



US ROCKIES REGION PLANNING

COLORADO NOTHERN ZONE - 83

WELD_CARMA 6 PAD

P_CARMA 32-36

P_CARMA 32-36

Plan: PLAN #1 12-16-09 RHS

Standard Planning Report

16 December, 2009





Azimuths to True North
Magnetic North: 9.11°
Magnetic Field
Strength: 53174.7nT
Dip Angle: 66.90°
Date: 12/16/2009
Model: IGRF200510

WELL DETAILS: P_CARMA 32-36

+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude	Slot
0.00	0.00	1310978.43	3152118.80	40° 11' 8.700 N	104° 57' 19.908 W	

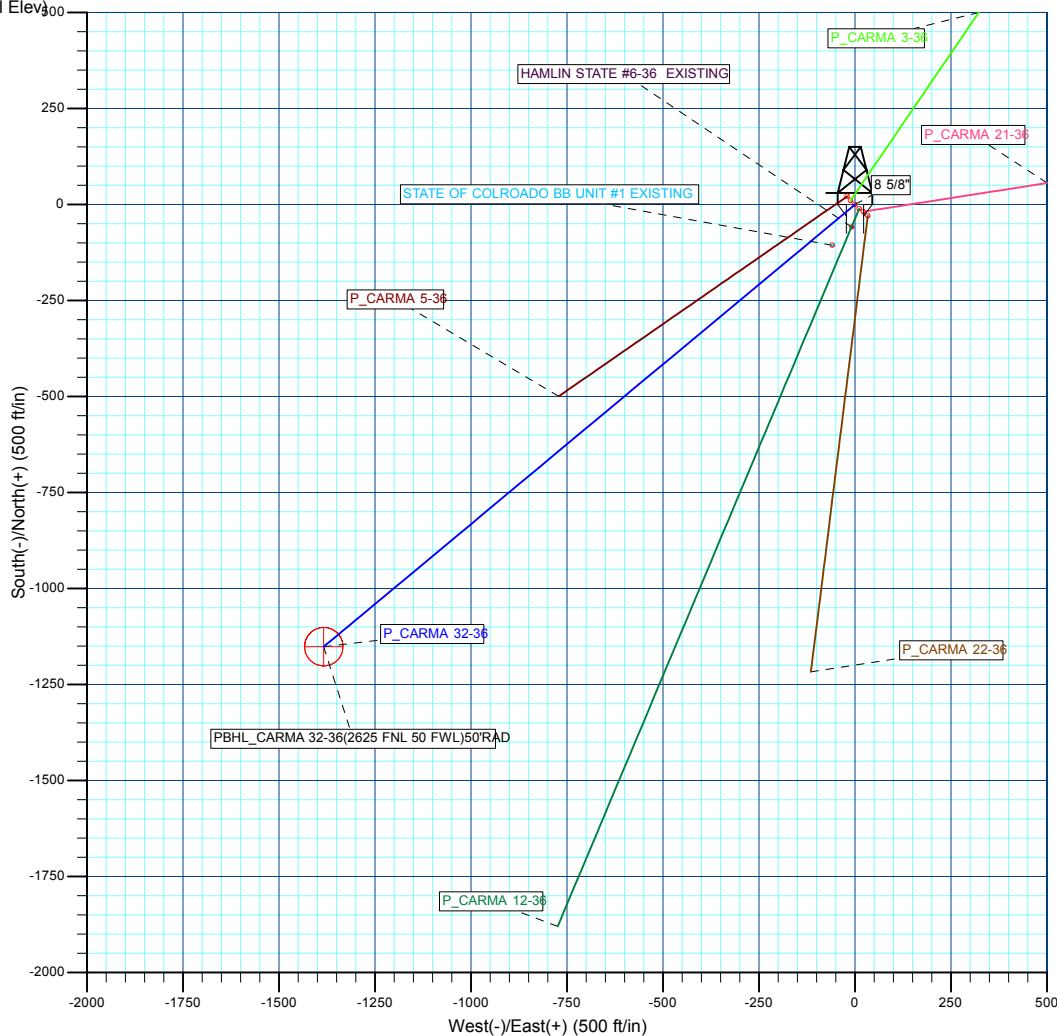
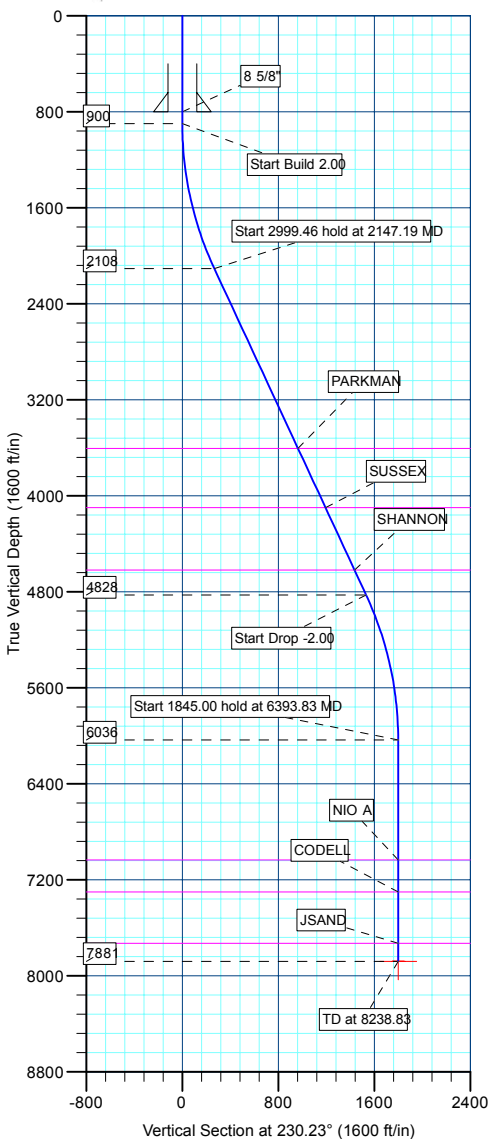
SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	
2147.19	24.94	230.23	2108.16	-170.94	-205.39	2.00	230.23	267.22	
5146.65	24.94	230.23	4827.84	-980.14	-1177.66	0.00	0.00	1532.18	
6393.83	0.00	0.00	6036.00	-1151.09	-1383.05	2.00	180.00	1799.40	
8238.83	0.00	0.00	7881.00	-1151.09	-1383.05	0.00	0.00	1799.40	PBHL_CARMA 32-36(2625 FNL 50 FWL)50°RAD

CASING DETAILS

TVD	MD	Name	Size
800.00	800.00	8 5/8"	8.62

KB ELEV: WELL @ 4879.00ft (Original Well Elev 4879.00)
GRD ELEV: 4864.00



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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	7881.00	-1151.09	-1383.05	1309818.88	3150742.85	40° 10' 57.324 N	104° 57' 37.728 W	Circle (Radius: 50.00)

Plan: PLAN #1 12-16-09 RHS (P_CARMA 32-36/P_CARMA 32-36)

Created By: Robert H. Scott

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_CARMA 32-36
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site:	WELD_CARMA 6 PAD	North Reference:	True
Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_CARMA 32-36		
Design:	PLAN #1 12-16-09 RHS		

Project	COLORADO NOTHERN 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						WELD_CARMA 6 PAD, SECTION 36 T3N R68W											
Site Position:						Northing:			1,310,967.58 ft			Latitude:			40° 11' 8.592 N		
From:			Lat/Long			Easting:			3,152,130.05 ft			Longitude:			104° 57' 19.764 W		
Position Uncertainty:			0.00 ft			Slot Radius:			in			Grid Convergence:			0.35 °		

Well	P_CARMA 32-36					
Well Position	+N/-S	10.92 ft	Northing:	1,310,978.43 ft	Latitude:	40° 11' 8.700 N
	+E/-W	-11.18 ft	Easting:	3,152,118.80 ft	Longitude:	104° 57' 19.908 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,864.00 ft

Wellbore	P_CARMA 32-36				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/16/2009	9.11	66.90	53,175

Design	PLAN #1 12-16-09 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	230.23

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	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,147.19	24.94	230.23	2,108.16	-170.94	-205.39	2.00	2.00	0.00	230.23	
5,146.65	24.94	230.23	4,827.84	-980.14	-1,177.66	0.00	0.00	0.00	0.00	
6,393.83	0.00	0.00	6,036.00	-1,151.09	-1,383.05	2.00	-2.00	0.00	180.00	
8,238.83	0.00	0.00	7,881.00	-1,151.09	-1,383.05	0.00	0.00	0.00	0.00	PBHL_CARMA 32-:

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_CARMA 32-36
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site:	WELD_CARMA 6 PAD	North Reference:	True
Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_CARMA 32-36		
Design:	PLAN #1 12-16-09 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									
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	2.00	230.23	999.98	-1.12	-1.34	1.75	2.00	2.00	0.00
1,100.00	4.00	230.23	1,099.84	-4.46	-5.36	6.98	2.00	2.00	0.00
1,200.00	6.00	230.23	1,199.45	-10.04	-12.06	15.69	2.00	2.00	0.00
1,300.00	8.00	230.23	1,298.70	-17.83	-21.43	27.88	2.00	2.00	0.00
1,400.00	10.00	230.23	1,397.47	-27.84	-33.45	43.52	2.00	2.00	0.00
1,500.00	12.00	230.23	1,495.62	-40.05	-48.12	62.60	2.00	2.00	0.00
1,600.00	14.00	230.23	1,593.06	-54.44	-65.41	85.10	2.00	2.00	0.00
1,700.00	16.00	230.23	1,689.64	-70.99	-85.30	110.98	2.00	2.00	0.00
1,800.00	18.00	230.23	1,785.27	-89.70	-107.77	140.21	2.00	2.00	0.00
1,900.00	20.00	230.23	1,879.82	-110.52	-132.79	172.77	2.00	2.00	0.00
2,000.00	22.00	230.23	1,973.17	-133.44	-160.34	208.60	2.00	2.00	0.00
2,100.00	24.00	230.23	2,065.21	-158.44	-190.37	247.67	2.00	2.00	0.00
Start 2999.46 hold at 2147.19 MD									
2,147.19	24.94	230.23	2,108.16	-170.94	-205.39	267.22	2.00	2.00	0.00
2,200.00	24.94	230.23	2,156.05	-185.19	-222.51	289.49	0.00	0.00	0.00
2,300.00	24.94	230.23	2,246.72	-212.17	-254.92	331.67	0.00	0.00	0.00
2,400.00	24.94	230.23	2,337.39	-239.15	-287.34	373.84	0.00	0.00	0.00
2,500.00	24.94	230.23	2,428.07	-266.13	-319.75	416.01	0.00	0.00	0.00
2,600.00	24.94	230.23	2,518.74	-293.10	-352.17	458.18	0.00	0.00	0.00
2,700.00	24.94	230.23	2,609.41	-320.08	-384.58	500.36	0.00	0.00	0.00
2,800.00	24.94	230.23	2,700.08	-347.06	-417.00	542.53	0.00	0.00	0.00
2,900.00	24.94	230.23	2,790.75	-374.04	-449.41	584.70	0.00	0.00	0.00
3,000.00	24.94	230.23	2,881.43	-401.02	-481.83	626.88	0.00	0.00	0.00
3,100.00	24.94	230.23	2,972.10	-428.00	-514.24	669.05	0.00	0.00	0.00
3,200.00	24.94	230.23	3,062.77	-454.97	-546.66	711.22	0.00	0.00	0.00
3,300.00	24.94	230.23	3,153.44	-481.95	-579.07	753.39	0.00	0.00	0.00
3,400.00	24.94	230.23	3,244.12	-508.93	-611.49	795.57	0.00	0.00	0.00
3,500.00	24.94	230.23	3,334.79	-535.91	-643.90	837.74	0.00	0.00	0.00
3,600.00	24.94	230.23	3,425.46	-562.89	-676.32	879.91	0.00	0.00	0.00
3,700.00	24.94	230.23	3,516.13	-589.86	-708.73	922.09	0.00	0.00	0.00
PARKMAN									
3,798.01	24.94	230.23	3,605.00	-616.31	-740.50	963.42	0.00	0.00	0.00
3,800.00	24.94	230.23	3,606.80	-616.84	-741.15	964.26	0.00	0.00	0.00
3,900.00	24.94	230.23	3,697.48	-643.82	-773.56	1,006.43	0.00	0.00	0.00
4,000.00	24.94	230.23	3,788.15	-670.80	-805.98	1,048.60	0.00	0.00	0.00
4,100.00	24.94	230.23	3,878.82	-697.78	-838.39	1,090.78	0.00	0.00	0.00
4,200.00	24.94	230.23	3,969.49	-724.76	-870.81	1,132.95	0.00	0.00	0.00
4,300.00	24.94	230.23	4,060.17	-751.73	-903.22	1,175.12	0.00	0.00	0.00
SUSSEX									
4,343.93	24.94	230.23	4,100.00	-763.59	-917.46	1,193.65	0.00	0.00	0.00
4,400.00	24.94	230.23	4,150.84	-778.71	-935.64	1,217.30	0.00	0.00	0.00
4,500.00	24.94	230.23	4,241.51	-805.69	-968.05	1,259.47	0.00	0.00	0.00
4,600.00	24.94	230.23	4,332.18	-832.67	-1,000.47	1,301.64	0.00	0.00	0.00
4,700.00	24.94	230.23	4,422.85	-859.65	-1,032.88	1,343.81	0.00	0.00	0.00
4,800.00	24.94	230.23	4,513.53	-886.63	-1,065.29	1,385.99	0.00	0.00	0.00
4,900.00	24.94	230.23	4,604.20	-913.60	-1,097.71	1,428.16	0.00	0.00	0.00
SHANNON									
4,917.43	24.94	230.23	4,620.00	-918.31	-1,103.36	1,435.51	0.00	0.00	0.00
5,000.00	24.94	230.23	4,694.87	-940.58	-1,130.12	1,470.33	0.00	0.00	0.00
5,100.00	24.94	230.23	4,785.54	-967.56	-1,162.54	1,512.50	0.00	0.00	0.00
Start Drop -2.00									

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_CARMA 32-36
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site:	WELD_CARMA 6 PAD	North Reference:	True
Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_CARMA 32-36		
Design:	PLAN #1 12-16-09 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)
5,146.65	24.94	230.23	4,827.84	-980.14	-1,177.66	1,532.18	0.00	0.00	0.00
5,200.00	23.88	230.23	4,876.42	-994.25	-1,194.61	1,554.23	2.00	-2.00	0.00
5,300.00	21.88	230.23	4,968.55	-1,019.12	-1,224.49	1,593.10	2.00	-2.00	0.00
5,400.00	19.88	230.23	5,061.98	-1,041.91	-1,251.87	1,628.73	2.00	-2.00	0.00
5,500.00	17.88	230.23	5,156.60	-1,062.61	-1,276.74	1,661.08	2.00	-2.00	0.00
5,600.00	15.88	230.23	5,252.29	-1,081.18	-1,299.05	1,690.11	2.00	-2.00	0.00
5,700.00	13.88	230.23	5,348.93	-1,097.60	-1,318.79	1,715.79	2.00	-2.00	0.00
5,800.00	11.88	230.23	5,446.41	-1,111.86	-1,335.91	1,738.07	2.00	-2.00	0.00
5,900.00	9.88	230.23	5,544.61	-1,123.93	-1,350.42	1,756.94	2.00	-2.00	0.00
6,000.00	7.88	230.23	5,643.41	-1,133.80	-1,362.28	1,772.37	2.00	-2.00	0.00
6,100.00	5.88	230.23	5,742.68	-1,141.46	-1,371.48	1,784.34	2.00	-2.00	0.00
6,200.00	3.88	230.23	5,842.32	-1,146.89	-1,378.01	1,792.84	2.00	-2.00	0.00
6,300.00	1.88	230.23	5,942.18	-1,150.10	-1,381.87	1,797.86	2.00	-2.00	0.00
Start 1845.00 hold at 6393.83 MD									
6,393.83	0.00	0.00	6,036.00	-1,151.09	-1,383.05	1,799.40	2.00	-2.00	0.00
6,400.00	0.00	0.00	6,042.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
6,500.00	0.00	0.00	6,142.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
6,600.00	0.00	0.00	6,242.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
6,700.00	0.00	0.00	6,342.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
6,800.00	0.00	0.00	6,442.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
6,900.00	0.00	0.00	6,542.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
7,000.00	0.00	0.00	6,642.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
7,100.00	0.00	0.00	6,742.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
7,200.00	0.00	0.00	6,842.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
7,300.00	0.00	0.00	6,942.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
NIO A									
7,393.83	0.00	0.00	7,036.00	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
7,400.00	0.00	0.00	7,042.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
7,500.00	0.00	0.00	7,142.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
7,600.00	0.00	0.00	7,242.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
CODELL									
7,658.83	0.00	0.00	7,301.00	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
7,700.00	0.00	0.00	7,342.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
7,800.00	0.00	0.00	7,442.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
7,900.00	0.00	0.00	7,542.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
8,000.00	0.00	0.00	7,642.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
JSAND									
8,088.83	0.00	0.00	7,731.00	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
8,100.00	0.00	0.00	7,742.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
8,200.00	0.00	0.00	7,842.17	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00
PBHL_CARMA 32-36(2625 FNL 50 FWL)50'RAD									
8,238.83	0.00	0.00	7,881.00	-1,151.09	-1,383.05	1,799.40	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL_CARMA 32-36	0.00	0.00	7,881.00	-1,151.09	-1,383.05	1,309,818.88	3,150,742.85	40° 10' 57.324 N	104° 57' 37.728 W
- plan hits target center									
- Circle (radius 50.00)									

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_CARMA 32-36
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site:	WELD_CARMA 6 PAD	North Reference:	True
Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_CARMA 32-36		
Design:	PLAN #1 12-16-09 RHS		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
800.00	800.00	8 5/8"	8.62	11.00	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,798.01	3,605.00	PARKMAN				
4,343.93	4,100.00	SUSSEX				
4,917.43	4,620.00	SHANNON				
7,393.83	7,036.00	NIO A				
7,658.83	7,301.00	CODELL				
8,088.83	7,731.00	JSAND				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
900.00	900.00	0.00	0.00	Start Build 2.00	
2,147.19	2,108.16	-170.94	-205.39	Start 2999.46 hold at 2147.19 MD	
5,146.65	4,827.84	-980.14	-1,177.66	Start Drop -2.00	
6,393.83	6,036.00	-1,151.09	-1,383.05	Start 1845.00 hold at 6393.83 MD	
8,238.83	7,881.00	-1,151.09	-1,383.05	TD at 8238.83	



US ROCKIES REGION PLANNING

**COLORADO NOTHERN ZONE - 83
WELD_CARMA 6 PAD
P_CARMA 32-36**

**P_CARMA 32-36
PLAN #1 12-16-09 RHS**

Anticollision Report

16 December, 2009





Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_CARMA 6 PAD - HAMLIN STATE #6-36 EXISTING - HAMLIN STATE #6-36 EXISTING - HAML												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												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	
1,500.00	1,495.62	1,476.62	1,476.62	3.30	57.06	-115.08	-58.29	-8.38	43.72	-16.42	60.14	0.727	Level 1
1,600.00	1,593.06	1,574.06	1,574.06	3.67	60.96	-135.50	-58.29	-8.38	57.16	-6.43	63.58	0.899	Level 1
1,700.00	1,689.64	1,670.64	1,670.64	4.10	64.83	-148.61	-58.29	-8.38	77.96	11.21	66.75	1.168	Level 2
1,800.00	1,785.27	1,766.27	1,766.27	4.59	68.65	-156.74	-58.29	-8.38	104.23	34.44	69.79	1.493	Level 3
1,900.00	1,879.82	1,860.82	1,860.82	5.15	72.43	-161.98	-58.29	-8.38	134.93	62.23	72.70	1.856	
2,000.00	1,973.17	1,954.17	1,954.17	5.78	76.17	-165.53	-58.29	-8.38	169.52	94.08	75.44	2.247	
2,100.00	2,065.21	2,046.21	2,046.21	6.49	79.85	-168.05	-58.29	-8.38	207.72	129.74	77.98	2.664	
2,147.19	2,108.16	2,089.16	2,089.16	6.84	81.57	-168.99	-58.29	-8.38	226.94	147.83	79.11	2.869	
2,200.00	2,156.05	2,137.05	2,137.05	7.25	83.48	-169.96	-58.29	-8.38	248.91	167.94	80.97	3.074	
2,300.00	2,246.72	2,227.72	2,227.72	8.05	87.11	-171.41	-58.29	-8.38	290.62	206.11	84.51	3.439	
2,400.00	2,337.39	2,318.39	2,318.39	8.85	90.74	-172.49	-58.29	-8.38	332.45	244.37	88.08	3.774	
2,500.00	2,428.07	2,409.07	2,409.07	9.67	94.36	-173.34	-58.29	-8.38	374.36	282.69	91.67	4.084	
2,600.00	2,518.74	2,499.74	2,499.74	10.50	97.99	-174.01	-58.29	-8.38	416.32	321.05	95.28	4.370	
2,700.00	2,609.41	2,590.41	2,590.41	11.33	101.62	-174.56	-58.29	-8.38	458.32	359.44	98.89	4.635	
2,800.00	2,700.08	2,681.08	2,681.08	12.17	105.24	-175.02	-58.29	-8.38	500.35	397.85	102.51	4.881	
2,900.00	2,790.75	2,771.75	2,771.75	13.01	108.87	-175.40	-58.29	-8.38	542.41	436.27	106.13	5.111	
3,000.00	2,881.43	2,862.43	2,862.43	13.86	112.50	-175.73	-58.29	-8.38	584.48	474.71	109.76	5.325	
3,100.00	2,972.10	2,953.10	2,953.10	14.70	116.12	-176.02	-58.29	-8.38	626.56	513.16	113.40	5.525	
3,200.00	3,062.77	3,043.77	3,043.77	15.56	119.75	-176.27	-58.29	-8.38	668.65	551.62	117.03	5.713	
3,300.00	3,153.44	3,134.44	3,134.44	16.41	123.38	-176.49	-58.29	-8.38	710.76	590.09	120.67	5.890	
3,400.00	3,244.12	3,225.12	3,225.12	17.26	127.00	-176.69	-58.29	-8.38	752.87	628.56	124.31	6.056	
3,500.00	3,334.79	3,315.79	3,315.79	18.12	130.63	-176.86	-58.29	-8.38	794.99	667.03	127.96	6.213	
3,600.00	3,425.46	3,406.46	3,406.46	18.97	134.26	-177.02	-58.29	-8.38	837.11	705.51	131.60	6.361	
3,700.00	3,516.13	3,497.13	3,497.13	19.83	137.89	-177.16	-58.29	-8.38	879.24	743.99	135.25	6.501	
3,800.00	3,606.80	3,587.80	3,587.80	20.69	141.51	-177.29	-58.29	-8.38	921.37	782.47	138.90	6.634	
3,900.00	3,697.48	3,678.48	3,678.48	21.55	145.14	-177.41	-58.29	-8.38	963.51	820.96	142.54	6.759	
4,000.00	3,788.15	3,769.15	3,769.15	22.41	148.77	-177.52	-58.29	-8.38	1,005.64	859.45	146.19	6.879	
4,100.00	3,878.82	3,859.82	3,859.82	23.27	152.39	-177.62	-58.29	-8.38	1,047.79	897.94	149.85	6.992	
4,200.00	3,969.49	3,950.49	3,950.49	24.14	156.02	-177.71	-58.29	-8.38	1,089.93	936.43	153.50	7.101	
4,300.00	4,060.17	4,041.17	4,041.17	25.00	159.65	-177.80	-58.29	-8.38	1,132.08	974.93	157.15	7.204	
4,400.00	4,150.84	4,131.84	4,131.84	25.86	163.27	-177.88	-58.29	-8.38	1,174.22	1,013.42	160.80	7.302	
4,500.00	4,241.51	4,222.51	4,222.51	26.72	166.90	-177.95	-58.29	-8.38	1,216.37	1,051.92	164.46	7.396	
4,600.00	4,332.18	4,313.18	4,313.18	27.59	170.53	-178.02	-58.29	-8.38	1,258.53	1,090.42	168.11	7.486	
4,700.00	4,422.85	4,403.85	4,403.85	28.45	174.15	-178.08	-58.29	-8.38	1,300.68	1,128.91	171.77	7.572	
4,800.00	4,513.53	4,494.53	4,494.53	29.32	177.78	-178.14	-58.29	-8.38	1,342.83	1,167.41	175.42	7.655	
4,900.00	4,604.20	4,585.20	4,585.20	30.18	181.41	-178.20	-58.29	-8.38	1,384.99	1,205.91	179.08	7.734	
5,000.00	4,694.87	4,675.87	4,675.87	31.04	185.03	-178.25	-58.29	-8.38	1,427.14	1,244.41	182.73	7.810	
5,100.00	4,785.54	4,766.54	4,766.54	31.91	188.66	-178.30	-58.29	-8.38	1,469.30	1,282.91	186.39	7.883	
5,146.65	4,827.84	4,808.84	4,808.84	32.31	190.35	-178.33	-58.29	-8.38	1,488.97	1,300.87	188.09	7.916	
5,200.00	4,876.42	4,857.42	4,857.42	32.71	192.30	-178.36	-58.29	-8.38	1,511.01	1,319.53	191.47	7.891	
5,300.00	4,968.55	4,949.55	4,949.55	33.32	195.98	-178.43	-58.29	-8.38	1,549.87	1,352.15	197.72	7.839	
5,400.00	5,061.98	5,042.98	5,042.98	33.88	199.72	-178.48	-58.29	-8.38	1,585.49	1,381.54	203.95	7.774	
5,500.00	5,156.60	5,137.60	5,137.60	34.40	203.50	-178.53	-58.29	-8.38	1,617.83	1,407.75	210.08	7.701	
5,600.00	5,252.29	5,233.29	5,233.29	34.87	207.33	-178.57	-58.29	-8.38	1,646.85	1,430.79	216.06	7.622	
5,700.00	5,348.93	5,329.93	5,329.93	35.29	211.20	-178.61	-58.29	-8.38	1,672.52	1,450.65	221.87	7.538	
5,800.00	5,446.41	5,427.41	5,427.41	35.67	215.10	-178.64	-58.29	-8.38	1,694.80	1,467.30	227.50	7.450	
5,900.00	5,544.61	5,525.61	5,525.61	35.99	219.02	-178.66	-58.29	-8.38	1,713.66	1,480.75	232.91	7.358	
6,000.00	5,643.41	5,624.41	5,624.41	36.27	222.98	-178.68	-58.29	-8.38	1,729.09	1,490.99	238.09	7.262	
6,100.00	5,742.68	5,723.68	5,723.68	36.50	226.95	-178.69	-58.29	-8.38	1,741.06	1,498.03	243.03	7.164	
6,200.00	5,842.32	5,823.32	5,823.32	36.68	230.93	-178.71	-58.29	-8.38	1,749.55	1,501.86	247.70	7.063	
6,300.00	5,942.18	5,923.18	5,923.18	36.81	234.93	-178.71	-58.29	-8.38	1,754.57	1,502.50	252.07	6.961	
6,393.83	6,036.00	6,017.00	6,017.00	36.89	238.68	51.52	-58.29	-8.38	1,756.11	1,500.20	255.90	6.862	

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_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_CARMA 6 PAD - HAMLIN STATE #6-36 EXISTING - HAMLIN STATE #6-36 EXISTING - HAML												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												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
6,400.00	6,042.17	6,023.17	6,023.17	36.90	238.93	51.52	-58.29	-8.38	1,756.11	1,499.95	256.16	6.856	
6,500.00	6,142.17	6,123.17	6,123.17	36.97	242.93	51.52	-58.29	-8.38	1,756.11	1,495.81	260.30	6.746	
6,600.00	6,242.17	6,223.17	6,223.17	37.04	246.93	51.52	-58.29	-8.38	1,756.11	1,491.66	264.44	6.641	
6,700.00	6,342.17	6,323.17	6,323.17	37.11	250.93	51.52	-58.29	-8.38	1,756.11	1,487.52	268.59	6.538	
6,800.00	6,442.17	6,423.17	6,423.17	37.19	254.93	51.52	-58.29	-8.38	1,756.11	1,483.37	272.74	6.439	
6,900.00	6,542.17	6,523.17	6,523.17	37.26	258.93	51.52	-58.29	-8.38	1,756.11	1,479.22	276.88	6.342	
7,000.00	6,642.17	6,623.17	6,623.17	37.34	262.93	51.52	-58.29	-8.38	1,756.11	1,475.07	281.03	6.249	
7,100.00	6,742.17	6,723.17	6,723.17	37.41	266.93	51.52	-58.29	-8.38	1,756.11	1,470.92	285.19	6.158	
7,200.00	6,842.17	6,823.17	6,823.17	37.49	270.93	51.52	-58.29	-8.38	1,756.11	1,466.77	289.34	6.069	
7,300.00	6,942.17	6,923.17	6,923.17	37.57	274.93	51.52	-58.29	-8.38	1,756.11	1,462.61	293.49	5.983	
7,400.00	7,042.17	7,023.17	7,023.17	37.65	278.93	51.52	-58.29	-8.38	1,756.11	1,458.46	297.65	5.900	
7,500.00	7,142.17	7,123.17	7,123.17	37.73	282.93	51.52	-58.29	-8.38	1,756.11	1,454.30	301.81	5.819	
7,600.00	7,242.17	7,223.17	7,223.17	37.82	286.93	51.52	-58.29	-8.38	1,756.11	1,450.14	305.97	5.740	
7,700.00	7,342.17	7,323.17	7,323.17	37.90	290.93	51.52	-58.29	-8.38	1,756.11	1,445.98	310.13	5.663	
7,800.00	7,442.17	7,423.17	7,423.17	37.99	294.93	51.52	-58.29	-8.38	1,756.11	1,441.82	314.29	5.588	
7,900.00	7,542.17	7,523.17	7,523.17	38.07	298.93	51.52	-58.29	-8.38	1,756.11	1,437.66	318.45	5.515	
7,940.29	7,582.46	7,563.46	7,563.46	38.11	300.54	51.52	-58.29	-8.38	1,756.11	1,435.98	320.13	5.486	
8,000.00	7,642.17	7,579.00	7,579.00	38.16	301.16	51.52	-58.29	-8.38	1,756.66	1,435.82	320.85	5.475	
8,100.00	7,742.17	7,579.00	7,579.00	38.25	301.16	51.52	-58.29	-8.38	1,762.01	1,441.00	321.01	5.489	
8,200.00	7,842.17	7,579.00	7,579.00	38.34	301.16	51.52	-58.29	-8.38	1,773.00	1,451.82	321.18	5.520	
8,238.83	7,881.00	7,579.00	7,579.00	38.38	301.16	51.52	-58.29	-8.38	1,778.76	1,457.52	321.24	5.537	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_CARMA 6 PAD - P_CARMA 12-36 - P_CARMA 12-36 - PLAN #1 12-16-09 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												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
0.00	0.00	0.00	0.00	0.00	0.00	134.34	-10.92	11.18	15.63				
100.00	100.00	100.00	100.00	0.10	1.70	134.34	-10.92	11.18	15.63	13.83	1.80	8.702	
200.00	200.00	200.00	200.00	0.32	5.70	134.34	-10.92	11.18	15.63	9.60	6.02	2.595	
300.00	300.00	300.00	300.00	0.55	9.70	134.34	-10.92	11.18	15.63	5.38	10.25	1.525	
400.00	400.00	400.00	400.00	0.77	13.70	134.34	-10.92	11.18	15.63	1.16	14.47	1.080	Level 2
500.00	500.00	500.00	500.00	0.99	17.70	134.34	-10.92	11.18	15.63	-3.07	18.69	0.836	Level 1
600.00	600.00	600.00	600.00	1.22	21.70	134.34	-10.92	11.18	15.63	-7.29	22.92	0.682	Level 1
700.00	700.00	700.00	700.00	1.44	25.70	134.34	-10.92	11.18	15.63	-11.52	27.14	0.576	Level 1
800.00	800.00	800.00	800.00	1.67	29.70	134.34	-10.92	11.18	15.63	-15.74	31.37	0.498	Level 1
900.00	900.00	900.00	900.00	1.89	33.70	134.34	-10.92	11.18	15.63	-19.97	35.59	0.439	Level 1, CC, ES, SF
1,000.00	999.98	999.79	999.77	2.10	33.87	-96.28	-12.52	10.50	16.44	-19.52	35.96	0.457	Level 1
1,100.00	1,099.84	1,099.55	1,099.38	2.28	30.28	-97.24	-17.32	8.48	18.90	-13.67	32.57	0.580	Level 1
1,200.00	1,199.45	1,199.22	1,198.67	2.49	26.84	-98.36	-25.31	5.13	23.01	-6.33	29.34	0.784	Level 1
1,300.00	1,298.70	1,298.77	1,297.48	2.72	23.65	-99.38	-36.47	0.44	28.76	2.36	26.39	1.090	Level 2
1,400.00	1,397.47	1,398.16	1,395.65	2.99	20.90	-100.18	-50.75	-5.56	36.14	12.22	23.92	1.511	
1,500.00	1,495.62	1,497.35	1,493.03	3.30	18.85	-100.77	-68.13	-12.86	45.15	22.95	22.20	2.034	
1,600.00	1,593.06	1,596.31	1,589.48	3.67	17.88	-101.19	-88.55	-21.44	55.76	34.17	21.60	2.582	
1,700.00	1,689.64	1,695.01	1,684.84	4.10	18.28	-101.46	-111.97	-31.28	67.97	45.58	22.39	3.035	
1,800.00	1,785.27	1,793.40	1,778.99	4.59	20.08	-101.63	-138.31	-42.35	81.75	57.12	24.63	3.319	
1,900.00	1,879.82	1,891.46	1,871.79	5.15	23.07	-101.71	-167.52	-54.62	97.08	68.98	28.10	3.455	
2,000.00	1,973.17	1,989.16	1,963.11	5.78	26.97	-101.73	-199.51	-68.06	113.93	81.41	32.52	3.503	
2,100.00	2,065.21	2,086.48	2,052.85	6.49	31.54	-101.70	-234.22	-82.64	132.29	94.64	37.65	3.513	
2,147.19	2,108.16	2,132.26	2,094.61	6.84	33.84	-101.67	-251.51	-89.91	141.46	101.22	40.24	3.515	
2,200.00	2,156.05	2,184.03	2,141.67	7.25	36.58	-101.83	-271.41	-98.27	151.91	108.58	43.33	3.506	
2,300.00	2,246.72	2,282.05	2,230.77	8.05	41.89	-102.08	-309.08	-114.09	171.70	122.39	49.31	3.482	
2,400.00	2,337.39	2,380.07	2,319.86	8.85	47.30	-102.27	-346.75	-129.92	191.48	136.07	55.41	3.456	
2,500.00	2,428.07	2,478.09	2,408.96	9.67	52.80	-102.44	-384.42	-145.75	211.27	149.67	61.61	3.429	
2,600.00	2,518.74	2,576.11	2,498.06	10.50	58.36	-102.57	-422.09	-161.58	231.07	163.19	67.87	3.404	
2,700.00	2,609.41	2,674.13	2,587.16	11.33	63.96	-102.68	-459.76	-177.40	250.86	176.68	74.18	3.382	
2,800.00	2,700.08	2,772.15	2,676.25	12.17	69.60	-102.78	-497.44	-193.23	270.65	190.12	80.53	3.361	
2,900.00	2,790.75	2,870.17	2,765.35	13.01	75.26	-102.86	-535.11	-209.06	290.45	203.54	86.91	3.342	
3,000.00	2,881.43	2,968.19	2,854.45	13.86	80.94	-102.93	-572.78	-224.89	310.24	216.93	93.31	3.325	
3,100.00	2,972.10	3,066.21	2,943.55	14.70	86.64	-103.00	-610.45	-240.71	330.04	230.30	99.73	3.309	
3,200.00	3,062.77	3,164.23	3,032.64	15.56	92.35	-103.05	-648.12	-256.54	349.83	243.66	106.17	3.295	
3,300.00	3,153.44	3,262.26	3,121.74	16.41	98.07	-103.10	-685.79	-272.37	369.63	257.01	112.62	3.282	
3,400.00	3,244.12	3,360.28	3,210.84	17.26	103.80	-103.15	-723.47	-288.20	389.42	270.34	119.08	3.270	
3,500.00	3,334.79	3,458.30	3,299.94	18.12	109.54	-103.19	-761.14	-304.02	409.22	283.67	125.55	3.259	
3,600.00	3,425.46	3,556.32	3,389.03	18.97	115.28	-103.23	-798.81	-319.85	429.02	296.99	132.03	3.249	
3,700.00	3,516.13	3,654.34	3,478.13	19.83	121.03	-103.26	-836.48	-335.68	448.81	310.30	138.51	3.240	
3,800.00	3,606.80	3,752.36	3,567.23	20.69	126.79	-103.29	-874.15	-351.51	468.61	323.61	145.00	3.232	
3,900.00	3,697.48	3,850.38	3,656.33	21.55	132.55	-103.32	-911.82	-367.33	488.41	336.91	151.49	3.224	
4,000.00	3,788.15	3,948.40	3,745.42	22.41	138.31	-103.35	-949.50	-383.16	508.20	350.21	157.99	3.217	
4,100.00	3,878.82	4,046.42	3,834.52	23.27	144.08	-103.37	-987.17	-398.99	528.00	363.50	164.50	3.210	
4,200.00	3,969.49	4,144.44	3,923.62	24.14	149.85	-103.39	-1,024.84	-414.82	547.80	376.79	171.00	3.203	
4,300.00	4,060.17	4,242.46	4,012.72	25.00	155.62	-103.42	-1,062.51	-430.64	567.59	390.08	177.51	3.198	
4,400.00	4,150.84	4,340.48	4,101.81	25.86	161.39	-103.43	-1,100.18	-446.47	587.39	403.37	184.02	3.192	
4,500.00	4,241.51	4,438.50	4,190.91	26.72	167.17	-103.45	-1,137.85	-462.30	607.19	416.65	190.54	3.187	
4,600.00	4,332.18	4,536.52	4,280.01	27.59	172.95	-103.47	-1,175.53	-478.13	626.99	429.93	197.05	3.182	
4,700.00	4,422.85	4,634.54	4,369.11	28.45	178.73	-103.49	-1,213.20	-493.95	646.78	443.21	203.57	3.177	
4,800.00	4,513.53	4,732.56	4,458.20	29.32	184.51	-103.50	-1,250.87	-509.78	666.58	456.49	210.09	3.173	
4,900.00	4,604.20	4,830.58	4,547.30	30.18	190.29	-103.52	-1,288.54	-525.61	686.38	469.76	216.61	3.169	
5,000.00	4,694.87	4,928.61	4,636.40	31.04	196.08	-103.53	-1,326.21	-541.44	706.17	483.04	223.14	3.165	

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_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_CARMA 6 PAD - P_CARMA 12-36 - P_CARMA 12-36 - PLAN #1 12-16-09 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												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
5,100.00	4,785.54	5,026.63	4,725.50	31.91	201.86	-103.54	-1,363.88	-557.26	725.97	496.31	229.66	3.161	
5,146.65	4,827.84	5,072.35	4,767.06	32.31	204.56	-103.55	-1,381.46	-564.65	735.21	502.50	232.71	3.159	
5,200.00	4,876.42	5,124.67	4,814.61	32.71	207.65	-103.72	-1,401.56	-573.10	745.66	509.33	236.33	3.155	
5,300.00	4,968.55	5,222.79	4,903.80	33.32	213.44	-103.84	-1,439.27	-588.94	764.62	521.71	242.91	3.148	
5,400.00	5,061.98	5,320.90	4,992.98	33.88	219.24	-103.71	-1,476.98	-604.78	782.80	533.46	249.34	3.139	
5,500.00	5,156.60	5,418.87	5,082.04	34.40	225.02	-103.34	-1,514.63	-620.60	800.25	544.65	255.60	3.131	
5,600.00	5,252.29	5,516.59	5,170.86	34.87	230.79	-102.75	-1,552.19	-636.38	817.08	555.42	261.66	3.123	
5,700.00	5,348.93	5,613.93	5,259.34	35.29	236.54	-101.96	-1,589.60	-652.10	833.40	565.93	267.48	3.116	
5,800.00	5,446.41	5,710.78	5,347.37	35.67	242.26	-100.99	-1,626.82	-667.74	849.39	576.36	273.02	3.111	
5,900.00	5,544.61	5,813.48	5,441.07	35.99	248.25	-99.80	-1,665.56	-684.01	864.98	586.45	278.53	3.106	
6,000.00	5,643.41	5,920.41	5,540.10	36.27	254.23	-98.57	-1,702.75	-699.64	879.47	595.66	283.81	3.099	
6,100.00	5,742.68	6,028.63	5,641.78	36.50	259.98	-97.36	-1,736.88	-713.98	892.76	604.05	288.71	3.092	
6,200.00	5,842.32	6,138.13	5,746.01	36.68	265.49	-96.16	-1,767.79	-726.97	904.79	611.58	293.21	3.086	
6,300.00	5,942.18	6,248.87	5,852.66	36.81	270.76	-94.96	-1,795.30	-738.52	915.53	618.20	297.33	3.079	
6,393.83	6,036.00	6,353.90	5,954.78	36.89	275.46	-93.60	-1,817.86	-748.00	924.37	623.54	300.83	3.073	
6,400.00	6,042.17	6,360.84	5,961.57	36.90	275.76	-93.48	-1,819.22	-748.57	924.91	623.88	301.04	3.072	
6,500.00	6,142.17	6,474.35	6,072.93	36.97	280.50	-92.72	-1,839.46	-757.07	933.00	628.65	304.35	3.066	
6,600.00	6,242.17	6,589.48	6,186.68	37.04	284.99	-91.70	-1,855.80	-763.94	939.68	632.01	307.67	3.054	
6,700.00	6,342.17	6,705.87	6,302.30	37.11	289.17	-90.42	-1,868.04	-769.08	944.76	633.73	311.03	3.038	
6,800.00	6,442.17	6,823.16	6,419.27	37.19	293.03	-89.89	-1,875.97	-772.42	948.08	633.65	314.43	3.015	
6,900.00	6,542.17	6,940.96	6,537.00	37.26	295.51	-89.09	-1,879.49	-773.89	949.56	632.78	316.78	2.998	
7,000.00	6,642.17	7,046.13	6,642.17	37.34	293.83	-88.11	-1,879.68	-773.97	949.64	634.53	315.12	3.014	
7,100.00	6,742.17	7,146.13	6,742.17	37.41	291.39	-87.11	-1,879.68	-773.97	949.64	636.98	312.67	3.037	
7,200.00	6,842.17	7,246.13	6,842.17	37.49	288.98	-86.11	-1,879.68	-773.97	949.64	639.39	310.25	3.061	
7,300.00	6,942.17	7,346.13	6,942.17	37.57	286.61	-85.11	-1,879.68	-773.97	949.64	641.76	307.88	3.084	
7,400.00	7,042.17	7,446.13	7,042.17	37.65	284.27	-84.11	-1,879.68	-773.97	949.64	644.10	305.54	3.108	
7,500.00	7,142.17	7,546.13	7,142.17	37.73	281.97	-83.11	-1,879.68	-773.97	949.64	646.40	303.25	3.132	
7,600.00	7,242.17	7,646.13	7,242.17	37.82	279.71	-82.11	-1,879.68	-773.97	949.64	648.65	300.99	3.155	
7,700.00	7,342.17	7,746.13	7,342.17	37.90	277.49	-81.11	-1,879.68	-773.97	949.64	650.87	298.78	3.178	
7,800.00	7,442.17	7,846.13	7,442.17	37.99	275.31	-80.11	-1,879.68	-773.97	949.64	653.04	296.60	3.202	
7,900.00	7,542.17	7,946.13	7,542.17	38.07	273.17	-79.11	-1,879.68	-773.97	949.64	655.16	294.48	3.225	
8,000.00	7,642.17	8,046.13	7,642.17	38.16	271.07	-78.11	-1,879.68	-773.97	949.64	657.25	292.40	3.248	
8,100.00	7,742.17	8,146.13	7,742.17	38.25	269.02	-77.11	-1,879.68	-773.97	949.64	659.28	290.36	3.271	
8,200.00	7,842.17	8,246.13	7,842.17	38.34	267.01	-76.11	-1,879.68	-773.97	949.64	661.27	288.37	3.293	
8,238.83	7,881.00	8,284.97	7,881.00	38.38	266.24	-75.11	-1,879.68	-773.97	949.64	662.03	287.61	3.302	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_CARMA 6 PAD - P_CARMA 21-36 - P_CARMA 21-36 - PLAN #1 12-16-09 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												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
0.00	0.00	0.00	0.00	0.00	0.00	129.18	-18.21	22.35	28.83				
100.00	100.00	100.00	100.00	0.10	1.70	129.18	-18.21	22.35	28.83	27.04	1.80	16.058	
200.00	200.00	200.00	200.00	0.32	5.70	129.18	-18.21	22.35	28.83	22.81	6.02	4.789	
300.00	300.00	300.00	300.00	0.55	9.70	129.18	-18.21	22.35	28.83	18.59	10.25	2.814	
400.00	400.00	400.00	400.00	0.77	13.70	129.18	-18.21	22.35	28.83	14.36	14.47	1.993	
500.00	500.00	500.00	500.00	0.99	17.70	129.18	-18.21	22.35	28.83	10.14	18.69	1.542	
600.00	600.00	600.00	600.00	1.22	21.70	129.18	-18.21	22.35	28.83	5.91	22.92	1.258 Level 3	
700.00	700.00	700.00	700.00	1.44	25.70	129.18	-18.21	22.35	28.83	1.69	27.14	1.062 Level 2	
800.00	800.00	800.00	800.00	1.67	29.70	129.18	-18.21	22.35	28.83	-2.54	31.37	0.919 Level 1	
900.00	900.00	900.00	900.00	1.89	33.70	129.18	-18.21	22.35	28.83	-6.76	35.59	0.810 Level 1, CC	
1,000.00	999.98	999.22	999.20	2.10	36.04	-106.63	-17.95	24.05	30.47	-7.67	38.14	0.799 Level 1, ES, SF	
1,100.00	1,099.84	1,097.78	1,097.62	2.28	37.08	-119.73	-17.16	29.09	36.79	-2.55	39.35	0.935 Level 1	
1,200.00	1,199.45	1,195.02	1,194.50	2.49	38.49	-132.89	-15.88	37.35	50.00	9.16	40.84	1.224 Level 2	
1,300.00	1,298.70	1,290.34	1,289.14	2.72	40.23	-142.32	-14.13	48.59	70.76	28.24	42.53	1.664	
1,400.00	1,397.47	1,383.19	1,380.90	2.99	42.26	-148.34	-11.96	62.52	98.68	54.36	44.32	2.227	
1,500.00	1,495.62	1,473.06	1,469.24	3.30	44.51	-152.14	-9.43	78.80	133.19	87.06	46.13	2.887	
1,600.00	1,593.06	1,559.52	1,553.71	3.67	46.95	-154.59	-6.59	97.03	173.85	125.94	47.91	3.629	
1,700.00	1,689.64	1,642.23	1,633.96	4.10	49.51	-156.19	-3.51	116.83	220.25	170.66	49.60	4.441	
1,800.00	1,785.27	1,722.10	1,710.87	4.59	52.16	-157.27	-0.20	138.07	272.00	220.84	51.16	5.317	
1,900.00	1,879.82	1,805.13	1,790.62	5.15	55.12	-158.13	3.36	160.92	327.40	274.65	52.75	6.206	
2,000.00	1,973.17	1,886.24	1,868.52	5.78	58.15	-158.81	6.83	183.23	385.57	331.32	54.25	7.108	
2,100.00	2,065.21	1,965.31	1,944.47	6.49	61.22	-159.35	10.22	204.98	446.45	390.83	55.62	8.027	
2,147.19	2,108.16	2,001.89	1,979.61	6.84	62.66	-159.56	11.78	215.04	476.11	419.90	56.21	8.471	
2,200.00	2,156.05	2,042.57	2,018.67	7.25	64.31	-160.05	13.52	226.23	509.63	452.29	57.35	8.887	
2,300.00	2,246.72	2,119.59	2,092.65	8.05	67.45	-160.82	16.82	247.41	573.17	513.63	59.53	9.627	
2,400.00	2,337.39	2,196.60	2,166.62	8.85	70.65	-161.44	20.12	268.60	636.75	574.97	61.79	10.306	
2,500.00	2,428.07	2,273.62	2,240.59	9.67	73.93	-161.95	23.42	289.78	700.37	636.27	64.10	10.926	
2,600.00	2,518.74	2,350.63	2,314.56	10.50	77.25	-162.38	26.72	310.97	764.02	697.56	66.46	11.496	
2,700.00	2,609.41	2,427.65	2,388.53	11.33	80.61	-162.73	30.01	332.15	827.69	758.83	68.85	12.021	
2,800.00	2,700.08	2,504.67	2,462.50	12.17	84.01	-163.04	33.31	353.34	891.37	820.09	71.28	12.504	
2,900.00	2,790.75	2,581.68	2,536.48	13.01	87.45	-163.31	36.61	374.52	955.07	881.32	73.75	12.949	
3,000.00	2,881.43	2,658.70	2,610.45	13.86	90.92	-163.54	39.91	395.71	1,018.78	942.53	76.25	13.361	
3,100.00	2,972.10	2,735.72	2,684.42	14.70	94.41	-163.75	43.21	416.89	1,082.50	1,003.73	78.77	13.742	
3,200.00	3,062.77	2,812.73	2,758.39	15.56	97.92	-163.93	46.50	438.08	1,146.23	1,064.91	81.32	14.096	
3,300.00	3,153.44	2,889.75	2,832.36	16.41	101.46	-164.09	49.80	459.26	1,209.96	1,126.07	83.89	14.424	
3,400.00	3,244.12	2,966.76	2,906.33	17.26	105.02	-164.24	53.10	480.45	1,273.69	1,187.22	86.47	14.729	
3,500.00	3,334.79	3,043.78	2,980.31	18.12	108.59	-164.38	56.40	501.63	1,337.44	1,248.36	89.08	15.014	
3,600.00	3,425.46	3,120.80	3,054.28	18.97	112.18	-164.50	59.69	522.82	1,401.18	1,309.48	91.70	15.280	
3,700.00	3,516.13	3,197.81	3,128.25	19.83	115.78	-164.61	62.99	544.00	1,464.93	1,370.60	94.33	15.529	
3,800.00	3,606.80	3,274.83	3,202.22	20.69	119.40	-164.71	66.29	565.19	1,528.68	1,431.70	96.99	15.762	
3,900.00	3,697.48	3,351.85	3,276.19	21.55	123.03	-164.80	69.59	586.37	1,592.44	1,492.79	99.65	15.981	
4,000.00	3,788.15	3,428.86	3,350.16	22.41	126.67	-164.89	72.89	607.56	1,656.20	1,553.87	102.32	16.186	
4,100.00	3,878.82	3,505.88	3,424.14	23.27	130.32	-164.97	76.18	628.74	1,719.95	1,614.95	105.00	16.380	
4,200.00	3,969.49	3,582.89	3,498.11	24.14	133.97	-165.04	79.48	649.93	1,783.72	1,676.02	107.70	16.562	
4,300.00	4,060.17	3,659.91	3,572.08	25.00	137.64	-165.11	82.78	671.11	1,847.48	1,737.08	110.40	16.734	
4,400.00	4,150.84	3,736.93	3,646.05	25.86	141.32	-165.18	86.08	692.30	1,911.24	1,798.13	113.11	16.897	
4,500.00	4,241.51	3,813.94	3,720.02	26.72	145.00	-165.24	89.38	713.48	1,975.01	1,859.17	115.83	17.051	
4,600.00	4,332.18	3,890.96	3,794.00	27.59	148.68	-165.29	92.67	734.67	2,038.77	1,920.21	118.56	17.196	
4,700.00	4,422.85	3,967.98	3,867.97	28.45	152.38	-165.34	95.97	755.85	2,102.54	1,981.25	121.29	17.334	
4,800.00	4,513.53	4,044.99	3,941.94	29.32	156.08	-165.39	99.27	777.04	2,166.31	2,042.28	124.03	17.465	
4,900.00	4,604.20	4,122.01	4,015.91	30.18	159.78	-165.44	102.57	798.22	2,230.08	2,103.30	126.78	17.590	
5,000.00	4,694.87	4,199.02	4,089.88	31.04	163.49	-165.49	105.87	819.41	2,293.85	2,164.32	129.53	17.709	

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_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_CARMA 6 PAD - P_CARMA 21-36 - P_CARMA 21-36 - PLAN #1 12-16-09 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												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
5,100.00	4,785.54	4,276.04	4,163.85	31.91	167.21	-165.53	109.16	840.59	2,357.62	2,225.33	132.29	17.822	
5,146.65	4,827.84	4,311.97	4,198.36	32.31	168.94	-165.55	110.70	850.48	2,387.37	2,253.79	133.58	17.873	
5,200.00	4,876.42	4,353.36	4,238.12	32.71	170.94	-165.78	112.47	861.86	2,421.02	2,284.44	136.58	17.726	
5,300.00	4,968.55	4,432.57	4,314.19	33.32	174.77	-166.16	115.87	883.65	2,482.06	2,339.82	142.24	17.450	
5,400.00	5,061.98	4,513.79	4,392.21	33.88	178.70	-166.49	119.34	905.99	2,540.38	2,392.43	147.94	17.171	
5,500.00	5,156.60	4,596.94	4,472.07	34.40	182.73	-166.77	122.91	928.87	2,595.90	2,442.24	153.67	16.893	
5,600.00	5,252.29	4,681.92	4,553.69	34.87	186.85	-167.00	126.54	952.24	2,648.58	2,489.18	159.40	16.616	
5,700.00	5,348.93	4,768.61	4,636.95	35.29	191.06	-167.18	130.26	976.09	2,698.33	2,533.22	165.11	16.342	
5,800.00	5,446.41	4,856.91	4,721.77	35.67	195.35	-167.33	134.04	1,000.38	2,745.11	2,574.18	170.93	16.060	
5,900.00	5,544.61	4,946.72	4,808.03	35.99	199.71	-167.44	137.88	1,025.08	2,788.85	2,612.16	176.70	15.783	
6,000.00	5,643.41	5,037.93	4,895.63	36.27	204.15	-167.52	141.79	1,050.17	2,829.52	2,647.12	182.40	15.512	
6,100.00	5,742.68	5,130.42	4,984.46	36.50	208.65	-167.57	145.75	1,075.61	2,867.06	2,679.04	188.02	15.249	
6,200.00	5,842.32	5,224.09	5,074.42	36.68	213.22	-167.58	149.76	1,101.38	2,901.44	2,707.90	193.53	14.992	
6,300.00	5,942.18	5,318.81	5,165.40	36.81	217.83	-167.57	153.82	1,127.43	2,932.61	2,733.69	198.92	14.743	
6,393.83	6,036.00	5,700.00	5,535.26	36.89	235.61	63.11	167.86	1,217.67	2,958.73	2,743.60	215.14	13.753	
6,400.00	6,042.17	6,037.93	5,870.57	36.90	249.12	63.35	174.08	1,257.59	2,959.47	2,731.16	228.31	12.963	
6,500.00	6,142.17	6,309.63	6,142.17	36.97	256.23	63.38	174.90	1,262.84	2,959.55	2,723.28	236.27	12.526	
6,600.00	6,242.17	6,409.63	6,242.17	37.04	257.39	63.38	174.90	1,262.84	2,959.55	2,721.84	237.71	12.450	
6,700.00	6,342.17	6,509.63	6,342.17	37.11	258.61	63.38	174.90	1,262.84	2,959.55	2,720.34	239.22	12.372	
6,800.00	6,442.17	6,609.63	6,442.17	37.19	259.87	63.38	174.90	1,262.84	2,959.55	2,718.77	240.79	12.291	
6,900.00	6,542.17	6,709.63	6,542.17	37.26	261.20	63.38	174.90	1,262.84	2,959.55	2,717.13	242.42	12.208	
7,000.00	6,642.17	6,809.63	6,642.17	37.34	262.58	63.38	174.90	1,262.84	2,959.55	2,715.43	244.12	12.123	
7,100.00	6,742.17	6,909.63	6,742.17	37.41	264.01	63.38	174.90	1,262.84	2,959.55	2,713.68	245.88	12.037	
7,200.00	6,842.17	7,009.63	6,842.17	37.49	265.50	63.38	174.90	1,262.84	2,959.55	2,711.86	247.70	11.948	
7,300.00	6,942.17	7,109.63	6,942.17	37.57	267.03	63.38	174.90	1,262.84	2,959.55	2,709.98	249.58	11.858	
7,400.00	7,042.17	7,209.63	7,042.17	37.65	268.62	63.38	174.90	1,262.84	2,959.55	2,708.04	251.51	11.767	
7,500.00	7,142.17	7,309.63	7,142.17	37.73	270.26	63.38	174.90	1,262.84	2,959.55	2,706.05	253.51	11.675	
7,600.00	7,242.17	7,409.63	7,242.17	37.82	271.95	63.38	174.90	1,262.84	2,959.55	2,704.00	255.55	11.581	
7,700.00	7,342.17	7,509.63	7,342.17	37.90	273.68	63.38	174.90	1,262.84	2,959.55	2,701.90	257.65	11.487	
7,800.00	7,442.17	7,609.63	7,442.17	37.99	275.47	63.38	174.90	1,262.84	2,959.55	2,699.75	259.81	11.391	
7,900.00	7,542.17	7,709.63	7,542.17	38.07	277.29	63.38	174.90	1,262.84	2,959.55	2,697.54	262.01	11.296	
8,000.00	7,642.17	7,809.63	7,642.17	38.16	279.17	63.38	174.90	1,262.84	2,959.55	2,695.29	264.27	11.199	
8,100.00	7,742.17	7,909.63	7,742.17	38.25	281.09	63.38	174.90	1,262.84	2,959.55	2,692.99	266.57	11.102	
8,200.00	7,842.17	8,009.63	7,842.17	38.34	283.05	63.38	174.90	1,262.84	2,959.55	2,690.64	268.92	11.005	
8,238.83	7,881.00	8,048.46	7,881.00	38.38	283.82	63.38	174.90	1,262.84	2,959.55	2,689.71	269.84	10.968	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_CARMA 6 PAD - P_CARMA 22-36 - P_CARMA 22-36 - PLAN #1 12-16-09 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												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
0.00	0.00	0.00	0.00	0.00	0.00	131.00	-29.15	33.53	44.43				
100.00	100.00	100.00	100.00	0.10	1.70	131.00	-29.15	33.53	44.43	42.63	1.80	24.742	
200.00	200.00	200.00	200.00	0.32	5.70	131.00	-29.15	33.53	44.43	38.40	6.02	7.379	
300.00	300.00	300.00	300.00	0.55	9.70	131.00	-29.15	33.53	44.43	34.18	10.25	4.336	
400.00	400.00	400.00	400.00	0.77	13.70	131.00	-29.15	33.53	44.43	29.96	14.47	3.070	
500.00	500.00	500.00	500.00	0.99	17.70	131.00	-29.15	33.53	44.43	25.73	18.69	2.376	
600.00	600.00	600.00	600.00	1.22	21.70	131.00	-29.15	33.53	44.43	21.51	22.92	1.938	
700.00	700.00	700.00	700.00	1.44	25.70	131.00	-29.15	33.53	44.43	17.28	27.14	1.637	
800.00	800.00	800.00	800.00	1.67	29.70	131.00	-29.15	33.53	44.43	13.06	31.37	1.416 Level 3	
900.00	900.00	900.00	900.00	1.89	33.70	131.00	-29.15	33.53	44.43	8.83	35.59	1.248 Level 2, CC, ES, SF	
1,000.00	999.98	999.13	999.11	2.10	33.72	-99.56	-30.85	33.31	45.67	9.86	35.81	1.275 Level 3	
1,100.00	1,099.84	1,098.16	1,098.00	2.28	29.84	-100.45	-35.94	32.68	49.41	17.29	32.12	1.538	
1,200.00	1,199.45	1,197.00	1,196.47	2.49	25.98	-101.66	-44.41	31.62	55.67	27.20	28.47	1.955	
1,300.00	1,298.70	1,295.55	1,294.30	2.72	22.24	-102.93	-56.20	30.15	64.44	39.49	24.95	2.582	
1,400.00	1,397.47	1,393.74	1,391.29	2.99	18.77	-104.10	-71.26	28.28	75.72	54.01	21.71	3.488	
1,500.00	1,495.62	1,491.46	1,487.26	3.30	15.83	-105.09	-89.52	26.00	89.50	70.52	18.98	4.716	
1,600.00	1,593.06	1,588.63	1,582.02	3.67	13.91	-105.87	-110.88	23.33	105.75	88.55	17.20	6.149	
1,700.00	1,689.64	1,685.65	1,675.87	4.10	13.48	-106.52	-135.27	20.29	124.38	107.53	16.85	7.383	
1,800.00	1,785.27	1,783.52	1,770.32	4.59	14.82	-107.91	-160.73	17.12	144.45	126.11	18.35	7.873	
1,900.00	1,879.82	1,880.99	1,864.38	5.15	17.31	-109.99	-186.08	13.96	165.78	144.54	21.24	7.804	
2,000.00	1,973.17	1,977.94	1,957.94	5.78	20.58	-112.48	-211.30	10.81	188.64	163.59	25.05	7.531	
2,100.00	2,065.21	2,074.24	2,050.87	6.49	24.29	-115.18	-236.35	7.69	213.31	183.94	29.37	7.263	
2,147.19	2,108.16	2,119.42	2,094.48	6.84	26.14	-116.47	-248.10	6.22	225.66	194.16	31.50	7.163	
2,200.00	2,156.05	2,169.90	2,143.18	7.25	28.27	-118.09	-261.23	4.59	239.83	205.82	34.01	7.051	
2,300.00	2,246.72	2,265.47	2,235.41	8.05	32.42	-120.68	-286.09	1.49	267.09	228.27	38.82	6.880	
2,400.00	2,337.39	2,361.04	2,327.64	8.85	36.69	-122.80	-310.95	-1.61	294.77	251.08	43.69	6.746	
2,500.00	2,428.07	2,456.61	2,419.87	9.67	41.04	-124.55	-335.81	-4.71	322.76	274.15	48.61	6.640	
2,600.00	2,518.74	2,552.18	2,512.10	10.50	45.45	-126.03	-360.68	-7.81	350.99	297.43	53.55	6.554	
2,700.00	2,609.41	2,647.75	2,604.33	11.33	49.90	-127.29	-385.54	-10.91	379.39	320.88	58.51	6.484	
2,800.00	2,700.08	2,743.32	2,696.56	12.17	54.38	-128.37	-410.40	-14.01	407.95	344.46	63.49	6.425	
2,900.00	2,790.75	2,838.89	2,788.78	13.01	58.88	-129.31	-435.26	-17.11	436.62	368.14	68.48	6.376	
3,000.00	2,881.43	2,934.46	2,881.01	13.86	63.40	-130.13	-460.12	-20.21	465.38	391.91	73.48	6.334	
3,100.00	2,972.10	3,030.03	2,973.24	14.70	67.94	-130.86	-484.98	-23.31	494.23	415.75	78.48	6.297	
3,200.00	3,062.77	3,125.60	3,065.47	15.56	72.49	-131.51	-509.84	-26.41	523.14	439.64	83.49	6.266	
3,300.00	3,153.44	3,221.18	3,157.70	16.41	77.05	-132.09	-534.70	-29.51	552.10	463.59	88.51	6.238	
3,400.00	3,244.12	3,316.75	3,249.93	17.26	81.62	-132.62	-559.56	-32.61	581.11	487.59	93.53	6.213	
3,500.00	3,334.79	3,412.32	3,342.15	18.12	86.20	-133.09	-584.42	-35.71	610.16	511.61	98.55	6.191	
3,600.00	3,425.46	3,507.89	3,434.38	18.97	90.78	-133.52	-609.28	-38.81	639.25	535.68	103.58	6.172	
3,700.00	3,516.13	3,603.46	3,526.61	19.83	95.37	-133.91	-634.14	-41.91	668.37	559.76	108.60	6.154	
3,800.00	3,606.80	3,699.03	3,618.84	20.69	99.97	-134.27	-659.00	-45.01	697.51	583.88	113.64	6.138	
3,900.00	3,697.48	3,794.60	3,711.07	21.55	104.56	-134.61	-683.86	-48.11	726.68	608.01	118.67	6.124	
4,000.00	3,788.15	3,890.17	3,803.30	22.41	109.16	-134.91	-708.72	-51.21	755.87	632.16	123.70	6.110	
4,100.00	3,878.82	3,985.74	3,895.53	23.27	113.76	-135.20	-733.58	-54.31	785.07	656.33	128.74	6.098	
4,200.00	3,969.49	4,081.31	3,987.75	24.14	118.37	-135.46	-758.44	-57.41	814.29	680.52	133.78	6.087	
4,300.00	4,060.17	4,176.88	4,079.98	25.00	122.98	-135.70	-783.30	-60.51	843.53	704.72	138.81	6.077	
4,400.00	4,150.84	4,272.45	4,172.21	25.86	127.59	-135.93	-808.16	-63.61	872.78	728.93	143.85	6.067	
4,500.00	4,241.51	4,368.02	4,264.44	26.72	132.20	-136.15	-833.02	-66.71	902.04	753.15	148.89	6.058	
4,600.00	4,332.18	4,463.59	4,356.67	27.59	136.81	-136.35	-857.88	-69.81	931.31	777.38	153.94	6.050	
4,700.00	4,422.85	4,559.16	4,448.90	28.45	141.43	-136.53	-882.74	-72.91	960.60	801.62	158.98	6.042	
4,800.00	4,513.53	4,654.73	4,541.13	29.32	146.04	-136.71	-907.60	-76.01	989.89	825.87	164.02	6.035	
4,900.00	4,604.20	4,750.30	4,633.35	30.18	150.66	-136.88	-932.46	-79.11	1,019.19	850.12	169.07	6.028	
5,000.00	4,694.87	4,845.88	4,725.58	31.04	155.28	-137.03	-957.32	-82.21	1,048.49	874.38	174.11	6.022	

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_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_CARMA 6 PAD - P_CARMA 22-36 - P_CARMA 22-36 - PLAN #1 12-16-09 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												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
5,100.00	4,785.54	4,941.45	4,817.81	31.91	159.90	-137.18	-982.18	-85.31	1,077.81	898.65	179.15	6.016	
5,146.65	4,827.84	4,986.03	4,860.83	32.31	162.06	-137.25	-993.78	-86.76	1,091.48	909.97	181.51	6.013	
5,200.00	4,876.42	5,037.13	4,910.15	32.71	164.53	-137.52	-1,007.07	-88.42	1,106.78	922.12	184.66	5.994	
5,300.00	4,968.55	5,133.48	5,003.12	33.32	169.19	-137.90	-1,032.13	-91.54	1,133.54	943.04	190.51	5.950	
5,400.00	5,061.98	5,230.46	5,096.71	33.88	173.88	-138.12	-1,057.36	-94.69	1,157.81	961.45	196.36	5.896	
5,500.00	5,156.60	5,327.95	5,190.80	34.40	178.59	-138.20	-1,082.72	-97.85	1,179.56	977.35	202.21	5.833	
5,600.00	5,252.29	5,425.85	5,285.28	34.87	183.33	-138.13	-1,108.19	-101.03	1,198.78	990.76	208.02	5.763	
5,700.00	5,348.93	5,521.51	5,377.75	35.29	187.90	-137.97	-1,132.45	-104.05	1,215.57	1,001.98	213.59	5.691	
5,800.00	5,446.41	5,616.30	5,470.10	35.67	192.27	-137.82	-1,153.67	-106.70	1,230.15	1,011.33	218.82	5.622	
5,900.00	5,544.61	5,711.64	5,563.64	35.99	196.46	-137.69	-1,171.94	-108.98	1,242.51	1,018.78	223.73	5.554	
6,000.00	5,643.41	5,807.45	5,658.21	36.27	200.48	-137.58	-1,187.17	-110.88	1,252.62	1,024.31	228.31	5.486	
6,100.00	5,742.68	5,903.65	5,753.62	36.50	204.32	-137.48	-1,199.31	-112.39	1,260.46	1,027.91	232.55	5.420	
6,200.00	5,842.32	6,000.00	5,849.54	36.68	207.97	-137.40	-1,208.27	-113.51	1,266.01	1,029.57	236.44	5.354	
6,300.00	5,942.18	6,096.86	5,946.22	36.81	211.44	-137.33	-1,214.04	-114.23	1,269.26	1,029.28	239.99	5.289	
6,393.83	6,036.00	6,187.73	6,037.06	36.89	214.52	92.95	-1,216.51	-114.53	1,270.20	1,027.22	242.98	5.227	
6,400.00	6,042.17	6,193.71	6,043.03	36.90	214.73	92.96	-1,216.57	-114.54	1,270.20	1,027.00	243.19	5.223	
6,446.18	6,088.34	6,239.02	6,088.34	36.93	214.36	92.96	-1,216.70	-114.56	1,270.19	1,027.32	242.87	5.230	
6,500.00	6,142.17	6,292.84	6,142.17	36.97	212.64	92.96	-1,216.70	-114.56	1,270.19	1,029.00	241.19	5.266	
6,600.00	6,242.17	6,392.84	6,242.17	37.04	209.46	92.96	-1,216.70	-114.56	1,270.19	1,032.10	238.09	5.335	
6,700.00	6,342.17	6,492.84	6,342.17	37.11	206.30	92.96	-1,216.70	-114.56	1,270.19	1,035.16	235.03	5.404	
6,800.00	6,442.17	6,592.84	6,442.17	37.19	203.18	92.96	-1,216.70	-114.56	1,270.19	1,038.20	231.99	5.475	
6,900.00	6,542.17	6,692.84	6,542.17	37.26	200.09	92.96	-1,216.70	-114.56	1,270.19	1,041.20	228.99	5.547	
7,000.00	6,642.17	6,792.84	6,642.17	37.34	197.03	92.96	-1,216.70	-114.56	1,270.19	1,044.17	226.02	5.620	
7,100.00	6,742.17	6,892.84	6,742.17	37.41	194.01	92.96	-1,216.70	-114.56	1,270.19	1,047.10	223.08	5.694	
7,200.00	6,842.17	6,992.84	6,842.17	37.49	191.02	92.96	-1,216.70	-114.56	1,270.19	1,050.00	220.19	5.769	
7,300.00	6,942.17	7,092.84	6,942.17	37.57	188.07	92.96	-1,216.70	-114.56	1,270.19	1,052.86	217.33	5.844	
7,400.00	7,042.17	7,192.84	7,042.17	37.65	185.16	92.96	-1,216.70	-114.56	1,270.19	1,055.67	214.51	5.921	
7,500.00	7,142.17	7,292.84	7,142.17	37.73	182.29	92.96	-1,216.70	-114.56	1,270.19	1,058.45	211.74	5.999	
7,600.00	7,242.17	7,392.84	7,242.17	37.82	179.47	92.96	-1,216.70	-114.56	1,270.19	1,061.18	209.01	6.077	
7,700.00	7,342.17	7,492.84	7,342.17	37.90	176.69	92.96	-1,216.70	-114.56	1,270.19	1,063.86	206.33	6.156	
7,800.00	7,442.17	7,592.84	7,442.17	37.99	173.95	92.96	-1,216.70	-114.56	1,270.19	1,066.49	203.70	6.236	
7,900.00	7,542.17	7,692.84	7,542.17	38.07	171.27	92.96	-1,216.70	-114.56	1,270.19	1,069.08	201.11	6.316	
8,000.00	7,642.17	7,792.84	7,642.17	38.16	168.64	92.96	-1,216.70	-114.56	1,270.19	1,071.60	198.58	6.396	
8,100.00	7,742.17	7,892.84	7,742.17	38.25	166.06	92.96	-1,216.70	-114.56	1,270.19	1,074.08	196.11	6.477	
8,200.00	7,842.17	7,992.84	7,842.17	38.34	163.54	92.96	-1,216.70	-114.56	1,270.19	1,076.49	193.70	6.558	
8,238.83	7,881.00	8,031.68	7,881.00	38.38	162.58	92.96	-1,216.70	-114.56	1,270.19	1,077.41	192.78	6.589	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_CARMA 6 PAD - P_CARMA 3-36 - P_CARMA 3-36 - PLAN #1 12-16-09 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												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	-45.65	10.92	-11.18	15.63				
100.00	100.00	100.00	100.00	0.10	1.70	-45.65	10.92	-11.18	15.63	13.83	1.80	8.704	
200.00	200.00	200.00	200.00	0.32	5.70	-45.65	10.92	-11.18	15.63	9.61	6.02	2.596	
300.00	300.00	300.00	300.00	0.55	9.70	-45.65	10.92	-11.18	15.63	5.38	10.25	1.525	
400.00	400.00	400.00	400.00	0.77	13.70	-45.65	10.92	-11.18	15.63	1.16	14.47	1.080	Level 2
500.00	500.00	500.00	500.00	0.99	17.70	-45.65	10.92	-11.18	15.63	-3.07	18.69	0.836	Level 1
600.00	600.00	600.00	600.00	1.22	21.70	-45.65	10.92	-11.18	15.63	-7.29	22.92	0.682	Level 1
700.00	700.00	700.00	700.00	1.44	25.70	-45.65	10.92	-11.18	15.63	-11.52	27.14	0.576	Level 1
800.00	800.00	800.00	800.00	1.67	29.70	-45.65	10.92	-11.18	15.63	-15.74	31.37	0.498	Level 1
900.00	900.00	900.00	900.00	1.89	33.70	-45.65	10.92	-11.18	15.63	-19.97	35.59	0.439	Level 1, CC
915.09	915.09	915.08	915.08	1.92	34.25	84.41	10.96	-11.15	15.63	-20.55	36.18	0.432	Level 1
1,000.00	999.98	999.79	999.77	2.10	37.36	96.43	12.36	-10.20	16.13	-23.33	39.46	0.409	Level 1, ES, SF
1,100.00	1,099.84	1,098.86	1,098.70	2.28	40.76	124.31	16.62	-7.29	21.21	-21.79	43.00	0.493	Level 1
1,200.00	1,199.45	1,196.54	1,196.01	2.49	44.23	145.10	23.59	-2.54	35.12	-11.33	46.45	0.756	Level 1
1,300.00	1,298.70	1,292.16	1,290.94	2.72	47.72	155.59	33.06	3.93	57.39	7.63	49.76	1.153	Level 2
1,400.00	1,397.47	1,385.15	1,382.84	2.99	51.22	160.94	44.78	11.92	86.87	33.98	52.89	1.642	
1,500.00	1,495.62	1,474.97	1,471.12	3.30	54.70	163.92	58.43	21.23	122.91	67.12	55.79	2.203	
1,600.00	1,593.06	1,563.35	1,557.50	3.67	58.21	165.74	73.87	31.76	164.82	106.32	58.50	2.817	
1,700.00	1,689.64	1,652.29	1,644.34	4.10	61.82	167.00	89.73	42.58	210.33	149.24	61.09	3.443	
1,800.00	1,785.27	1,739.59	1,729.58	4.59	65.41	167.92	105.31	53.20	258.92	195.45	63.47	4.079	
1,900.00	1,879.82	1,825.14	1,813.12	5.15	68.98	168.61	120.57	63.61	310.53	244.89	65.64	4.731	
2,000.00	1,973.17	1,908.85	1,894.85	5.78	72.51	169.15	135.50	73.80	365.08	297.50	67.58	5.402	
2,100.00	2,065.21	1,990.61	1,974.68	6.49	75.99	169.58	150.09	83.75	422.52	353.24	69.29	6.098	
2,147.19	2,108.16	2,028.49	2,011.66	6.84	77.61	169.75	156.85	88.36	450.61	380.60	70.01	6.436	
2,200.00	2,156.05	2,070.62	2,052.80	7.25	79.42	170.05	164.36	93.48	482.39	410.92	71.47	6.750	
2,300.00	2,246.72	2,150.40	2,130.69	8.05	82.85	170.53	178.60	103.19	542.59	468.35	74.24	7.309	
2,400.00	2,337.39	2,230.17	2,208.59	8.85	86.31	170.91	192.83	112.90	602.81	525.78	77.03	7.826	
2,500.00	2,428.07	2,309.95	2,286.48	9.67	89.78	171.23	207.06	122.60	663.05	583.21	79.84	8.305	
2,600.00	2,518.74	2,389.72	2,364.37	10.50	93.27	171.49	221.29	132.31	723.29	640.64	82.65	8.751	
2,700.00	2,609.41	2,469.50	2,442.27	11.33	96.77	171.71	235.52	142.02	783.55	698.07	85.48	9.166	
2,800.00	2,700.08	2,549.27	2,520.16	12.17	100.29	171.90	249.76	151.73	843.81	755.49	88.32	9.554	
2,900.00	2,790.75	2,629.05	2,598.05	13.01	103.81	172.06	263.99	161.43	904.07	812.91	91.16	9.917	
3,000.00	2,881.43	2,708.82	2,675.94	13.86	107.34	172.21	278.22	171.14	964.34	870.33	94.01	10.258	
3,100.00	2,972.10	2,788.60	2,753.84	14.70	110.88	172.33	292.45	180.85	1,024.62	927.75	96.87	10.577	
3,200.00	3,062.77	2,868.37	2,831.73	15.56	114.43	172.44	306.68	190.56	1,084.89	985.16	99.73	10.878	
3,300.00	3,153.44	2,948.15	2,909.62	16.41	117.99	172.55	320.92	200.26	1,145.17	1,042.57	102.60	11.162	
3,400.00	3,244.12	3,027.93	2,987.52	17.26	121.55	172.64	335.15	209.97	1,205.45	1,099.97	105.48	11.429	
3,500.00	3,334.79	3,107.70	3,065.41	18.12	125.12	172.72	349.38	219.68	1,265.73	1,157.37	108.36	11.681	
3,600.00	3,425.46	3,187.48	3,143.30	18.97	128.70	172.79	363.61	229.39	1,326.01	1,214.77	111.24	11.920	
3,700.00	3,516.13	3,267.25	3,221.20	19.83	132.28	172.86	377.84	239.09	1,386.30	1,272.17	114.13	12.147	
3,800.00	3,606.80	3,347.03	3,299.09	20.69	135.86	172.92	392.08	248.80	1,446.58	1,329.56	117.02	12.362	
3,900.00	3,697.48	3,426.80	3,376.98	21.55	139.45	172.98	406.31	258.51	1,506.87	1,386.96	119.91	12.566	
4,000.00	3,788.15	3,506.58	3,454.88	22.41	143.04	173.03	420.54	268.22	1,567.16	1,444.35	122.81	12.761	
4,100.00	3,878.82	3,586.35	3,532.77	23.27	146.64	173.08	434.77	277.92	1,627.45	1,501.74	125.71	12.946	
4,200.00	3,969.49	3,666.13	3,610.66	24.14	150.24	173.13	449.01	287.63	1,687.74	1,559.13	128.61	13.123	
4,300.00	4,060.17	3,745.90	3,688.55	25.00	153.84	173.17	463.24	297.34	1,748.03	1,616.51	131.51	13.292	
4,400.00	4,150.84	3,825.68	3,766.45	25.86	157.44	173.21	477.47	307.05	1,808.32	1,673.90	134.42	13.453	
4,500.00	4,241.51	3,905.45	3,844.34	26.72	161.05	173.25	491.70	316.75	1,868.61	1,731.28	137.32	13.607	
4,600.00	4,332.18	3,985.23	3,922.23	27.59	164.66	173.28	505.93	326.46	1,928.90	1,788.67	140.23	13.755	
4,700.00	4,422.85	4,065.01	4,000.13	28.45	168.28	173.31	520.17	336.17	1,989.19	1,846.05	143.14	13.897	
4,800.00	4,513.53	4,144.78	4,078.02	29.32	171.89	173.35	534.40	345.88	2,049.48	1,903.43	146.05	14.033	
4,900.00	4,604.20	4,224.56	4,155.91	30.18	175.51	173.37	548.63	355.58	2,109.77	1,960.81	148.96	14.163	

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_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_CARMA 6 PAD - P_CARMA 3-36 - P_CARMA 3-36 - PLAN #1 12-16-09 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												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	4,694.87	4,304.33	4,233.81	31.04	179.13	173.40	562.86	365.29	2,170.07	2,018.19	151.87	14.289	
5,100.00	4,785.54	4,384.11	4,311.70	31.91	182.75	173.43	577.09	375.00	2,230.36	2,075.57	154.79	14.409	
5,146.65	4,827.84	4,421.32	4,348.03	32.31	184.44	173.44	583.73	379.53	2,258.48	2,102.34	156.15	14.464	
5,200.00	4,876.42	4,464.18	4,389.88	32.71	186.38	173.54	591.38	384.74	2,290.26	2,130.80	159.46	14.363	
5,300.00	4,968.55	4,546.06	4,469.83	33.32	190.11	173.71	605.99	394.71	2,347.65	2,182.00	165.65	14.172	
5,400.00	5,061.98	4,629.89	4,551.68	33.88	193.92	173.85	620.94	404.91	2,402.17	2,230.35	171.82	13.981	
5,500.00	5,156.60	4,715.55	4,635.33	34.40	197.81	173.96	636.22	415.33	2,453.74	2,275.79	177.96	13.788	
5,600.00	5,252.29	4,802.96	4,720.67	34.87	201.79	174.06	651.82	425.97	2,502.32	2,318.27	184.04	13.596	
5,700.00	5,348.93	4,891.99	4,807.60	35.29	205.84	174.14	667.70	436.80	2,547.83	2,357.76	190.07	13.405	
5,800.00	5,446.41	4,982.54	4,896.01	35.67	209.96	174.20	683.86	447.82	2,590.22	2,394.21	196.01	13.215	
5,900.00	5,544.61	5,074.51	4,985.81	35.99	214.15	174.24	700.26	459.01	2,629.44	2,427.59	201.85	13.027	
6,000.00	5,643.41	5,167.77	5,076.87	36.27	218.40	174.26	716.90	470.36	2,665.44	2,457.87	207.58	12.841	
6,100.00	5,742.68	5,262.21	5,169.09	36.50	222.70	174.28	733.75	481.85	2,698.19	2,485.02	213.17	12.657	
6,200.00	5,842.32	5,357.73	5,262.35	36.68	227.06	174.27	750.79	493.47	2,727.64	2,509.03	218.61	12.477	
6,300.00	5,942.18	5,454.20	5,356.54	36.81	231.46	174.26	768.00	505.21	2,753.76	2,529.87	223.88	12.300	
6,393.83	6,036.00	6,139.94	6,036.00	36.89	259.72	44.24	834.22	550.38	2,771.21	2,519.14	252.07	10.994	
6,400.00	6,042.17	6,146.11	6,042.17	36.90	259.92	44.24	834.22	550.38	2,771.21	2,518.92	252.29	10.984	
6,500.00	6,142.17	6,246.11	6,142.17	36.97	263.13	44.24	834.22	550.38	2,771.21	2,515.28	255.93	10.828	
6,600.00	6,242.17	6,346.11	6,242.17	37.04	266.36	44.24	834.22	550.38	2,771.21	2,511.63	259.58	10.676	
6,700.00	6,342.17	6,446.11	6,342.17	37.11	269.60	44.24	834.22	550.38	2,771.21	2,507.96	263.25	10.527	
6,800.00	6,442.17	6,546.11	6,442.17	37.19	272.87	44.24	834.22	550.38	2,771.21	2,504.27	266.94	10.381	
6,900.00	6,542.17	6,646.11	6,542.17	37.26	276.16	44.24	834.22	550.38	2,771.21	2,500.57	270.64	10.239	
7,000.00	6,642.17	6,746.11	6,642.17	37.34	279.47	44.24	834.22	550.38	2,771.21	2,496.85	274.36	10.101	
7,100.00	6,742.17	6,846.11	6,742.17	37.41	282.79	44.24	834.22	550.38	2,771.21	2,493.12	278.09	9.965	
7,200.00	6,842.17	6,946.11	6,842.17	37.49	286.13	44.24	834.22	550.38	2,771.21	2,489.38	281.83	9.833	
7,300.00	6,942.17	7,046.11	6,942.17	37.57	289.49	44.24	834.22	550.38	2,771.21	2,485.62	285.59	9.704	
7,400.00	7,042.17	7,146.11	7,042.17	37.65	292.86	44.24	834.22	550.38	2,771.21	2,481.85	289.36	9.577	
7,500.00	7,142.17	7,246.11	7,142.17	37.73	296.25	44.24	834.22	550.38	2,771.21	2,478.07	293.14	9.454	
7,600.00	7,242.17	7,346.11	7,242.17	37.82	299.66	44.24	834.22	550.38	2,771.21	2,474.28	296.93	9.333	
7,700.00	7,342.17	7,446.11	7,342.17	37.90	303.08	44.24	834.22	550.38	2,771.21	2,470.47	300.74	9.215	
7,800.00	7,442.17	7,546.11	7,442.17	37.99	306.51	44.24	834.22	550.38	2,771.21	2,466.66	304.55	9.099	
7,900.00	7,542.17	7,646.11	7,542.17	38.07	309.96	44.24	834.22	550.38	2,771.21	2,462.83	308.38	8.986	
8,000.00	7,642.17	7,746.11	7,642.17	38.16	313.42	44.24	834.22	550.38	2,771.21	2,459.00	312.21	8.876	
8,100.00	7,742.17	7,846.11	7,742.17	38.25	316.89	44.24	834.22	550.38	2,771.21	2,455.15	316.06	8.768	
8,200.00	7,842.17	7,946.11	7,842.17	38.34	320.38	44.24	834.22	550.38	2,771.21	2,451.30	319.91	8.662	
8,224.40	7,866.57	7,970.51	7,866.57	38.36	321.23	44.24	834.22	550.38	2,771.21	2,450.36	320.85	8.637	
8,238.83	7,881.00	7,980.94	7,877.00	38.38	321.59	44.24	834.22	550.38	2,771.21	2,449.95	321.26	8.626	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_CARMA 6 PAD - P_CARMA 5-36 - P_CARMA 5-36 - PLAN #1 12-16-09 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
0.00	0.00	0.00	0.00	0.00	0.00	-41.83	21.85	-19.56	29.33				
100.00	100.00	100.00	100.00	0.10	0.10	-41.83	21.85	-19.56	29.33	29.14	0.19	153.500	
200.00	200.00	200.00	200.00	0.32	0.32	-41.83	21.85	-19.56	29.33	28.69	0.64	45.781	
300.00	300.00	300.00	300.00	0.55	0.55	-41.83	21.85	-19.56	29.33	28.24	1.09	26.902	
400.00	400.00	400.00	400.00	0.77	0.77	-41.83	21.85	-19.56	29.33	27.79	1.54	19.047	
500.00	500.00	500.00	500.00	0.99	0.99	-41.83	21.85	-19.56	29.33	27.34	1.99	14.743	
600.00	600.00	600.00	600.00	1.22	1.22	-41.83	21.85	-19.56	29.33	26.89	2.44	12.025	
700.00	700.00	700.00	700.00	1.44	1.44	-41.83	21.85	-19.56	29.33	26.44	2.89	10.154	
800.00	800.00	800.00	800.00	1.67	1.67	-41.83	21.85	-19.56	29.33	25.99	3.34	8.786	
900.00	900.00	900.00	900.00	1.89	1.89	-41.83	21.85	-19.56	29.33	25.54	3.79	7.743 CC	
1,000.00	999.98	999.87	999.85	2.10	2.10	87.97	20.86	-20.99	29.48	25.29	4.19	7.032 ES	
1,100.00	1,099.84	1,099.75	1,099.58	2.28	2.29	88.04	17.89	-25.28	29.94	25.37	4.57	6.550	
1,200.00	1,199.45	1,199.62	1,199.07	2.49	2.50	88.16	12.94	-32.42	30.70	25.72	4.98	6.160	
1,300.00	1,298.70	1,299.48	1,298.19	2.72	2.73	88.31	6.01	-42.41	31.77	26.32	5.45	5.830	
1,400.00	1,397.47	1,399.34	1,396.82	2.99	3.00	88.49	-2.87	-55.23	33.14	27.16	5.98	5.537	
1,500.00	1,495.62	1,499.24	1,494.91	3.30	3.31	88.97	-13.62	-70.74	34.79	28.18	6.61	5.264	
1,600.00	1,593.06	1,599.17	1,592.89	3.67	3.65	93.59	-24.83	-86.92	36.59	29.27	7.32	4.998	
1,700.00	1,689.64	1,698.95	1,690.71	4.10	4.02	102.77	-36.03	-103.07	39.24	31.16	8.08	4.859 SF	
1,800.00	1,785.27	1,798.44	1,788.25	4.59	4.39	114.78	-47.19	-119.17	44.11	35.35	8.76	5.036	
1,900.00	1,879.82	1,897.52	1,885.39	5.15	4.78	127.12	-58.30	-135.21	52.57	43.30	9.27	5.668	
2,000.00	1,973.17	1,996.07	1,982.02	5.78	5.17	137.81	-69.36	-151.16	65.34	55.70	9.64	6.777	
2,100.00	2,065.21	2,093.98	2,078.01	6.49	5.57	146.16	-80.34	-167.01	82.51	72.56	9.95	8.296	
2,147.19	2,108.16	2,139.92	2,123.05	6.84	5.76	149.34	-85.50	-174.45	92.09	82.00	10.09	9.129	
2,200.00	2,156.05	2,191.24	2,173.36	7.25	5.97	152.41	-91.26	-182.76	103.46	93.18	10.29	10.059	
2,300.00	2,246.72	2,288.41	2,268.63	8.05	6.37	156.68	-102.16	-198.48	125.57	114.86	10.71	11.722	
2,400.00	2,337.39	2,385.58	2,363.89	8.85	6.78	159.66	-113.06	-214.21	148.15	136.96	11.19	13.241	
2,500.00	2,428.07	2,482.75	2,459.16	9.67	7.19	161.86	-123.96	-229.94	171.01	159.31	11.70	14.620	
2,600.00	2,518.74	2,579.92	2,554.43	10.50	7.60	163.54	-134.86	-245.67	194.05	181.83	12.23	15.870	
2,700.00	2,609.41	2,677.09	2,649.70	11.33	8.02	164.86	-145.76	-261.40	217.22	204.45	12.78	17.003	
2,800.00	2,700.08	2,774.26	2,744.96	12.17	8.43	165.93	-156.66	-277.13	240.48	227.14	13.34	18.033	
2,900.00	2,790.75	2,871.43	2,840.23	13.01	8.85	166.81	-167.56	-292.86	263.80	249.89	13.91	18.971	
3,000.00	2,881.43	2,968.60	2,935.50	13.86	9.27	167.54	-178.47	-308.58	287.17	272.69	14.48	19.828	
3,100.00	2,972.10	3,065.77	3,030.76	14.70	9.69	168.17	-189.37	-324.31	310.58	295.51	15.07	20.613	
3,200.00	3,062.77	3,162.94	3,126.03	15.56	10.11	168.70	-200.27	-340.04	334.02	318.36	15.66	21.334	
3,300.00	3,153.44	3,260.11	3,221.30	16.41	10.53	169.17	-211.17	-355.77	357.48	341.23	16.25	21.999	
3,400.00	3,244.12	3,357.28	3,316.56	17.26	10.96	169.58	-222.07	-371.50	380.96	364.11	16.85	22.613	
3,500.00	3,334.79	3,454.45	3,411.83	18.12	11.38	169.94	-232.97	-387.23	404.46	387.01	17.45	23.182	
3,600.00	3,425.46	3,551.62	3,507.10	18.97	11.80	170.27	-243.87	-402.96	427.97	409.92	18.05	23.710	
3,700.00	3,516.13	3,648.79	3,602.36	19.83	12.23	170.55	-254.77	-418.69	451.50	432.84	18.66	24.201	
3,800.00	3,606.80	3,745.96	3,697.63	20.69	12.65	170.81	-265.67	-434.41	475.03	455.77	19.26	24.660	
3,900.00	3,697.48	3,843.13	3,792.90	21.55	13.08	171.05	-276.58	-450.14	498.57	478.70	19.87	25.088	
4,000.00	3,788.15	3,940.30	3,888.16	22.41	13.51	171.27	-287.48	-465.87	522.12	501.64	20.48	25.490	
4,100.00	3,878.82	4,037.47	3,983.43	23.27	13.93	171.46	-298.38	-481.60	545.68	524.58	21.10	25.866	
4,200.00	3,969.49	4,134.64	4,078.70	24.14	14.36	171.64	-309.28	-497.33	569.24	547.53	21.71	26.220	
4,300.00	4,060.17	4,231.81	4,173.96	25.00	14.79	171.81	-320.18	-513.06	592.80	570.48	22.33	26.553	
4,400.00	4,150.84	4,328.98	4,269.23	25.86	15.21	171.96	-331.08	-528.79	616.37	593.43	22.94	26.868	
4,500.00	4,241.51	4,426.15	4,364.50	26.72	15.64	172.10	-341.98	-544.51	639.95	616.39	23.56	27.165	
4,600.00	4,332.18	4,523.32	4,459.76	27.59	16.07	172.23	-352.88	-560.24	663.53	639.35	24.18	27.445	
4,700.00	4,422.85	4,620.49	4,555.03	28.45	16.50	172.35	-363.79	-575.97	687.11	662.31	24.79	27.712	
4,800.00	4,513.53	4,717.66	4,650.30	29.32	16.93	172.47	-374.69	-591.70	710.69	685.27	25.41	27.964	
4,900.00	4,604.20	4,814.83	4,745.57	30.18	17.35	172.58	-385.59	-607.43	734.28	708.24	26.03	28.204	
5,000.00	4,694.87	4,912.00	4,840.83	31.04	17.78	172.68	-396.49	-623.16	757.86	731.21	26.66	28.432	

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_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_CARMA 6 PAD - P_CARMA 5-36 - P_CARMA 5-36 - PLAN #1 12-16-09 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
5,100.00	4,785.54	5,009.17	4,936.10	31.91	18.21	172.77	-407.39	-638.89	781.45	754.18	27.28	28.649	
5,146.65	4,827.84	5,054.49	4,980.54	32.31	18.41	172.81	-412.48	-646.22	792.46	764.89	27.57	28.747	
5,200.00	4,876.42	5,106.45	5,031.48	32.71	18.64	172.89	-418.30	-654.63	804.57	776.61	27.96	28.779	
5,300.00	4,968.55	5,204.40	5,127.51	33.32	19.07	172.99	-429.29	-670.49	824.66	796.02	28.65	28.787	
5,400.00	5,061.98	5,302.99	5,224.17	33.88	19.51	173.05	-440.35	-686.45	841.36	812.06	29.30	28.714	
5,500.00	5,156.60	5,402.10	5,321.34	34.40	19.95	173.07	-451.47	-702.49	854.63	824.71	29.92	28.568	
5,600.00	5,252.29	5,501.61	5,418.90	34.87	20.39	173.06	-462.64	-718.60	864.45	833.97	30.49	28.353	
5,700.00	5,348.93	5,587.62	5,503.29	35.29	20.73	173.03	-472.08	-732.22	871.30	840.34	30.97	28.136	
5,800.00	5,446.41	5,664.49	5,579.07	35.67	20.96	173.00	-479.43	-742.82	877.11	845.77	31.34	27.983	
5,900.00	5,544.61	5,741.30	5,655.10	35.99	21.16	172.98	-485.61	-751.74	882.08	850.42	31.66	27.863	
6,000.00	5,643.41	5,818.04	5,731.34	36.27	21.34	172.97	-490.63	-758.98	886.21	854.29	31.91	27.770	
6,100.00	5,742.68	5,900.00	5,812.98	36.50	21.50	172.96	-494.70	-764.86	889.51	857.39	32.12	27.698	
6,200.00	5,842.32	5,971.40	5,884.25	36.68	21.62	172.95	-497.16	-768.41	891.92	859.69	32.23	27.670	
6,300.00	5,942.18	6,048.04	5,960.84	36.81	21.73	172.95	-498.68	-770.60	893.51	861.20	32.31	27.656	
6,393.83	6,036.00	6,123.20	6,036.00	36.89	21.83	43.18	-499.05	-771.13	894.20	861.86	32.34	27.653	
6,400.00	6,042.17	6,129.37	6,042.17	36.90	21.84	43.18	-499.05	-771.13	894.20	861.85	32.36	27.636	
6,500.00	6,142.17	6,229.37	6,142.17	36.97	21.96	43.18	-499.05	-771.13	894.20	861.53	32.67	27.370	
6,600.00	6,242.17	6,329.37	6,242.17	37.04	22.08	43.18	-499.05	-771.13	894.20	861.22	32.99	27.108	
6,700.00	6,342.17	6,429.37	6,342.17	37.11	22.20	43.18	-499.05	-771.13	894.20	860.90	33.30	26.849	
6,800.00	6,442.17	6,529.37	6,442.17	37.19	22.32	43.18	-499.05	-771.13	894.20	860.58	33.63	26.593	
6,900.00	6,542.17	6,629.37	6,542.17	37.26	22.45	43.18	-499.05	-771.13	894.20	860.25	33.95	26.339	
7,000.00	6,642.17	6,729.37	6,642.17	37.34	22.57	43.18	-499.05	-771.13	894.20	859.93	34.28	26.088	
7,100.00	6,742.17	6,829.37	6,742.17	37.41	22.70	43.18	-499.05	-771.13	894.20	859.60	34.61	25.840	
7,200.00	6,842.17	6,929.37	6,842.17	37.49	22.83	43.18	-499.05	-771.13	894.20	859.26	34.94	25.595	
7,300.00	6,942.17	7,029.37	6,942.17	37.57	22.96	43.18	-499.05	-771.13	894.20	858.93	35.27	25.352	
7,400.00	7,042.17	7,129.37	7,042.17	37.65	23.09	43.18	-499.05	-771.13	894.20	858.59	35.61	25.112	
7,500.00	7,142.17	7,229.37	7,142.17	37.73	23.22	43.18	-499.05	-771.13	894.20	858.25	35.95	24.875	
7,600.00	7,242.17	7,329.37	7,242.17	37.82	23.36	43.18	-499.05	-771.13	894.20	857.91	36.29	24.641	
7,700.00	7,342.17	7,429.37	7,342.17	37.90	23.49	43.18	-499.05	-771.13	894.20	857.57	36.63	24.409	
7,800.00	7,442.17	7,529.37	7,442.17	37.99	23.63	43.18	-499.05	-771.13	894.20	857.22	36.98	24.181	
7,900.00	7,542.17	7,629.37	7,542.17	38.07	23.77	43.18	-499.05	-771.13	894.20	856.87	37.33	23.955	
8,000.00	7,642.17	7,729.37	7,642.17	38.16	23.91	43.18	-499.05	-771.13	894.20	856.52	37.68	23.732	
8,100.00	7,742.17	7,829.37	7,742.17	38.25	24.05	43.18	-499.05	-771.13	894.20	856.17	38.03	23.512	
8,200.00	7,842.17	7,929.37	7,842.17	38.34	24.19	43.18	-499.05	-771.13	894.20	855.82	38.39	23.295	
8,218.59	7,860.76	7,947.96	7,860.76	38.36	24.22	43.18	-499.05	-771.13	894.20	855.75	38.45	23.255	
8,238.83	7,881.00	7,954.20	7,867.00	38.38	24.22	43.18	-499.05	-771.13	894.31	855.81	38.50	23.230	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_CARMA 6 PAD - STATE OF COLROADO BB UNIT #1 EXISTING - STATE OF COLROADO BB												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												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
0.00	0.00	0.00	0.00	0.00	0.00	-150.95	-105.65	-58.67	122.66				
100.00	100.00	79.00	79.00	0.10	1.58	-150.95	-105.65	-58.67	120.85	119.17	1.68	72.124	
200.00	200.00	179.00	179.00	0.32	5.16	-150.95	-105.65	-58.67	120.85	115.37	5.48	22.052	
300.00	300.00	279.00	279.00	0.55	9.16	-150.95	-105.65	-58.67	120.85	111.14	9.71	12.452	
400.00	400.00	379.00	379.00	0.77	13.16	-150.95	-105.65	-58.67	120.85	106.92	13.93	8.676	
500.00	500.00	479.00	479.00	0.99	17.16	-150.95	-105.65	-58.67	120.85	102.69	18.15	6.657	
600.00	600.00	579.00	579.00	1.22	21.16	-150.95	-105.65	-58.67	120.85	98.47	22.38	5.400	
700.00	700.00	679.00	679.00	1.44	25.16	-150.95	-105.65	-58.67	120.85	94.24	26.60	4.542	
800.00	800.00	779.00	779.00	1.67	29.16	-150.95	-105.65	-58.67	120.85	90.02	30.83	3.920	
900.00	900.00	879.00	879.00	1.89	33.16	-150.95	-105.65	-58.67	120.85	85.80	35.05	3.448	
1,000.00	999.98	978.98	978.98	2.10	37.16	-21.50	-105.65	-58.67	119.22	79.99	39.23	3.039	
1,100.00	1,099.84	1,078.84	1,078.84	2.28	41.15	-22.50	-105.65	-58.67	114.37	71.02	43.35	2.639	
1,200.00	1,199.45	1,178.45	1,178.45	2.49	45.14	-24.36	-105.65	-58.67	106.37	58.96	47.40	2.244	
1,300.00	1,298.70	1,277.70	1,277.70	2.72	49.11	-27.48	-105.65	-58.67	95.39	43.98	51.40	1.856	
1,400.00	1,397.47	1,376.47	1,376.47	2.99	53.06	-32.67	-105.65	-58.67	81.79	26.41	55.39	1.477	Level 3
1,500.00	1,495.62	1,474.62	1,474.62	3.30	56.98	-41.72	-105.65	-58.67	66.45	6.98	59.47	1.117	Level 2
1,600.00	1,593.06	1,572.06	1,572.06	3.67	60.88	-58.50	-105.65	-58.67	51.65	-12.33	63.98	0.807	Level 1
1,700.00	1,689.64	1,668.64	1,668.64	4.10	64.75	-87.85	-105.65	-58.67	43.70	-25.21	68.91	0.634	Level 1
1,706.17	1,695.57	1,674.57	1,674.57	4.13	64.98	-90.00	-105.65	-58.67	43.67	-25.55	69.22	0.631	Level 1, CC, ES, SF
1,800.00	1,785.27	1,764.27	1,764.27	4.59	68.57	-120.94	-105.65	-58.67	51.63	-20.58	72.20	0.715	Level 1
1,900.00	1,879.82	1,858.82	1,858.82	5.15	72.35	-142.28	-105.65	-58.67	74.28	0.03	74.25	1.000	Level 2
2,000.00	1,973.17	1,952.17	1,952.17	5.78	76.09	-153.85	-105.65	-58.67	105.39	29.01	76.38	1.380	Level 3
2,100.00	2,065.21	2,044.21	2,044.21	6.49	79.77	-160.50	-105.65	-58.67	141.88	63.28	78.60	1.805	
2,147.19	2,108.16	2,087.16	2,087.16	6.84	81.49	-162.69	-105.65	-58.67	160.59	80.97	79.62	2.017	
2,200.00	2,156.05	2,135.05	2,135.05	7.25	83.40	-164.76	-105.65	-58.67	182.13	100.77	81.36	2.239	
2,300.00	2,246.72	2,225.72	2,225.72	8.05	87.03	-167.60	-105.65	-58.67	223.30	138.54	84.76	2.635	
2,400.00	2,337.39	2,316.39	2,316.39	8.85	90.66	-169.55	-105.65	-58.67	264.78	176.54	88.25	3.001	
2,500.00	2,428.07	2,407.07	2,407.07	9.67	94.28	-170.98	-105.65	-58.67	306.46	214.67	91.78	3.339	
2,600.00	2,518.74	2,497.74	2,497.74	10.50	97.91	-172.06	-105.65	-58.67	348.25	252.90	95.35	3.652	
2,700.00	2,609.41	2,588.41	2,588.41	11.33	101.54	-172.92	-105.65	-58.67	390.13	291.19	98.94	3.943	
2,800.00	2,700.08	2,679.08	2,679.08	12.17	105.16	-173.61	-105.65	-58.67	432.06	329.52	102.54	4.214	
2,900.00	2,790.75	2,769.75	2,769.75	13.01	108.79	-174.17	-105.65	-58.67	474.04	367.88	106.15	4.466	
3,000.00	2,881.43	2,860.43	2,860.43	13.86	112.42	-174.65	-105.65	-58.67	516.05	406.27	109.77	4.701	
3,100.00	2,972.10	2,951.10	2,951.10	14.70	116.04	-175.05	-105.65	-58.67	558.08	444.68	113.40	4.921	
3,200.00	3,062.77	3,041.77	3,041.77	15.56	119.67	-175.40	-105.65	-58.67	600.13	483.10	117.03	5.128	
3,300.00	3,153.44	3,132.44	3,132.44	16.41	123.30	-175.70	-105.65	-58.67	642.20	521.54	120.66	5.322	
3,400.00	3,244.12	3,223.12	3,223.12	17.26	126.92	-175.97	-105.65	-58.67	684.28	559.98	124.30	5.505	
3,500.00	3,334.79	3,313.79	3,313.79	18.12	130.55	-176.20	-105.65	-58.67	726.37	598.44	127.94	5.678	
3,600.00	3,425.46	3,404.46	3,404.46	18.97	134.18	-176.41	-105.65	-58.67	768.47	636.90	131.58	5.840	
3,700.00	3,516.13	3,495.13	3,495.13	19.83	137.81	-176.59	-105.65	-58.67	810.58	675.36	135.22	5.994	
3,800.00	3,606.80	3,585.80	3,585.80	20.69	141.43	-176.76	-105.65	-58.67	852.70	713.83	138.87	6.140	
3,900.00	3,697.48	3,676.48	3,676.48	21.55	145.06	-176.92	-105.65	-58.67	894.82	752.30	142.51	6.279	
4,000.00	3,788.15	3,767.15	3,767.15	22.41	148.69	-177.05	-105.65	-58.67	936.94	790.78	146.16	6.410	
4,100.00	3,878.82	3,857.82	3,857.82	23.27	152.31	-177.18	-105.65	-58.67	979.07	829.26	149.81	6.535	
4,200.00	3,969.49	3,948.49	3,948.49	24.14	155.94	-177.30	-105.65	-58.67	1,021.20	867.74	153.46	6.655	
4,300.00	4,060.17	4,039.17	4,039.17	25.00	159.57	-177.40	-105.65	-58.67	1,063.34	906.23	157.11	6.768	
4,400.00	4,150.84	4,129.84	4,129.84	25.86	163.19	-177.50	-105.65	-58.67	1,105.48	944.71	160.76	6.876	
4,500.00	4,241.51	4,220.51	4,220.51	26.72	166.82	-177.60	-105.65	-58.67	1,147.62	983.20	164.42	6.980	
4,600.00	4,332.18	4,311.18	4,311.18	27.59	170.45	-177.68	-105.65	-58.67	1,189.76	1,021.69	168.07	7.079	
4,700.00	4,422.85	4,401.85	4,401.85	28.45	174.07	-177.76	-105.65	-58.67	1,231.91	1,060.18	171.72	7.174	
4,800.00	4,513.53	4,492.53	4,492.53	29.32	177.70	-177.83	-105.65	-58.67	1,274.05	1,098.68	175.38	7.265	
4,900.00	4,604.20	4,583.20	4,583.20	30.18	181.33	-177.90	-105.65	-58.67	1,316.20	1,137.17	179.03	7.352	

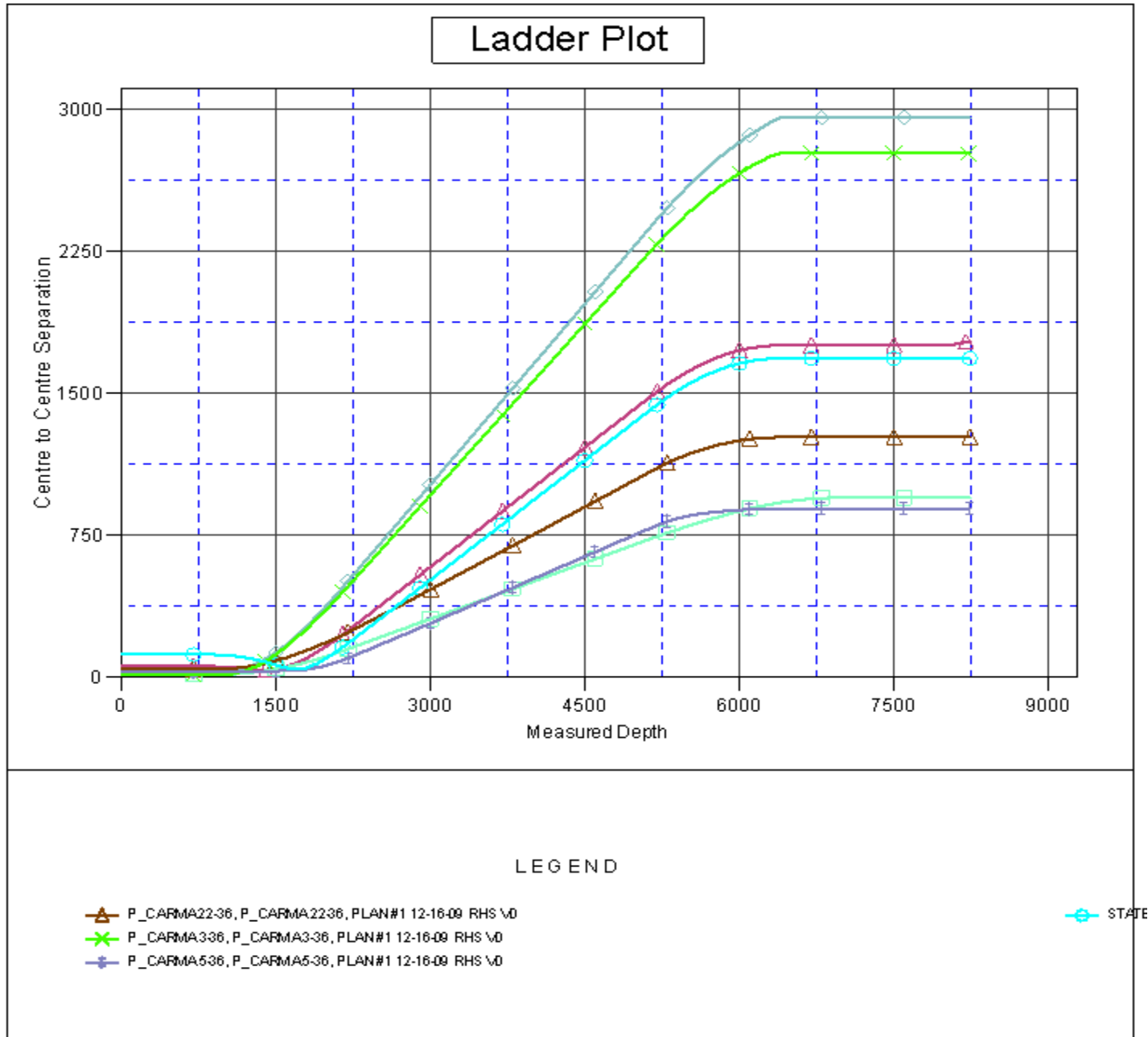
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_CARMA 6 PAD - STATE OF COLROADO BB UNIT #1 EXISTING - STATE OF COLROADO BB												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												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	4,694.87	4,673.87	4,673.87	31.04	184.95	-177.97	-105.65	-58.67	1,358.35	1,175.67	182.69	7.435	
5,100.00	4,785.54	4,764.54	4,764.54	31.91	188.58	-178.03	-105.65	-58.67	1,400.50	1,214.16	186.34	7.516	
5,146.65	4,827.84	4,806.84	4,806.84	32.31	190.27	-178.06	-105.65	-58.67	1,420.17	1,232.12	188.05	7.552	
5,200.00	4,876.42	4,855.42	4,855.42	32.71	192.22	-178.10	-105.65	-58.67	1,442.21	1,250.78	191.43	7.534	
5,300.00	4,968.55	4,947.55	4,947.55	33.32	195.90	-178.18	-105.65	-58.67	1,481.06	1,283.39	197.67	7.493	
5,400.00	5,061.98	5,040.98	5,040.98	33.88	199.64	-178.25	-105.65	-58.67	1,516.68	1,312.79	203.89	7.439	
5,500.00	5,156.60	5,135.60	5,135.60	34.40	203.42	-178.30	-105.65	-58.67	1,549.02	1,339.00	210.02	7.376	
5,600.00	5,252.29	5,231.29	5,231.29	34.87	207.25	-178.35	-105.65	-58.67	1,578.04	1,362.04	215.99	7.306	
5,700.00	5,348.93	5,327.93	5,327.93	35.29	211.12	-178.39	-105.65	-58.67	1,603.70	1,381.90	221.80	7.230	
5,800.00	5,446.41	5,425.41	5,425.41	35.67	215.02	-178.43	-105.65	-58.67	1,625.98	1,398.55	227.42	7.150	
5,900.00	5,544.61	5,523.61	5,523.61	35.99	218.94	-178.46	-105.65	-58.67	1,644.84	1,412.00	232.84	7.064	
6,000.00	5,643.41	5,622.41	5,622.41	36.27	222.90	-178.48	-105.65	-58.67	1,660.26	1,422.24	238.02	6.975	
6,100.00	5,742.68	5,721.68	5,721.68	36.50	226.87	-178.50	-105.65	-58.67	1,672.23	1,429.27	242.96	6.883	
6,200.00	5,842.32	5,821.32	5,821.32	36.68	230.85	-178.51	-105.65	-58.67	1,680.73	1,433.11	247.62	6.787	
6,300.00	5,942.18	5,921.18	5,921.18	36.81	234.85	-178.51	-105.65	-58.67	1,685.74	1,433.75	252.00	6.690	
6,393.83	6,036.00	6,015.00	6,015.00	36.89	238.60	51.71	-105.65	-58.67	1,687.28	1,431.45	255.83	6.595	
6,400.00	6,042.17	6,021.17	6,021.17	36.90	238.85	51.71	-105.65	-58.67	1,687.28	1,431.19	256.09	6.589	
6,500.00	6,142.17	6,121.17	6,121.17	36.97	242.85	51.71	-105.65	-58.67	1,687.28	1,427.05	260.23	6.484	
6,600.00	6,242.17	6,221.17	6,221.17	37.04	246.85	51.71	-105.65	-58.67	1,687.28	1,422.91	264.37	6.382	
6,700.00	6,342.17	6,321.17	6,321.17	37.11	250.85	51.71	-105.65	-58.67	1,687.28	1,418.76	268.52	6.284	
6,800.00	6,442.17	6,421.17	6,421.17	37.19	254.85	51.71	-105.65	-58.67	1,687.28	1,414.62	272.66	6.188	
6,900.00	6,542.17	6,521.17	6,521.17	37.26	258.85	51.71	-105.65	-58.67	1,687.28	1,410.47	276.81	6.095	
7,000.00	6,642.17	6,621.17	6,621.17	37.34	262.85	51.71	-105.65	-58.67	1,687.28	1,406.32	280.96	6.005	
7,100.00	6,742.17	6,721.17	6,721.17	37.41	266.85	51.71	-105.65	-58.67	1,687.28	1,402.17	285.11	5.918	
7,200.00	6,842.17	6,821.17	6,821.17	37.49	270.85	51.71	-105.65	-58.67	1,687.28	1,398.02	289.26	5.833	
7,300.00	6,942.17	6,921.17	6,921.17	37.57	274.85	51.71	-105.65	-58.67	1,687.28	1,393.86	293.42	5.750	
7,400.00	7,042.17	7,021.17	7,021.17	37.65	278.85	51.71	-105.65	-58.67	1,687.28	1,389.71	297.57	5.670	
7,500.00	7,142.17	7,121.17	7,121.17	37.73	282.85	51.71	-105.65	-58.67	1,687.28	1,385.55	301.73	5.592	
7,600.00	7,242.17	7,221.17	7,221.17	37.82	286.85	51.71	-105.65	-58.67	1,687.28	1,381.39	305.89	5.516	
7,700.00	7,342.17	7,321.17	7,321.17	37.90	290.85	51.71	-105.65	-58.67	1,687.28	1,377.23	310.05	5.442	
7,800.00	7,442.17	7,421.17	7,421.17	37.99	294.85	51.71	-105.65	-58.67	1,687.28	1,373.07	314.21	5.370	
7,900.00	7,542.17	7,521.17	7,521.17	38.07	298.85	51.71	-105.65	-58.67	1,687.28	1,368.91	318.37	5.300	
8,000.00	7,642.17	7,621.17	7,621.17	38.16	302.85	51.71	-105.65	-58.67	1,687.28	1,364.74	322.54	5.231	
8,100.00	7,742.17	7,721.17	7,721.17	38.25	306.85	51.71	-105.65	-58.67	1,687.28	1,360.58	326.70	5.165	
8,200.00	7,842.17	7,821.17	7,821.17	38.34	310.85	51.71	-105.65	-58.67	1,687.28	1,356.41	330.87	5.100	
8,238.83	7,881.00	7,860.00	7,860.00	38.38	312.40	51.71	-105.65	-58.67	1,687.28	1,354.79	332.49	5.075	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

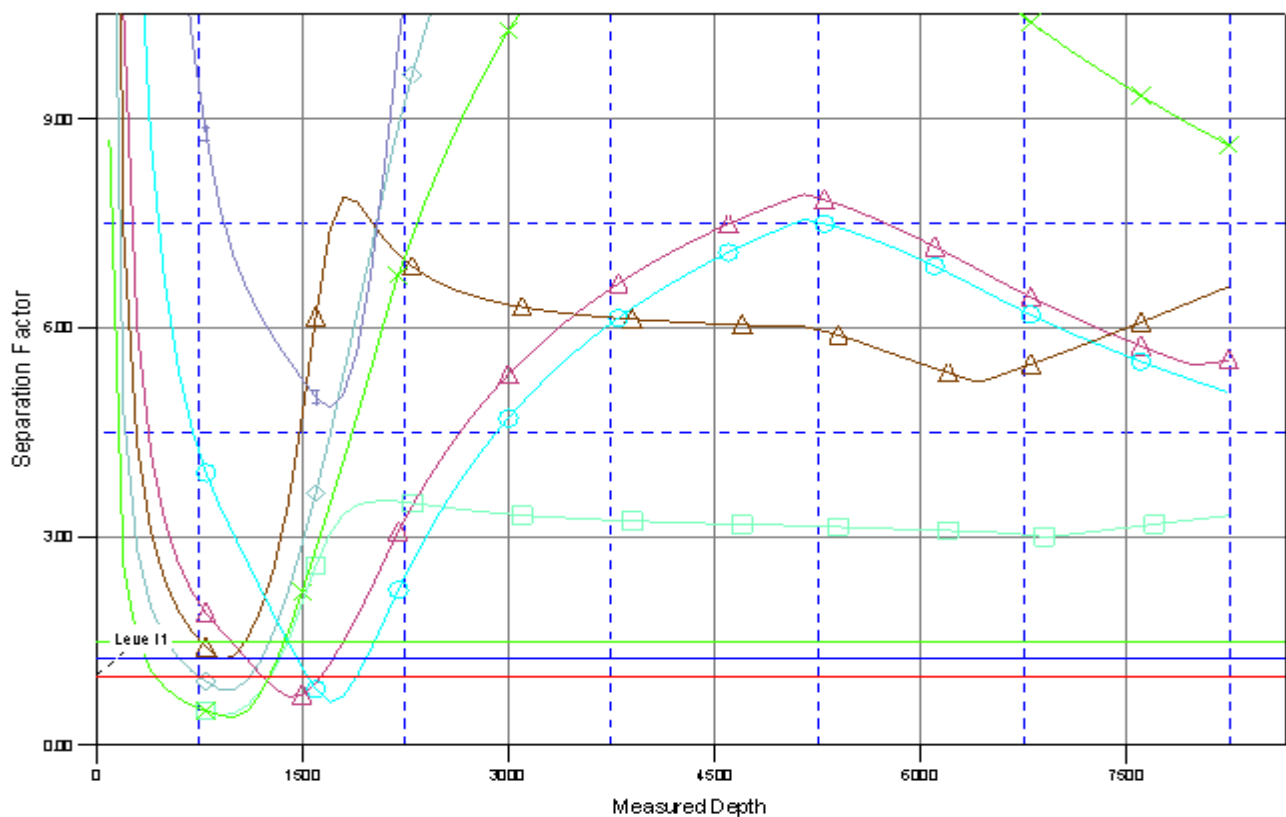
Reference Depths are relative to WELL @ 4879.00ft (Original Well Elev) Coordinates are relative to: P_CARMA 32-36
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.35°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_CARMA 32-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4879.00ft (Original Well Elev)
Reference Site:	WELD_CARMA 6 PAD	MD Reference:	WELL @ 4879.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_CARMA 32-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_CARMA 32-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 12-16-09 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4879.00ft (Original Well Elev) Coordinates are relative to: P_CARMA 32-36
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: 0.35°

Separation Factor Plot



LEGEND

- ▲ P_CARMA22-36, P_CARMA22-36, PLAN#1 12-16-09 RHS \0
- ✕ P_CARMA33-36, P_CARMA33-36, PLAN#1 12-16-09 RHS \0
- ◆ P_CARMA53-36, P_CARMA53-36, PLAN#1 12-16-09 RHS \0

○ STATE