



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

LARIMER_MIRACLE 40-12 PAD

P_MIRACLE 16-12

P_MIRACLE 16-12

Plan: PLAN #1 3-22-10 RHS

Standard Planning Report

23 March, 2010

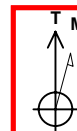




Project: COLORADO NORTHERN ZONE - 83
Site: LARIMER_MIRACLE 40-12 PAD
Well: P_MIRACLE 16-12
Wellbore: P_MIRACLE 16-12
Section: SECTION 12 T5N R68W
SHL: 2480 FSL 305 FEL
Design: PLAN #1 3-22-10 RHS
Latitude: 40° 24' 49.619 N
Longitude: 104° 56' 43.944 W
GL: 4948.00
KB: WELL @ 4963.00ft (Original Well Elev)



Weatherford®



Azimuths to True North
Magnetic North: 9.13°
Magnetic Field
Strength: 53247.9nT
Dip Angle: 67.07°
Date: 3/22/2010
Model: IGRF2010

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3490.00	3678.09	PARKMAN
4120.00	4369.42	SUSSEX
4570.00	4863.23	SHANNON
6910.00	7273.51	NIO A
7200.00	7563.51	CODELL
7660.00	8023.51	JSAND

CASING DETAILS

TVD	MD	Name	Size
650.00	650.00	8 5/8"	8.62

SECTION DETAILS

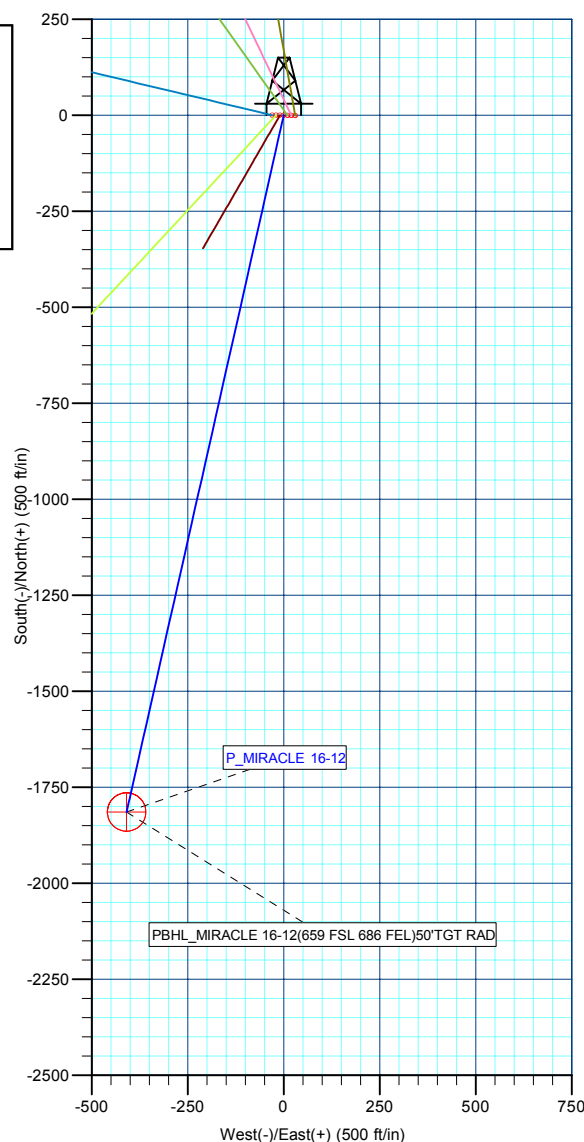
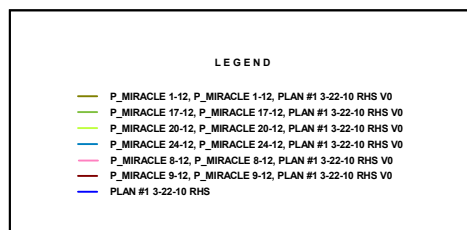
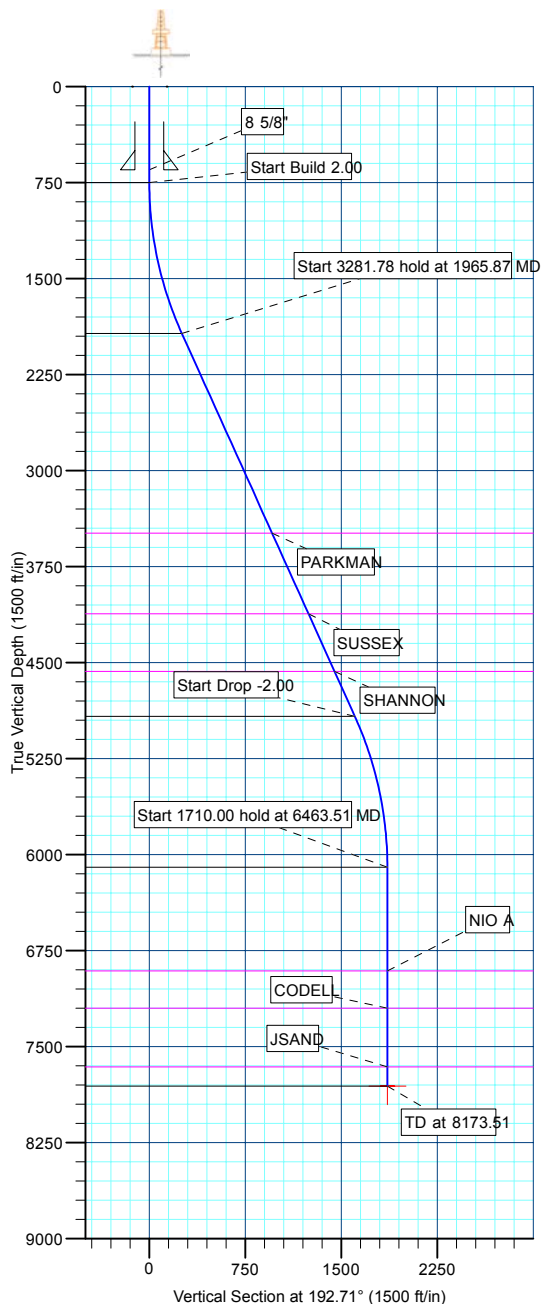
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
750.00	0.00	0.00	750.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
1965.87	24.32	192.71	1929.69	-247.94	-55.91	2.00	192.71	254.17	Start 3281.78 hold at 1965.87 MD
5247.65	24.32	192.71	4920.31	-1566.25	-353.17	0.00	0.00	1605.57	Start Drop -2.00
6463.51	0.00	0.00	6100.00	-1814.19	-409.08	2.00	180.00	1859.74	Start 1710.00 hold at 6463.51 MD
8173.51	0.00	0.00	7810.00	-1814.19	-409.08	0.00	0.00	1859.74	TD at 8173.51

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
PBHL	7810.00	-1814.19	-409.08	40° 24' 31.691 N	104° 56' 49.232 W	Circle (Radius: 50.00)

WELL DETAILS: P_MIRACLE 16-12

+N/-S	+E/-W	Northing	Ground Level: Easting	4948.00 Latitude	Longitude	Slot
0.00	0.00	1394064.17	3154390.45	40° 24' 49.619 N	104° 56' 43.944 W	



Plan: PLAN #1 3-22-10 RHS (P_MIRACLE 16-12/P_MIRACLE 16-12)

Created By: Robert H. Scott Date: 7:59, March 23 2010

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site:	LARIMER_MIRACLE 40-12 PAD	North Reference:	True
Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MIRACLE 16-12		
Design:	PLAN #1 3-22-10 RHS		

Project	COLORADO NORTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	LARIMER_MIRACLE 40-12 PAD, SECTION 12 T5N R68W			
Site Position:		Northing:	1,394,063.65 ft	Latitude: 40° 24' 49.612 N
From:	Lat/Long	Easting:	3,154,420.53 ft	Longitude: 104° 56' 43.555 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence: 0.36 °

Well	P_MIRACLE 16-12			
Well Position	+N/-S	0.72 ft	Northing:	1,394,064.17 ft
	+E/-W	-30.07 ft	Easting:	3,154,390.45 ft
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft
			Ground Level:	4,948.00 ft

Wellbore	P_MIRACLE 16-12				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/22/2010	9.13	67.07	53,248

Design	PLAN #1 3-22-10 RHS			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	192.71

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
750.00	0.00	0.00	750.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,965.87	24.32	192.71	1,929.69	-247.94	-55.91	2.00	2.00	0.00	192.71	
5,247.65	24.32	192.71	4,920.31	-1,566.25	-353.17	0.00	0.00	0.00	0.00	
6,463.51	0.00	0.00	6,100.00	-1,814.19	-409.08	2.00	-2.00	0.00	180.00	
8,173.51	0.00	0.00	7,810.00	-1,814.19	-409.08	0.00	0.00	0.00	0.00	PBHL_MIRACLE 16

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site:	LARIMER_MIRACLE 40-12 PAD	North Reference:	True
Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MIRACLE 16-12		
Design:	PLAN #1 3-22-10 RHS		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Start Build 2.00									
750.00	0.00	0.00	750.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	1.00	192.71	800.00	-0.43	-0.10	0.44	2.00	2.00	0.00
900.00	3.00	192.71	899.93	-3.83	-0.86	3.93	2.00	2.00	0.00
1,000.00	5.00	192.71	999.68	-10.63	-2.40	10.90	2.00	2.00	0.00
1,100.00	7.00	192.71	1,099.13	-20.83	-4.70	21.35	2.00	2.00	0.00
1,200.00	9.00	192.71	1,198.15	-34.41	-7.76	35.27	2.00	2.00	0.00
1,300.00	11.00	192.71	1,296.63	-51.35	-11.58	52.63	2.00	2.00	0.00
1,400.00	13.00	192.71	1,394.44	-71.63	-16.15	73.42	2.00	2.00	0.00
1,500.00	15.00	192.71	1,491.46	-95.22	-21.47	97.62	2.00	2.00	0.00
1,600.00	17.00	192.71	1,587.58	-122.11	-27.53	125.18	2.00	2.00	0.00
1,700.00	19.00	192.71	1,682.68	-152.26	-34.33	156.08	2.00	2.00	0.00
1,800.00	21.00	192.71	1,776.65	-185.62	-41.85	190.28	2.00	2.00	0.00
1,900.00	23.00	192.71	1,869.36	-222.16	-50.09	227.74	2.00	2.00	0.00
Start 3281.78 hold at 1965.87 MD									
1,965.87	24.32	192.71	1,929.69	-247.94	-55.91	254.17	2.00	2.00	0.00
2,000.00	24.32	192.71	1,960.80	-261.65	-59.00	268.22	0.00	0.00	0.00
2,100.00	24.32	192.71	2,051.92	-301.82	-68.06	309.40	0.00	0.00	0.00
2,200.00	24.32	192.71	2,143.05	-341.99	-77.12	350.58	0.00	0.00	0.00
2,300.00	24.32	192.71	2,234.18	-382.17	-86.17	391.76	0.00	0.00	0.00
2,400.00	24.32	192.71	2,325.31	-422.34	-95.23	432.94	0.00	0.00	0.00
2,500.00	24.32	192.71	2,416.44	-462.51	-104.29	474.12	0.00	0.00	0.00
2,600.00	24.32	192.71	2,507.56	-502.68	-113.35	515.30	0.00	0.00	0.00
2,700.00	24.32	192.71	2,598.69	-542.85	-122.41	556.48	0.00	0.00	0.00
2,800.00	24.32	192.71	2,689.82	-583.02	-131.46	597.66	0.00	0.00	0.00
2,900.00	24.32	192.71	2,780.95	-623.19	-140.52	638.83	0.00	0.00	0.00
3,000.00	24.32	192.71	2,872.08	-663.36	-149.58	680.01	0.00	0.00	0.00
3,100.00	24.32	192.71	2,963.20	-703.53	-158.64	721.19	0.00	0.00	0.00
3,200.00	24.32	192.71	3,054.33	-743.70	-167.70	762.37	0.00	0.00	0.00
3,300.00	24.32	192.71	3,145.46	-783.87	-176.75	803.55	0.00	0.00	0.00
3,400.00	24.32	192.71	3,236.59	-824.04	-185.81	844.73	0.00	0.00	0.00
3,500.00	24.32	192.71	3,327.71	-864.21	-194.87	885.91	0.00	0.00	0.00
3,600.00	24.32	192.71	3,418.84	-904.38	-203.93	927.09	0.00	0.00	0.00
PARKMAN									
3,678.09	24.32	192.71	3,490.00	-935.75	-211.00	959.24	0.00	0.00	0.00
3,700.00	24.32	192.71	3,509.97	-944.55	-212.99	968.27	0.00	0.00	0.00
3,800.00	24.32	192.71	3,601.10	-984.72	-222.04	1,009.45	0.00	0.00	0.00
3,900.00	24.32	192.71	3,692.23	-1,024.89	-231.10	1,050.62	0.00	0.00	0.00
4,000.00	24.32	192.71	3,783.35	-1,065.06	-240.16	1,091.80	0.00	0.00	0.00
4,100.00	24.32	192.71	3,874.48	-1,105.23	-249.22	1,132.98	0.00	0.00	0.00
4,200.00	24.32	192.71	3,965.61	-1,145.40	-258.28	1,174.16	0.00	0.00	0.00
4,300.00	24.32	192.71	4,056.74	-1,185.57	-267.33	1,215.34	0.00	0.00	0.00
SUSSEX									
4,369.42	24.32	192.71	4,120.00	-1,213.46	-273.62	1,243.93	0.00	0.00	0.00
4,400.00	24.32	192.71	4,147.87	-1,225.74	-276.39	1,256.52	0.00	0.00	0.00
4,500.00	24.32	192.71	4,238.99	-1,265.92	-285.45	1,297.70	0.00	0.00	0.00
4,600.00	24.32	192.71	4,330.12	-1,306.09	-294.51	1,338.88	0.00	0.00	0.00
4,700.00	24.32	192.71	4,421.25	-1,346.26	-303.57	1,380.06	0.00	0.00	0.00
4,800.00	24.32	192.71	4,512.38	-1,386.43	-312.62	1,421.24	0.00	0.00	0.00
SHANNON									
4,863.23	24.32	192.71	4,570.00	-1,411.83	-318.35	1,447.27	0.00	0.00	0.00
4,900.00	24.32	192.71	4,603.50	-1,426.60	-321.68	1,462.42	0.00	0.00	0.00
5,000.00	24.32	192.71	4,694.63	-1,466.77	-330.74	1,503.59	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site:	LARIMER_MIRACLE 40-12 PAD	North Reference:	True
Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MIRACLE 16-12		
Design:	PLAN #1 3-22-10 RHS		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,100.00	24.32	192.71	4,785.76	-1,506.94	-339.80	1,544.77	0.00	0.00	0.00
5,200.00	24.32	192.71	4,876.89	-1,547.11	-348.86	1,585.95	0.00	0.00	0.00
Start Drop -2.00									
5,247.65	24.32	192.71	4,920.31	-1,566.25	-353.17	1,605.57	0.00	0.00	0.00
5,300.00	23.27	192.71	4,968.21	-1,586.85	-357.82	1,626.69	2.00	-2.00	0.00
5,400.00	21.27	192.71	5,060.75	-1,623.82	-366.15	1,664.59	2.00	-2.00	0.00
5,500.00	19.27	192.71	5,154.55	-1,657.61	-373.77	1,699.23	2.00	-2.00	0.00
5,600.00	17.27	192.71	5,249.50	-1,688.20	-380.67	1,730.58	2.00	-2.00	0.00
5,700.00	15.27	192.71	5,345.49	-1,715.52	-386.83	1,758.60	2.00	-2.00	0.00
5,800.00	13.27	192.71	5,442.40	-1,739.57	-392.25	1,783.25	2.00	-2.00	0.00
5,900.00	11.27	192.71	5,540.11	-1,760.30	-396.93	1,804.50	2.00	-2.00	0.00
6,000.00	9.27	192.71	5,638.51	-1,777.69	-400.85	1,822.32	2.00	-2.00	0.00
6,100.00	7.27	192.71	5,737.46	-1,791.72	-404.01	1,836.71	2.00	-2.00	0.00
6,200.00	5.27	192.71	5,836.86	-1,802.38	-406.42	1,847.63	2.00	-2.00	0.00
6,300.00	3.27	192.71	5,936.57	-1,809.64	-408.05	1,855.08	2.00	-2.00	0.00
6,400.00	1.27	192.71	6,036.49	-1,813.50	-408.92	1,859.04	2.00	-2.00	0.00
Start 1710.00 hold at 6463.51 MD									
6,463.51	0.00	0.00	6,100.00	-1,814.19	-409.08	1,859.74	2.00	-2.00	263.40
6,500.00	0.00	0.00	6,136.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
6,600.00	0.00	0.00	6,236.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
6,700.00	0.00	0.00	6,336.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
6,800.00	0.00	0.00	6,436.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
6,900.00	0.00	0.00	6,536.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
7,000.00	0.00	0.00	6,636.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
7,100.00	0.00	0.00	6,736.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
7,200.00	0.00	0.00	6,836.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
NIO A									
7,273.51	0.00	0.00	6,910.00	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
7,300.00	0.00	0.00	6,936.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
7,400.00	0.00	0.00	7,036.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
7,500.00	0.00	0.00	7,136.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
CODELL									
7,563.51	0.00	0.00	7,200.00	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
7,600.00	0.00	0.00	7,236.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
7,700.00	0.00	0.00	7,336.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
7,800.00	0.00	0.00	7,436.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
7,900.00	0.00	0.00	7,536.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
8,000.00	0.00	0.00	7,636.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
JSAND									
8,023.51	0.00	0.00	7,660.00	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
8,100.00	0.00	0.00	7,736.49	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00
PBHL_MIRACLE 16-12(659 FSL 686 FEL)50'TGT RAD									
8,173.51	0.00	0.00	7,810.00	-1,814.19	-409.08	1,859.74	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site:	LARIMER_MIRACLE 40-12 PAD	North Reference:	True
Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MIRACLE 16-12		
Design:	PLAN #1 3-22-10 RHS		

Design Targets									
Target Name									
- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
PBHL_MIRACLE 16-1	0.00	0.00	7,810.00	-1,814.19	-409.08	1,392,247.46	3,153,992.72	40° 24' 31.691 N	104° 56' 49.232 W
- plan hits target center									
- Circle (radius 50.00)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
650.00	650.00	8 5/8"	8.62	11.00	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,678.09	3,490.00	PARKMAN				
4,369.42	4,120.00	SUSSEX				
4,863.23	4,570.00	SHANNON				
7,273.51	6,910.00	NIO A				
7,563.51	7,200.00	CODELL				
8,023.51	7,660.00	JSAND				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
750.00	750.00	0.00	0.00	Start Build 2.00	
1,965.87	1,929.69	-247.94	-55.91	Start 3281.78 hold at 1965.87 MD	
5,247.65	4,920.31	-1,566.25	-353.17	Start Drop -2.00	
6,463.51	6,100.00	-1,814.19	-409.08	Start 1710.00 hold at 6463.51 MD	
8,173.51	7,810.00	-1,814.19	-409.08	TD at 8173.51	



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
LARIMER_MIRACLE 40-12 PAD
P_MIRACLE 16-12**

**P_MIRACLE 16-12
PLAN #1 3-22-10 RHS**

Anticollision Report

23 March, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Reference Site:	LARIMER_MIRACLE 40-12 PAD	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 3-22-10 RHS		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	0.00 to 20,000.00ft	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	3/22/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	8,173.51	PLAN #1 3-22-10 RHS (P_MIRACLE 16-1	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						
LARIMER_MIRACLE 40-12 PAD						
P_MIRACLE 1-12 - P_MIRACLE 1-12 - PLAN #1 3-22-10	484.36	484.49	29.49	27.57	15.341	CC
P_MIRACLE 1-12 - P_MIRACLE 1-12 - PLAN #1 3-22-10	500.00	500.09	29.51	27.52	14.804	ES
P_MIRACLE 1-12 - P_MIRACLE 1-12 - PLAN #1 3-22-10	700.00	698.25	36.74	33.81	12.563	SF
P_MIRACLE 17-12 - P_MIRACLE 17-12 - PLAN #1 3-22-10	835.21	835.32	9.76	6.30	2.820	CC, ES, SF
P_MIRACLE 20-12 - P_MIRACLE 20-12 - PLAN #1 3-22-10	750.00	750.00	19.77	16.66	6.352	CC, ES
P_MIRACLE 20-12 - P_MIRACLE 20-12 - PLAN #1 3-22-10	900.00	899.29	21.61	17.94	5.894	SF
P_MIRACLE 24-12 - P_MIRACLE 24-12 - PLAN #1 3-22-10	750.00	750.00	29.80	26.68	9.572	CC, ES
P_MIRACLE 24-12 - P_MIRACLE 24-12 - PLAN #1 3-22-10	900.00	898.29	33.10	29.41	8.958	SF
P_MIRACLE 8-12 - P_MIRACLE 8-12 - PLAN #1 3-22-10	839.21	839.42	19.88	16.40	5.715	CC, ES
P_MIRACLE 8-12 - P_MIRACLE 8-12 - PLAN #1 3-22-10	900.00	900.10	20.45	16.73	5.499	SF
P_MIRACLE 9-12 - P_MIRACLE 9-12 - PLAN #1 3-22-10	750.00	750.00	9.75	6.63	3.131	CC
P_MIRACLE 9-12 - P_MIRACLE 9-12 - PLAN #1 3-22-10	800.00	799.91	9.87	6.56	2.982	ES
P_MIRACLE 9-12 - P_MIRACLE 9-12 - PLAN #1 3-22-10	900.00	899.74	10.85	7.19	2.964	SF

Offset Design	LARIMER_MIRACLE 40-12 PAD - P_MIRACLE 1-12 - P_MIRACLE 1-12 - PLAN #1 3-22-10 RHS											Offset Site Error:	0.00 ft
Survey Program:	0-MWD											Offset Well Error:	0.00 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
0.00	0.00	0.00	0.00	0.00	0.00	91.36	-0.72	30.07	30.08				
100.00	100.00	100.00	100.00	0.10	0.10	91.36	-0.72	30.07	30.08	29.89	0.19	157.453	
200.00	200.00	200.00	200.00	0.32	0.32	91.36	-0.72	30.07	30.08	29.44	0.64	46.960	
300.00	300.00	300.00	300.00	0.55	0.55	91.36	-0.72	30.07	30.08	28.99	1.09	27.595	
400.00	400.00	400.17	400.15	0.77	0.77	88.06	1.01	29.77	29.79	28.25	1.54	19.348	
484.36	484.36	484.49	484.36	0.96	0.96	79.98	5.13	29.04	29.49	27.57	1.92	15.341	CC
500.00	500.00	500.09	499.93	0.99	1.00	77.95	6.16	28.86	29.51	27.52	1.99	14.804	ES
600.00	600.00	599.53	598.98	1.22	1.24	61.76	14.69	27.35	31.06	28.60	2.46	12.637	
700.00	700.00	698.25	696.96	1.44	1.51	43.63	26.50	25.26	36.74	33.81	2.92	12.563	SF
750.00	750.00	747.26	745.45	1.56	1.67	35.55	33.60	24.01	41.54	38.39	3.16	13.164	
800.00	800.00	795.95	793.48	1.65	1.82	-164.19	41.45	22.62	48.09	44.69	3.39	14.174	
900.00	899.93	891.85	887.65	1.83	2.16	-174.79	59.27	19.47	67.43	63.63	3.79	17.772	
1,000.00	999.68	985.30	978.78	2.02	2.55	178.71	79.62	15.88	94.42	90.23	4.19	22.511	
1,100.00	1,099.13	1,075.77	1,066.33	2.24	2.97	174.78	102.09	11.91	128.30	123.71	4.60	27.921	
1,200.00	1,198.15	1,162.82	1,149.83	2.49	3.42	172.31	126.27	7.63	168.49	163.49	4.99	33.741	

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

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Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design LARIMER_MIRACLE 40-12 PAD - P_MIRACLE 1-12 - P_MIRACLE 1-12 - PLAN #1 3-22-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,300.00	1,296.63	1,246.06	1,228.96	2.78	3.89	170.68	151.72	3.14	214.55	209.16	5.39	39.821	
1,400.00	1,394.44	1,325.20	1,303.46	3.13	4.38	169.53	178.01	-1.51	266.10	260.32	5.78	46.070	
1,500.00	1,491.46	1,400.00	1,373.17	3.53	4.87	168.68	204.70	-6.23	322.77	316.62	6.16	52.428	
1,600.00	1,587.58	1,470.39	1,438.11	4.00	5.37	167.99	231.46	-10.95	384.23	377.70	6.53	58.826	
1,700.00	1,682.68	1,537.71	1,499.57	4.52	5.88	167.40	258.49	-15.73	450.09	443.19	6.90	65.217	
1,800.00	1,776.65	1,610.10	1,565.43	5.12	6.44	166.89	288.08	-20.96	519.08	511.79	7.29	71.205	
1,900.00	1,869.36	1,680.10	1,629.11	5.78	6.98	166.47	316.70	-26.02	590.48	582.81	7.68	76.915	
1,965.87	1,929.69	1,724.87	1,669.84	6.25	7.33	166.21	335.00	-29.25	638.80	630.86	7.93	80.539	
2,000.00	1,960.80	1,747.78	1,690.68	6.50	7.51	166.26	344.37	-30.91	664.09	655.98	8.11	81.923	
2,100.00	2,051.92	1,814.92	1,751.76	7.25	8.04	166.39	371.82	-35.76	738.20	729.57	8.62	85.594	
2,200.00	2,143.05	1,882.05	1,812.83	8.01	8.57	166.49	399.26	-40.61	812.31	803.16	9.15	88.761	
2,300.00	2,234.18	1,949.18	1,873.91	8.79	9.11	166.57	426.71	-45.46	886.42	876.73	9.69	91.515	
2,400.00	2,325.31	2,016.32	1,934.98	9.56	9.64	166.64	454.16	-50.31	960.53	950.30	10.23	93.930	
2,500.00	2,416.44	2,083.45	1,996.06	10.35	10.18	166.71	481.61	-55.16	1,034.64	1,023.87	10.77	96.057	
2,600.00	2,507.56	2,150.59	2,057.13	11.14	10.71	166.76	509.05	-60.01	1,108.75	1,097.43	11.32	97.944	
2,700.00	2,598.69	2,217.72	2,118.21	11.93	11.25	166.80	536.50	-64.86	1,182.86	1,170.99	11.87	99.628	
2,800.00	2,689.82	2,284.86	2,179.28	12.72	11.79	166.85	563.95	-69.71	1,256.98	1,244.55	12.43	101.137	
2,900.00	2,780.95	2,351.99	2,240.36	13.52	12.33	166.88	591.39	-74.56	1,331.09	1,318.10	12.99	102.496	
3,000.00	2,872.08	2,419.12	2,301.43	14.32	12.87	166.91	618.84	-79.41	1,405.20	1,391.65	13.55	103.727	
3,100.00	2,963.20	2,486.26	2,362.51	15.12	13.41	166.94	646.29	-84.26	1,479.31	1,465.20	14.11	104.845	
3,200.00	3,054.33	2,553.39	2,423.58	15.92	13.95	166.97	673.73	-89.11	1,553.43	1,538.75	14.67	105.865	
3,300.00	3,145.46	2,620.53	2,484.66	16.72	14.49	166.99	701.18	-93.96	1,627.54	1,612.30	15.24	106.799	
3,400.00	3,236.59	2,687.66	2,545.73	17.53	15.04	167.02	728.63	-98.81	1,701.65	1,685.85	15.81	107.657	
3,500.00	3,327.71	2,754.80	2,606.81	18.33	15.58	167.04	756.07	-103.66	1,775.77	1,759.39	16.37	108.447	
3,600.00	3,418.84	2,821.93	2,667.88	19.14	16.12	167.06	783.52	-108.51	1,849.88	1,832.94	16.94	109.178	
3,700.00	3,509.97	2,889.06	2,728.96	19.94	16.66	167.07	810.97	-113.36	1,923.99	1,906.48	17.51	109.854	
3,800.00	3,601.10	2,956.20	2,790.03	20.75	17.21	167.09	838.41	-118.21	1,998.11	1,980.02	18.09	110.483	
3,900.00	3,692.23	3,023.33	2,851.11	21.56	17.75	167.10	865.86	-123.06	2,072.22	2,053.56	18.66	111.069	
4,000.00	3,783.35	3,090.47	2,912.18	22.36	18.29	167.12	893.31	-127.91	2,146.34	2,127.11	19.23	111.615	
4,100.00	3,874.48	3,157.60	2,973.26	23.17	18.83	167.13	920.76	-132.76	2,220.45	2,200.65	19.80	112.126	
4,200.00	3,965.61	3,224.74	3,034.33	23.98	19.38	167.14	948.20	-137.61	2,294.56	2,274.19	20.38	112.605	
4,300.00	4,056.74	3,291.87	3,095.41	24.79	19.92	167.15	975.65	-142.46	2,368.68	2,347.73	20.95	113.055	
4,400.00	4,147.87	3,359.00	3,156.48	25.60	20.47	167.16	1,003.10	-147.31	2,442.79	2,421.27	21.53	113.478	
4,500.00	4,238.99	3,426.14	3,217.56	26.41	21.01	167.17	1,030.54	-152.16	2,516.91	2,494.80	22.10	113.877	
4,600.00	4,330.12	3,493.27	3,278.63	27.22	21.55	167.18	1,057.99	-157.01	2,591.02	2,568.34	22.68	114.253	
4,700.00	4,421.25	3,560.41	3,339.71	28.03	22.10	167.19	1,085.44	-161.86	2,665.13	2,641.88	23.25	114.609	
4,800.00	4,512.38	3,627.54	3,400.78	28.84	22.64	167.20	1,112.88	-166.71	2,739.25	2,715.42	23.83	114.945	
4,900.00	4,603.50	3,694.68	3,461.86	29.65	23.19	167.21	1,140.33	-171.56	2,813.36	2,788.95	24.41	115.265	
5,000.00	4,694.63	3,761.81	3,522.93	30.46	23.73	167.22	1,167.78	-176.41	2,887.48	2,862.49	24.99	115.567	
5,100.00	4,785.76	3,828.94	3,584.01	31.27	24.28	167.22	1,195.22	-181.26	2,961.59	2,936.03	25.56	115.855	
5,200.00	4,876.89	3,896.08	3,645.08	32.08	24.82	167.23	1,222.67	-186.11	3,035.71	3,009.56	26.14	116.129	
5,247.65	4,920.31	3,928.07	3,674.18	32.47	25.08	167.23	1,235.75	-188.42	3,071.02	3,044.60	26.42	116.255	
5,300.00	4,968.21	3,963.56	3,706.47	32.82	25.37	167.48	1,250.26	-190.98	3,109.50	3,082.64	26.87	115.741	
5,400.00	5,060.75	4,033.23	3,769.86	33.36	25.93	167.91	1,278.74	-196.01	3,181.23	3,153.54	27.69	114.881	
5,500.00	5,154.55	4,105.30	3,835.42	33.86	26.52	168.27	1,308.21	-201.22	3,250.53	3,222.04	28.50	114.060	
5,600.00	5,249.50	4,179.68	3,903.09	34.33	27.12	168.58	1,338.62	-206.59	3,317.34	3,288.06	29.28	113.288	
5,700.00	5,345.49	4,256.28	3,972.77	34.75	27.75	168.85	1,369.93	-212.13	3,381.56	3,351.52	30.04	112.571	
5,800.00	5,442.40	4,335.00	4,044.39	35.14	28.38	169.08	1,402.12	-217.82	3,443.12	3,412.35	30.77	111.911	
5,900.00	5,540.11	4,415.76	4,117.86	35.48	29.04	169.27	1,435.13	-223.65	3,501.95	3,470.49	31.46	111.311	
6,000.00	5,638.51	4,498.44	4,193.08	35.78	29.71	169.42	1,468.94	-229.62	3,557.97	3,525.85	32.12	110.770	
6,100.00	5,737.46	4,582.96	4,269.97	36.03	30.40	169.55	1,503.49	-235.73	3,611.13	3,578.39	32.74	110.289	
6,200.00	5,836.86	4,669.20	4,348.43	36.24	31.10	169.65	1,538.75	-241.96	3,661.37	3,628.04	33.33	109.867	

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

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Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design LARIMER_MIRACLE 40-12 PAD - P_MIRACLE 1-12 - P_MIRACLE 1-12 - PLAN #1 3-22-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 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
6,300.00	5,936.57	4,757.07	4,428.36	36.41	31.81	169.72	1,574.67	-248.31	3,708.61	3,674.74	33.87	109.504	
6,400.00	6,036.49	4,846.45	4,509.68	36.52	32.54	169.77	1,611.22	-254.76	3,752.82	3,718.45	34.37	109.200	
6,463.51	6,100.00	4,903.96	4,561.99	36.58	33.01	2.49	1,634.73	-258.92	3,779.29	3,744.63	34.67	109.022	
6,500.00	6,136.49	4,937.15	4,592.19	36.60	33.28	2.44	1,648.30	-261.32	3,794.14	3,759.30	34.84	108.911	
6,600.00	6,236.49	5,028.12	4,674.95	36.67	34.02	2.31	1,685.49	-267.89	3,834.85	3,799.55	35.30	108.632	
6,700.00	6,336.49	5,119.10	4,757.72	36.73	34.75	2.18	1,722.68	-274.46	3,875.58	3,839.81	35.77	108.359	
6,800.00	6,436.49	5,210.07	4,840.48	36.80	35.49	2.05	1,759.88	-281.03	3,916.32	3,880.09	36.23	108.091	
6,900.00	6,536.49	5,300.00	4,928.49	36.87	36.22	1.92	1,796.27	-287.60	3,956.95	3,919.66	36.69	107.800	
7,000.00	6,636.49	5,390.00	5,016.49	36.93	36.95	1.79	1,832.66	-294.17	3,997.57	3,958.27	37.15	107.500	
7,100.00	6,736.49	5,480.00	5,104.49	37.00	37.68	1.66	1,869.05	-300.74	4,038.19	3,998.89	37.61	107.200	
7,200.00	6,836.49	5,570.00	5,192.49	37.07	38.41	1.53	1,905.44	-307.31	4,078.81	4,039.51	38.07	106.900	
7,300.00	6,936.49	5,660.00	5,280.49	37.15	39.14	1.40	1,941.83	-313.88	4,119.43	4,080.13	38.53	106.600	
7,400.00	7,036.49	5,750.00	5,368.49	37.22	39.87	1.27	1,978.22	-320.45	4,160.05	4,120.75	39.00	106.300	
7,500.00	7,136.49	5,840.00	5,456.49	37.30	40.60	1.14	2,014.61	-327.02	4,200.67	4,161.37	39.46	106.000	
7,600.00	7,236.49	5,930.00	5,544.49	37.37	41.33	1.01	2,051.00	-333.59	4,241.29	4,201.99	39.92	105.700	
7,700.00	7,336.49	6,020.00	5,632.49	37.45	42.06	0.89	2,087.39	-340.16	4,281.91	4,242.61	40.38	105.400	
7,800.00	7,436.49	6,110.00	5,720.49	37.53	42.79	0.76	2,123.78	-346.73	4,322.53	4,283.23	40.84	105.100	
7,900.00	7,536.49	6,200.00	5,808.49	37.61	43.52	0.63	2,160.17	-353.30	4,363.15	4,323.85	41.30	104.800	
8,000.00	7,636.49	6,290.00	5,896.49	37.69	44.25	0.50	2,196.56	-359.87	4,403.77	4,364.47	41.76	104.500	
8,100.00	7,736.49	6,380.00	5,984.49	37.77	44.98	0.37	2,232.95	-366.44	4,444.39	4,405.09	42.22	104.200	
8,173.51	7,810.00	6,443.52	6,043.00	37.83	45.44	0.29	2,269.34	-373.01	4,485.01	4,445.71	42.68	103.900	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Reference Site:	LARIMER_MIRACLE 40-12 PAD	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 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	
0.00	0.00	0.00	0.00	0.00	0.00	92.08	-0.36	10.02	10.03				
100.00	100.00	100.00	100.00	0.10	0.10	92.08	-0.36	10.02	10.03	9.84	0.19	52.504	
200.00	200.00	200.00	200.00	0.32	0.32	92.08	-0.36	10.02	10.03	9.39	0.64	15.659	
300.00	300.00	300.00	300.00	0.55	0.55	92.08	-0.36	10.02	10.03	8.94	1.09	9.202	
400.00	400.00	400.00	400.00	0.77	0.77	92.08	-0.36	10.02	10.03	8.49	1.54	6.515	
500.00	500.00	500.00	500.00	0.99	0.99	92.08	-0.36	10.02	10.03	8.04	1.99	5.043	
600.00	600.00	600.00	600.00	1.22	1.22	92.08	-0.36	10.02	10.03	7.59	2.44	4.113	
700.00	700.00	700.00	700.00	1.44	1.44	92.08	-0.36	10.02	10.03	7.14	2.89	3.473	
750.00	750.00	750.00	750.00	1.56	1.56	92.08	-0.36	10.02	10.03	6.92	3.11	3.222	
800.00	800.00	800.09	800.09	1.65	1.67	-105.15	-0.01	9.77	9.88	6.55	3.32	2.973	
835.21	835.19	835.32	835.31	1.72	1.75	-114.00	0.67	9.29	9.76	6.30	3.46	2.820 CC, ES, SF	
900.00	899.93	899.98	899.91	1.83	1.89	-140.39	2.84	7.76	10.90	7.19	3.72	2.934	
1,000.00	999.68	998.95	998.63	2.02	2.12	-174.72	8.47	3.79	20.10	15.99	4.12	4.884	
1,100.00	1,099.13	1,096.43	1,095.59	2.24	2.35	171.17	16.72	-2.05	37.81	33.29	4.52	8.362	
1,200.00	1,198.15	1,191.89	1,190.14	2.49	2.61	165.11	27.42	-9.60	62.37	57.43	4.93	12.638	
1,300.00	1,296.63	1,284.82	1,281.71	2.78	2.89	161.99	40.29	-18.69	93.12	87.76	5.36	17.384	
1,400.00	1,394.44	1,374.79	1,369.85	3.13	3.19	160.12	55.06	-29.13	129.70	123.92	5.79	22.410	
1,500.00	1,491.46	1,461.43	1,454.14	3.53	3.53	158.86	71.42	-40.68	171.85	165.62	6.23	27.583	
1,600.00	1,587.58	1,544.44	1,534.29	4.00	3.89	157.92	89.03	-53.12	219.26	212.58	6.68	32.806	
1,700.00	1,682.68	1,623.57	1,610.09	4.52	4.27	157.14	107.58	-66.23	271.67	264.52	7.15	38.003	
1,800.00	1,776.65	1,700.00	1,682.68	5.12	4.67	156.45	127.12	-80.02	328.77	321.14	7.63	43.100	
1,900.00	1,869.36	1,769.57	1,748.18	5.78	5.08	155.80	146.27	-93.55	390.27	382.15	8.12	48.076	
1,965.87	1,929.69	1,813.97	1,789.68	6.25	5.36	155.38	159.17	-102.66	433.04	424.60	8.45	51.262	
2,000.00	1,960.80	1,836.37	1,810.51	6.50	5.50	155.40	165.87	-107.40	455.75	447.10	8.65	52.682	
2,100.00	2,051.92	1,900.00	1,869.36	7.25	5.93	155.38	185.65	-121.37	523.26	514.01	9.25	56.584	
2,200.00	2,143.05	1,962.12	1,926.28	8.01	6.38	155.29	205.98	-135.73	592.20	582.34	9.86	60.042	
2,300.00	2,234.18	2,026.37	1,984.61	8.79	6.86	155.13	227.96	-151.26	662.40	651.90	10.50	63.103	
2,400.00	2,325.31	2,097.33	2,048.94	9.56	7.42	154.99	252.43	-168.54	732.84	721.68	11.16	65.649	
2,500.00	2,416.44	2,168.29	2,113.27	10.35	7.98	154.86	276.90	-185.82	803.29	791.45	11.84	67.842	
2,600.00	2,507.56	2,239.26	2,177.60	11.14	8.54	154.76	301.37	-203.11	873.74	861.21	12.52	69.762	
2,700.00	2,598.69	2,310.22	2,241.93	11.93	9.12	154.67	325.84	-220.39	944.19	930.97	13.21	71.452	
2,800.00	2,689.82	2,381.18	2,306.26	12.72	9.69	154.60	350.31	-237.68	1,014.64	1,000.73	13.91	72.941	
2,900.00	2,780.95	2,452.15	2,370.59	13.52	10.28	154.53	374.78	-254.96	1,085.09	1,070.48	14.61	74.263	
3,000.00	2,872.08	2,523.11	2,434.92	14.32	10.86	154.47	399.25	-272.25	1,155.54	1,140.23	15.32	75.446	
3,100.00	2,963.20	2,594.07	2,499.25	15.12	11.45	154.42	423.72	-289.53	1,226.00	1,209.97	16.02	76.509	
3,200.00	3,054.33	2,665.04	2,563.58	15.92	12.03	154.38	448.19	-306.82	1,296.45	1,279.71	16.74	77.464	
3,300.00	3,145.46	2,736.00	2,627.91	16.72	12.63	154.34	472.66	-324.10	1,366.90	1,349.45	17.45	78.330	
3,400.00	3,236.59	2,806.96	2,692.24	17.53	13.22	154.30	497.13	-341.39	1,437.36	1,419.19	18.17	79.118	
3,500.00	3,327.71	2,877.93	2,756.57	18.33	13.81	154.26	521.59	-358.67	1,507.81	1,488.93	18.89	79.836	
3,600.00	3,418.84	2,948.89	2,820.90	19.14	14.41	154.23	546.06	-375.96	1,578.27	1,558.66	19.61	80.493	
3,700.00	3,509.97	3,019.85	2,885.23	19.94	15.00	154.21	570.53	-393.24	1,648.72	1,628.39	20.33	81.097	
3,800.00	3,601.10	3,090.82	2,949.56	20.75	15.60	154.18	595.00	-410.53	1,719.18	1,698.12	21.05	81.654	
3,900.00	3,692.23	3,161.78	3,013.89	21.56	16.20	154.16	619.47	-427.81	1,789.63	1,767.85	21.78	82.167	
4,000.00	3,783.35	3,232.75	3,078.22	22.36	16.80	154.14	643.94	-445.10	1,860.09	1,837.58	22.51	82.643	
4,100.00	3,874.48	3,303.71	3,142.54	23.17	17.39	154.12	668.41	-462.38	1,930.54	1,907.31	23.24	83.085	
4,200.00	3,965.61	3,374.67	3,206.87	23.98	17.99	154.10	692.88	-479.66	2,001.00	1,977.03	23.97	83.496	
4,300.00	4,056.74	3,445.64	3,271.20	24.79	18.60	154.08	717.35	-496.95	2,071.45	2,046.76	24.70	83.880	
4,400.00	4,147.87	3,516.60	3,335.53	25.60	19.20	154.06	741.82	-514.23	2,141.91	2,116.48	25.43	84.239	
4,500.00	4,238.99	3,587.56	3,399.86	26.41	19.80	154.05	766.29	-531.52	2,212.36	2,186.21	26.16	84.575	
4,600.00	4,330.12	3,658.53	3,464.19	27.22	20.40	154.03	790.76	-548.80	2,282.82	2,255.93	26.89	84.890	
4,700.00	4,421.25	3,729.49	3,528.52	28.03	21.00	154.02	815.23	-566.09	2,353.28	2,325.65	27.63	85.186	
4,800.00	4,512.38	3,800.45	3,592.85	28.84	21.60	154.01	839.70	-583.37	2,423.73	2,395.37	28.36	85.466	

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Reference Site:	LARIMER_MIRACLE 40-12 PAD	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design LARIMER_MIRACLE 40-12 PAD - P_MIRACLE 17-12 - P_MIRACLE 17-12 - PLAN #1 3-22-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.00	4,603.50	3,871.42	3,657.18	29.65	22.21	154.00	864.17	-600.66	2,494.19	2,465.09	29.09	85.729	
5,000.00	4,694.63	3,942.38	3,721.51	30.46	22.81	153.98	888.64	-617.94	2,564.64	2,534.82	29.83	85.977	
5,100.00	4,785.76	4,013.34	3,785.84	31.27	23.41	153.97	913.11	-635.23	2,635.10	2,604.54	30.57	86.213	
5,200.00	4,876.89	4,084.31	3,850.17	32.08	24.02	153.96	937.58	-652.51	2,705.56	2,674.26	31.30	86.435	
5,247.65	4,920.31	4,118.12	3,880.82	32.47	24.31	153.96	949.24	-660.75	2,739.13	2,707.47	31.65	86.537	
5,300.00	4,968.21	4,155.57	3,914.77	32.82	24.62	154.39	962.15	-669.87	2,775.71	2,743.56	32.15	86.338	
5,400.00	5,060.75	4,228.74	3,981.10	33.36	25.25	155.13	987.38	-687.69	2,843.84	2,810.79	33.05	86.042	
5,500.00	5,154.55	4,303.97	4,049.30	33.86	25.89	155.77	1,013.33	-706.02	2,909.62	2,875.67	33.95	85.710	
5,600.00	5,249.50	4,381.19	4,119.30	34.33	26.55	156.32	1,039.95	-724.82	2,972.98	2,938.15	34.83	85.364	
5,700.00	5,345.49	4,460.28	4,190.99	34.75	27.22	156.78	1,067.22	-744.09	3,033.84	2,998.16	35.69	85.016	
5,800.00	5,442.40	4,541.16	4,264.31	35.14	27.91	157.16	1,095.11	-763.79	3,092.14	3,055.63	36.52	84.678	
5,900.00	5,540.11	4,623.73	4,339.16	35.48	28.61	157.48	1,123.58	-783.90	3,147.83	3,110.51	37.32	84.357	
6,000.00	5,638.51	4,707.88	4,415.45	35.78	29.33	157.74	1,152.60	-804.40	3,200.83	3,162.76	38.08	84.061	
6,100.00	5,737.46	4,793.52	4,493.08	36.03	30.06	157.94	1,182.13	-825.25	3,251.11	3,212.31	38.80	83.793	
6,200.00	5,836.86	4,880.53	4,571.96	36.24	30.81	158.09	1,212.14	-846.45	3,298.62	3,259.14	39.48	83.557	
6,300.00	5,936.57	4,968.82	4,652.00	36.41	31.56	158.19	1,242.58	-867.95	3,343.31	3,303.20	40.11	83.358	
6,400.00	6,036.49	5,057.58	4,733.49	36.52	32.27	158.24	1,273.41	-889.79	3,388.81	3,348.20	40.74	83.166	
6,463.51	6,100.00	5,127.58	4,800.00	36.58	32.91	158.25	1,304.64	-911.99	3,435.45	3,394.48	41.31	82.999	
6,500.00	6,136.49	5,197.58	4,866.49	36.60	33.56	158.26	1,336.11	-934.59	3,483.45	3,441.48	41.83	82.854	
6,600.00	6,236.49	5,297.58	4,966.49	36.67	34.23	158.27	1,367.92	-957.69	3,532.45	3,488.16	42.30	82.728	
6,700.00	6,336.49	5,397.58	5,066.49	36.73	34.91	158.28	1,400.00	-981.19	3,581.45	3,534.92	42.72	82.617	
6,800.00	6,436.49	5,497.58	5,166.49	36.80	35.60	158.29	1,432.33	-1,005.19	3,631.45	3,583.67	43.10	82.518	
6,900.00	6,536.49	5,597.58	5,266.49	36.87	36.30	158.30	1,464.91	-1,029.59	3,682.45	3,633.43	43.44	82.430	
7,000.00	6,636.49	5,697.58	5,366.49	36.93	37.01	158.31	1,497.74	-1,054.39	3,734.45	3,684.18	43.74	82.352	
7,100.00	6,736.49	5,797.58	5,466.49	37.00	37.72	158.32	1,530.81	-1,079.59	3,787.45	3,736.92	44.00	82.283	
7,200.00	6,836.49	5,897.58	5,566.49	37.07	38.44	158.33	1,564.11	-1,105.19	3,841.45	3,790.67	44.22	82.223	
7,300.00	6,936.49	5,997.58	5,666.49	37.15	39.16	158.34	1,597.74	-1,131.19	3,896.45	3,845.41	44.41	82.171	
7,400.00	7,036.49	6,097.58	5,766.49	37.22	39.89	158.35	1,631.61	-1,157.59	3,952.45	3,901.14	44.57	82.126	
7,500.00	7,136.49	6,197.58	5,866.49	37.30	40.62	158.36	1,665.74	-1,183.99	4,009.45	3,957.88	44.70	82.088	
7,600.00	7,236.49	6,297.58	5,966.49	37.37	41.36	158.37	1,699.91	-1,210.79	4,068.45	4,015.61	44.80	82.056	
7,700.00	7,336.49	6,397.58	6,066.49	37.45	42.10	158.38	1,734.21	-1,237.99	4,128.45	4,073.34	44.88	82.029	
7,800.00	7,436.49	6,497.58	6,166.49	37.53	42.84	158.39	1,768.64	-1,265.59	4,189.45	4,131.07	44.93	82.006	
7,900.00	7,536.49	6,597.58	6,266.49	37.61	43.58	158.40	1,803.21	-1,293.59	4,251.45	4,189.79	44.96	81.987	
8,000.00	7,636.49	6,697.58	6,366.49	37.69	44.32	158.41	1,837.81	-1,321.99	4,314.45	4,249.11	44.97	81.972	
8,100.00	7,736.49	6,797.58	6,466.49	37.77	45.06	158.42	1,872.41	-1,350.79	4,378.45	4,308.12	44.96	81.961	
8,173.51	7,810.00	6,871.09	6,540.00	37.83	45.79	158.43	1,907.01	-1,379.99	4,443.45	4,367.84	44.93	81.954	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Reference Site:	LARIMER_MIRACLE 40-12 PAD	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 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	
0.00	0.00	0.00	0.00	0.00	0.00	-88.94	0.36	-19.77	19.77				
100.00	100.00	100.00	100.00	0.10	0.10	-88.94	0.36	-19.77	19.77	19.58	0.19	103.499	
200.00	200.00	200.00	200.00	0.32	0.32	-88.94	0.36	-19.77	19.77	19.13	0.64	30.868	
300.00	300.00	300.00	300.00	0.55	0.55	-88.94	0.36	-19.77	19.77	18.68	1.09	18.139	
400.00	400.00	400.00	400.00	0.77	0.77	-88.94	0.36	-19.77	19.77	18.23	1.54	12.843	
500.00	500.00	500.00	500.00	0.99	0.99	-88.94	0.36	-19.77	19.77	17.78	1.99	9.941	
600.00	600.00	600.00	600.00	1.22	1.22	-88.94	0.36	-19.77	19.77	17.33	2.44	8.108	
700.00	700.00	700.00	700.00	1.44	1.44	-88.94	0.36	-19.77	19.77	16.89	2.89	6.846	
750.00	750.00	750.00	750.00	1.56	1.56	-88.94	0.36	-19.77	19.77	16.66	3.11	6.352 CC, ES	
800.00	800.00	799.77	799.77	1.65	1.66	78.64	0.05	-20.06	19.98	16.67	3.31	6.034	
900.00	899.93	899.29	899.22	1.83	1.84	80.78	-2.48	-22.42	21.61	17.94	3.67	5.894 SF	
1,000.00	999.68	998.73	998.42	2.02	2.04	84.19	-7.54	-27.11	24.94	20.89	4.05	6.155	
1,100.00	1,099.13	1,098.05	1,097.20	2.24	2.26	87.86	-15.11	-34.14	30.06	25.57	4.48	6.703	
1,200.00	1,198.15	1,197.21	1,195.39	2.49	2.51	91.12	-25.16	-43.48	37.00	32.02	4.98	7.429	
1,300.00	1,296.63	1,296.15	1,292.85	2.78	2.81	93.76	-37.66	-55.09	45.77	40.21	5.56	8.233	
1,400.00	1,394.44	1,394.83	1,389.40	3.13	3.15	95.79	-52.58	-68.95	56.36	50.12	6.24	9.034	
1,500.00	1,491.46	1,493.22	1,484.91	3.53	3.56	97.33	-69.88	-85.02	68.73	61.70	7.03	9.779	
1,600.00	1,587.58	1,591.27	1,579.23	4.00	4.02	98.47	-89.49	-103.24	82.85	74.92	7.94	10.440	
1,700.00	1,682.68	1,688.94	1,672.22	4.52	4.54	99.31	-111.37	-123.56	98.71	89.74	8.97	11.007	
1,800.00	1,776.65	1,786.20	1,763.76	5.12	5.12	99.93	-135.45	-145.93	116.25	106.13	10.12	11.485	
1,900.00	1,869.36	1,884.27	1,855.39	5.78	5.76	100.96	-161.05	-169.71	135.05	123.66	11.39	11.855	
1,965.87	1,929.69	1,948.78	1,915.66	6.25	6.19	102.17	-177.89	-185.36	147.85	135.58	12.27	12.049	
2,000.00	1,960.80	1,982.18	1,946.86	6.50	6.41	102.97	-186.61	-193.46	154.61	141.87	12.74	12.138	
2,100.00	2,051.92	2,080.01	2,038.27	7.25	7.08	104.98	-212.15	-217.19	174.55	160.43	14.12	12.363	
2,200.00	2,143.05	2,177.84	2,129.68	8.01	7.75	106.57	-237.70	-240.91	194.64	179.13	15.51	12.548	
2,300.00	2,234.18	2,275.67	2,221.08	8.79	8.44	107.87	-263.24	-264.64	214.86	197.95	16.92	12.701	
2,400.00	2,325.31	2,373.50	2,312.49	9.56	9.12	108.94	-288.79	-288.37	235.17	216.84	18.33	12.831	
2,500.00	2,416.44	2,471.33	2,403.90	10.35	9.81	109.84	-314.33	-312.10	255.54	235.79	19.74	12.942	
2,600.00	2,507.56	2,569.16	2,495.30	11.14	10.51	110.61	-339.88	-335.83	275.96	254.79	21.16	13.039	
2,700.00	2,598.69	2,666.99	2,586.71	11.93	11.21	111.27	-365.42	-359.56	296.42	273.83	22.59	13.123	
2,800.00	2,689.82	2,764.82	2,678.12	12.72	11.91	111.85	-390.97	-383.29	316.92	292.90	24.02	13.197	
2,900.00	2,780.95	2,862.65	2,769.52	13.52	12.61	112.35	-416.51	-407.02	337.44	312.00	25.44	13.262	
3,000.00	2,872.08	2,960.48	2,860.93	14.32	13.31	112.80	-442.06	-430.75	357.99	331.11	26.87	13.321	
3,100.00	2,963.20	3,058.31	2,952.33	15.12	14.02	113.20	-467.60	-454.48	378.55	350.25	28.31	13.374	
3,200.00	3,054.33	3,156.14	3,043.74	15.92	14.72	113.56	-493.15	-478.21	399.13	369.40	29.74	13.422	
3,300.00	3,145.46	3,253.97	3,135.15	16.72	15.43	113.88	-518.69	-501.94	419.73	388.56	31.17	13.465	
3,400.00	3,236.59	3,351.80	3,226.55	17.53	16.14	114.18	-544.24	-525.67	440.33	407.73	32.61	13.505	
3,500.00	3,327.71	3,449.63	3,317.96	18.33	16.85	114.45	-569.78	-549.40	460.95	426.91	34.04	13.542	
3,600.00	3,418.84	3,547.46	3,409.37	19.14	17.56	114.69	-595.33	-573.13	481.57	446.10	35.47	13.575	
3,700.00	3,509.97	3,645.29	3,500.77	19.94	18.27	114.91	-620.87	-596.86	502.21	465.30	36.91	13.607	
3,800.00	3,601.10	3,743.12	3,592.18	20.75	18.98	115.12	-646.42	-620.59	522.84	484.50	38.34	13.636	
3,900.00	3,692.23	3,840.95	3,683.59	21.56	19.69	115.31	-671.96	-644.32	543.49	503.71	39.78	13.663	
4,000.00	3,783.35	3,938.78	3,774.99	22.36	20.40	115.49	-697.51	-668.04	564.14	522.92	41.21	13.688	
4,100.00	3,874.48	4,036.61	3,866.40	23.17	21.11	115.65	-723.05	-691.77	584.79	542.14	42.65	13.711	
4,200.00	3,965.61	4,134.44	3,957.81	23.98	21.83	115.81	-748.60	-715.50	605.45	561.37	44.09	13.734	
4,300.00	4,056.74	4,232.27	4,049.21	24.79	22.54	115.95	-774.14	-739.23	626.12	580.60	45.52	13.755	
4,400.00	4,147.87	4,330.10	4,140.62	25.60	23.25	116.08	-799.69	-762.96	646.78	599.83	46.96	13.774	
4,500.00	4,238.99	4,427.93	4,232.02	26.41	23.97	116.21	-825.23	-786.69	667.45	619.06	48.39	13.793	
4,600.00	4,330.12	4,525.76	4,323.43	27.22	24.68	116.33	-850.77	-810.42	688.13	638.30	49.82	13.811	
4,700.00	4,421.25	4,623.59	4,414.84	28.03	25.39	116.44	-876.32	-834.15	708.80	657.54	51.26	13.828	
4,800.00	4,512.38	4,721.42	4,506.24	28.84	26.11	116.54	-901.86	-857.88	729.48	676.79	52.69	13.844	
4,900.00	4,603.50	4,819.25	4,597.65	29.65	26.82	116.64	-927.41	-881.61	750.16	696.03	54.13	13.859	

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Reference Site:	LARIMER_MIRACLE 40-12 PAD	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design LARIMER_MIRACLE 40-12 PAD - P_MIRACLE 20-12 - P_MIRACLE 20-12 - PLAN #1 3-22-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.00	4,694.63	4,917.08	4,689.06	30.46	27.54	116.74	-952.95	-905.34	770.84	715.28	55.56	13.874	
5,100.00	4,785.76	5,014.91	4,780.46	31.27	28.25	116.82	-978.50	-929.07	791.53	734.53	56.99	13.888	
5,200.00	4,876.89	5,112.74	4,871.87	32.08	28.96	116.91	-1,004.04	-952.80	812.21	753.79	58.43	13.901	
5,247.65	4,920.31	5,159.54	4,915.69	32.47	29.26	116.97	-1,016.08	-963.98	822.07	763.00	59.06	13.919	
5,300.00	4,968.21	5,211.03	4,964.19	32.82	29.56	117.25	-1,028.72	-975.72	832.67	772.98	59.68	13.951	
5,400.00	5,060.75	5,309.54	5,057.84	33.36	30.03	117.78	-1,051.12	-996.53	851.68	791.05	60.63	14.047	
5,500.00	5,154.55	5,408.27	5,152.69	33.86	30.46	118.29	-1,071.19	-1,015.17	869.07	807.57	61.50	14.131	
5,600.00	5,249.50	5,507.16	5,248.59	34.33	30.84	118.78	-1,088.88	-1,031.60	884.81	822.53	62.29	14.206	
5,700.00	5,345.49	5,606.19	5,345.38	34.75	31.19	119.26	-1,104.15	-1,045.79	898.89	835.91	62.98	14.272	
5,800.00	5,442.40	5,705.29	5,442.93	35.14	31.49	119.72	-1,116.98	-1,057.70	911.29	847.70	63.59	14.332	
5,900.00	5,540.11	5,804.44	5,541.06	35.48	31.74	120.17	-1,127.32	-1,067.31	922.00	857.90	64.09	14.385	
6,000.00	5,638.51	5,903.59	5,639.62	35.78	31.95	120.61	-1,135.17	-1,074.61	931.01	866.50	64.51	14.433	
6,100.00	5,737.46	6,002.68	5,738.44	36.03	32.12	121.04	-1,140.52	-1,079.58	938.32	873.50	64.82	14.476	
6,200.00	5,836.86	6,101.68	5,837.36	36.24	32.23	121.47	-1,143.36	-1,082.21	943.93	878.89	65.04	14.514	
6,300.00	5,936.57	6,200.90	5,936.57	36.41	32.32	121.87	-1,143.86	-1,082.68	947.83	882.66	65.17	14.545	
6,400.00	6,036.49	6,300.82	6,036.49	36.52	32.40	122.11	-1,143.86	-1,082.68	949.93	884.65	65.28	14.552	
6,463.51	6,100.00	6,364.33	6,100.00	36.58	32.45	-45.14	-1,143.86	-1,082.68	950.30	884.95	65.36	14.540	
6,500.00	6,136.49	6,400.81	6,136.49	36.60	32.47	-45.14	-1,143.86	-1,082.68	950.30	884.89	65.41	14.528	
6,600.00	6,236.49	6,500.81	6,236.49	36.67	32.55	-45.14	-1,143.86	-1,082.68	950.30	884.74	65.57	14.494	
6,700.00	6,336.49	6,600.81	6,336.49	36.73	32.63	-45.14	-1,143.86	-1,082.68	950.30	884.58	65.72	14.460	
6,800.00	6,436.49	6,700.81	6,436.49	36.80	32.71	-45.14	-1,143.86	-1,082.68	950.30	884.43	65.88	14.425	
6,900.00	6,536.49	6,800.81	6,536.49	36.87	32.79	-45.14	-1,143.86	-1,082.68	950.30	884.27	66.04	14.390	
7,000.00	6,636.49	6,900.81	6,636.49	36.93	32.88	-45.14	-1,143.86	-1,082.68	950.30	884.10	66.20	14.355	
7,100.00	6,736.49	7,000.81	6,736.49	37.00	32.96	-45.14	-1,143.86	-1,082.68	950.30	883.94	66.37	14.319	
7,200.00	6,836.49	7,100.81	6,836.49	37.07	33.05	-45.14	-1,143.86	-1,082.68	950.30	883.77	66.53	14.283	
7,300.00	6,936.49	7,200.81	6,936.49	37.15	33.14	-45.14	-1,143.86	-1,082.68	950.30	883.60	66.71	14.246	
7,400.00	7,036.49	7,300.81	7,036.49	37.22	33.23	-45.14	-1,143.86	-1,082.68	950.30	883.42	66.88	14.209	
7,500.00	7,136.49	7,400.81	7,136.49	37.30	33.32	-45.14	-1,143.86	-1,082.68	950.30	883.25	67.06	14.172	
7,600.00	7,236.49	7,500.81	7,236.49	37.37	33.41	-45.14	-1,143.86	-1,082.68	950.30	883.07	67.23	14.134	
7,700.00	7,336.49	7,600.81	7,336.49	37.45	33.50	-45.14	-1,143.86	-1,082.68	950.30	882.89	67.42	14.096	
7,800.00	7,436.49	7,700.81	7,436.49	37.53	33.59	-45.14	-1,143.86	-1,082.68	950.30	882.70	67.60	14.058	
7,900.00	7,536.49	7,800.81	7,536.49	37.61	33.69	-45.14	-1,143.86	-1,082.68	950.30	882.52	67.79	14.019	
8,000.00	7,636.49	7,900.81	7,636.49	37.69	33.79	-45.14	-1,143.86	-1,082.68	950.30	882.33	67.97	13.980	
8,100.00	7,736.49	8,000.81	7,736.49	37.77	33.88	-45.14	-1,143.86	-1,082.68	950.30	882.14	68.16	13.941	
8,145.15	7,781.64	8,045.96	7,781.64	37.81	33.93	-45.14	-1,143.86	-1,082.68	950.30	882.05	68.25	13.923	
8,173.51	7,810.00	8,064.33	7,800.00	37.83	33.95	-45.14	-1,143.86	-1,082.68	950.36	882.06	68.30	13.915	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Reference Site:	LARIMER_MIRACLE 40-12 PAD	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 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	
0.00	0.00	0.00	0.00	0.00	0.00	-89.30	0.36	-29.79	29.80				
100.00	100.00	100.00	100.00	0.10	0.10	-89.30	0.36	-29.79	29.80	29.61	0.19	155.962	
200.00	200.00	200.00	200.00	0.32	0.32	-89.30	0.36	-29.79	29.80	29.16	0.64	46.515	
300.00	300.00	300.00	300.00	0.55	0.55	-89.30	0.36	-29.79	29.80	28.71	1.09	27.334	
400.00	400.00	400.00	400.00	0.77	0.77	-89.30	0.36	-29.79	29.80	28.26	1.54	19.353	
500.00	500.00	500.00	500.00	0.99	0.99	-89.30	0.36	-29.79	29.80	27.81	1.99	14.979	
600.00	600.00	600.00	600.00	1.22	1.22	-89.30	0.36	-29.79	29.80	27.36	2.44	12.218	
700.00	700.00	700.00	700.00	1.44	1.44	-89.30	0.36	-29.79	29.80	26.91	2.89	10.317	
750.00	750.00	750.00	750.00	1.56	1.56	-89.30	0.36	-29.79	29.80	26.68	3.11	9.572 CC, ES	
800.00	800.00	799.49	799.49	1.65	1.66	78.97	0.46	-30.21	30.13	26.82	3.32	9.085	
900.00	899.93	898.29	898.22	1.83	1.87	85.99	1.25	-33.53	33.10	29.41	3.70	8.958 SF	
1,000.00	999.68	996.55	996.25	2.02	2.09	96.47	2.82	-40.11	40.19	36.09	4.09	9.816	
1,100.00	1,099.13	1,093.93	1,093.11	2.24	2.32	106.30	5.14	-49.86	52.44	47.92	4.52	11.606	
1,200.00	1,198.15	1,190.09	1,188.36	2.49	2.58	113.68	8.17	-62.62	70.13	65.15	4.97	14.097	
1,300.00	1,296.63	1,284.72	1,281.62	2.78	2.87	118.75	11.88	-78.20	93.07	87.60	5.47	17.015	
1,400.00	1,394.44	1,377.54	1,372.53	3.13	3.19	122.16	16.20	-96.40	120.97	114.96	6.01	20.129	
1,500.00	1,491.46	1,469.29	1,461.79	3.53	3.55	124.48	21.12	-117.09	153.49	146.89	6.60	23.253	
1,600.00	1,587.58	1,562.52	1,552.29	4.00	3.95	126.55	26.30	-138.87	188.86	181.61	7.25	26.040	
1,700.00	1,682.68	1,654.75	1,641.82	4.52	4.36	128.48	31.43	-160.42	226.52	218.57	7.94	28.516	
1,800.00	1,776.65	1,745.87	1,730.27	5.12	4.78	130.26	36.49	-181.71	266.54	257.88	8.67	30.754	
1,900.00	1,869.36	1,835.77	1,817.53	5.78	5.20	131.89	41.49	-202.72	309.02	299.60	9.42	32.813	
1,965.87	1,929.69	1,894.26	1,874.31	6.25	5.48	132.89	44.74	-216.39	338.35	328.43	9.92	34.097	
2,000.00	1,960.80	1,924.41	1,903.58	6.50	5.63	133.61	46.41	-223.43	353.86	343.66	10.21	34.675	
2,100.00	2,051.92	2,012.75	1,989.34	7.25	6.05	135.40	51.32	-244.08	399.52	388.48	11.04	36.199	
2,200.00	2,143.05	2,101.10	2,075.10	8.01	6.48	136.82	56.23	-264.72	445.42	433.54	11.88	37.502	
2,300.00	2,234.18	2,189.44	2,160.85	8.79	6.92	137.99	61.14	-285.37	491.50	478.78	12.72	38.627	
2,400.00	2,325.31	2,277.79	2,246.61	9.56	7.36	138.95	66.05	-306.01	537.72	524.14	13.58	39.598	
2,500.00	2,416.44	2,366.13	2,332.37	10.35	7.79	139.76	70.96	-326.65	584.04	569.60	14.44	40.443	
2,600.00	2,507.56	2,454.48	2,418.13	11.14	8.24	140.46	75.87	-347.30	630.43	615.13	15.31	41.188	
2,700.00	2,598.69	2,542.82	2,503.89	11.93	8.68	141.06	80.78	-367.94	676.89	660.72	16.18	41.848	
2,800.00	2,689.82	2,631.17	2,589.65	12.72	9.12	141.58	85.69	-388.58	723.40	706.36	17.05	42.436	
2,900.00	2,780.95	2,719.51	2,675.40	13.52	9.57	142.04	90.60	-409.23	769.96	752.04	17.92	42.964	
3,000.00	2,872.08	2,807.86	2,761.16	14.32	10.01	142.45	95.51	-429.87	816.54	797.75	18.80	43.439	
3,100.00	2,963.20	2,896.20	2,846.92	15.12	10.46	142.81	100.42	-450.51	863.16	843.48	19.68	43.870	
3,200.00	3,054.33	2,984.54	2,932.68	15.92	10.91	143.13	105.33	-471.16	909.80	889.24	20.56	44.261	
3,300.00	3,145.46	3,072.89	3,018.44	16.72	11.36	143.43	110.24	-491.80	956.46	935.02	21.44	44.618	
3,400.00	3,236.59	3,161.23	3,104.20	17.53	11.81	143.70	115.14	-512.45	1,003.14	980.82	22.32	44.945	
3,500.00	3,327.71	3,249.58	3,189.95	18.33	12.26	143.94	120.05	-533.09	1,049.83	1,026.63	23.20	45.246	
3,600.00	3,418.84	3,337.92	3,275.71	19.14	12.71	144.16	124.96	-553.73	1,096.54	1,072.45	24.09	45.524	
3,700.00	3,509.97	3,426.27	3,361.47	19.94	13.16	144.37	129.87	-574.38	1,143.26	1,118.29	24.97	45.781	
3,800.00	3,601.10	3,514.61	3,447.23	20.75	13.61	144.56	134.78	-595.02	1,189.99	1,164.13	25.86	46.019	
3,900.00	3,692.23	3,602.96	3,532.99	21.56	14.06	144.73	139.69	-615.66	1,236.73	1,209.98	26.75	46.241	
4,000.00	3,783.35	3,691.30	3,618.75	22.36	14.51	144.89	144.60	-636.31	1,283.48	1,255.84	27.63	46.447	
4,100.00	3,874.48	3,779.65	3,704.50	23.17	14.97	145.04	149.51	-656.95	1,330.23	1,301.71	28.52	46.640	
4,200.00	3,965.61	3,867.99	3,790.26	23.98	15.42	145.18	154.42	-677.59	1,377.00	1,347.59	29.41	46.821	
4,300.00	4,056.74	3,956.33	3,876.02	24.79	15.87	145.31	159.33	-698.24	1,423.76	1,393.46	30.30	46.991	
4,400.00	4,147.87	4,044.68	3,961.78	25.60	16.33	145.43	164.24	-718.88	1,470.54	1,439.35	31.19	47.150	
4,500.00	4,238.99	4,133.02	4,047.54	26.41	16.78	145.55	169.15	-739.53	1,517.31	1,485.24	32.08	47.300	
4,600.00	4,330.12	4,221.37	4,133.30	27.22	17.23	145.66	174.06	-760.17	1,564.10	1,531.13	32.97	47.442	
4,700.00	4,421.25	4,309.71	4,219.05	28.03	17.69	145.76	178.97	-780.81	1,610.88	1,577.03	33.86	47.576	
4,800.00	4,512.38	4,398.06	4,304.81	28.84	18.14	145.86	183.88	-801.46	1,657.68	1,622.93	34.75	47.703	
4,900.00	4,603.50	4,486.40	4,390.57	29.65	18.59	145.95	188.78	-822.10	1,704.47	1,668.83	35.64	47.823	

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Reference Site:	LARIMER_MIRACLE 40-12 PAD	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design LARIMER_MIRACLE 40-12 PAD - P_MIRACLE 24-12 - P_MIRACLE 24-12 - PLAN #1 3-22-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.00	4,694.63	4,574.75	4,476.33	30.46	19.05	146.03	193.69	-842.74	1,751.27	1,714.73	36.53	47.937	
5,100.00	4,785.76	4,663.09	4,562.09	31.27	19.50	146.11	198.60	-863.39	1,798.07	1,760.64	37.42	48.045	
5,200.00	4,876.89	4,751.43	4,647.85	32.08	19.96	146.19	203.51	-884.03	1,844.87	1,806.55	38.32	48.148	
5,247.65	4,920.31	4,793.53	4,688.71	32.47	20.17	146.23	205.85	-893.87	1,867.17	1,828.43	38.74	48.195	
5,300.00	4,968.21	4,839.97	4,733.79	32.82	20.41	146.56	208.43	-904.72	1,891.32	1,852.07	39.25	48.181	
5,400.00	5,060.75	4,929.69	4,820.88	33.36	20.87	147.10	213.42	-925.68	1,935.47	1,895.31	40.17	48.186	
5,500.00	5,154.55	5,020.65	4,909.18	33.86	21.34	147.54	218.47	-946.94	1,976.97	1,935.91	41.07	48.141	
5,600.00	5,249.50	5,112.74	4,998.57	34.33	21.82	147.88	223.59	-968.46	2,015.78	1,973.84	41.95	48.055	
5,700.00	5,345.49	5,205.84	5,088.95	34.75	22.30	148.12	228.76	-990.21	2,051.86	2,009.06	42.81	47.935	
5,800.00	5,442.40	5,305.73	5,185.92	35.14	22.80	148.27	234.31	-1,013.51	2,085.17	2,041.52	43.65	47.770	
5,900.00	5,540.11	5,460.96	5,337.73	35.48	23.34	148.29	241.79	-1,045.00	2,114.08	2,069.58	44.50	47.508	
6,000.00	5,638.51	5,620.54	5,495.37	35.78	23.79	148.37	247.50	-1,068.99	2,137.36	2,092.14	45.21	47.271	
6,100.00	5,737.46	5,783.40	5,657.41	36.03	24.13	148.52	251.22	-1,084.62	2,154.82	2,109.04	45.78	47.072	
6,200.00	5,836.86	5,948.34	5,822.18	36.24	24.37	148.74	252.80	-1,091.30	2,166.34	2,120.17	46.18	46.914	
6,300.00	5,936.57	6,062.73	5,936.57	36.41	24.50	148.92	252.86	-1,091.53	2,172.80	2,126.37	46.43	46.800	
6,400.00	6,036.49	6,162.65	6,036.49	36.52	24.61	149.01	252.86	-1,091.53	2,176.19	2,129.57	46.62	46.680	
6,463.51	6,100.00	6,226.16	6,100.00	36.58	24.69	-18.27	252.86	-1,091.53	2,176.79	2,130.07	46.72	46.589	
6,500.00	6,136.49	6,262.64	6,136.49	36.60	24.73	-18.27	252.86	-1,091.53	2,176.79	2,129.99	46.81	46.505	
6,600.00	6,236.49	6,362.64	6,236.49	36.67	24.85	-18.27	252.86	-1,091.53	2,176.79	2,129.76	47.04	46.279	
6,700.00	6,336.49	6,462.64	6,336.49	36.73	24.97	-18.27	252.86	-1,091.53	2,176.79	2,129.53	47.27	46.053	
6,800.00	6,436.49	6,562.64	6,436.49	36.80	25.09	-18.27	252.86	-1,091.53	2,176.79	2,129.29	47.50	45.826	
6,900.00	6,536.49	6,662.64	6,536.49	36.87	25.21	-18.27	252.86	-1,091.53	2,176.79	2,129.06	47.74	45.598	
7,000.00	6,636.49	6,762.64	6,636.49	36.93	25.34	-18.27	252.86	-1,091.53	2,176.79	2,128.81	47.98	45.370	
7,100.00	6,736.49	6,862.64	6,736.49	37.00	25.47	-18.27	252.86	-1,091.53	2,176.79	2,128.57	48.22	45.141	
7,200.00	6,836.49	6,962.64	6,836.49	37.07	25.59	-18.27	252.86	-1,091.53	2,176.79	2,128.33	48.47	44.911	
7,300.00	6,936.49	7,062.64	6,936.49	37.15	25.72	-18.27	252.86	-1,091.53	2,176.79	2,128.08	48.72	44.682	
7,400.00	7,036.49	7,162.64	7,036.49	37.22	25.85	-18.27	252.86	-1,091.53	2,176.79	2,127.82	48.97	44.452	
7,500.00	7,136.49	7,262.64	7,136.49	37.30	25.98	-18.27	252.86	-1,091.53	2,176.79	2,127.57	49.22	44.222	
7,600.00	7,236.49	7,362.64	7,236.49	37.37	26.12	-18.27	252.86	-1,091.53	2,176.79	2,127.31	49.48	43.991	
7,700.00	7,336.49	7,462.64	7,336.49	37.45	26.25	-18.27	252.86	-1,091.53	2,176.79	2,127.05	49.74	43.761	
7,800.00	7,436.49	7,562.64	7,436.49	37.53	26.38	-18.27	252.86	-1,091.53	2,176.79	2,126.79	50.01	43.531	
7,900.00	7,536.49	7,662.64	7,536.49	37.61	26.52	-18.27	252.86	-1,091.53	2,176.79	2,126.52	50.27	43.301	
8,000.00	7,636.49	7,762.64	7,636.49	37.69	26.66	-18.27	252.86	-1,091.53	2,176.79	2,126.25	50.54	43.072	
8,100.00	7,736.49	7,862.64	7,736.49	37.77	26.80	-18.27	252.86	-1,091.53	2,176.79	2,125.98	50.81	42.842	
8,173.51	7,810.00	7,936.16	7,810.00	37.83	26.90	-18.27	252.86	-1,091.53	2,176.79	2,125.78	51.01	42.674	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Reference Site:	LARIMER_MIRACLE 40-12 PAD	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design		LARIMER_MIRACLE 40-12 PAD - P_MIRACLE 8-12 - P_MIRACLE 8-12 - PLAN #1 3-22-10 RHS										Offset Site Error:		0.00 ft
Survey Program: 0-MWD												Offset Well Error:		0.00 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		
0.00	0.00	0.00	0.00	0.00	0.00	91.05	-0.37	20.05	20.05					
100.00	100.00	100.00	100.00	0.10	0.10	91.05	-0.37	20.05	20.05	19.86	0.19	104.957		
200.00	200.00	200.00	200.00	0.32	0.32	91.05	-0.37	20.05	20.05	19.41	0.64	31.303		
300.00	300.00	300.00	300.00	0.55	0.55	91.05	-0.37	20.05	20.05	18.96	1.09	18.394		
400.00	400.00	400.00	400.00	0.77	0.77	91.05	-0.37	20.05	20.05	18.51	1.54	13.024		
500.00	500.00	500.00	500.00	0.99	0.99	91.05	-0.37	20.05	20.05	18.06	1.99	10.081		
600.00	600.00	600.00	600.00	1.22	1.22	91.05	-0.37	20.05	20.05	17.61	2.44	8.222		
700.00	700.00	700.00	700.00	1.44	1.44	91.05	-0.37	20.05	20.05	17.16	2.89	6.943		
750.00	750.00	750.00	750.00	1.56	1.56	91.05	-0.37	20.05	20.05	16.94	3.11	6.441		
800.00	800.00	800.14	800.14	1.65	1.67	-104.01	0.03	19.86	19.96	16.64	3.32	6.007		
839.21	839.20	839.42	839.40	1.72	1.76	-109.20	0.89	19.45	19.88	16.40	3.48	5.715 CC, ES		
900.00	899.93	900.10	900.04	1.83	1.89	-122.72	3.18	18.35	20.45	16.73	3.72	5.499 SF		
1,000.00	999.68	999.09	998.78	2.02	2.12	-150.95	9.39	15.37	26.78	22.66	4.12	6.495		
1,100.00	1,099.13	1,096.49	1,095.64	2.24	2.35	-170.79	18.50	11.00	42.49	37.96	4.53	9.383		
1,200.00	1,198.15	1,191.72	1,189.97	2.49	2.61	178.71	30.27	5.35	66.50	61.57	4.93	13.480		
1,300.00	1,296.63	1,284.26	1,281.16	2.78	2.88	173.00	44.42	-1.44	97.53	92.19	5.34	18.261		
1,400.00	1,394.44	1,373.65	1,368.73	3.13	3.19	169.59	60.59	-9.20	134.88	129.12	5.75	23.446		
1,500.00	1,491.46	1,462.43	1,455.24	3.53	3.52	167.40	78.62	-17.84	177.62	171.44	6.17	28.773		
1,600.00	1,587.58	1,551.12	1,541.61	4.00	3.87	166.12	96.80	-26.56	223.69	217.09	6.60	33.871		
1,700.00	1,682.68	1,638.22	1,626.43	4.52	4.23	165.36	114.65	-35.13	272.77	265.73	7.04	38.741		
1,800.00	1,776.65	1,723.63	1,709.60	5.12	4.59	164.90	132.16	-43.53	324.78	317.29	7.48	43.405		
1,900.00	1,869.36	1,807.24	1,791.01	5.78	4.96	164.61	149.29	-51.75	379.63	371.70	7.93	47.883		
1,965.87	1,929.69	1,861.27	1,843.64	6.25	5.19	164.47	160.37	-57.06	417.28	409.06	8.22	50.736		
2,000.00	1,960.80	1,889.06	1,870.69	6.50	5.32	164.54	166.06	-59.79	437.11	428.69	8.41	51.959		
2,100.00	2,051.92	1,970.46	1,949.96	7.25	5.68	164.71	182.75	-67.80	495.18	486.21	8.97	55.195		
2,200.00	2,143.05	2,051.86	2,029.23	8.01	6.05	164.84	199.43	-75.80	553.26	543.72	9.54	57.996		
2,300.00	2,234.18	2,133.26	2,108.50	8.79	6.42	164.94	216.12	-83.80	611.34	601.23	10.12	60.437		
2,400.00	2,325.31	2,214.65	2,187.77	9.56	6.79	165.03	232.80	-91.81	669.43	658.73	10.70	62.579		
2,500.00	2,416.44	2,296.05	2,267.03	10.35	7.16	165.10	249.48	-99.81	727.51	716.23	11.28	64.471		
2,600.00	2,507.56	2,377.45	2,346.30	11.14	7.54	165.17	266.17	-107.81	785.59	773.72	11.88	66.150		
2,700.00	2,598.69	2,458.85	2,425.57	11.93	7.92	165.22	282.85	-115.82	843.68	831.21	12.47	67.650		
2,800.00	2,689.82	2,540.25	2,504.84	12.72	8.29	165.27	299.53	-123.82	901.76	888.69	13.07	68.997		
2,900.00	2,780.95	2,621.65	2,584.11	13.52	8.68	165.31	316.22	-131.82	959.85	946.18	13.67	70.212		
3,000.00	2,872.08	2,703.05	2,663.37	14.32	9.06	165.35	332.90	-139.83	1,017.93	1,003.66	14.27	71.313		
3,100.00	2,963.20	2,784.45	2,742.64	15.12	9.44	165.38	349.59	-147.83	1,076.02	1,061.14	14.88	72.314		
3,200.00	3,054.33	2,865.85	2,821.91	15.92	9.82	165.41	366.27	-155.83	1,134.10	1,118.62	15.49	73.229		
3,300.00	3,145.46	2,947.25	2,901.18	16.72	10.21	165.43	382.95	-163.84	1,192.19	1,176.09	16.10	74.067		
3,400.00	3,236.59	3,028.65	2,980.45	17.53	10.59	165.46	399.64	-171.84	1,250.28	1,233.57	16.71	74.838		
3,500.00	3,327.71	3,110.05	3,059.71	18.33	10.97	165.48	416.32	-179.84	1,308.36	1,291.05	17.32	75.549		
3,600.00	3,418.84	3,191.44	3,138.98	19.14	11.36	165.50	433.01	-187.85	1,366.45	1,348.52	17.93	76.206		
3,700.00	3,509.97	3,272.84	3,218.25	19.94	11.75	165.52	449.69	-195.85	1,424.54	1,405.99	18.54	76.816		
3,800.00	3,601.10	3,354.24	3,297.52	20.75	12.13	165.54	466.37	-203.86	1,482.62	1,463.46	19.16	77.383		
3,900.00	3,692.23	3,435.64	3,376.79	21.56	12.52	165.55	483.06	-211.86	1,540.71	1,520.93	19.77	77.912		
4,000.00	3,783.35	3,517.04	3,456.05	22.36	12.90	165.57	499.74	-219.86	1,598.80	1,578.40	20.39	78.406		
4,100.00	3,874.48	3,598.44	3,535.32	23.17	13.29	165.58	516.42	-227.87	1,656.88	1,635.87	21.01	78.868		
4,200.00	3,965.61	3,679.84	3,614.59	23.98	13.68	165.59	533.11	-235.87	1,714.97	1,693.34	21.63	79.302		
4,300.00	4,056.74	3,761.24	3,693.86	24.79	14.07	165.60	549.79	-243.87	1,773.06	1,750.81	22.24	79.709		
4,400.00	4,147.87	3,842.64	3,773.12	25.60	14.45	165.61	566.48	-251.88	1,831.14	1,808.28	22.86	80.093		
4,500.00	4,238.99	3,924.04	3,852.39	26.41	14.84	165.63	583.16	-259.88	1,889.23	1,865.75	23.48	80.455		
4,600.00	4,330.12	4,005.44	3,931.66	27.22	15.23	165.63	599.84	-267.88	1,947.32	1,923.22	24.10	80.796		
4,700.00	4,421.25	4,086.84	4,010.93	28.03	15.62	165.64	616.53	-275.89	2,005.41	1,980.68	24.72	81.119		
4,800.00	4,512.38	4,168.23	4,090.20	28.84	16.01	165.65	633.21	-283.89	2,063.49	2,038.15	25.34	81.425		

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Reference Site:	LARIMER_MIRACLE 40-12 PAD	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 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
4,900.00	4,603.50	4,249.63	4,169.46	29.65	16.40	165.66	649.90	-291.89	2,121.58	2,095.62	25.96	81.716	
5,000.00	4,694.63	4,331.03	4,248.73	30.46	16.79	165.67	666.58	-299.90	2,179.67	2,153.08	26.58	81.992	
5,100.00	4,785.76	4,412.43	4,328.00	31.27	17.18	165.68	683.26	-307.90	2,237.75	2,210.55	27.21	82.254	
5,200.00	4,876.89	4,493.83	4,407.27	32.08	17.57	165.68	699.95	-315.90	2,295.84	2,268.01	27.83	82.504	
5,247.65	4,920.31	4,532.62	4,445.04	32.47	17.75	165.69	707.90	-319.72	2,323.52	2,295.39	28.12	82.618	
5,300.00	4,968.21	4,575.50	4,486.80	32.82	17.96	165.87	716.69	-323.93	2,353.55	2,325.00	28.55	82.430	
5,400.00	5,060.75	4,658.85	4,567.97	33.36	18.35	166.17	733.77	-332.13	2,408.78	2,379.45	29.33	82.134	
5,500.00	5,154.55	4,744.02	4,650.91	33.86	18.76	166.42	751.23	-340.50	2,461.15	2,431.08	30.08	81.830	
5,600.00	5,249.50	4,830.90	4,735.51	34.33	19.18	166.62	769.03	-349.05	2,510.61	2,479.81	30.79	81.527	
5,700.00	5,345.49	4,919.38	4,821.68	34.75	19.60	166.78	787.17	-357.75	2,557.09	2,525.61	31.48	81.230	
5,800.00	5,442.40	5,009.36	4,909.30	35.14	20.03	166.91	805.61	-366.59	2,600.54	2,568.41	32.13	80.943	
5,900.00	5,540.11	5,100.72	4,998.27	35.48	20.47	166.99	824.34	-375.58	2,640.91	2,608.17	32.74	80.669	
6,000.00	5,638.51	5,193.36	5,088.48	35.78	20.92	167.05	843.32	-384.69	2,678.15	2,644.85	33.31	80.411	
6,100.00	5,737.46	5,287.16	5,179.83	36.03	21.36	167.07	862.55	-393.91	2,712.24	2,678.41	33.83	80.171	
6,200.00	5,836.86	5,505.35	5,393.05	36.24	22.24	166.89	904.16	-413.87	2,742.69	2,708.08	34.61	79.250	
6,300.00	5,936.57	6,051.64	5,936.57	36.41	23.36	166.74	945.74	-433.81	2,755.50	2,719.78	35.72	77.144	
6,400.00	6,036.49	6,151.56	6,036.49	36.52	23.47	166.77	945.74	-433.81	2,759.35	2,723.40	35.95	76.747	
6,463.51	6,100.00	6,215.06	6,100.00	36.58	23.55	-0.51	945.74	-433.81	2,760.04	2,723.95	36.09	76.487	
6,500.00	6,136.49	6,251.55	6,136.49	36.60	23.59	-0.51	945.74	-433.81	2,760.04	2,723.84	36.20	76.252	
6,600.00	6,236.49	6,351.55	6,236.49	36.67	23.72	-0.51	945.74	-433.81	2,760.04	2,723.54	36.50	75.627	
6,700.00	6,336.49	6,451.55	6,336.49	36.73	23.84	-0.51	945.74	-433.81	2,760.04	2,723.24	36.80	75.006	
6,800.00	6,436.49	6,551.55	6,436.49	36.80	23.97	-0.51	945.74	-433.81	2,760.04	2,722.94	37.10	74.389	
6,900.00	6,536.49	6,651.55	6,536.49	36.87	24.10	-0.51	945.74	-433.81	2,760.04	2,722.63	37.41	73.777	
7,000.00	6,636.49	6,751.55	6,636.49	36.93	24.22	-0.51	945.74	-433.81	2,760.04	2,722.32	37.72	73.169	
7,100.00	6,736.49	6,851.55	6,736.49	37.00	24.36	-0.51	945.74	-433.81	2,760.04	2,722.00	38.03	72.567	
7,200.00	6,836.49	6,951.55	6,836.49	37.07	24.49	-0.51	945.74	-433.81	2,760.04	2,721.69	38.35	71.969	
7,300.00	6,936.49	7,051.55	6,936.49	37.15	24.62	-0.51	945.74	-433.81	2,760.04	2,721.37	38.67	71.376	
7,400.00	7,036.49	7,151.55	7,036.49	37.22	24.75	-0.51	945.74	-433.81	2,760.04	2,721.05	38.99	70.788	
7,500.00	7,136.49	7,251.55	7,136.49	37.30	24.89	-0.51	945.74	-433.81	2,760.04	2,720.72	39.31	70.206	
7,600.00	7,236.49	7,351.55	7,236.49	37.37	25.03	-0.51	945.74	-433.81	2,760.04	2,720.40	39.64	69.629	
7,700.00	7,336.49	7,451.55	7,336.49	37.45	25.16	-0.51	945.74	-433.81	2,760.04	2,720.07	39.97	69.057	
7,800.00	7,436.49	7,551.55	7,436.49	37.53	25.30	-0.51	945.74	-433.81	2,760.04	2,719.74	40.30	68.490	
7,900.00	7,536.49	7,651.55	7,536.49	37.61	25.44	-0.51	945.74	-433.81	2,760.04	2,719.41	40.63	67.929	
8,000.00	7,636.49	7,751.55	7,636.49	37.69	25.59	-0.51	945.74	-433.81	2,760.04	2,719.07	40.97	67.374	
8,100.00	7,736.49	7,851.55	7,736.49	37.77	25.73	-0.51	945.74	-433.81	2,760.04	2,718.74	41.30	66.824	
8,147.22	7,783.71	7,898.77	7,783.71	37.81	25.80	-0.51	945.74	-433.81	2,760.04	2,718.58	41.46	66.567	
8,173.51	7,810.00	7,920.06	7,805.00	37.83	25.83	-0.51	945.74	-433.81	2,760.04	2,718.50	41.54	66.439	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Reference Site:	LARIMER_MIRACLE 40-12 PAD	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 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	
0.00	0.00	0.00	0.00	0.00	0.00	-90.00	0.00	-9.75	9.75				
100.00	100.00	100.00	100.00	0.10	0.10	-90.00	0.00	-9.75	9.75	9.55	0.19	51.012	
200.00	200.00	200.00	200.00	0.32	0.32	-90.00	0.00	-9.75	9.75	9.11	0.64	15.214	
300.00	300.00	300.00	300.00	0.55	0.55	-90.00	0.00	-9.75	9.75	8.66	1.09	8.940	
400.00	400.00	400.00	400.00	0.77	0.77	-90.00	0.00	-9.75	9.75	8.21	1.54	6.330	
500.00	500.00	500.00	500.00	0.99	0.99	-90.00	0.00	-9.75	9.75	7.76	1.99	4.899	
600.00	600.00	600.00	600.00	1.22	1.22	-90.00	0.00	-9.75	9.75	7.31	2.44	3.996	
700.00	700.00	700.00	700.00	1.44	1.44	-90.00	0.00	-9.75	9.75	6.86	2.89	3.374	
750.00	750.00	750.00	750.00	1.56	1.56	-90.00	0.00	-9.75	9.75	6.63	3.11	3.131 CC	
800.00	800.00	799.91	799.91	1.65	1.66	77.57	-0.38	-9.96	9.87	6.56	3.31	2.982 ES	
900.00	899.93	899.74	899.67	1.83	1.83	79.58	-3.39	-11.71	10.85	7.19	3.66	2.964 SF	
1,000.00	999.68	999.56	999.25	2.02	2.03	82.87	-9.36	-15.16	12.83	8.79	4.05	3.171	
1,100.00	1,099.13	1,099.49	1,098.85	2.24	2.24	94.25	-16.36	-19.21	15.19	10.72	4.48	3.394	
1,200.00	1,198.15	1,199.27	1,198.30	2.49	2.47	112.60	-23.35	-23.26	19.04	14.10	4.94	3.856	
1,300.00	1,296.63	1,298.76	1,297.47	2.78	2.70	130.26	-30.32	-27.29	26.26	20.88	5.38	4.878	
1,400.00	1,394.44	1,397.85	1,396.24	3.13	2.94	143.14	-37.27	-31.31	37.60	31.80	5.80	6.480	
1,500.00	1,491.46	1,496.43	1,494.49	3.53	3.18	151.71	-44.17	-35.31	52.98	46.77	6.21	8.530	
1,600.00	1,587.58	1,594.37	1,592.10	4.00	3.43	157.42	-51.04	-39.28	72.18	65.56	6.62	10.902	
1,700.00	1,682.68	1,691.54	1,688.96	4.52	3.68	161.36	-57.85	-43.22	95.03	88.00	7.04	13.508	
1,800.00	1,776.65	1,787.84	1,784.94	5.12	3.93	164.18	-64.59	-47.13	121.42	113.97	7.45	16.289	
1,900.00	1,869.36	1,883.15	1,879.93	5.78	4.17	166.27	-71.27	-50.99	151.26	143.38	7.88	19.200	
1,965.87	1,929.69	1,945.32	1,941.90	6.25	4.34	167.37	-75.63	-53.51	172.76	164.60	8.16	21.175	
2,000.00	1,960.80	1,977.41	1,973.89	6.50	4.42	167.91	-77.88	-54.82	184.29	175.96	8.33	22.118	
2,100.00	2,051.92	2,071.42	2,067.59	7.25	4.67	169.16	-84.47	-58.63	218.13	209.28	8.85	24.650	
2,200.00	2,143.05	2,165.43	2,161.29	8.01	4.92	170.07	-91.05	-62.44	252.03	242.66	9.38	26.881	
2,300.00	2,234.18	2,259.44	2,254.99	8.79	5.17	170.77	-97.64	-66.25	285.98	276.07	9.91	28.855	
2,400.00	2,325.31	2,353.45	2,348.70	9.56	5.42	171.32	-104.23	-70.07	319.96	309.51	10.45	30.611	
2,500.00	2,416.44	2,447.46	2,442.40	10.35	5.67	171.76	-110.82	-73.88	353.96	342.96	11.00	32.182	
2,600.00	2,507.56	2,541.47	2,536.10	11.14	5.92	172.13	-117.40	-77.69	387.97	376.42	11.55	33.593	
2,700.00	2,598.69	2,635.48	2,629.80	11.93	6.17	172.44	-123.99	-81.50	422.00	409.89	12.10	34.867	
2,800.00	2,689.82	2,729.50	2,723.51	12.72	6.43	172.70	-130.58	-85.31	456.03	443.37	12.66	36.021	
2,900.00	2,780.95	2,823.51	2,817.21	13.52	6.68	172.92	-137.17	-89.13	490.07	476.86	13.22	37.072	
3,000.00	2,872.08	2,917.52	2,910.91	14.32	6.94	173.12	-143.75	-92.94	524.12	510.34	13.78	38.032	
3,100.00	2,963.20	3,011.53	3,004.61	15.12	7.19	173.29	-150.34	-96.75	558.18	543.83	14.34	38.912	
3,200.00	3,054.33	3,105.54	3,098.31	15.92	7.45	173.44	-156.93	-100.56	592.23	577.32	14.91	39.722	
3,300.00	3,145.46	3,199.55	3,192.02	16.72	7.70	173.58	-163.52	-104.38	626.29	610.82	15.48	40.468	
3,400.00	3,236.59	3,293.56	3,285.72	17.53	7.96	173.70	-170.10	-108.19	660.36	644.31	16.04	41.159	
3,500.00	3,327.71	3,387.57	3,379.42	18.33	8.21	173.81	-176.69	-112.00	694.42	677.81	16.61	41.800	
3,600.00	3,418.84	3,481.58	3,473.12	19.14	8.47	173.91	-183.28	-115.81	728.49	711.31	17.18	42.396	
3,700.00	3,509.97	3,575.59	3,566.83	19.94	8.73	174.00	-189.87	-119.63	762.56	744.81	17.75	42.952	
3,800.00	3,601.10	3,669.60	3,660.53	20.75	8.98	174.08	-196.45	-123.44	796.63	778.31	18.33	43.472	
3,900.00	3,692.23	3,763.62	3,754.23	21.56	9.24	174.16	-203.04	-127.25	830.70	811.81	18.90	43.958	
4,000.00	3,783.35	3,857.63	3,847.93	22.36	9.50	174.23	-209.63	-131.06	864.78	845.31	19.47	44.415	
4,100.00	3,874.48	3,951.64	3,941.64	23.17	9.75	174.29	-216.22	-134.88	898.85	878.81	20.04	44.844	
4,200.00	3,965.61	4,045.65	4,035.34	23.98	10.01	174.35	-222.81	-138.69	932.93	912.31	20.62	45.248	
4,300.00	4,056.74	4,139.66	4,129.04	24.79	10.27	174.41	-229.39	-142.50	967.00	945.81	21.19	45.629	
4,400.00	4,147.87	4,233.67	4,222.74	25.60	10.52	174.46	-235.98	-146.31	1,001.08	979.31	21.77	45.989	
4,500.00	4,238.99	4,327.68	4,316.44	26.41	10.78	174.51	-242.57	-150.13	1,035.16	1,012.81	22.34	46.329	
4,600.00	4,330.12	4,421.69	4,410.15	27.22	11.04	174.56	-249.16	-153.94	1,069.24	1,046.32	22.92	46.652	
4,700.00	4,421.25	4,515.70	4,503.85	28.03	11.30	174.60	-255.74	-157.75	1,103.31	1,079.82	23.50	46.958	
4,800.00	4,512.38	4,609.71	4,597.55	28.84	11.56	174.64	-262.33	-161.56	1,137.39	1,113.32	24.07	47.249	
4,900.00	4,603.50	4,703.72	4,691.25	29.65	11.81	174.68	-268.92	-165.38	1,171.47	1,146.82	24.65	47.526	

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Reference Site:	LARIMER_MIRACLE 40-12 PAD	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design LARIMER_MIRACLE 40-12 PAD - P_MIRACLE 9-12 - P_MIRACLE 9-12 - PLAN #1 3-22-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.00	4,694.63	4,797.74	4,784.96	30.46	12.07	174.71	-275.51	-169.19	1,205.55	1,180.33	25.23	47.790	
5,100.00	4,785.76	4,891.75	4,878.66	31.27	12.33	174.75	-282.09	-173.00	1,239.63	1,213.83	25.80	48.041	
5,200.00	4,876.89	4,985.76	4,972.36	32.08	12.59	174.78	-288.68	-176.81	1,273.72	1,247.33	26.38	48.281	
5,247.65	4,920.31	5,030.55	5,017.01	32.47	12.71	174.79	-291.82	-178.63	1,289.95	1,263.30	26.66	48.392	
5,300.00	4,968.21	5,079.93	5,066.22	32.82	12.85	174.84	-295.28	-180.63	1,307.35	1,280.32	27.03	48.373	
5,400.00	5,060.75	5,175.09	5,161.07	33.36	13.11	174.91	-301.95	-184.49	1,338.06	1,310.37	27.69	48.322	
5,500.00	5,154.55	5,271.26	5,256.93	33.86	13.37	174.96	-308.69	-188.39	1,365.45	1,337.13	28.32	48.222	
5,600.00	5,249.50	5,368.32	5,353.67	34.33	13.64	174.99	-315.49	-192.33	1,389.48	1,360.58	28.90	48.079	
5,700.00	5,345.49	5,466.16	5,451.19	34.75	13.91	175.00	-322.35	-196.29	1,410.11	1,380.67	29.44	47.895	
5,800.00	5,442.40	5,564.66	5,549.36	35.14	14.18	175.00	-329.25	-200.29	1,427.34	1,397.40	29.94	47.675	
5,900.00	5,540.11	5,663.69	5,648.07	35.48	14.45	174.97	-336.19	-204.30	1,441.13	1,410.74	30.39	47.421	
6,000.00	5,638.51	5,741.01	5,725.16	35.78	14.62	174.95	-341.27	-207.25	1,452.00	1,421.28	30.72	47.271	
6,100.00	5,737.46	5,800.00	5,784.07	36.03	14.73	174.95	-344.04	-208.85	1,461.52	1,430.59	30.94	47.240	
6,200.00	5,836.86	5,876.36	5,860.39	36.24	14.86	174.96	-346.06	-210.02	1,469.68	1,438.55	31.13	47.208	
6,300.00	5,936.57	5,952.55	5,936.57	36.41	14.99	174.98	-346.43	-210.24	1,476.52	1,445.24	31.28	47.204	
6,400.00	6,036.49	6,052.47	6,036.49	36.52	15.15	175.00	-346.43	-210.24	1,480.46	1,449.05	31.42	47.124	
6,463.51	6,100.00	6,115.98	6,100.00	36.58	15.25	7.72	-346.43	-210.24	1,481.16	1,449.69	31.48	47.055	
6,500.00	6,136.49	6,152.46	6,136.49	36.60	15.31	7.72	-346.43	-210.24	1,481.16	1,449.57	31.59	46.881	
6,600.00	6,236.49	6,252.46	6,236.49	36.67	15.47	7.72	-346.43	-210.24	1,481.16	1,449.26	31.91	46.419	
6,700.00	6,336.49	6,352.46	6,336.49	36.73	15.63	7.72	-346.43	-210.24	1,481.16	1,448.94	32.23	45.961	
6,800.00	6,436.49	6,452.46	6,436.49	36.80	15.79	7.72	-346.43	-210.24	1,481.16	1,448.62	32.55	45.508	
6,900.00	6,536.49	6,552.46	6,536.49	36.87	15.96	7.72	-346.43	-210.24	1,481.16	1,448.29	32.87	45.060	
7,000.00	6,636.49	6,652.46	6,636.49	36.93	16.12	7.72	-346.43	-210.24	1,481.16	1,447.97	33.20	44.617	
7,100.00	6,736.49	6,752.46	6,736.49	37.00	16.29	7.72	-346.43	-210.24	1,481.16	1,447.64	33.53	44.179	
7,200.00	6,836.49	6,852.46	6,836.49	37.07	16.45	7.72	-346.43	-210.24	1,481.16	1,447.31	33.86	43.747	
7,300.00	6,936.49	6,952.46	6,936.49	37.15	16.62	7.72	-346.43	-210.24	1,481.16	1,446.97	34.19	43.319	
7,400.00	7,036.49	7,052.46	7,036.49	37.22	16.79	7.72	-346.43	-210.24	1,481.16	1,446.63	34.53	42.896	
7,500.00	7,136.49	7,152.46	7,136.49	37.30	16.96	7.72	-346.43	-210.24	1,481.16	1,446.30	34.87	42.479	
7,600.00	7,236.49	7,252.46	7,236.49	37.37	17.14	7.72	-346.43	-210.24	1,481.16	1,445.95	35.21	42.067	
7,700.00	7,336.49	7,352.46	7,336.49	37.45	17.31	7.72	-346.43	-210.24	1,481.16	1,445.61	35.55	41.660	
7,800.00	7,436.49	7,452.46	7,436.49	37.53	17.49	7.72	-346.43	-210.24	1,481.16	1,445.26	35.90	41.258	
7,900.00	7,536.49	7,552.46	7,536.49	37.61	17.66	7.72	-346.43	-210.24	1,481.16	1,444.92	36.25	40.862	
8,000.00	7,636.49	7,652.46	7,636.49	37.69	17.84	7.72	-346.43	-210.24	1,481.16	1,444.57	36.60	40.470	
8,100.00	7,736.49	7,752.46	7,736.49	37.77	18.02	7.72	-346.43	-210.24	1,481.16	1,444.21	36.95	40.084	
8,173.51	7,810.00	7,825.98	7,810.00	37.83	18.15	7.72	-346.43	-210.24	1,481.16	1,443.95	37.21	39.804	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Reference Site:	LARIMER_MIRACLE 40-12 PAD	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

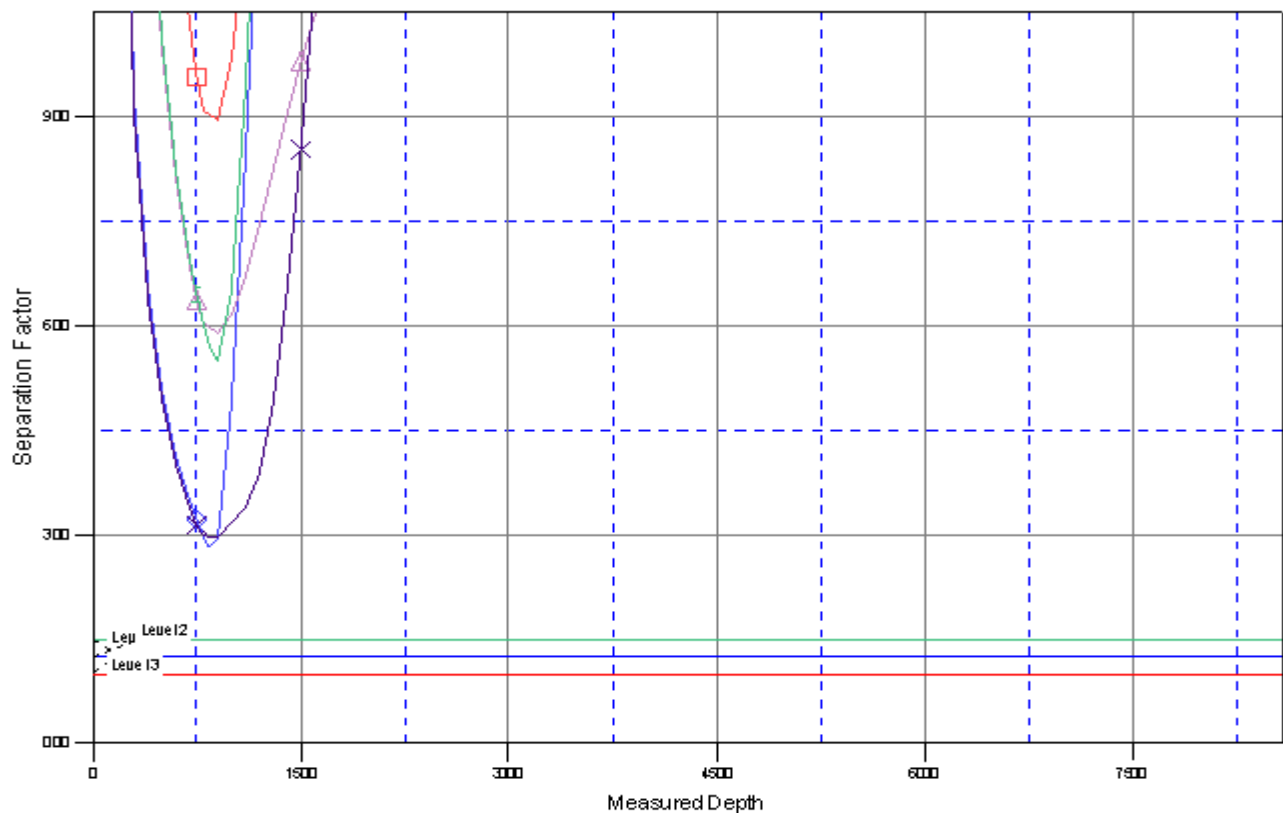
Reference Depths are relative to WELL @ 4963.00ft (Original Well Elev) Coordinates are relative to: P_MIRACLE 16-12
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.36°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MIRACLE 16-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4963.00ft (Original Well Elev)
Reference Site:	LARIMER_MIRACLE 40-12 PAD	MD Reference:	WELL @ 4963.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MIRACLE 16-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MIRACLE 16-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 3-22-10 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4963.00ft (Original Well Elev) Coordinates are relative to: P_MIRACLE 16-12
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.36°

Separation Factor Plot



LEGEND

ACLE 1-12, PLAN #1 3-22-10 RHS V0 P_MIRACLE 20-12, P_MIRACLE 20-12, PLAN #1 3-22-10 RHS V0 P_MIRACLE 8-12, P_MIRACLE 8-12, PLAN #1 3-22-10 RHS V0
 RACLE 17-12, PLAN #1 3-22-10 RHS V0 P_MIRACLE 24-12, P_MIRACLE 24-12, PLAN #1 3-22-10 RHS V0 P_MIRACLE 9-12, P_MIRACLE 9-12, PLAN #1 3-22-10 RHS V0