1	75.86	572.4	-737.8	590.3	542.7	47.54	12.418		
8,300.0	7,877.8	8,083.6	7,743.5	25.7	25.8	76.73	572.4	-778.1	588.0	538.6	49.45	11.892		
8,308.0	7,877.9	8,090.2	7,744.8	25.9	25.9	76.88	572.4	-784.6	587.7	537.9	49.76	11.811		
8,400.0	7,878.6	8,168.2	7,756.2	27.8	27.3	77.91	572.4	-861.7	584.8	531.5	53.27	10.978		
8,482.0	7,879.3	8,239.0	7,759.7	29.6	28.7	78.19	572.4	-932.4	584.0	527.5	56.49	10.339		
8,500.0	7,879.4	8,256.0	7,759.6	30.0	29.0	78.17	572.4	-949.4	584.1	526.8	57.22	10.208		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference													Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
8,600.0	7,880.2	8,356.0	7,759.2	32.3	31.1	78.04		572.4	-1,049.4	584.2	522.7	61.55	9.492	
8,700.0	7,881.0	8,456.0	7,758.7	34.6	33.3	77.92		572.4	-1,149.4	584.4	518.4	66.04	8.849	
8,800.0	7,881.8	8,556.0	7,758.2	37.0	35.6	77.80		572.4	-1,249.4	584.6	513.9	70.67	8.272	
8,900.0	7,882.5	8,656.0	7,757.7	39.5	37.9	77.67		572.4	-1,349.3	584.8	509.4	75.41	7.755	
9,000.0	7,883.3	8,755.9	7,757.2	42.0	40.3	77.55		572.4	-1,449.3	585.0	504.8	80.23	7.291	
9,100.0	7,884.1	8,855.9	7,756.7	44.6	42.8	77.43		572.4	-1,549.3	585.2	500.1	85.13	6.874	
9,200.0	7,884.9	8,955.9	7,756.2	47.1	45.3	77.30		572.4	-1,649.3	585.4	495.3	90.09	6.498	
9,300.0	7,885.7	9,055.9	7,755.7	49.7	47.8	77.18		572.4	-1,749.3	585.6	490.5	95.09	6.158	
9,400.0	7,886.5	9,155.9	7,755.3	52.4	50.4	77.06		572.4	-1,849.3	585.8	485.6	100.14	5.850	
9,500.0	7,887.3	9,255.9	7,754.8	55.0	53.0	76.93		572.4	-1,949.3	586.0	480.8	105.22	5.569	
9,600.0	7,888.0	9,355.9	7,754.3	57.6	55.6	76.81		572.4	-2,049.3	586.2	475.9	110.33	5.313	
9,700.0	7,888.8	9,455.9	7,753.8	60.3	58.2	76.69		572.4	-2,149.3	586.4	470.9	115.47	5.079	
9,800.0	7,889.6	9,555.9	7,753.3	63.0	60.8	76.56		572.4	-2,249.3	586.6	466.0	120.62	4.863	
9,900.0	7,890.4	9,655.9	7,752.8	65.7	63.5	76.44		572.4	-2,349.2	586.8	461.0	125.79	4.665	
10,000.0	7,891.2	9,755.9	7,752.3	68.4	66.2	76.32		572.4	-2,449.2	587.1	456.1	130.98	4.482	
10,100.0	7,892.0	9,855.9	7,751.8	71.1	68.8	76.20		572.4	-2,549.2	587.3	451.1	136.18	4.313	
10,200.0	7,892.8	9,955.8	7,751.3	73.8	71.5	76.07		572.4	-2,649.2	587.5	446.1	141.38	4.155	
10,300.0	7,893.5	10,055.8	7,750.9	76.5	74.2	75.95		572.4	-2,749.2	587.7	441.1	146.60	4.009	
10,400.0	7,894.3	10,155.8	7,750.4	79.3	76.9	75.83		572.4	-2,849.2	588.0	436.1	151.82	3.873	
10,500.0	7,895.1	10,255.8	7,749.9	82.0	79.6	75.71		572.4	-2,949.2	588.2	431.1	157.05	3.745	
10,600.0	7,895.9	10,355.8	7,749.4	84.7	82.4	75.58		572.4	-3,049.2	588.4	426.1	162.28	3.626	
10,700.0	7,896.7	10,455.8	7,748.9	87.5	85.1	75.46		572.4	-3,149.2	588.7	421.1	167.51	3.514	
10,800.0	7,897.5	10,555.8	7,748.4	90.2	87.8	75.34		572.4	-3,249.2	588.9	416.2	172.75	3.409	
10,900.0	7,898.3	10,655.8	7,747.9	93.0	90.5	75.22		572.4	-3,349.2	589.1	411.2	177.99	3.310	
11,000.0	7,899.0	10,755.8	7,747.4	95.7	93.3	75.10		572.4	-3,449.1	589.4	406.2	183.23	3.217	
11,100.0	7,899.8	10,855.8	7,746.9	98.5	96.0	74.97		572.4	-3,549.1	589.6	401.2	188.46	3.129	
11,200.0	7,900.6	10,955.8	7,746.5	101.2	98.8	74.85		572.4	-3,649.1	589.9	396.2	193.70	3.045	
11,300.0	7,901.4	11,055.8	7,746.0	104.0	101.5	74.73		572.4	-3,749.1	590.1	391.2	198.94	2.966	
11,400.0	7,902.2	11,155.8	7,745.5	106.8	104.3	74.61		572.4	-3,849.1	590.4	386.2	204.17	2.892	
11,500.0	7,903.0	11,255.7	7,745.0	109.5	107.0	74.49		572.4	-3,949.1	590.7	381.3	209.40	2.821	
11,600.0	7,903.7	11,355.7	7,744.5	112.3	109.8	74.37		572.4	-4,049.1	590.9	376.3	214.63	2.753	
11,700.0	7,904.5	11,455.7	7,744.0	115.1	112.5	74.25		572.4	-4,149.1	591.2	371.3	219.86	2.689	
11,800.0	7,905.3	11,555.7	7,743.5	117.8	115.3	74.12		572.4	-4,249.1	591.5	366.4	225.09	2.628	
11,900.0	7,906.1	11,655.7	7,743.0	120.6	118.1	74.00		572.4	-4,349.1	591.7	361.4	230.31	2.569	
12,000.0	7,906.9	11,755.7	7,742.5	123.4	120.8	73.88		572.4	-4,449.1	592.0	356.5	235.52	2.514	
12,100.0	7,907.7	11,855.7	7,742.1	126.1	123.6	73.76		572.4	-4,549.0	592.3	351.5	240.74	2.460	
12,200.0	7,908.5	11,955.7	7,741.6	128.9	126.4	73.64		572.4	-4,649.0	592.5	346.6	245.94	2.409	
12,300.0	7,909.2	12,055.7	7,741.1	131.7	129.1	73.52		572.4	-4,749.0	592.8	341.7	251.15	2.360	
12,400.0	7,910.0	12,155.7	7,740.6	134.5	131.9	73.40		572.4	-4,849.0	593.1	336.8	256.35	2.314	
12,500.0	7,910.8	12,255.7	7,740.1	137.3	134.7	73.28		572.4	-4,949.0	593.4	331.9	261.54	2.269	
12,523.2	7,911.0	12,277.5	7,740.0	137.9	135.3	73.25		572.4	-4,970.8	593.5	330.8	262.71	2.259 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	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	175.12	-32.8	2.8	32.9				
100.0	100.0	100.0	100.0	0.1	0.1	175.12	-32.8	2.8	32.9	32.7	0.22	146.379	
200.0	200.0	200.0	200.0	0.3	0.3	175.12	-32.8	2.8	32.9	32.2	0.67	48.793	
300.0	300.0	300.0	300.0	0.6	0.6	175.12	-32.8	2.8	32.9	31.8	1.12	29.276	
400.0	400.0	400.0	400.0	0.8	0.8	175.12	-32.8	2.8	32.9	31.3	1.57	20.911	
500.0	500.0	500.0	500.0	1.0	1.0	175.12	-32.8	2.8	32.9	30.9	2.02	16.264	
600.0	600.0	600.0	600.0	1.2	1.2	175.12	-32.8	2.8	32.9	30.4	2.47	13.307	
700.0	700.0	700.0	700.0	1.5	1.5	175.12	-32.8	2.8	32.9	30.0	2.92	11.260	
800.0	800.0	800.0	800.0	1.7	1.7	175.12	-32.8	2.8	32.9	29.5	3.37	9.759 CC, ES	
900.0	900.0	899.4	899.4	1.9	1.9	174.92	-33.6	3.0	33.8	30.0	3.79	8.904	
1,000.0	1,000.0	998.8	998.7	2.1	2.1	174.40	-36.1	3.5	36.3	32.2	4.19	8.668	
1,100.0	1,100.0	1,098.0	1,097.9	2.4	2.2	173.67	-40.3	4.5	40.7	36.0	4.60	8.829	
1,200.0	1,200.0	1,197.1	1,196.8	2.6	2.4	172.88	-46.2	5.8	46.7	41.7	5.03	9.285	
1,300.0	1,300.0	1,295.9	1,295.3	2.8	2.7	172.12	-53.7	7.4	54.4	49.0	5.46	9.963	
1,400.0	1,400.0	1,394.5	1,393.4	3.0	2.9	171.45	-62.9	9.5	63.9	58.0	5.92	10.805	
1,500.0	1,500.0	1,492.6	1,491.0	3.3	3.1	170.87	-73.6	11.8	75.1	68.7	6.38	11.764	
1,600.0	1,600.0	1,591.8	1,589.3	3.5	3.4	170.40	-85.4	14.5	87.3	80.4	6.87	12.709	
1,700.0	1,700.0	1,691.0	1,687.8	3.7	3.7	170.05	-97.3	17.1	99.5	92.2	7.37	13.511	
1,800.0	1,800.0	1,790.3	1,786.3	3.9	3.9	169.77	-109.2	19.7	111.8	103.9	7.87	14.197	
1,900.0	1,900.0	1,889.5	1,884.8	4.2	4.2	169.55	-121.0	22.3	124.0	115.6	8.38	14.789	
2,000.0	2,000.0	1,988.8	1,983.3	4.4	4.5	169.37	-132.9	24.9	136.2	127.3	8.90	15.304	
2,100.0	2,100.0	2,088.0	2,081.8	4.6	4.8	169.22	-144.7	27.6	148.4	139.0	9.42	15.756	
2,200.0	2,200.0	2,187.3	2,180.3	4.8	5.1	169.09	-156.6	30.2	160.7	150.7	9.95	16.155	
2,300.0	2,300.0	2,286.5	2,278.9	5.1	5.4	168.98	-168.4	32.8	172.9	162.4	10.47	16.509	
2,400.0	2,400.0	2,385.7	2,377.4	5.3	5.7	168.88	-180.3	35.4	185.1	174.1	11.00	16.826	
2,500.0	2,500.0	2,485.0	2,475.9	5.5	6.0	168.80	-192.2	38.1	197.4	185.8	11.54	17.110	
2,600.0	2,600.0	2,584.2	2,574.4	5.7	6.3	168.72	-204.0	40.7	209.6	197.5	12.07	17.367	
2,700.0	2,700.0	2,683.5	2,672.9	6.0	6.6	168.66	-215.9	43.3	221.8	209.2	12.60	17.600	
2,800.0	2,800.0	2,782.7	2,771.4	6.2	7.0	168.60	-227.7	45.9	234.1	220.9	13.14	17.812	
2,900.0	2,900.0	2,882.0	2,869.9	6.4	7.3	168.54	-239.6	48.6	246.3	232.6	13.68	18.006	
3,000.0	3,000.0	2,981.2	2,968.4	6.6	7.6	168.50	-251.4	51.2	258.5	244.3	14.22	18.184	
3,100.0	3,100.0	3,080.5	3,066.9	6.9	7.9	168.45	-263.3	53.8	270.8	256.0	14.76	18.348	
3,200.0	3,200.0	3,179.7	3,165.4	7.1	8.2	168.41	-275.2	56.4	283.0	267.7	15.30	18.500	
3,300.0	3,300.0	3,279.0	3,263.9	7.3	8.5	168.38	-287.0	59.0	295.2	279.4	15.84	18.640	
3,400.0	3,400.0	3,378.2	3,362.4	7.5	8.9	168.34	-298.9	61.7	307.5	291.1	16.38	18.771	
3,500.0	3,500.0	3,477.5	3,460.9	7.8	9.2	168.31	-310.7	64.3	319.7	302.8	16.92	18.892	
3,600.0	3,600.0	3,576.7	3,559.4	8.0	9.5	168.28	-322.6	66.9	331.9	314.5	17.47	19.005	
3,700.0	3,700.0	3,676.0	3,657.9	8.2	9.8	168.25	-334.4	69.5	344.2	326.2	18.01	19.111	
3,800.0	3,800.0	3,775.2	3,756.4	8.4	10.1	168.23	-346.3	72.2	356.4	337.9	18.55	19.211	
3,900.0	3,900.0	3,874.5	3,854.9	8.7	10.4	168.21	-358.1	74.8	368.6	349.5	19.10	19.304	
4,000.0	4,000.0	3,973.7	3,953.4	8.9	10.8	168.18	-370.0	77.4	380.9	361.2	19.64	19.392	
4,100.0	4,100.0	4,073.0	4,051.9	9.1	11.1	168.16	-381.9	80.0	393.1	372.9	20.19	19.474	
4,200.0	4,200.0	4,172.2	4,150.4	9.3	11.4	168.14	-393.7	82.6	405.3	384.6	20.73	19.553	
4,300.0	4,300.0	4,271.5	4,248.9	9.6	11.7	168.13	-405.6	85.3	417.6	396.3	21.28	19.626	
4,400.0	4,400.0	4,370.7	4,347.4	9.8	12.0	168.11	-417.4	87.9	429.8	408.0	21.82	19.696	
4,500.0	4,500.0	4,470.0	4,445.9	10.0	12.4	168.09	-429.3	90.5	442.0	419.7	22.37	19.763	
4,600.0	4,600.0	4,569.2	4,544.4	10.2	12.7	168.08	-441.1	93.1	454.3	431.4	22.91	19.826	
4,700.0	4,700.0	4,668.5	4,642.9	10.5	13.0	168.06	-453.0	95.8	466.5	443.1	23.46	19.886	
4,800.0	4,800.0	4,767.7	4,741.4	10.7	13.3	168.05	-464.9	98.4	478.8	454.7	24.01	19.943	
4,900.0	4,900.0	4,867.0	4,839.9	10.9	13.7	168.04	-476.7	101.0	491.0	466.4	24.55	19.997	
5,000.0	5,000.0	4,966.2	4,938.4	11.1	14.0	168.02	-488.6	103.6	503.2	478.1	25.10	20.049	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	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		
5,100.0	5,100.0	5,065.5	5,036.9	11.4	14.3	168.01	-500.4	106.3	515.5	489.8	25.65	20.099		
5,200.0	5,200.0	5,164.7	5,135.4	11.6	14.6	168.00	-512.3	108.9	527.7	501.5	26.19	20.146		
5,300.0	5,300.0	5,283.7	5,253.7	11.8	14.9	167.99	-524.6	111.6	538.4	511.7	26.70	20.161		
5,400.0	5,400.0	5,406.7	5,376.5	12.0	15.1	167.98	-532.4	113.3	544.8	517.7	27.16	20.058		
5,500.0	5,500.0	5,530.3	5,500.0	12.2	15.3	167.98	-535.0	113.9	547.0	519.4	27.58	19.829		
5,600.0	5,600.0	5,630.3	5,600.0	12.5	15.5	167.98	-535.0	113.9	547.0	519.0	27.96	19.562		
5,700.0	5,700.0	5,730.3	5,700.0	12.7	15.6	167.98	-535.0	113.9	547.0	518.7	28.33	19.310		
5,800.0	5,800.0	5,830.3	5,800.0	12.9	15.8	167.98	-535.0	113.9	547.0	518.3	28.69	19.062		
5,900.0	5,900.0	5,930.3	5,900.0	13.1	15.9	167.98	-535.0	113.9	547.0	517.9	29.06	18.820		
6,000.0	6,000.0	6,030.3	6,000.0	13.4	16.1	167.98	-535.0	113.9	547.0	517.5	29.44	18.582		
6,100.0	6,100.0	6,130.3	6,100.0	13.6	16.2	167.98	-535.0	113.9	547.0	517.2	29.81	18.350		
6,200.0	6,200.0	6,230.3	6,200.0	13.8	16.4	167.98	-535.0	113.9	547.0	516.8	30.18	18.122		
6,300.0	6,300.0	6,330.3	6,300.0	14.0	16.5	167.98	-535.0	113.9	547.0	516.4	30.56	17.898		
6,400.0	6,400.0	6,430.3	6,400.0	14.3	16.7	167.98	-535.0	113.9	547.0	516.0	30.94	17.679		
6,500.0	6,500.0	6,530.3	6,500.0	14.5	16.8	167.98	-535.0	113.9	547.0	515.7	31.32	17.465		
6,600.0	6,600.0	6,630.3	6,600.0	14.7	17.0	167.98	-535.0	113.9	547.0	515.3	31.70	17.255		
6,700.0	6,700.0	6,730.3	6,700.0	14.9	17.1	167.98	-535.0	113.9	547.0	514.9	32.08	17.049		
6,800.0	6,800.0	6,830.3	6,800.0	15.2	17.3	167.98	-535.0	113.9	547.0	514.5	32.47	16.847		
6,900.0	6,900.0	6,931.8	6,901.5	15.4	17.5	167.99	-535.0	113.8	547.0	514.1	32.86	16.648		
7,000.0	7,000.0	7,048.1	7,017.3	15.6	17.6	169.05	-535.0	103.5	545.2	511.9	33.26	16.392		
7,100.0	7,100.0	7,158.9	7,124.8	15.8	17.8	171.77	-535.0	77.4	541.1	507.5	33.63	16.091		
7,114.0	7,114.0	7,173.7	7,138.9	15.9	17.8	172.26	-535.0	72.7	540.5	506.8	33.68	16.048		
7,150.0	7,150.0	7,211.2	7,174.1	16.0	17.8	-96.62	-535.0	59.7	538.9	507.6	31.35	17.192		
7,200.0	7,199.8	7,262.3	7,220.9	16.1	17.9	-94.98	-535.0	39.2	537.2	505.7	31.54	17.031		
7,250.0	7,249.3	7,312.2	7,265.2	16.2	18.0	-93.33	-535.0	16.2	536.0	504.2	31.75	16.880		
7,300.0	7,298.2	7,361.0	7,307.0	16.3	18.0	-91.68	-535.0	-9.0	535.3	503.3	31.98	16.736		
7,348.5	7,344.9	7,407.4	7,345.1	16.4	18.1	-90.09	-535.0	-35.4	535.0	502.8	32.23	16.602		
7,350.0	7,346.3	7,408.8	7,346.2	16.4	18.1	-90.04	-535.0	-36.2	535.0	502.8	32.23	16.598		
7,400.0	7,393.4	7,455.7	7,383.0	16.5	18.2	-88.41	-535.0	-65.2	535.3	502.8	32.52	16.462		
7,450.0	7,439.3	7,501.7	7,417.3	16.6	18.2	-86.80	-535.0	-95.9	536.0	503.2	32.83	16.325		
7,500.0	7,483.8	7,546.9	7,449.1	16.8	18.3	-85.22	-535.0	-127.9	537.2	504.0	33.19	16.184		
7,550.0	7,526.7	7,591.3	7,478.5	17.0	18.4	-83.66	-535.0	-161.2	538.8	505.2	33.60	16.034		
7,600.0	7,567.9	7,635.0	7,505.5	17.2	18.6	-82.15	-535.0	-195.6	540.7	506.7	34.06	15.876		
7,650.0	7,607.1	7,678.1	7,530.2	17.4	18.7	-80.68	-535.0	-230.9	543.0	508.4	34.57	15.707		
7,700.0	7,644.2	7,720.6	7,552.5	17.7	19.0	-79.25	-535.0	-267.1	545.6	510.4	35.14	15.524		
7,750.0	7,679.0	7,762.5	7,572.5	18.0	19.3	-77.88	-535.0	-304.0	548.4	512.6	35.78	15.326		
7,800.0	7,711.4	7,804.0	7,590.3	18.4	19.7	-76.57	-535.0	-341.4	551.4	514.9	36.49	15.111		
7,850.0	7,741.3	7,845.0	7,605.8	18.8	20.1	-75.31	-535.0	-379.3	554.5	517.3	37.28	14.875		
7,900.0	7,768.5	7,885.5	7,619.2	19.3	20.7	-74.12	-535.0	-417.6	557.8	519.6	38.16	14.618		
7,950.0	7,792.8	7,925.7	7,630.4	19.9	21.3	-73.00	-535.0	-456.2	561.1	522.0	39.11	14.344		
8,000.0	7,814.3	7,965.6	7,639.5	20.6	21.9	-71.94	-535.0	-495.0	564.4	524.2	40.16	14.054		
8,050.0	7,832.8	8,005.1	7,646.5	21.3	22.6	-70.96	-535.0	-533.9	567.6	526.3	41.29	13.748		
8,100.0	7,848.1	8,044.3	7,651.5	22.1	23.3	-70.05	-535.0	-572.8	570.8	528.3	42.51	13.428		
8,150.0	7,860.4	8,083.3	7,654.4	22.9	24.0	-69.21	-535.0	-611.6	573.8	530.0	43.81	13.098		
8,200.0	7,869.4	8,122.0	7,655.4	23.8	24.7	-68.44	-535.0	-650.3	576.7	531.5	45.19	12.763		
8,250.0	7,875.2	8,170.7	7,655.2	24.8	25.7	-67.74	-535.0	-699.0	579.0	532.2	46.85	12.360		
8,300.0	7,877.8	8,220.6	7,654.9	25.7	26.8	-67.41	-535.0	-748.9	580.1	531.4	48.70	11.911		
8,308.0	7,877.9	8,228.6	7,654.9	25.9	26.9	-67.40	-535.0	-756.9	580.2	531.2	49.02	11.836		
8,400.0	7,878.6	8,320.6	7,654.5	27.8	28.9	-67.30	-535.0	-848.9	580.7	528.1	52.64	11.033		
8,500.0	7,879.4	8,420.6	7,654.0	30.0	31.2	-67.18	-535.0	-948.9	581.3	524.5	56.75	10.242		
8,600.0	7,880.2	8,520.6	7,653.5	32.3	33.6	-67.07	-535.0	-1,048.9	581.8	520.8	61.02	9.535		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	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	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)				
8,700.0	7,881.0	8,620.6	7,653.0	34.6	36.0	-66.96	-535.0	-1,148.9	582.4	517.0	65.42	8.903			
8,800.0	7,881.8	8,720.5	7,652.6	37.0	38.5	-66.85	-535.0	-1,248.9	583.0	513.1	69.91	8.339			
8,900.0	7,882.5	8,820.5	7,652.1	39.5	41.0	-66.74	-535.0	-1,348.9	583.5	509.1	74.47	7.836			
9,000.0	7,883.3	8,920.5	7,651.6	42.0	43.5	-66.63	-535.0	-1,448.9	584.1	505.0	79.11	7.384			
9,100.0	7,884.1	9,020.5	7,651.2	44.6	46.1	-66.52	-535.0	-1,548.8	584.7	500.9	83.79	6.978			
9,200.0	7,884.9	9,120.5	7,650.7	47.1	48.7	-66.41	-535.0	-1,648.8	585.3	496.8	88.51	6.613			
9,300.0	7,885.7	9,220.5	7,650.2	49.7	51.3	-66.30	-535.0	-1,748.8	585.9	492.6	93.26	6.282			
9,400.0	7,886.5	9,320.5	7,649.7	52.4	54.0	-66.19	-535.0	-1,848.8	586.4	488.4	98.05	5.981			
9,500.0	7,887.3	9,420.5	7,649.3	55.0	56.6	-66.09	-535.0	-1,948.8	587.0	484.2	102.85	5.707			
9,600.0	7,888.0	9,520.5	7,648.8	57.6	59.3	-65.98	-535.0	-2,048.8	587.6	479.9	107.68	5.457			
9,700.0	7,888.8	9,620.5	7,648.3	60.3	62.0	-65.87	-535.0	-2,148.8	588.2	475.7	112.51	5.228			
9,800.0	7,889.6	9,720.5	7,647.9	63.0	64.7	-65.76	-535.0	-2,248.8	588.8	471.4	117.36	5.017			
9,900.0	7,890.4	9,820.5	7,647.4	65.7	67.4	-65.65	-535.0	-2,348.8	589.4	467.2	122.22	4.822			
10,000.0	7,891.2	9,920.5	7,646.9	68.4	70.1	-65.54	-535.0	-2,448.8	590.0	462.9	127.09	4.642			
10,100.0	7,892.0	10,020.4	7,646.5	71.1	72.8	-65.44	-535.0	-2,548.8	590.6	458.6	131.96	4.475			
10,200.0	7,892.8	10,120.4	7,646.0	73.8	75.5	-65.33	-535.0	-2,648.7	591.2	454.3	136.84	4.320			
10,300.0	7,893.5	10,220.4	7,645.5	76.5	78.3	-65.22	-535.0	-2,748.7	591.8	450.1	141.72	4.176			
10,400.0	7,894.3	10,320.4	7,645.0	79.3	81.0	-65.12	-535.0	-2,848.7	592.4	445.8	146.60	4.041			
10,500.0	7,895.1	10,420.4	7,644.6	82.0	83.8	-65.01	-535.0	-2,948.7	593.0	441.5	151.48	3.915			
10,600.0	7,895.9	10,520.4	7,644.1	84.7	86.5	-64.90	-535.0	-3,048.7	593.6	437.2	156.36	3.796			
10,700.0	7,896.7	10,620.4	7,643.6	87.5	89.2	-64.80	-535.0	-3,148.7	594.2	433.0	161.24	3.685			
10,800.0	7,897.5	10,720.4	7,643.2	90.2	92.0	-64.69	-535.0	-3,248.7	594.8	428.7	166.11	3.581			
10,900.0	7,898.3	10,820.4	7,642.7	93.0	94.8	-64.58	-535.0	-3,348.7	595.4	424.4	170.99	3.482			
11,000.0	7,899.0	10,920.4	7,642.2	95.7	97.5	-64.48	-535.0	-3,448.7	596.0	420.2	175.86	3.389			
11,100.0	7,899.8	11,020.4	7,641.7	98.5	100.3	-64.37	-535.0	-3,548.7	596.7	415.9	180.73	3.301			
11,200.0	7,900.6	11,120.4	7,641.3	101.2	103.0	-64.27	-535.0	-3,648.7	597.3	411.7	185.59	3.218			
11,300.0	7,901.4	11,220.3	7,640.8	104.0	105.8	-64.16	-535.0	-3,748.6	597.9	407.4	190.45	3.139			
11,400.0	7,902.2	11,320.3	7,640.3	106.8	108.6	-64.06	-535.0	-3,848.6	598.5	403.2	195.31	3.065			
11,500.0	7,903.0	11,420.3	7,639.9	109.5	111.3	-63.95	-535.0	-3,948.6	599.2	399.0	200.16	2.993			
11,600.0	7,903.7	11,520.3	7,639.4	112.3	114.1	-63.85	-535.0	-4,048.6	599.8	394.8	205.01	2.926			
11,700.0	7,904.5	11,620.3	7,638.9	115.1	116.9	-63.74	-535.0	-4,148.6	600.4	390.6	209.85	2.861			
11,800.0	7,905.3	11,720.3	7,638.4	117.8	119.6	-63.64	-535.0	-4,248.6	601.0	386.4	214.68	2.800			
11,900.0	7,906.1	11,820.3	7,638.0	120.6	122.4	-63.54	-535.0	-4,348.6	601.7	382.2	219.51	2.741			
12,000.0	7,906.9	11,920.3	7,637.5	123.4	125.2	-63.43	-535.0	-4,448.6	602.3	378.0	224.33	2.685			
12,100.0	7,907.7	12,020.3	7,637.0	126.1	128.0	-63.33	-535.0	-4,548.6	602.9	373.8	229.15	2.631			
12,200.0	7,908.5	12,120.3	7,636.6	128.9	130.8	-63.23	-535.0	-4,648.6	603.6	369.6	233.96	2.580			
12,300.0	7,909.2	12,220.3	7,636.1	131.7	133.5	-63.12	-535.0	-4,748.6	604.2	365.5	238.76	2.531			
12,400.0	7,910.0	12,320.3	7,635.6	134.5	136.3	-63.02	-535.0	-4,848.5	604.9	361.3	243.56	2.484			
12,500.0	7,910.8	12,420.3	7,635.1	137.3	139.1	-62.92	-535.0	-4,948.5	605.5	357.2	248.34	2.438			
12,523.2	7,911.0	12,443.4	7,635.0	137.9	139.7	-62.90	-535.0	-4,971.7	605.7	356.2	249.45	2.428 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	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	171.26	-18.2	2.8	18.4	18.4	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	171.26	-18.2	2.8	18.4	18.2	0.22	81.990		
200.0	200.0	200.0	200.0	0.3	0.3	171.26	-18.2	2.8	18.4	17.8	0.67	27.330		
300.0	300.0	300.0	300.0	0.6	0.6	171.26	-18.2	2.8	18.4	17.3	1.12	16.398		
400.0	400.0	400.0	400.0	0.8	0.8	171.26	-18.2	2.8	18.4	16.9	1.57	11.713		
500.0	500.0	500.0	500.0	1.0	1.0	171.26	-18.2	2.8	18.4	16.4	2.02	9.110		
600.0	600.0	600.0	600.0	1.2	1.2	171.26	-18.2	2.8	18.4	16.0	2.47	7.454		
700.0	700.0	700.0	700.0	1.5	1.5	171.26	-18.2	2.8	18.4	15.5	2.92	6.307		
800.0	800.0	800.0	800.0	1.7	1.7	171.26	-18.2	2.8	18.4	15.1	3.37	5.466		
900.0	900.0	900.0	900.0	1.9	1.9	171.26	-18.2	2.8	18.4	14.6	3.82	4.823		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	171.26	-18.2	2.8	18.4	14.2	4.27	4.315		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	171.26	-18.2	2.8	18.4	13.7	4.72	3.904		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	171.26	-18.2	2.8	18.4	13.3	5.17	3.565		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	171.26	-18.2	2.8	18.4	12.8	5.62	3.280		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	171.26	-18.2	2.8	18.4	12.4	6.07	3.037 CC, ES		
1,500.0	1,500.0	1,499.7	1,499.7	3.3	3.2	170.58	-19.0	3.2	19.3	12.8	6.49	2.969		
1,600.0	1,600.0	1,599.3	1,599.3	3.5	3.4	168.87	-21.4	4.2	21.8	14.9	6.89	3.166		
1,700.0	1,700.0	1,698.8	1,698.7	3.7	3.6	166.77	-25.3	6.0	26.1	18.8	7.29	3.573		
1,800.0	1,800.0	1,798.1	1,797.8	3.9	3.8	164.77	-30.9	8.4	32.1	24.3	7.71	4.160		
1,900.0	1,900.0	1,897.3	1,896.7	4.2	4.0	163.09	-37.9	11.5	39.8	31.6	8.13	4.893		
2,000.0	2,000.0	1,996.9	1,996.0	4.4	4.2	161.87	-45.6	14.9	48.2	39.6	8.56	5.626		
2,100.0	2,100.0	2,096.6	2,095.2	4.6	4.4	161.01	-53.3	18.3	56.6	47.6	9.00	6.284		
2,200.0	2,200.0	2,196.2	2,194.5	4.8	4.6	160.37	-61.0	21.8	65.0	55.5	9.45	6.877		
2,300.0	2,300.0	2,295.9	2,293.8	5.1	4.9	159.88	-68.7	25.2	73.4	63.5	9.91	7.413		
2,400.0	2,400.0	2,395.5	2,393.1	5.3	5.1	159.50	-76.4	28.6	81.9	71.5	10.36	7.898		
2,500.0	2,500.0	2,495.1	2,492.4	5.5	5.3	159.18	-84.1	32.0	90.3	79.5	10.83	8.339		
2,600.0	2,600.0	2,594.8	2,591.7	5.7	5.6	158.92	-91.8	35.4	98.7	87.4	11.29	8.741		
2,700.0	2,700.0	2,694.4	2,691.0	6.0	5.8	158.70	-99.5	38.8	107.2	95.4	11.76	9.109		
2,800.0	2,800.0	2,794.1	2,790.2	6.2	6.1	158.51	-107.2	42.2	115.6	103.4	12.24	9.446		
2,900.0	2,900.0	2,893.7	2,889.5	6.4	6.3	158.34	-114.9	45.6	124.0	111.3	12.71	9.757		
3,000.0	3,000.0	2,993.4	2,988.8	6.6	6.6	158.20	-122.6	49.0	132.5	119.3	13.19	10.043		
3,100.0	3,100.0	3,093.0	3,088.1	6.9	6.8	158.08	-130.3	52.4	140.9	127.3	13.67	10.308		
3,200.0	3,200.0	3,192.6	3,187.4	7.1	7.1	157.97	-138.0	55.8	149.4	135.2	14.15	10.554		
3,300.0	3,300.0	3,292.3	3,286.7	7.3	7.3	157.87	-145.7	59.2	157.8	143.2	14.64	10.782		
3,400.0	3,400.0	3,391.9	3,386.0	7.5	7.6	157.78	-153.4	62.7	166.3	151.1	15.12	10.995		
3,500.0	3,500.0	3,491.6	3,485.2	7.8	7.9	157.70	-161.1	66.1	174.7	159.1	15.61	11.194		
3,600.0	3,600.0	3,591.2	3,584.5	8.0	8.1	157.62	-168.7	69.5	183.1	167.0	16.09	11.380		
3,700.0	3,700.0	3,690.9	3,683.8	8.2	8.4	157.56	-176.4	72.9	191.6	175.0	16.58	11.554		
3,800.0	3,800.0	3,790.5	3,783.1	8.4	8.6	157.50	-184.1	76.3	200.0	183.0	17.07	11.717		
3,900.0	3,900.0	3,890.1	3,882.4	8.7	8.9	157.44	-191.8	79.7	208.5	190.9	17.56	11.871		
4,000.0	4,000.0	3,989.8	3,981.7	8.9	9.2	157.39	-199.5	83.1	216.9	198.9	18.05	12.016		
4,100.0	4,100.0	4,089.4	4,081.0	9.1	9.4	157.34	-207.2	86.5	225.4	206.8	18.54	12.153		
4,200.0	4,200.0	4,189.1	4,180.3	9.3	9.7	157.30	-214.9	89.9	233.8	214.8	19.04	12.282		
4,300.0	4,300.0	4,288.7	4,279.5	9.6	10.0	157.25	-222.6	93.3	242.3	222.7	19.53	12.405		
4,400.0	4,400.0	4,388.4	4,378.8	9.8	10.2	157.22	-230.3	96.7	250.7	230.7	20.02	12.521		
4,500.0	4,500.0	4,488.0	4,478.1	10.0	10.5	157.18	-238.0	100.1	259.1	238.6	20.52	12.631		
4,600.0	4,600.0	4,587.6	4,577.4	10.2	10.8	157.15	-245.7	103.6	267.6	246.6	21.01	12.736		
4,700.0	4,700.0	4,687.3	4,676.7	10.5	11.1	157.11	-253.4	107.0	276.0	254.5	21.51	12.836		
4,800.0	4,800.0	4,788.9	4,778.0	10.7	11.3	157.08	-261.2	110.4	284.4	262.4	22.00	12.928		
4,900.0	4,900.0	4,899.9	4,888.7	10.9	11.6	157.06	-267.1	113.0	290.2	267.8	22.45	12.926		
5,000.0	5,000.0	5,011.2	5,000.0	11.1	11.8	157.06	-269.1	113.9	292.2	269.3	22.88	12.768		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Offset Design		Rio-LA 1S67W6E Pad Sec.6-T1S-R67W - Rio-LA 6F-314 - Wellbore #1 - Plan #1 (8-4-15)											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			
5,100.0	5,100.0	5,111.2	5,100.0	11.4	11.9	157.06	-269.1	113.9	292.2	268.9	23.29	12.544			
5,200.0	5,200.0	5,211.2	5,200.0	11.6	12.1	157.06	-269.1	113.9	292.2	268.5	23.69	12.332			
5,300.0	5,300.0	5,311.2	5,300.0	11.8	12.3	157.06	-269.1	113.9	292.2	268.1	24.10	12.126			
5,400.0	5,400.0	5,411.2	5,400.0	12.0	12.5	157.06	-269.1	113.9	292.2	267.7	24.50	11.926			
5,500.0	5,500.0	5,511.2	5,500.0	12.2	12.7	157.06	-269.1	113.9	292.2	267.3	24.91	11.731			
5,600.0	5,600.0	5,611.2	5,600.0	12.5	12.8	157.06	-269.1	113.9	292.2	266.9	25.31	11.543			
5,700.0	5,700.0	5,711.2	5,700.0	12.7	13.0	157.06	-269.1	113.9	292.2	266.5	25.72	11.359			
5,800.0	5,800.0	5,811.2	5,800.0	12.9	13.2	157.06	-269.1	113.9	292.2	266.0	26.13	11.181			
5,900.0	5,900.0	5,911.2	5,900.0	13.1	13.4	157.06	-269.1	113.9	292.2	265.6	26.54	11.008			
6,000.0	6,000.0	6,011.2	6,000.0	13.4	13.6	157.06	-269.1	113.9	292.2	265.2	26.95	10.840			
6,100.0	6,100.0	6,111.2	6,100.0	13.6	13.8	157.06	-269.1	113.9	292.2	264.8	27.37	10.676			
6,200.0	6,200.0	6,211.2	6,200.0	13.8	14.0	157.06	-269.1	113.9	292.2	264.4	27.78	10.517			
6,300.0	6,300.0	6,311.2	6,300.0	14.0	14.1	157.06	-269.1	113.9	292.2	264.0	28.20	10.362			
6,400.0	6,400.0	6,411.2	6,400.0	14.3	14.3	157.06	-269.1	113.9	292.2	263.6	28.61	10.211			
6,500.0	6,500.0	6,511.2	6,500.0	14.5	14.5	157.06	-269.1	113.9	292.2	263.1	29.03	10.064			
6,600.0	6,600.0	6,611.2	6,600.0	14.7	14.7	157.06	-269.1	113.9	292.2	262.7	29.45	9.922			
6,700.0	6,700.0	6,711.2	6,700.0	14.9	14.9	157.06	-269.1	113.9	292.2	262.3	29.87	9.782			
6,800.0	6,800.0	6,811.2	6,800.0	15.2	15.1	157.06	-269.1	113.9	292.2	261.9	30.29	9.647			
6,900.0	6,900.0	6,911.2	6,900.0	15.4	15.3	157.06	-269.1	113.9	292.2	261.5	30.71	9.515			
7,000.0	7,000.0	7,011.8	7,000.6	15.6	15.5	157.06	-269.1	113.9	292.2	261.0	31.13	9.385			
7,100.0	7,100.0	7,128.3	7,116.6	15.8	15.7	158.80	-269.1	104.4	289.1	257.5	31.56	9.160			
7,114.0	7,114.0	7,144.3	7,132.4	15.9	15.7	159.29	-269.1	101.7	288.2	256.6	31.62	9.116			
7,150.0	7,150.0	7,185.0	7,172.3	16.0	15.8	-109.53	-269.1	93.4	286.0	255.0	31.00	9.223			
7,200.0	7,199.8	7,240.9	7,226.1	16.1	15.9	-107.74	-269.1	78.6	282.9	251.7	31.19	9.071			
7,250.0	7,249.3	7,295.9	7,277.9	16.2	16.0	-105.85	-269.1	60.2	280.1	248.7	31.38	8.926			
7,300.0	7,298.2	7,350.0	7,327.5	16.3	16.0	-103.88	-269.1	38.4	277.5	245.9	31.58	8.787			
7,350.0	7,346.3	7,403.3	7,374.7	16.4	16.1	-101.83	-269.1	13.7	275.1	243.3	31.80	8.651			
7,400.0	7,393.4	7,455.8	7,419.3	16.5	16.2	-99.72	-269.1	-13.8	273.2	241.1	32.07	8.518			
7,450.0	7,439.3	7,507.5	7,461.4	16.6	16.2	-97.56	-269.1	-43.9	271.6	239.2	32.38	8.386			
7,500.0	7,483.8	7,558.4	7,500.7	16.8	16.3	-95.36	-269.1	-76.2	270.4	237.6	32.76	8.254			
7,550.0	7,526.7	7,608.6	7,537.3	17.0	16.5	-93.15	-269.1	-110.5	269.6	236.4	33.19	8.122			
7,600.0	7,567.9	7,658.0	7,571.1	17.2	16.7	-90.92	-269.1	-146.7	269.2	235.5	33.70	7.990			
7,616.9	7,581.4	7,674.6	7,581.9	17.2	16.8	-90.17	-269.1	-159.3	269.2	235.3	33.89	7.943			
7,650.0	7,607.1	7,706.8	7,602.0	17.4	17.0	-88.71	-269.1	-184.4	269.3	235.0	34.27	7.857			
7,700.0	7,644.2	7,755.0	7,630.2	17.7	17.4	-86.52	-269.1	-223.4	269.8	234.9	34.92	7.725			
7,750.0	7,679.0	7,802.5	7,655.5	18.0	17.9	-84.36	-269.1	-263.6	270.7	235.0	35.64	7.594			
7,800.0	7,711.4	7,850.0	7,678.2	18.4	18.4	-82.23	-269.1	-305.4	271.9	235.5	36.44	7.462			
7,850.0	7,741.3	7,895.8	7,697.6	18.8	19.0	-80.20	-269.1	-346.9	273.5	236.2	37.29	7.334			
7,900.0	7,768.5	7,941.7	7,714.6	19.3	19.6	-78.23	-269.1	-389.5	275.4	237.2	38.22	7.206			
7,950.0	7,792.8	7,987.1	7,728.8	19.9	20.3	-76.33	-269.1	-432.6	277.6	238.4	39.21	7.079			
8,000.0	7,814.3	8,032.1	7,740.3	20.6	21.0	-74.51	-269.1	-476.0	280.0	239.7	40.25	6.955			
8,050.0	7,832.8	8,076.6	7,749.2	21.3	21.8	-72.79	-269.1	-519.7	282.5	241.2	41.35	6.832			
8,100.0	7,848.1	8,120.7	7,755.4	22.1	22.6	-71.16	-269.1	-563.3	285.2	242.7	42.51	6.710			
8,150.0	7,860.4	8,164.5	7,759.2	22.9	23.5	-69.63	-269.1	-606.9	288.0	244.3	43.71	6.589			
8,200.0	7,869.4	8,207.9	7,760.4	23.8	24.3	-68.21	-269.1	-650.3	290.8	245.9	44.96	6.469			
8,250.0	7,875.2	8,257.1	7,760.2	24.8	25.4	-66.97	-269.1	-699.5	293.2	246.8	46.41	6.317			
8,300.0	7,877.8	8,307.0	7,759.9	25.7	26.4	-66.40	-269.1	-749.4	294.3	246.2	48.12	6.117			
8,308.0	7,877.9	8,315.0	7,759.9	25.9	26.6	-66.37	-269.1	-757.4	294.4	246.0	48.42	6.080			
8,400.0	7,878.6	8,407.0	7,759.4	27.8	28.6	-66.17	-269.1	-849.4	294.9	242.9	51.98	5.674			
8,500.0	7,879.4	8,507.0	7,759.0	30.0	30.9	-65.95	-269.1	-949.4	295.5	239.5	56.02	5.275			
8,600.0	7,880.2	8,607.0	7,758.5	32.3	33.3	-65.74	-269.1	-1,049.4	296.1	235.9	60.21	4.918			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Offset Design		Rio-LA 1S67W6E Pad Sec.6-T1S-R67W - Rio-LA 6F-314 - Wellbore #1 - Plan #1 (8-4-15)											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)				
8,700.0	7,881.0	8,706.9	7,758.0	34.6	35.7	-65.52	-269.1	-1,149.4	296.7	232.2	64.52	4.599			
8,800.0	7,881.8	8,806.9	7,757.6	37.0	38.2	-65.31	-269.1	-1,249.4	297.3	228.4	68.91	4.314			
8,900.0	7,882.5	8,906.9	7,757.1	39.5	40.8	-65.10	-269.1	-1,349.4	297.9	224.5	73.37	4.060			
9,000.0	7,883.3	9,006.9	7,756.6	42.0	43.3	-64.88	-269.1	-1,449.4	298.5	220.6	77.88	3.833			
9,100.0	7,884.1	9,106.9	7,756.1	44.6	45.9	-64.67	-269.1	-1,549.3	299.1	216.7	82.44	3.628			
9,200.0	7,884.9	9,206.9	7,755.7	47.1	48.5	-64.46	-269.1	-1,649.3	299.7	212.7	87.03	3.444			
9,300.0	7,885.7	9,306.9	7,755.2	49.7	51.2	-64.25	-269.1	-1,749.3	300.3	208.7	91.64	3.277			
9,400.0	7,886.5	9,406.9	7,754.7	52.4	53.8	-64.04	-269.1	-1,849.3	301.0	204.7	96.27	3.126			
9,500.0	7,887.3	9,506.9	7,754.3	55.0	56.5	-63.84	-269.1	-1,949.3	301.6	200.7	100.92	2.989			
9,600.0	7,888.0	9,606.9	7,753.8	57.6	59.2	-63.63	-269.1	-2,049.3	302.2	196.7	105.57	2.863			
9,700.0	7,888.8	9,706.9	7,753.3	60.3	61.9	-63.42	-269.1	-2,149.3	302.9	192.6	110.23	2.748			
9,800.0	7,889.6	9,806.9	7,752.8	63.0	64.6	-63.22	-269.1	-2,249.3	303.5	188.6	114.89	2.642			
9,900.0	7,890.4	9,906.9	7,752.4	65.7	67.3	-63.01	-269.1	-2,349.3	304.1	184.6	119.55	2.544			
10,000.0	7,891.2	10,006.8	7,751.9	68.4	70.0	-62.81	-269.1	-2,449.3	304.8	180.6	124.21	2.454			
10,100.0	7,892.0	10,106.8	7,751.4	71.1	72.7	-62.61	-269.1	-2,549.3	305.4	176.6	128.87	2.370			
10,200.0	7,892.8	10,206.8	7,751.0	73.8	75.4	-62.41	-269.1	-2,649.2	306.1	172.6	133.52	2.293			
10,300.0	7,893.5	10,306.8	7,750.5	76.5	78.2	-62.21	-269.1	-2,749.2	306.8	168.6	138.16	2.220			
10,400.0	7,894.3	10,406.8	7,750.0	79.3	80.9	-62.01	-269.1	-2,849.2	307.4	164.6	142.80	2.153			
10,500.0	7,895.1	10,506.8	7,749.6	82.0	83.7	-61.81	-269.1	-2,949.2	308.1	160.7	147.43	2.090			
10,600.0	7,895.9	10,606.8	7,749.1	84.7	86.4	-61.61	-269.1	-3,049.2	308.8	156.7	152.05	2.031			
10,700.0	7,896.7	10,706.8	7,748.6	87.5	89.2	-61.41	-269.1	-3,149.2	309.4	152.8	156.66	1.975			
10,800.0	7,897.5	10,806.8	7,748.1	90.2	91.9	-61.21	-269.1	-3,249.2	310.1	148.8	161.25	1.923			
10,900.0	7,898.3	10,906.8	7,747.7	93.0	94.7	-61.02	-269.1	-3,349.2	310.8	144.9	165.84	1.874			
11,000.0	7,899.0	11,006.8	7,747.2	95.7	97.4	-60.82	-269.1	-3,449.2	311.5	141.0	170.41	1.828			
11,100.0	7,899.8	11,106.8	7,746.7	98.5	100.2	-60.63	-269.1	-3,549.2	312.2	137.2	174.98	1.784			
11,200.0	7,900.6	11,206.8	7,746.3	101.2	103.0	-60.44	-269.1	-3,649.2	312.8	133.3	179.52	1.743			
11,300.0	7,901.4	11,306.7	7,745.8	104.0	105.7	-60.25	-269.1	-3,749.1	313.5	129.5	184.06	1.703			
11,400.0	7,902.2	11,406.7	7,745.3	106.8	108.5	-60.05	-269.1	-3,849.1	314.2	125.7	188.58	1.666			
11,500.0	7,903.0	11,506.7	7,744.8	109.5	111.3	-59.86	-269.1	-3,949.1	314.9	121.8	193.09	1.631			
11,600.0	7,903.7	11,606.7	7,744.4	112.3	114.0	-59.67	-269.1	-4,049.1	315.6	118.1	197.58	1.598			
11,700.0	7,904.5	11,706.7	7,743.9	115.1	116.8	-59.49	-269.1	-4,149.1	316.3	114.3	202.06	1.566			
11,800.0	7,905.3	11,806.7	7,743.4	117.8	119.6	-59.30	-269.1	-4,249.1	317.1	110.5	206.52	1.535			
11,900.0	7,906.1	11,906.7	7,743.0	120.6	122.4	-59.11	-269.1	-4,349.1	317.8	106.8	210.97	1.506			
12,000.0	7,906.9	12,006.7	7,742.5	123.4	125.1	-58.92	-269.1	-4,449.1	318.5	103.1	215.40	1.479	Level 3		
12,100.0	7,907.7	12,106.7	7,742.0	126.1	127.9	-58.74	-269.1	-4,549.1	319.2	99.4	219.82	1.452	Level 3		
12,200.0	7,908.5	12,206.7	7,741.5	128.9	130.7	-58.55	-269.1	-4,649.1	319.9	95.7	224.23	1.427	Level 3		
12,300.0	7,909.2	12,306.7	7,741.1	131.7	133.5	-58.37	-269.1	-4,749.1	320.7	92.1	228.61	1.403	Level 3		
12,400.0	7,910.0	12,406.7	7,740.6	134.5	136.3	-58.19	-269.1	-4,849.0	321.4	88.4	232.98	1.379	Level 3		
12,500.0	7,910.8	12,506.6	7,740.1	137.3	139.1	-58.00	-269.1	-4,949.0	322.1	84.8	237.34	1.357	Level 3		
12,523.2	7,911.0	12,529.8	7,740.0	137.9	139.7	-57.96	-269.1	-4,972.2	322.3	84.0	238.35	1.352	Level 3, SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	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	173.25	-47.4	5.6	47.7				
100.0	100.0	100.0	100.0	0.1	0.1	173.25	-47.4	5.6	47.7	47.5	0.22	212.184	
200.0	200.0	200.0	200.0	0.3	0.3	173.25	-47.4	5.6	47.7	47.0	0.67	70.728	
300.0	300.0	300.0	300.0	0.6	0.6	173.25	-47.4	5.6	47.7	46.6	1.12	42.437	
400.0	400.0	400.0	400.0	0.8	0.8	173.25	-47.4	5.6	47.7	46.1	1.57	30.312 CC, ES	
500.0	500.0	499.2	499.2	1.0	1.0	173.24	-48.2	5.7	48.6	46.6	1.99	24.347	
600.0	600.0	598.3	598.2	1.2	1.2	173.20	-50.8	6.1	51.2	48.7	2.40	21.279	
700.0	700.0	697.3	697.1	1.5	1.4	173.15	-55.0	6.6	55.5	52.6	2.83	19.607	
800.0	800.0	796.1	795.8	1.7	1.6	173.09	-60.9	7.4	61.5	58.3	3.27	18.814	
900.0	900.0	894.6	894.0	1.9	1.8	173.02	-68.5	8.4	69.3	65.6	3.73	18.594	
1,000.0	1,000.0	992.9	991.9	2.1	2.1	172.96	-77.8	9.6	78.8	74.6	4.20	18.755	
1,100.0	1,100.0	1,090.9	1,089.2	2.4	2.3	172.91	-88.6	11.0	89.9	85.3	4.69	19.173	
1,200.0	1,200.0	1,188.4	1,185.9	2.6	2.6	172.86	-101.1	12.7	102.8	97.6	5.20	19.762	
1,300.0	1,300.0	1,285.5	1,281.9	2.8	2.9	172.81	-115.1	14.5	117.4	111.6	5.74	20.465	
1,400.0	1,400.0	1,382.0	1,377.2	3.0	3.3	172.78	-130.6	16.6	133.6	127.3	6.29	21.243	
1,500.0	1,500.0	1,480.2	1,473.9	3.3	3.6	172.75	-147.4	18.8	150.9	144.0	6.87	21.973	
1,600.0	1,600.0	1,578.7	1,570.9	3.5	4.0	172.72	-164.3	21.0	168.2	160.7	7.45	22.562	
1,700.0	1,700.0	1,677.2	1,667.9	3.7	4.3	172.70	-181.2	23.2	185.5	177.4	8.05	23.049	
1,800.0	1,800.0	1,775.7	1,764.9	3.9	4.7	172.68	-198.1	25.4	202.8	194.1	8.64	23.456	
1,900.0	1,900.0	1,874.2	1,861.9	4.2	5.1	172.67	-215.0	27.7	220.1	210.8	9.25	23.802	
2,000.0	2,000.0	1,972.6	1,958.9	4.4	5.5	172.66	-231.9	29.9	237.4	227.5	9.85	24.098	
2,100.0	2,100.0	2,071.1	2,056.0	4.6	5.8	172.65	-248.8	32.1	254.7	244.2	10.46	24.355	
2,200.0	2,200.0	2,169.6	2,153.0	4.8	6.2	172.64	-265.6	34.3	272.0	260.9	11.06	24.580	
2,300.0	2,300.0	2,268.1	2,250.0	5.1	6.6	172.63	-282.5	36.5	289.2	277.6	11.67	24.778	
2,400.0	2,400.0	2,366.6	2,347.0	5.3	7.0	172.62	-299.4	38.8	306.5	294.3	12.28	24.954	
2,500.0	2,500.0	2,465.1	2,444.0	5.5	7.4	172.62	-316.3	41.0	323.8	310.9	12.90	25.111	
2,600.0	2,600.0	2,563.6	2,541.0	5.7	7.8	172.61	-333.2	43.2	341.1	327.6	13.51	25.252	
2,700.0	2,700.0	2,662.1	2,638.0	6.0	8.2	172.61	-350.1	45.4	358.4	344.3	14.12	25.380	
2,800.0	2,800.0	2,760.6	2,735.0	6.2	8.6	172.60	-367.0	47.6	375.7	361.0	14.74	25.496	
2,900.0	2,900.0	2,859.1	2,832.0	6.4	8.9	172.60	-383.9	49.9	393.0	377.7	15.35	25.601	
3,000.0	3,000.0	2,957.6	2,929.0	6.6	9.3	172.59	-400.8	52.1	410.3	394.4	15.97	25.698	
3,100.0	3,100.0	3,056.1	3,026.0	6.9	9.7	172.59	-417.7	54.3	427.6	411.0	16.58	25.787	
3,200.0	3,200.0	3,154.6	3,123.0	7.1	10.1	172.59	-434.5	56.5	444.9	427.7	17.20	25.868	
3,300.0	3,300.0	3,253.1	3,220.1	7.3	10.5	172.58	-451.4	58.8	462.2	444.4	17.82	25.944	
3,400.0	3,400.0	3,351.5	3,317.1	7.5	10.9	172.58	-468.3	61.0	479.5	461.1	18.43	26.014	
3,500.0	3,500.0	3,450.0	3,414.1	7.8	11.3	172.58	-485.2	63.2	496.8	477.8	19.05	26.079	
3,600.0	3,600.0	3,548.5	3,511.1	8.0	11.7	172.58	-502.1	65.4	514.1	494.4	19.67	26.140	
3,700.0	3,700.0	3,647.0	3,608.1	8.2	12.1	172.57	-519.0	67.6	531.4	511.1	20.28	26.197	
3,800.0	3,800.0	3,745.5	3,705.1	8.4	12.5	172.57	-535.9	69.9	548.7	527.8	20.90	26.250	
3,900.0	3,900.0	3,844.0	3,802.1	8.7	12.9	172.57	-552.8	72.1	566.0	544.5	21.52	26.300	
4,000.0	4,000.0	3,942.5	3,899.1	8.9	13.3	172.57	-569.7	74.3	583.3	561.1	22.14	26.347	
4,100.0	4,100.0	4,041.0	3,996.1	9.1	13.7	172.57	-586.6	76.5	600.6	577.8	22.76	26.391	
4,200.0	4,200.0	4,139.5	4,093.1	9.3	14.0	172.57	-603.5	78.7	617.9	594.5	23.38	26.433	
4,300.0	4,300.0	4,238.0	4,190.1	9.6	14.4	172.56	-620.3	81.0	635.2	611.2	23.99	26.472	
4,400.0	4,400.0	4,336.5	4,287.1	9.8	14.8	172.56	-637.2	83.2	652.5	627.9	24.61	26.509	
4,500.0	4,500.0	4,435.0	4,384.2	10.0	15.2	172.56	-654.1	85.4	669.8	644.5	25.23	26.545	
4,600.0	4,600.0	4,533.5	4,481.2	10.2	15.6	172.56	-671.0	87.6	687.1	661.2	25.85	26.578	
4,700.0	4,700.0	4,632.0	4,578.2	10.5	16.0	172.56	-687.9	89.9	704.4	677.9	26.47	26.610	
4,800.0	4,800.0	4,730.4	4,675.2	10.7	16.4	172.56	-704.8	92.1	721.7	694.6	27.09	26.640	
4,900.0	4,900.0	4,828.9	4,772.2	10.9	16.8	172.56	-721.7	94.3	739.0	711.2	27.71	26.669	
5,000.0	5,000.0	4,927.4	4,869.2	11.1	17.2	172.55	-738.6	96.5	756.3	727.9	28.33	26.697	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Offset Design		Rio-LA 1S67W6E Pad Sec.6-T1S-R67W - Rio-LA 6F-334 - Wellbore #1 - Plan #1 (8-4-15)											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			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,100.0	5,100.0	5,025.9	4,966.2	11.4	17.6	172.55	-755.5	98.7	773.6	744.6	28.95	26.723			
5,200.0	5,200.0	5,124.4	5,063.2	11.6	18.0	172.55	-772.4	101.0	790.8	761.3	29.57	26.748			
5,300.0	5,300.0	5,222.9	5,160.2	11.8	18.4	172.55	-789.2	103.2	808.1	778.0	30.19	26.772			
5,400.0	5,400.0	5,321.4	5,257.2	12.0	18.8	172.55	-806.1	105.4	825.4	794.6	30.81	26.795			
5,500.0	5,500.0	5,419.9	5,354.2	12.2	19.2	172.55	-823.0	107.6	842.7	811.3	31.42	26.817			
5,600.0	5,600.0	5,518.4	5,451.2	12.5	19.6	172.55	-839.9	109.9	860.0	828.0	32.04	26.839			
5,700.0	5,700.0	5,636.5	5,567.7	12.7	20.0	172.55	-859.5	112.4	876.8	844.2	32.67	26.839			
5,800.0	5,800.0	5,779.9	5,709.9	12.9	20.3	172.55	-877.4	114.8	889.4	856.2	33.23	26.766			
5,900.0	5,900.0	5,924.8	5,854.4	13.1	20.6	172.55	-888.3	116.2	897.1	863.3	33.72	26.602			
6,000.0	6,000.0	6,070.5	6,000.0	13.4	20.8	172.55	-892.0	116.7	899.6	865.4	34.16	26.339			
6,100.0	6,100.0	6,170.5	6,100.0	13.6	20.9	172.55	-892.0	116.7	899.6	865.1	34.49	26.080			
6,200.0	6,200.0	6,270.5	6,200.0	13.8	21.0	172.55	-892.0	116.7	899.6	864.8	34.83	25.830			
6,300.0	6,300.0	6,370.5	6,300.0	14.0	21.1	172.55	-892.0	116.7	899.6	864.4	35.16	25.583			
6,400.0	6,400.0	6,470.5	6,400.0	14.3	21.2	172.55	-892.0	116.7	899.6	864.1	35.50	25.340			
6,500.0	6,500.0	6,570.5	6,500.0	14.5	21.3	172.55	-892.0	116.7	899.6	863.8	35.84	25.100			
6,600.0	6,600.0	6,670.5	6,600.0	14.7	21.5	172.55	-892.0	116.7	899.6	863.4	36.18	24.863			
6,700.0	6,700.0	6,770.5	6,700.0	14.9	21.6	172.55	-892.0	116.7	899.6	863.1	36.53	24.629			
6,800.0	6,800.0	6,870.5	6,800.0	15.2	21.7	172.55	-892.0	116.7	899.6	862.7	36.87	24.399			
6,900.0	6,900.0	6,970.5	6,900.0	15.4	21.8	172.55	-892.0	116.7	899.6	862.4	37.22	24.172			
7,000.0	7,000.0	7,071.1	7,000.6	15.6	21.9	172.55	-892.0	116.7	899.6	862.0	37.57	23.947			
7,100.0	7,100.0	7,188.1	7,117.1	15.8	22.1	173.15	-892.0	107.1	898.6	860.6	37.94	23.687			
7,114.0	7,114.0	7,204.1	7,132.9	15.9	22.1	173.32	-892.0	104.4	898.3	860.3	37.99	23.648			
7,150.0	7,150.0	7,245.1	7,173.0	16.0	22.2	-96.31	-892.0	96.0	897.5	865.3	32.20	27.878			
7,200.0	7,199.8	7,301.1	7,227.0	16.1	22.2	-95.71	-892.0	81.1	896.5	864.2	32.38	27.691			
7,250.0	7,249.3	7,356.3	7,279.0	16.2	22.3	-95.09	-892.0	62.5	895.6	863.1	32.56	27.503			
7,300.0	7,298.2	7,410.6	7,328.7	16.3	22.3	-94.45	-892.0	40.7	894.8	862.0	32.76	27.312			
7,350.0	7,346.3	7,464.1	7,376.0	16.4	22.4	-93.80	-892.0	15.8	894.0	861.1	32.98	27.110			
7,400.0	7,393.4	7,516.7	7,420.7	16.5	22.4	-93.13	-892.0	-11.9	893.4	860.2	33.22	26.891			
7,450.0	7,439.3	7,568.6	7,462.8	16.6	22.5	-92.46	-892.0	-42.2	892.9	859.4	33.50	26.654			
7,500.0	7,483.8	7,619.6	7,502.2	16.8	22.6	-91.78	-892.0	-74.6	892.5	858.7	33.83	26.382			
7,550.0	7,526.7	7,669.9	7,538.7	17.0	22.6	-91.10	-892.0	-109.2	892.3	858.0	34.22	26.073			
7,600.0	7,567.9	7,719.4	7,572.5	17.2	22.7	-90.42	-892.0	-145.4	892.1	857.5	34.69	25.720			
7,618.6	7,582.7	7,737.7	7,584.3	17.2	22.7	-90.17	-892.0	-159.3	892.1	857.3	34.88	25.575			
7,650.0	7,607.1	7,768.3	7,603.4	17.4	22.8	-89.74	-892.0	-183.3	892.2	856.9	35.24	25.318			
7,700.0	7,644.2	7,816.5	7,631.4	17.7	22.9	-89.07	-892.0	-222.5	892.3	856.4	35.89	24.865			
7,750.0	7,679.0	7,864.1	7,656.7	18.0	23.1	-88.41	-892.0	-262.8	892.6	855.9	36.64	24.362			
7,800.0	7,711.4	7,911.1	7,679.0	18.4	23.3	-87.75	-892.0	-304.2	893.0	855.5	37.51	23.809			
7,850.0	7,741.3	7,957.6	7,698.6	18.8	23.5	-87.11	-892.0	-346.3	893.5	855.0	38.49	23.213			
7,900.0	7,768.5	8,003.5	7,715.4	19.3	23.7	-86.48	-892.0	-389.0	894.1	854.5	39.60	22.580			
7,950.0	7,792.8	8,050.0	7,729.8	19.9	24.1	-85.85	-892.0	-433.2	894.8	853.9	40.84	21.911			
8,000.0	7,814.3	8,093.9	7,740.9	20.6	24.5	-85.27	-892.0	-475.7	895.6	853.4	42.17	21.237			
8,050.0	7,832.8	8,138.4	7,749.6	21.3	25.0	-84.70	-892.0	-519.3	896.4	852.8	43.63	20.547			
8,100.0	7,848.1	8,182.5	7,755.7	22.1	25.5	-84.15	-892.0	-563.0	897.3	852.1	45.18	19.859			
8,150.0	7,860.4	8,226.3	7,759.3	22.9	26.2	-83.62	-892.0	-606.6	898.2	851.4	46.83	19.180			
8,200.0	7,869.4	8,270.5	7,760.4	23.8	26.9	-83.11	-892.0	-650.8	899.2	850.6	48.57	18.513			
8,250.0	7,875.2	8,319.2	7,760.2	24.8	27.7	-82.69	-892.0	-699.5	900.0	849.5	50.49	17.823			
8,300.0	7,877.8	8,369.1	7,759.9	25.7	28.6	-82.48	-892.0	-749.4	900.4	847.8	52.53	17.141			
8,308.0	7,877.9	8,377.1	7,759.9	25.9	28.8	-82.47	-892.0	-757.4	900.4	847.5	52.86	17.034			
8,400.0	7,878.6	8,469.1	7,759.5	27.8	30.6	-82.40	-892.0	-849.4	900.6	843.9	56.72	15.879			
8,500.0	7,879.4	8,569.1	7,759.0	30.0	32.7	-82.32	-892.0	-949.4	900.9	839.8	61.12	14.740			
8,600.0	7,880.2	8,669.1	7,758.5	32.3	34.9	-82.24	-892.0	-1,049.4	901.1	835.4	65.69	13.718			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Offset Design													Rio-LA 1S67W6E Pad Sec.6-T1S-R67W - Rio-LA 6F-334 - Wellbore #1 - Plan #1 (8-4-15)		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					
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
8,700.0	7,881.0	8,769.1	7,758.0	34.6	37.2	-82.16	-892.0	-1,149.4	901.4	831.0	70.40	12.803					
8,800.0	7,881.8	8,869.1	7,757.6	37.0	39.6	-82.08	-892.0	-1,249.4	901.6	826.4	75.23	11.985					
8,900.0	7,882.5	8,969.0	7,757.1	39.5	42.1	-82.01	-892.0	-1,349.4	901.9	821.7	80.15	11.253					
9,000.0	7,883.3	9,069.0	7,756.6	42.0	44.6	-81.93	-892.0	-1,449.4	902.1	817.0	85.14	10.596					
9,100.0	7,884.1	9,169.0	7,756.2	44.6	47.1	-81.85	-892.0	-1,549.3	902.4	812.2	90.20	10.005					
9,200.0	7,884.9	9,269.0	7,755.7	47.1	49.6	-81.77	-892.0	-1,649.3	902.7	807.4	95.31	9.471					
9,300.0	7,885.7	9,369.0	7,755.2	49.7	52.2	-81.69	-892.0	-1,749.3	902.9	802.5	100.46	8.988					
9,400.0	7,886.5	9,469.0	7,754.7	52.4	54.8	-81.61	-892.0	-1,849.3	903.2	797.5	105.65	8.549					
9,500.0	7,887.3	9,569.0	7,754.3	55.0	57.4	-81.54	-892.0	-1,949.3	903.5	792.6	110.87	8.149					
9,600.0	7,888.0	9,669.0	7,753.8	57.6	60.1	-81.46	-892.0	-2,049.3	903.7	787.6	116.12	7.783					
9,700.0	7,888.8	9,769.0	7,753.3	60.3	62.7	-81.38	-892.0	-2,149.3	904.0	782.6	121.39	7.447					
9,800.0	7,889.6	9,869.0	7,752.9	63.0	65.4	-81.30	-892.0	-2,249.3	904.3	777.6	126.68	7.138					
9,900.0	7,890.4	9,969.0	7,752.4	65.7	68.1	-81.23	-892.0	-2,349.3	904.5	772.6	131.99	6.853					
10,000.0	7,891.2	10,069.0	7,751.9	68.4	70.8	-81.15	-892.0	-2,449.3	904.8	767.5	137.31	6.590					
10,100.0	7,892.0	10,169.0	7,751.4	71.1	73.5	-81.07	-892.0	-2,549.3	905.1	762.5	142.65	6.345					
10,200.0	7,892.8	10,268.9	7,751.0	73.8	76.2	-80.99	-892.0	-2,649.2	905.4	757.4	147.99	6.118					
10,300.0	7,893.5	10,368.9	7,750.5	76.5	78.9	-80.91	-892.0	-2,749.2	905.7	752.3	153.35	5.906					
10,400.0	7,894.3	10,468.9	7,750.0	79.3	81.6	-80.84	-892.0	-2,849.2	905.9	747.2	158.71	5.708					
10,500.0	7,895.1	10,568.9	7,749.6	82.0	84.3	-80.76	-892.0	-2,949.2	906.2	742.1	164.08	5.523					
10,600.0	7,895.9	10,668.9	7,749.1	84.7	87.0	-80.68	-892.0	-3,049.2	906.5	737.0	169.46	5.349					
10,700.0	7,896.7	10,768.9	7,748.6	87.5	89.8	-80.60	-892.0	-3,149.2	906.8	731.9	174.85	5.186					
10,800.0	7,897.5	10,868.9	7,748.2	90.2	92.5	-80.53	-892.0	-3,249.2	907.1	726.8	180.24	5.033					
10,900.0	7,898.3	10,968.9	7,747.7	93.0	95.3	-80.45	-892.0	-3,349.2	907.4	721.7	185.63	4.888					
11,000.0	7,899.0	11,068.9	7,747.2	95.7	98.0	-80.37	-892.0	-3,449.2	907.7	716.6	191.02	4.752					
11,100.0	7,899.8	11,168.9	7,746.7	98.5	100.8	-80.29	-892.0	-3,549.2	908.0	711.5	196.42	4.622					
11,200.0	7,900.6	11,268.9	7,746.3	101.2	103.5	-80.22	-892.0	-3,649.2	908.3	706.4	201.83	4.500					
11,300.0	7,901.4	11,368.9	7,745.8	104.0	106.3	-80.14	-892.0	-3,749.1	908.5	701.3	207.23	4.384					
11,400.0	7,902.2	11,468.9	7,745.3	106.8	109.0	-80.06	-892.0	-3,849.1	908.8	696.2	212.63	4.274					
11,500.0	7,903.0	11,568.8	7,744.9	109.5	111.8	-79.99	-892.0	-3,949.1	909.1	691.1	218.04	4.170					
11,600.0	7,903.7	11,668.8	7,744.4	112.3	114.5	-79.91	-892.0	-4,049.1	909.4	686.0	223.45	4.070					
11,700.0	7,904.5	11,768.8	7,743.9	115.1	117.3	-79.83	-892.0	-4,149.1	909.8	680.9	228.86	3.975					
11,800.0	7,905.3	11,868.8	7,743.4	117.8	120.1	-79.75	-892.0	-4,249.1	910.1	675.8	234.27	3.885					
11,900.0	7,906.1	11,968.8	7,743.0	120.6	122.8	-79.68	-892.0	-4,349.1	910.4	670.7	239.67	3.798					
12,000.0	7,906.9	12,068.8	7,742.5	123.4	125.6	-79.60	-892.0	-4,449.1	910.7	665.6	245.08	3.716					
12,100.0	7,907.7	12,168.8	7,742.0	126.1	128.4	-79.52	-892.0	-4,549.1	911.0	660.5	250.49	3.637					
12,200.0	7,908.5	12,268.8	7,741.6	128.9	131.1	-79.45	-892.0	-4,649.1	911.3	655.4	255.90	3.561					
12,300.0	7,909.2	12,368.8	7,741.1	131.7	133.9	-79.37	-892.0	-4,749.1	911.6	650.3	261.31	3.489					
12,400.0	7,910.0	12,468.8	7,740.6	134.5	136.7	-79.29	-892.0	-4,849.0	911.9	645.2	266.71	3.419					
12,500.0	7,910.8	12,568.8	7,740.1	137.3	138.8	-79.22	-892.0	-4,949.0	912.2	640.8	271.46	3.361					
12,523.2	7,911.0	12,591.9	7,740.0	137.9	139.2	-79.20	-892.0	-4,972.2	912.3	639.8	272.48	3.348 SF					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	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	174.83	-61.9	5.6	62.2				
100.0	100.0	100.0	100.0	0.1	0.1	174.83	-61.9	5.6	62.2	62.0	0.22	276.688	
200.0	200.0	200.0	200.0	0.3	0.3	174.83	-61.9	5.6	62.2	61.5	0.67	92.229 CC, ES	
300.0	300.0	298.9	298.9	0.6	0.5	174.90	-62.8	5.6	63.0	62.0	1.10	57.457	
400.0	400.0	397.8	397.7	0.8	0.7	175.11	-65.4	5.6	65.6	64.1	1.52	43.206	
500.0	500.0	496.5	496.4	1.0	0.9	175.42	-69.6	5.6	69.9	68.0	1.96	35.692	
600.0	600.0	595.1	594.8	1.2	1.2	175.79	-75.6	5.6	75.9	73.5	2.41	31.450	
700.0	700.0	693.4	692.8	1.5	1.4	176.19	-83.2	5.5	83.7	80.8	2.89	28.994	
800.0	800.0	791.5	790.4	1.7	1.7	176.58	-92.4	5.5	93.1	89.7	3.37	27.600	
900.0	900.0	889.2	887.5	1.9	2.0	176.96	-103.3	5.5	104.2	100.4	3.88	26.873	
1,000.0	1,000.0	986.5	984.0	2.1	2.3	177.31	-115.8	5.5	117.1	112.7	4.40	26.582 SF	
1,100.0	1,100.0	1,083.3	1,079.8	2.4	2.6	177.61	-129.9	5.4	131.6	126.6	4.95	26.585	
1,200.0	1,200.0	1,179.6	1,174.9	2.6	2.9	177.89	-145.5	5.4	147.7	142.2	5.52	26.787	
1,300.0	1,300.0	1,275.4	1,269.1	2.8	3.3	178.13	-162.6	5.3	165.6	159.5	6.10	27.127	
1,400.0	1,400.0	1,370.6	1,362.5	3.0	3.7	178.33	-181.1	5.3	185.0	178.3	6.71	27.562	
1,500.0	1,500.0	1,466.7	1,456.5	3.3	4.1	178.52	-201.2	5.2	205.9	198.6	7.35	28.030	
1,600.0	1,600.0	1,564.5	1,552.0	3.5	4.5	178.67	-221.9	5.1	227.1	219.1	8.00	28.387	
1,700.0	1,700.0	1,662.2	1,647.5	3.7	4.9	178.80	-242.5	5.1	248.2	239.6	8.66	28.677	
1,800.0	1,800.0	1,759.9	1,743.1	3.9	5.4	178.90	-263.2	5.0	269.3	260.0	9.32	28.915	
1,900.0	1,900.0	1,857.7	1,838.6	4.2	5.8	179.00	-283.9	5.0	290.5	280.5	9.98	29.114	
2,000.0	2,000.0	1,955.4	1,934.1	4.4	6.3	179.08	-304.5	4.9	311.6	301.0	10.64	29.282	
2,100.0	2,100.0	2,053.2	2,029.6	4.6	6.7	179.14	-325.2	4.9	332.8	321.5	11.31	29.426	
2,200.0	2,200.0	2,150.9	2,125.2	4.8	7.1	179.21	-345.9	4.8	353.9	341.9	11.98	29.550	
2,300.0	2,300.0	2,248.6	2,220.7	5.1	7.6	179.26	-366.5	4.7	375.1	362.4	12.65	29.659	
2,400.0	2,400.0	2,346.4	2,316.2	5.3	8.0	179.31	-387.2	4.7	396.2	382.9	13.32	29.754	
2,500.0	2,500.0	2,444.1	2,411.8	5.5	8.5	179.35	-407.9	4.6	417.3	403.3	13.99	29.839	
2,600.0	2,600.0	2,541.9	2,507.3	5.7	8.9	179.39	-428.5	4.6	438.5	423.8	14.66	29.915	
2,700.0	2,700.0	2,639.6	2,602.8	6.0	9.4	179.43	-449.2	4.5	459.6	444.3	15.33	29.983	
2,800.0	2,800.0	2,737.3	2,698.4	6.2	9.8	179.46	-469.9	4.4	480.8	464.8	16.00	30.044	
2,900.0	2,900.0	2,835.1	2,793.9	6.4	10.3	179.49	-490.5	4.4	501.9	485.2	16.67	30.099	
3,000.0	3,000.0	2,932.8	2,889.4	6.6	10.7	179.52	-511.2	4.3	523.0	505.7	17.35	30.150	
3,100.0	3,100.0	3,030.6	2,984.9	6.9	11.2	179.54	-531.9	4.3	544.2	526.2	18.02	30.196	
3,200.0	3,200.0	3,128.3	3,080.5	7.1	11.6	179.56	-552.5	4.2	565.3	546.6	18.70	30.238	
3,300.0	3,300.0	3,226.0	3,176.0	7.3	12.1	179.59	-573.2	4.2	586.5	567.1	19.37	30.277	
3,400.0	3,400.0	3,323.8	3,271.5	7.5	12.5	179.61	-593.9	4.1	607.6	587.6	20.04	30.313	
3,500.0	3,500.0	3,421.5	3,367.1	7.8	13.0	179.62	-614.5	4.0	628.8	608.0	20.72	30.347	
3,600.0	3,600.0	3,519.2	3,462.6	8.0	13.4	179.64	-635.2	4.0	649.9	628.5	21.39	30.378	
3,700.0	3,700.0	3,617.0	3,558.1	8.2	13.9	179.66	-655.9	3.9	671.1	649.0	22.07	30.407	
3,800.0	3,800.0	3,714.7	3,653.6	8.4	14.3	179.67	-676.5	3.9	692.2	669.5	22.74	30.434	
3,900.0	3,900.0	3,812.5	3,749.2	8.7	14.8	179.69	-697.2	3.8	713.3	689.9	23.42	30.459	
4,000.0	4,000.0	3,910.2	3,844.7	8.9	15.2	179.70	-717.9	3.7	734.5	710.4	24.10	30.482	
4,100.0	4,100.0	4,007.9	3,940.2	9.1	15.7	179.71	-738.5	3.7	755.6	730.9	24.77	30.505	
4,200.0	4,200.0	4,105.7	4,035.8	9.3	16.1	179.73	-759.2	3.6	776.8	751.3	25.45	30.526	
4,300.0	4,300.0	4,203.4	4,131.3	9.6	16.6	179.74	-779.9	3.6	797.9	771.8	26.12	30.545	
4,400.0	4,400.0	4,301.2	4,226.8	9.8	17.0	179.75	-800.5	3.5	819.1	792.3	26.80	30.564	
4,500.0	4,500.0	4,398.9	4,322.3	10.0	17.5	179.76	-821.2	3.4	840.2	812.7	27.47	30.581	
4,600.0	4,600.0	4,496.6	4,417.9	10.2	17.9	179.77	-841.9	3.4	861.3	833.2	28.15	30.598	
4,700.0	4,700.0	4,594.4	4,513.4	10.5	18.4	179.78	-862.5	3.3	882.5	853.7	28.83	30.614	
4,800.0	4,800.0	4,692.1	4,608.9	10.7	18.8	179.79	-883.2	3.3	903.6	874.1	29.50	30.629	
4,900.0	4,900.0	4,789.9	4,704.5	10.9	19.3	179.80	-903.9	3.2	924.8	894.6	30.18	30.643	
5,000.0	5,000.0	4,887.6	4,800.0	11.1	19.7	179.80	-924.5	3.2	945.9	915.1	30.86	30.657	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Offset Design Rio-LA 1S67W6E Pad Sec.6-T1S-R67W - Rio-LA 6F-434 - Wellbore #1 - Plan #1 (8-4-15)												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	
5,100.0	5,100.0	4,985.3	4,895.5	11.4	20.2	179.81	-945.2	3.1	967.1	935.5	31.53	30.670	
5,200.0	5,200.0	5,083.1	4,991.1	11.6	20.6	179.82	-965.9	3.0	988.2	956.0	32.21	30.682	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5083.0ft (RKB - 13')

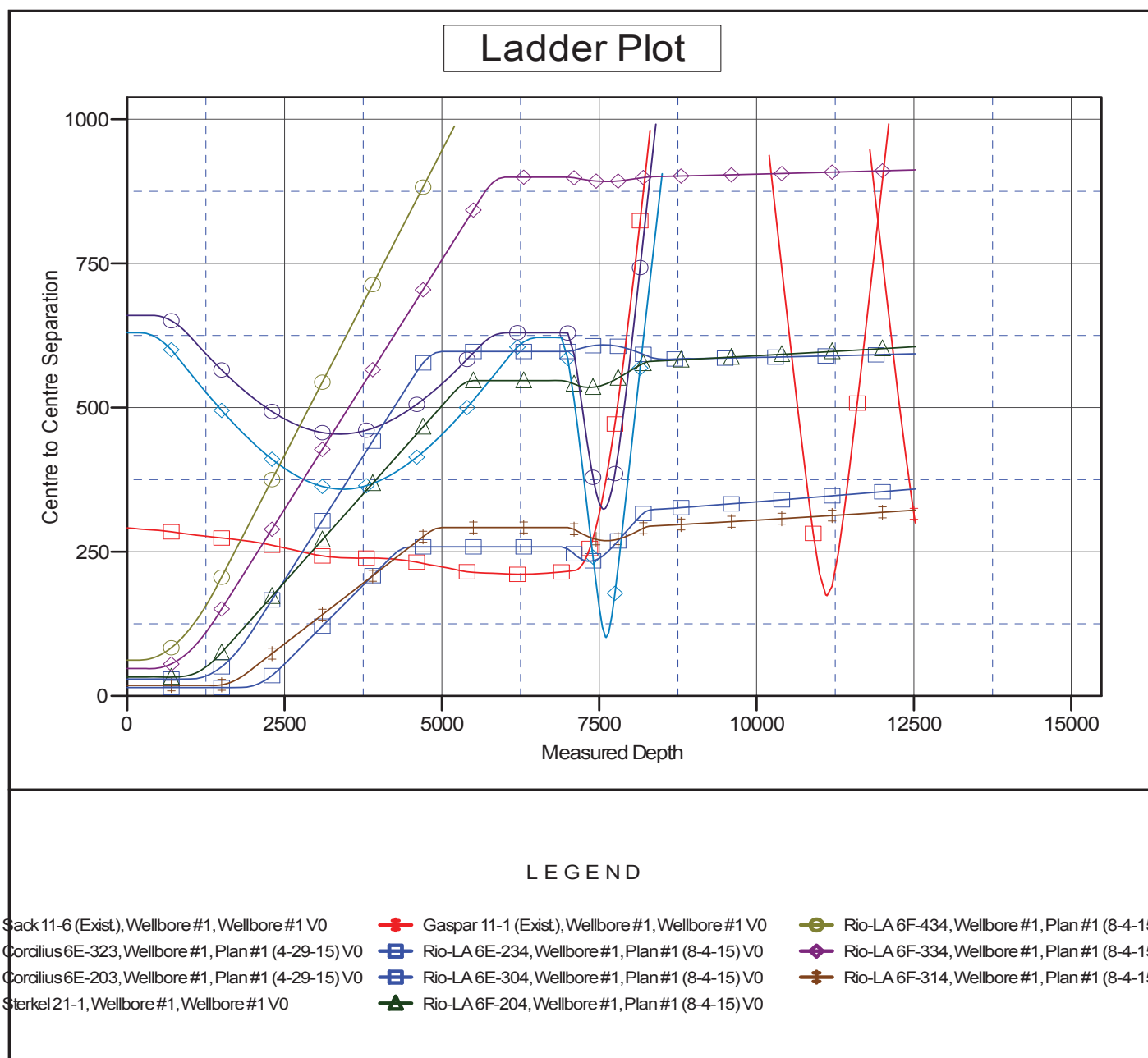
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Rio-LA 6F-414

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.36°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rio-LA 6F-414
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5083.0ft (RKB - 13')
Reference Site:	Rio-LA 1S67W6E Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5083.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Rio-LA 6F-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (8-4-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5083.0ft (RKB - 13')
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000

Coordinates are relative to: Rio-LA 6F-414
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.36°

