



# **US ROCKIES REGION PLANNING**

**COLORADO NOTHERN ZONE - 83**

**WELD\_CARMA 6 PAD**

**P\_CARMA 3-36**

**P\_CARMA 3-36**

**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 3-36

+N/-S	+E/-W	Northing	Ground Level: Easting	4864.00 Latitude	Longitude	Slot
0.00	0.00	1310989.29	3152107.56	40° 11' 8.808 N	104° 57' 20.052 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	
1523.56	12.47	34.30	1518.65	55.84	38.09	2.00	34.30	67.60	
5512.38	12.47	34.30	5413.35	767.46	523.47	0.00	0.00	928.98	
6135.94	0.00	0.00	6032.00	823.30	561.56	2.00	180.00	996.58	
7980.94	0.00	0.00	7877.00	823.30	561.56	0.00	0.00	996.58	PBHL_CARMA 3-36(660 FNL 1980 FWL)50°RAD

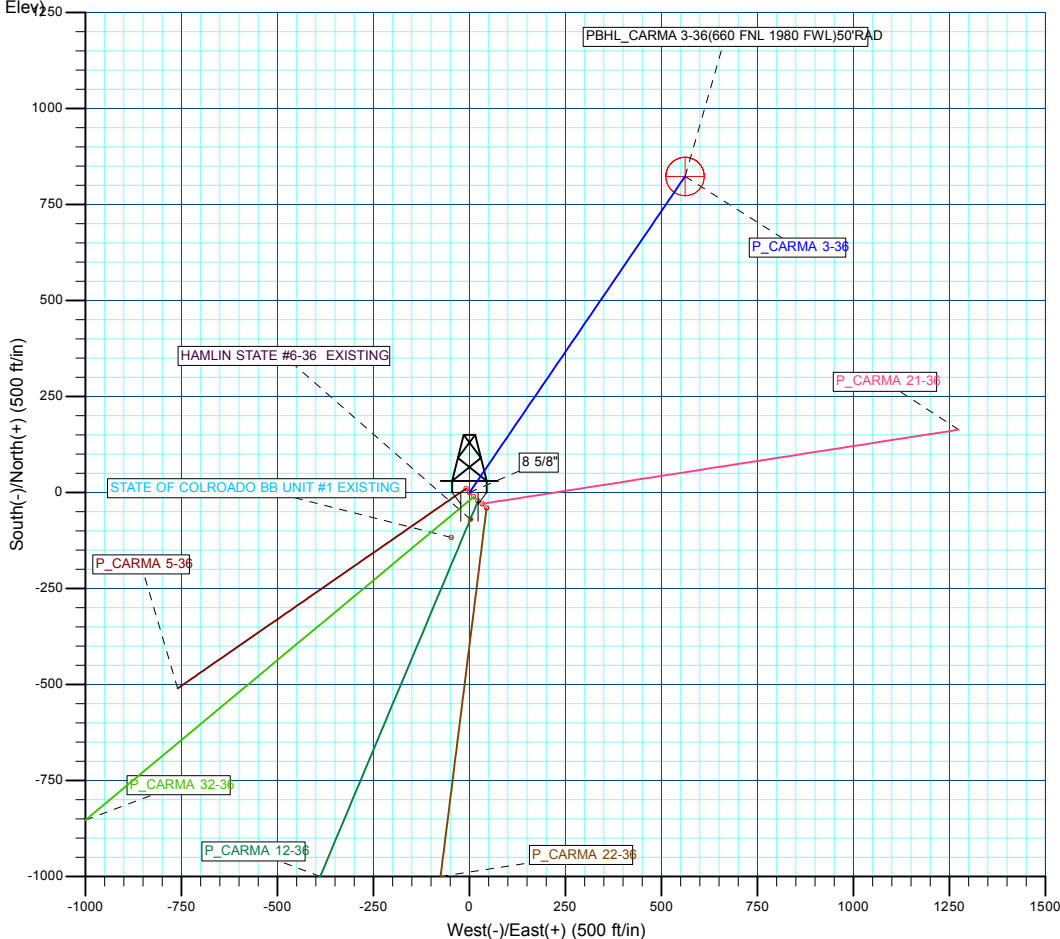
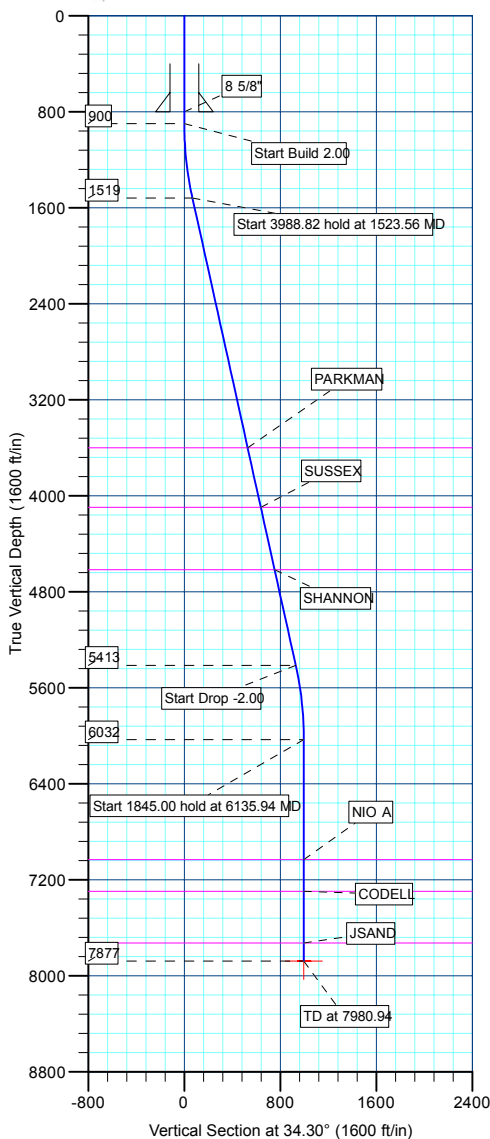
#### CASING DETAILS

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

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3601.00	3656.23	PARKMAN
4096.00	4163.20	SUSSEX
4616.00	4695.76	SHANNON
7032.00	7135.94	NIO A
7297.00	7400.94	CODELL
7727.00	7830.94	JSAND

KB ELEV: WELL @ 4879.00ft (Original Well Elev)  
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	7877.00	823.30	561.56	1311816.02	3152664.05	40° 11' 16.944 N	104° 57' 12.816 W	Circle (Radius: 50.00)

Plan: PLAN #1 12-16-09 RHS (P\_CARMA 3-36/P\_CARMA 3-36)

Created By: Robert H. Scott

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site:</b>	WELD_CARMA 6 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_CARMA 3-36		
<b>Design:</b>	PLAN #1 12-16-09 RHS		

<b>Project</b>	COLORADO NOTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 3-36					
Well Position	+N/-S	21.84 ft	Northing:	1,310,989.29 ft	Latitude:	40° 11' 8.808 N
	+E/-W	-22.35 ft	Easting:	3,152,107.56 ft	Longitude:	104° 57' 20.052 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,864.00 ft

<b>Wellbore</b>	P_CARMA 3-36				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	12/16/2009	9.11	66.90	53,175

<b>Design</b>	PLAN #1 12-16-09 RHS			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	34.30

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	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	
1,523.56	12.47	34.30	1,518.65	55.84	38.09	2.00	2.00	0.00	34.30	
5,512.38	12.47	34.30	5,413.35	767.46	523.47	0.00	0.00	0.00	0.00	
6,135.94	0.00	0.00	6,032.00	823.30	561.56	2.00	-2.00	0.00	180.00	
7,980.94	0.00	0.00	7,877.00	823.30	561.56	0.00	0.00	0.00	0.00	PBHL_CARMA 3-36

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site:</b>	WELD_CARMA 6 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_CARMA 3-36		
<b>Design:</b>	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)
<b>Start Build 2.00</b>									
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	34.30	999.98	1.44	0.98	1.75	2.00	2.00	0.00
1,100.00	4.00	34.30	1,099.84	5.77	3.93	6.98	2.00	2.00	0.00
1,200.00	6.00	34.30	1,199.45	12.96	8.84	15.69	2.00	2.00	0.00
1,300.00	8.00	34.30	1,298.70	23.03	15.71	27.88	2.00	2.00	0.00
1,400.00	10.00	34.30	1,397.47	35.96	24.52	43.52	2.00	2.00	0.00
1,500.00	12.00	34.30	1,495.62	51.72	35.28	62.60	2.00	2.00	0.00
<b>Start 3988.82 hold at 1523.56 MD</b>									
1,523.56	12.47	34.30	1,518.65	55.84	38.09	67.60	2.00	2.00	0.00
1,600.00	12.47	34.30	1,593.28	69.48	47.39	84.10	0.00	0.00	0.00
1,700.00	12.47	34.30	1,690.92	87.32	59.56	105.70	0.00	0.00	0.00
1,800.00	12.47	34.30	1,788.57	105.16	71.73	127.29	0.00	0.00	0.00
1,900.00	12.47	34.30	1,886.21	123.00	83.90	148.89	0.00	0.00	0.00
2,000.00	12.47	34.30	1,983.85	140.84	96.06	170.48	0.00	0.00	0.00
2,100.00	12.47	34.30	2,081.49	158.68	108.23	192.08	0.00	0.00	0.00
2,200.00	12.47	34.30	2,179.13	176.52	120.40	213.67	0.00	0.00	0.00
2,300.00	12.47	34.30	2,276.77	194.36	132.57	235.27	0.00	0.00	0.00
2,400.00	12.47	34.30	2,374.41	212.20	144.74	256.86	0.00	0.00	0.00
2,500.00	12.47	34.30	2,472.05	230.04	156.91	278.46	0.00	0.00	0.00
2,600.00	12.47	34.30	2,569.69	247.88	169.08	300.05	0.00	0.00	0.00
2,700.00	12.47	34.30	2,667.33	265.72	181.24	321.65	0.00	0.00	0.00
2,800.00	12.47	34.30	2,764.97	283.56	193.41	343.24	0.00	0.00	0.00
2,900.00	12.47	34.30	2,862.61	301.40	205.58	364.84	0.00	0.00	0.00
3,000.00	12.47	34.30	2,960.25	319.24	217.75	386.43	0.00	0.00	0.00
3,100.00	12.47	34.30	3,057.89	337.08	229.92	408.03	0.00	0.00	0.00
3,200.00	12.47	34.30	3,155.53	354.92	242.09	429.62	0.00	0.00	0.00
3,300.00	12.47	34.30	3,253.17	372.76	254.25	451.22	0.00	0.00	0.00
3,400.00	12.47	34.30	3,350.81	390.60	266.42	472.81	0.00	0.00	0.00
3,500.00	12.47	34.30	3,448.45	408.44	278.59	494.41	0.00	0.00	0.00
3,600.00	12.47	34.30	3,546.09	426.28	290.76	516.00	0.00	0.00	0.00
<b>PARKMAN</b>									
3,656.23	12.47	34.30	3,601.00	436.32	297.60	528.15	0.00	0.00	0.00
3,700.00	12.47	34.30	3,643.73	444.12	302.93	537.60	0.00	0.00	0.00
3,800.00	12.47	34.30	3,741.37	461.96	315.10	559.19	0.00	0.00	0.00
3,900.00	12.47	34.30	3,839.01	479.80	327.27	580.79	0.00	0.00	0.00
4,000.00	12.47	34.30	3,936.65	497.64	339.43	602.38	0.00	0.00	0.00
4,100.00	12.47	34.30	4,034.30	515.48	351.60	623.98	0.00	0.00	0.00
<b>SUSSEX</b>									
4,163.20	12.47	34.30	4,096.00	526.76	359.29	637.63	0.00	0.00	0.00
4,200.00	12.47	34.30	4,131.94	533.32	363.77	645.57	0.00	0.00	0.00
4,300.00	12.47	34.30	4,229.58	551.16	375.94	667.17	0.00	0.00	0.00
4,400.00	12.47	34.30	4,327.22	569.00	388.11	688.76	0.00	0.00	0.00
4,500.00	12.47	34.30	4,424.86	586.85	400.28	710.36	0.00	0.00	0.00
4,600.00	12.47	34.30	4,522.50	604.69	412.44	731.95	0.00	0.00	0.00
<b>SHANNON</b>									
4,695.76	12.47	34.30	4,616.00	621.77	424.10	752.63	0.00	0.00	0.00
4,700.00	12.47	34.30	4,620.14	622.53	424.61	753.55	0.00	0.00	0.00
4,800.00	12.47	34.30	4,717.78	640.37	436.78	775.14	0.00	0.00	0.00
4,900.00	12.47	34.30	4,815.42	658.21	448.95	796.74	0.00	0.00	0.00
5,000.00	12.47	34.30	4,913.06	676.05	461.12	818.33	0.00	0.00	0.00
5,100.00	12.47	34.30	5,010.70	693.89	473.29	839.93	0.00	0.00	0.00
5,200.00	12.47	34.30	5,108.34	711.73	485.46	861.52	0.00	0.00	0.00

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site:</b>	WELD_CARMA 6 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_CARMA 3-36		
<b>Design:</b>	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)
5,300.00	12.47	34.30	5,205.98	729.57	497.62	883.12	0.00	0.00	0.00
5,400.00	12.47	34.30	5,303.62	747.41	509.79	904.71	0.00	0.00	0.00
5,500.00	12.47	34.30	5,401.26	765.25	521.96	926.31	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,512.38	12.47	34.30	5,413.35	767.46	523.47	928.98	0.00	0.00	0.00
5,600.00	10.72	34.30	5,499.18	782.00	533.39	946.59	2.00	-2.00	0.00
5,700.00	8.72	34.30	5,597.74	795.95	542.90	963.47	2.00	-2.00	0.00
5,800.00	6.72	34.30	5,696.83	807.04	550.47	976.90	2.00	-2.00	0.00
5,900.00	4.72	34.30	5,796.32	815.28	556.09	986.87	2.00	-2.00	0.00
6,000.00	2.72	34.30	5,896.11	820.63	559.74	993.35	2.00	-2.00	0.00
6,100.00	0.72	34.30	5,996.06	823.11	561.43	996.35	2.00	-2.00	0.00
<b>Start 1845.00 hold at 6135.94 MD</b>									
6,135.94	0.00	0.00	6,032.00	823.30	561.56	996.58	2.00	-2.00	0.00
6,200.00	0.00	0.00	6,096.06	823.30	561.56	996.58	0.00	0.00	0.00
6,300.00	0.00	0.00	6,196.06	823.30	561.56	996.58	0.00	0.00	0.00
6,400.00	0.00	0.00	6,296.06	823.30	561.56	996.58	0.00	0.00	0.00
6,500.00	0.00	0.00	6,396.06	823.30	561.56	996.58	0.00	0.00	0.00
6,600.00	0.00	0.00	6,496.06	823.30	561.56	996.58	0.00	0.00	0.00
6,700.00	0.00	0.00	6,596.06	823.30	561.56	996.58	0.00	0.00	0.00
6,800.00	0.00	0.00	6,696.06	823.30	561.56	996.58	0.00	0.00	0.00
6,900.00	0.00	0.00	6,796.06	823.30	561.56	996.58	0.00	0.00	0.00
7,000.00	0.00	0.00	6,896.06	823.30	561.56	996.58	0.00	0.00	0.00
7,100.00	0.00	0.00	6,996.06	823.30	561.56	996.58	0.00	0.00	0.00
<b>NIO A</b>									
7,135.94	0.00	0.00	7,032.00	823.30	561.56	996.58	0.00	0.00	0.00
7,200.00	0.00	0.00	7,096.06	823.30	561.56	996.58	0.00	0.00	0.00
7,300.00	0.00	0.00	7,196.06	823.30	561.56	996.58	0.00	0.00	0.00
7,400.00	0.00	0.00	7,296.06	823.30	561.56	996.58	0.00	0.00	0.00
<b>CODELL</b>									
7,400.94	0.00	0.00	7,297.00	823.30	561.56	996.58	0.00	0.00	0.00
7,500.00	0.00	0.00	7,396.06	823.30	561.56	996.58	0.00	0.00	0.00
7,600.00	0.00	0.00	7,496.06	823.30	561.56	996.58	0.00	0.00	0.00
7,700.00	0.00	0.00	7,596.06	823.30	561.56	996.58	0.00	0.00	0.00
7,800.00	0.00	0.00	7,696.06	823.30	561.56	996.58	0.00	0.00	0.00
<b>JSAND</b>									
7,830.94	0.00	0.00	7,727.00	823.30	561.56	996.58	0.00	0.00	0.00
7,900.00	0.00	0.00	7,796.06	823.30	561.56	996.58	0.00	0.00	0.00
<b>PBHL_CARMA 3-36(660 FNL 1980 FWL)50'RAD</b>									
7,980.94	0.00	0.00	7,877.00	823.30	561.56	996.58	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 3-36(660 FNL 1980 FWL)50'RAD	0.00	0.00	7,877.00	823.30	561.56	1,311,816.02	3,152,664.05	40° 11' 16.944 N	104° 57' 12.816 W
- plan hits target center									
- Circle (radius 50.00)									

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site:</b>	WELD_CARMA 6 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_CARMA 3-36		
<b>Design:</b>	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 (°)	
3,656.23	3,601.00	PARKMAN				
4,163.20	4,096.00	SUSSEX				
4,695.76	4,616.00	SHANNON				
7,135.94	7,032.00	NIO A				
7,400.94	7,297.00	CODELL				
7,830.94	7,727.00	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	
1,523.56	1,518.65	55.84	38.09	Start 3988.82 hold at 1523.56 MD	
5,512.38	5,413.35	767.46	523.47	Start Drop -2.00	
6,135.94	6,032.00	823.30	561.56	Start 1845.00 hold at 6135.94 MD	
7,980.94	7,877.00	823.30	561.56	TD at 7980.94	



# **US ROCKIES REGION PLANNING**

**COLORADO NOTHERN ZONE - 83  
WELD\_CARMA 6 PAD  
P\_CARMA 3-36**

**P\_CARMA 3-36  
PLAN #1 12-16-09 RHS**

## **Anticollision Report**

**16 December, 2009**



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	PLAN #1 12-16-09 RHS		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	0.00 to 20,000.00ft	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.00ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b> 12/16/2009			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	7,980.94	PLAN #1 12-16-09 RHS (P_CARMA 3-36)	UNKNOWN	Unknown survey

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (ft)</b>	<b>Offset Measured Depth (ft)</b>	<b>Distance Between Centres (ft)</b>	<b>Distance Between Ellipses (ft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
WELD_CARMA 6 PAD						
HAMLIN STATE #6-36 EXISTING - HAMLIN STATE #6-	900.00	881.00	69.27	2.33	1.035	Level 2, CC
HAMLIN STATE #6-36 EXISTING - HAMLIN STATE #6-	1,100.00	1,080.84	74.99	-6.91	0.916	Level 1, ES, SF
P_CARMA 12-36 - P_CARMA 12-36 - PLAN #1 12-16-09	900.00	900.00	31.25	-36.15	0.464	Level 1, CC
P_CARMA 12-36 - P_CARMA 12-36 - PLAN #1 12-16-09	1,000.00	999.48	32.37	-38.86	0.454	Level 1, ES, SF
P_CARMA 21-36 - P_CARMA 21-36 - PLAN #1 12-16-09	900.00	900.00	44.42	-22.98	0.659	Level 1, CC
P_CARMA 21-36 - P_CARMA 21-36 - PLAN #1 12-16-09	1,000.00	998.99	45.74	-27.67	0.623	Level 1, SF
P_CARMA 21-36 - P_CARMA 21-36 - PLAN #1 12-16-09	1,100.00	1,097.87	49.71	-28.17	0.638	Level 1, ES
P_CARMA 22-36 - P_CARMA 22-36 - PLAN #1 12-16-09	900.00	900.00	60.03	-7.37	0.891	Level 1, CC
P_CARMA 22-36 - P_CARMA 22-36 - PLAN #1 12-16-09	1,000.00	998.71	61.33	-9.76	0.863	Level 1, ES, SF
P_CARMA 32-36 - P_CARMA 32-36 - PLAN #1 12-16-09	900.00	900.00	15.63	-19.97	0.439	Level 1, CC
P_CARMA 32-36 - P_CARMA 32-36 - PLAN #1 12-16-09	1,000.00	999.94	16.13	-23.33	0.409	Level 1, ES, SF
P_CARMA 5-36 - P_CARMA 5-36 - PLAN #1 12-16-09 R	973.51	973.44	13.65	-24.79	0.355	Level 1, CC
P_CARMA 5-36 - P_CARMA 5-36 - PLAN #1 12-16-09 R	1,000.00	999.86	13.74	-25.73	0.348	Level 1, ES, SF
STATE OF COLROADO BB UNIT #1 EXISTING - STATI	900.00	879.00	125.88	59.02	1.883	CC
STATE OF COLROADO BB UNIT #1 EXISTING - STATI	1,100.00	1,078.84	132.71	50.94	1.623	ES
STATE OF COLROADO BB UNIT #1 EXISTING - STATI	1,200.00	1,178.45	141.26	52.23	1.587	SF

<b>Offset Design</b>	WELD_CARMA 6 PAD - HAMLIN STATE #6-36 EXISTING - HAMLIN STATE #6-36 EXISTING - HAML											<b>Offset Site Error:</b>	0.00 ft
<b>Survey Program:</b>	0-UNKNOWN											<b>Offset Well Error:</b>	0.00 ft
<b>Reference</b>	<b>Offset</b>	<b>Semi Major Axis</b>	<b>Distance</b>										
<b>Measured Depth (ft)</b>	<b>Vertical Depth (ft)</b>	<b>Measured Depth (ft)</b>	<b>Vertical Depth (ft)</b>	<b>Reference (ft)</b>	<b>Offset (ft)</b>	<b>Highside Toolface (°)</b>	<b>Offset Wellbore Centre +N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Between Centres (ft)</b>	<b>Between Ellipses (ft)</b>	<b>Minimum Separation (ft)</b>	<b>Separation Factor</b>	<b>Warning</b>
0.00	0.00	0.00	0.00	0.00	0.00	177.69	-69.22	2.79	71.83				
100.00	100.00	81.00	81.00	1.70	1.62	177.69	-69.22	2.79	69.27	65.95	3.32	20.866	
200.00	200.00	181.00	181.00	5.70	5.24	177.69	-69.22	2.79	69.27	58.33	10.94	6.332	
300.00	300.00	281.00	281.00	9.70	9.24	177.69	-69.22	2.79	69.27	50.33	18.94	3.658	
400.00	400.00	381.00	381.00	13.70	13.24	177.69	-69.22	2.79	69.27	42.33	26.94	2.571	
500.00	500.00	481.00	481.00	17.70	17.24	177.69	-69.22	2.79	69.27	34.33	34.94	1.983	
600.00	600.00	581.00	581.00	21.70	21.24	177.69	-69.22	2.79	69.27	26.33	42.94	1.613	
700.00	700.00	681.00	681.00	25.70	25.24	177.69	-69.22	2.79	69.27	18.33	50.94	1.360	Level 3
800.00	800.00	781.00	781.00	29.70	29.24	177.69	-69.22	2.79	69.27	10.33	58.94	1.175	Level 2
900.00	900.00	881.00	881.00	33.70	33.24	177.69	-69.22	2.79	69.27	2.33	66.94	1.035	Level 2, CC
1,000.00	999.98	980.98	980.98	37.37	37.24	144.22	-69.22	2.79	70.68	-3.90	74.58	0.948	Level 1
1,100.00	1,099.84	1,080.84	1,080.84	40.80	41.23	146.51	-69.22	2.79	74.99	-6.91	81.90	0.916	Level 1, ES, SF

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



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> WELD_CARMA 6 PAD - HAMLIN STATE #6-36 EXISTING - HAMLIN STATE #6-36 EXISTING - HAML												<b>Offset Site Error:</b>	0.00 ft
<b>Survey Program:</b> 0-UNKNOWN												<b>Offset Well Error:</b>	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	
1,200.00	1,199.45	1,180.45	1,180.45	44.35	45.22	149.78	-69.22	2.79	82.41	-6.81	89.22	0.924	Level 1
1,300.00	1,298.70	1,279.70	1,279.70	48.01	49.19	153.45	-69.22	2.79	93.15	-3.31	96.46	0.966	Level 1
1,400.00	1,397.47	1,378.47	1,378.47	51.78	53.14	157.06	-69.22	2.79	107.39	3.81	103.58	1.037	Level 2
1,500.00	1,495.62	1,476.62	1,476.62	55.67	57.06	160.34	-69.22	2.79	125.22	14.68	110.54	1.133	Level 2
1,523.56	1,518.65	1,499.65	1,499.65	56.61	57.99	161.05	-69.22	2.79	129.95	17.79	112.16	1.159	Level 2
1,600.00	1,593.28	1,574.28	1,574.28	59.68	60.97	163.15	-69.22	2.79	145.69	27.79	117.90	1.236	Level 2
1,700.00	1,690.92	1,671.92	1,671.92	63.77	64.88	165.30	-69.22	2.79	166.51	41.05	125.46	1.327	Level 3
1,800.00	1,788.57	1,769.57	1,769.57	67.93	68.78	166.98	-69.22	2.79	187.51	54.45	133.06	1.409	Level 3
1,900.00	1,886.21	1,867.21	1,867.21	72.13	72.69	168.31	-69.22	2.79	208.63	67.95	140.68	1.483	Level 3
2,000.00	1,983.85	1,964.85	1,964.85	76.39	76.59	169.40	-69.22	2.79	229.83	81.51	148.32	1.550	
2,100.00	2,081.49	2,062.49	2,062.49	80.68	80.50	170.31	-69.22	2.79	251.11	95.13	155.98	1.610	
2,200.00	2,179.13	2,160.13	2,160.13	85.00	84.41	171.07	-69.22	2.79	272.43	108.77	163.66	1.665	
2,300.00	2,276.77	2,257.77	2,257.77	89.35	88.31	171.72	-69.22	2.79	293.80	122.45	171.35	1.715	
2,400.00	2,374.41	2,355.41	2,355.41	93.72	92.22	172.29	-69.22	2.79	315.19	136.14	179.05	1.760	
2,500.00	2,472.05	2,453.05	2,453.05	98.11	96.12	172.78	-69.22	2.79	336.61	149.85	186.76	1.802	
2,600.00	2,569.69	2,550.69	2,550.69	102.52	100.03	173.22	-69.22	2.79	358.05	163.57	194.48	1.841	
2,700.00	2,667.33	2,648.33	2,648.33	106.95	103.93	173.60	-69.22	2.79	379.51	177.30	202.21	1.877	
2,800.00	2,764.97	2,745.97	2,745.97	111.39	107.84	173.94	-69.22	2.79	400.99	191.04	209.94	1.910	
2,900.00	2,862.61	2,843.61	2,843.61	115.84	111.74	174.25	-69.22	2.79	422.47	204.79	217.68	1.941	
3,000.00	2,960.25	2,941.25	2,941.25	120.31	115.65	174.53	-69.22	2.79	443.97	218.54	225.43	1.969	
3,100.00	3,057.89	3,038.89	3,038.89	124.78	119.56	174.79	-69.22	2.79	465.47	232.30	233.18	1.996	
3,200.00	3,155.53	3,136.53	3,136.53	129.26	123.46	175.02	-69.22	2.79	486.99	246.06	240.93	2.021	
3,300.00	3,253.17	3,234.17	3,234.17	133.75	127.37	175.23	-69.22	2.79	508.51	259.82	248.69	2.045	
3,400.00	3,350.81	3,331.81	3,331.81	138.24	131.27	175.42	-69.22	2.79	530.03	273.59	256.45	2.067	
3,500.00	3,448.45	3,429.45	3,429.45	142.74	135.18	175.60	-69.22	2.79	551.57	287.35	264.21	2.088	
3,600.00	3,546.09	3,527.09	3,527.09	147.25	139.08	175.77	-69.22	2.79	573.10	301.12	271.98	2.107	
3,700.00	3,643.73	3,624.73	3,624.73	151.77	142.99	175.92	-69.22	2.79	594.64	314.89	279.75	2.126	
3,800.00	3,741.37	3,722.37	3,722.37	156.28	146.89	176.06	-69.22	2.79	616.19	328.67	287.52	2.143	
3,900.00	3,839.01	3,820.01	3,820.01	160.81	150.80	176.20	-69.22	2.79	637.74	342.44	295.30	2.160	
4,000.00	3,936.65	3,917.65	3,917.65	165.33	154.71	176.32	-69.22	2.79	659.29	356.22	303.07	2.175	
4,100.00	4,034.30	4,015.30	4,015.30	169.86	158.61	176.44	-69.22	2.79	680.84	369.99	310.85	2.190	
4,200.00	4,131.94	4,112.94	4,112.94	174.39	162.52	176.55	-69.22	2.79	702.40	383.77	318.63	2.204	
4,300.00	4,229.58	4,210.58	4,210.58	178.93	166.42	176.65	-69.22	2.79	723.96	397.54	326.41	2.218	
4,400.00	4,327.22	4,308.22	4,308.22	183.47	170.33	176.75	-69.22	2.79	745.52	411.32	334.20	2.231	
4,500.00	4,424.86	4,405.86	4,405.86	188.01	174.23	176.84	-69.22	2.79	767.08	425.10	341.98	2.243	
4,600.00	4,522.50	4,503.50	4,503.50	192.56	178.14	176.92	-69.22	2.79	788.64	438.88	349.77	2.255	
4,700.00	4,620.14	4,601.14	4,601.14	197.10	182.05	177.01	-69.22	2.79	810.21	452.66	357.55	2.266	
4,800.00	4,717.78	4,698.78	4,698.78	201.65	185.95	177.08	-69.22	2.79	831.78	466.44	365.34	2.277	
4,900.00	4,815.42	4,796.42	4,796.42	206.20	189.86	177.16	-69.22	2.79	853.35	480.22	373.13	2.287	
5,000.00	4,913.06	4,894.06	4,894.06	210.76	193.76	177.23	-69.22	2.79	874.92	494.00	380.92	2.297	
5,100.00	5,010.70	4,991.70	4,991.70	215.31	197.67	177.30	-69.22	2.79	896.49	507.78	388.71	2.306	
5,200.00	5,108.34	5,089.34	5,089.34	219.87	201.57	177.36	-69.22	2.79	918.06	521.56	396.50	2.315	
5,300.00	5,205.98	5,186.98	5,186.98	224.43	205.48	177.42	-69.22	2.79	939.64	535.34	404.30	2.324	
5,400.00	5,303.62	5,284.62	5,284.62	228.99	209.38	177.48	-69.22	2.79	961.21	549.12	412.09	2.333	
5,500.00	5,401.26	5,382.26	5,382.26	233.55	213.29	177.53	-69.22	2.79	982.79	562.90	419.89	2.341	
5,512.38	5,413.35	5,394.35	5,394.35	234.11	213.77	177.54	-69.22	2.79	985.46	564.61	420.85	2.342	
5,600.00	5,499.18	5,480.18	5,480.18	238.05	217.21	177.60	-69.22	2.79	1,003.05	573.86	429.19	2.337	
5,700.00	5,597.74	5,578.74	5,578.74	242.41	221.15	177.65	-69.22	2.79	1,019.92	581.62	438.30	2.327	
5,800.00	5,696.83	5,677.83	5,677.83	246.62	225.11	177.69	-69.22	2.79	1,033.34	586.40	446.93	2.312	
5,900.00	5,796.32	5,777.32	5,777.32	250.68	229.09	177.72	-69.22	2.79	1,043.29	588.22	455.07	2.293	
6,000.00	5,896.11	5,877.11	5,877.11	254.59	233.08	177.74	-69.22	2.79	1,049.77	587.08	462.70	2.269	
6,100.00	5,996.06	5,977.06	5,977.06	258.36	237.08	177.75	-69.22	2.79	1,052.77	583.00	469.78	2.241	

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> WELD_CARMA 6 PAD - HAMLIN STATE #6-36 EXISTING - HAMLIN STATE #6-36 EXISTING - HAML												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-UNKNOWN												<b>Offset Well Error:</b>	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
6,135.94	6,032.00	6,013.00	6,013.00	259.59	238.52	-147.95	-69.22	2.79	1,053.00	580.90	472.09	2.230	
6,200.00	6,096.06	6,077.06	6,077.06	261.64	241.08	-147.95	-69.22	2.79	1,053.00	576.10	476.89	2.208	
6,300.00	6,196.06	6,177.06	6,177.06	264.86	245.08	-147.95	-69.22	2.79	1,053.00	568.60	484.40	2.174	
6,400.00	6,296.06	6,277.06	6,277.06	268.10	249.08	-147.95	-69.22	2.79	1,053.00	561.08	491.92	2.141	
6,500.00	6,396.06	6,377.06	6,377.06	271.36	253.08	-147.95	-69.22	2.79	1,053.00	553.54	499.46	2.108	
6,600.00	6,496.06	6,477.06	6,477.06	274.64	257.08	-147.95	-69.22	2.79	1,053.00	545.99	507.01	2.077	
6,700.00	6,596.06	6,577.06	6,577.06	277.94	261.08	-147.95	-69.22	2.79	1,053.00	538.43	514.57	2.046	
6,800.00	6,696.06	6,677.06	6,677.06	281.25	265.08	-147.95	-69.22	2.79	1,053.00	530.85	522.15	2.017	
6,900.00	6,796.06	6,777.06	6,777.06	284.59	269.08	-147.95	-69.22	2.79	1,053.00	523.26	529.74	1.988	
7,000.00	6,896.06	6,877.06	6,877.06	287.94	273.08	-147.95	-69.22	2.79	1,053.00	515.66	537.34	1.960	
7,100.00	6,996.06	6,977.06	6,977.06	291.30	277.08	-147.95	-69.22	2.79	1,053.00	508.05	544.95	1.932	
7,200.00	7,096.06	7,077.06	7,077.06	294.69	281.08	-147.95	-69.22	2.79	1,053.00	500.43	552.57	1.906	
7,300.00	7,196.06	7,177.06	7,177.06	298.09	285.08	-147.95	-69.22	2.79	1,053.00	492.79	560.20	1.880	
7,400.00	7,296.06	7,277.06	7,277.06	301.50	289.08	-147.95	-69.22	2.79	1,053.00	485.15	567.85	1.854	
7,500.00	7,396.06	7,377.06	7,377.06	304.93	293.08	-147.95	-69.22	2.79	1,053.00	477.50	575.50	1.830	
7,600.00	7,496.06	7,477.06	7,477.06	308.37	297.08	-147.95	-69.22	2.79	1,053.00	469.84	583.16	1.806	
7,700.00	7,596.06	7,577.06	7,577.06	311.82	301.08	-147.95	-69.22	2.79	1,053.00	462.16	590.83	1.782	
7,800.00	7,696.06	7,579.00	7,579.00	315.29	301.16	-147.95	-69.22	2.79	1,057.55	462.96	594.59	1.779	
7,900.00	7,796.06	7,579.00	7,579.00	318.77	301.16	-147.95	-69.22	2.79	1,071.46	473.18	598.28	1.791	
7,980.94	7,877.00	7,579.00	7,579.00	321.59	301.16	-147.95	-69.22	2.79	1,089.33	488.06	601.27	1.812	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	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	-21.84	22.35	31.25				
100.00	100.00	100.00	100.00	1.70	1.70	134.34	-21.84	22.35	31.25	27.85	3.40	9.192	
200.00	200.00	200.00	200.00	5.70	5.70	134.34	-21.84	22.35	31.25	19.85	11.40	2.742	
300.00	300.00	300.00	300.00	9.70	9.70	134.34	-21.84	22.35	31.25	11.85	19.40	1.611	
400.00	400.00	400.00	400.00	13.70	13.70	134.34	-21.84	22.35	31.25	3.85	27.40	1.141 Level 2	
500.00	500.00	500.00	500.00	17.70	17.70	134.34	-21.84	22.35	31.25	-4.15	35.40	0.883 Level 1	
600.00	600.00	600.00	600.00	21.70	21.70	134.34	-21.84	22.35	31.25	-12.15	43.40	0.720 Level 1	
700.00	700.00	700.00	700.00	25.70	25.70	134.34	-21.84	22.35	31.25	-20.15	51.40	0.608 Level 1	
800.00	800.00	800.00	800.00	29.70	29.70	134.34	-21.84	22.35	31.25	-28.15	59.40	0.526 Level 1	
900.00	900.00	900.00	900.00	33.70	33.70	134.34	-21.84	22.35	31.25	-36.15	67.40	0.464 Level 1, CC	
1,000.00	999.98	999.48	999.46	37.37	33.87	105.90	-23.44	21.68	32.37	-38.86	71.23	0.454 Level 1, ES, SF	
1,100.00	1,099.84	1,098.25	1,098.09	40.80	30.33	120.56	-28.17	19.70	37.45	-33.65	71.10	0.527 Level 1	
1,200.00	1,199.45	1,195.62	1,195.09	44.35	26.97	136.33	-35.89	16.45	49.64	-21.52	71.16	0.698 Level 1	
1,300.00	1,298.70	1,290.93	1,289.72	48.01	23.90	147.93	-46.40	12.04	70.10	-1.34	71.45	0.981 Level 1	
1,400.00	1,397.47	1,383.59	1,381.30	51.78	21.29	155.34	-59.39	6.58	98.35	26.29	72.06	1.365 Level 3	
1,500.00	1,495.62	1,473.09	1,469.27	55.67	19.34	160.00	-74.52	0.22	133.63	60.56	73.07	1.829	
1,523.56	1,518.65	1,493.66	1,489.42	56.61	18.93	160.82	-78.35	-1.39	142.90	69.57	73.33	1.949	
1,600.00	1,593.28	1,559.39	1,553.58	59.68	18.22	163.13	-91.50	-6.91	174.47	99.68	74.79	2.333	
1,700.00	1,690.92	1,643.25	1,634.94	63.77	18.03	165.15	-110.24	-14.79	218.38	141.29	77.09	2.833	
1,800.00	1,788.57	1,724.67	1,713.33	67.93	18.77	166.50	-130.52	-23.31	265.02	185.12	79.90	3.317	
1,900.00	1,886.21	1,800.00	1,785.27	72.13	20.21	167.41	-151.11	-31.96	314.24	231.01	83.24	3.775	
2,000.00	1,983.85	1,880.14	1,861.13	76.39	22.71	168.14	-174.92	-41.96	365.81	278.55	87.26	4.192	
2,100.00	2,081.49	1,954.19	1,930.56	80.68	25.54	168.65	-198.65	-51.93	419.67	327.90	91.77	4.573	
2,200.00	2,179.13	2,025.80	1,997.05	85.00	28.64	169.03	-223.17	-62.24	475.67	379.19	96.48	4.930	
2,300.00	2,276.77	2,100.00	2,065.21	89.35	32.18	169.35	-250.18	-73.58	533.74	432.20	101.54	5.256	
2,400.00	2,374.41	2,168.09	2,127.18	93.72	35.74	169.58	-276.20	-84.52	593.48	486.70	106.79	5.558	
2,500.00	2,472.05	2,248.02	2,199.83	98.11	40.04	169.81	-306.92	-97.42	653.54	541.09	112.46	5.812	
2,600.00	2,569.69	2,327.95	2,272.49	102.52	44.41	170.00	-337.64	-110.33	713.61	595.34	118.27	6.034	
2,700.00	2,667.33	2,407.88	2,345.14	106.95	48.85	170.15	-368.36	-123.24	773.68	649.46	124.22	6.228	
2,800.00	2,764.97	2,487.81	2,417.80	111.39	53.35	170.29	-399.08	-136.14	833.75	703.46	130.29	6.399	
2,900.00	2,862.61	2,567.74	2,490.45	115.84	57.88	170.41	-429.80	-149.05	893.82	757.39	136.43	6.551	
3,000.00	2,960.25	2,647.67	2,563.10	120.31	62.45	170.51	-460.52	-161.96	953.90	811.26	142.64	6.688	
3,100.00	3,057.89	2,727.60	2,635.76	124.78	67.03	170.60	-491.24	-174.86	1,013.98	865.09	148.89	6.810	
3,200.00	3,155.53	2,807.53	2,708.41	129.26	71.64	170.68	-521.96	-187.77	1,074.06	918.88	155.18	6.921	
3,300.00	3,253.17	2,887.46	2,781.07	133.75	76.26	170.76	-552.68	-200.67	1,134.14	972.63	161.51	7.022	
3,400.00	3,350.81	2,967.40	2,853.72	138.24	80.89	170.82	-583.40	-213.58	1,194.23	1,026.36	167.87	7.114	
3,500.00	3,448.45	3,047.33	2,926.38	142.74	85.54	170.88	-614.12	-226.49	1,254.31	1,080.06	174.25	7.198	
3,600.00	3,546.09	3,127.26	2,999.03	147.25	90.19	170.93	-644.83	-239.39	1,314.40	1,133.75	180.65	7.276	
3,700.00	3,643.73	3,207.19	3,071.69	151.77	94.85	170.98	-675.55	-252.30	1,374.48	1,187.42	187.06	7.348	
3,800.00	3,741.37	3,287.12	3,144.34	156.28	99.52	171.03	-706.27	-265.21	1,434.57	1,241.08	193.49	7.414	
3,900.00	3,839.01	3,367.05	3,216.99	160.81	104.20	171.07	-736.99	-278.11	1,494.65	1,294.72	199.93	7.476	
4,000.00	3,936.65	3,446.98	3,289.65	165.33	108.88	171.10	-767.71	-291.02	1,554.74	1,348.35	206.39	7.533	
4,100.00	4,034.30	3,526.91	3,362.30	169.86	113.56	171.14	-798.43	-303.93	1,614.83	1,401.98	212.85	7.587	
4,200.00	4,131.94	3,606.84	3,434.96	174.39	118.25	171.17	-829.15	-316.83	1,674.91	1,455.60	219.32	7.637	
4,300.00	4,229.58	3,686.77	3,507.61	178.93	122.94	171.20	-859.87	-329.74	1,735.00	1,509.20	225.80	7.684	
4,400.00	4,327.22	3,766.70	3,580.27	183.47	127.63	171.23	-890.59	-342.65	1,795.09	1,562.81	232.28	7.728	
4,500.00	4,424.86	3,846.63	3,652.92	188.01	132.33	171.26	-921.31	-355.55	1,855.18	1,616.40	238.78	7.770	
4,600.00	4,522.50	3,926.56	3,725.58	192.56	137.03	171.28	-952.03	-368.46	1,915.27	1,670.00	245.27	7.809	
4,700.00	4,620.14	4,006.49	3,798.23	197.10	141.73	171.30	-982.75	-381.37	1,975.36	1,723.58	251.77	7.846	
4,800.00	4,717.78	4,086.43	3,870.88	201.65	146.43	171.33	-1,013.47	-394.27	2,035.45	1,777.17	258.28	7.881	
4,900.00	4,815.42	4,166.36	3,943.54	206.20	151.14	171.35	-1,044.19	-407.18	2,095.54	1,830.75	264.79	7.914	
5,000.00	4,913.06	4,246.29	4,016.19	210.76	155.85	171.37	-1,074.90	-420.09	2,155.63	1,884.32	271.30	7.945	

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> WELD_CARMA 6 PAD - P_CARMA 12-36 - P_CARMA 12-36 - PLAN #1 12-16-09 RHS												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-UNKNOWN												<b>Offset Well Error:</b>	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	
5,100.00	5,010.70	4,326.22	4,088.85	215.31	160.55	171.39	-1,105.62	-432.99	2,215.72	1,937.89	277.82	7.975	
5,200.00	5,108.34	4,406.15	4,161.50	219.87	165.26	171.40	-1,136.34	-445.90	2,275.80	1,991.46	284.34	8.004	
5,300.00	5,205.98	4,486.08	4,234.16	224.43	169.98	171.42	-1,167.06	-458.81	2,335.89	2,045.03	290.87	8.031	
5,400.00	5,303.62	4,566.01	4,306.81	228.99	174.69	171.43	-1,197.78	-471.71	2,395.98	2,098.59	297.39	8.057	
5,500.00	5,401.26	4,645.94	4,379.47	233.55	179.40	171.45	-1,228.50	-484.62	2,456.07	2,152.16	303.92	8.081	
5,512.38	5,413.35	4,655.84	4,388.46	234.11	179.98	171.45	-1,232.30	-486.22	2,463.51	2,158.79	304.73	8.084	
5,600.00	5,499.18	4,726.66	4,452.83	238.05	184.16	171.65	-1,259.52	-497.65	2,515.10	2,202.23	312.87	8.039	
5,700.00	5,597.74	4,809.35	4,528.00	242.41	189.04	171.84	-1,291.30	-511.00	2,571.32	2,249.32	322.00	7.985	
5,800.00	5,696.83	4,893.93	4,604.88	246.62	194.03	171.99	-1,323.81	-524.66	2,624.65	2,293.71	330.94	7.931	
5,900.00	5,796.32	4,980.30	4,683.39	250.68	199.13	172.13	-1,357.00	-538.61	2,675.03	2,335.35	339.68	7.875	
6,000.00	5,896.11	5,068.35	4,763.42	254.59	204.33	172.23	-1,390.84	-552.83	2,722.39	2,374.21	348.18	7.819	
6,100.00	5,996.06	5,157.98	4,844.89	258.36	209.62	172.32	-1,425.29	-567.30	2,766.68	2,410.25	356.44	7.762	
6,135.94	6,032.00	5,190.56	4,874.50	259.59	211.54	-153.36	-1,437.81	-572.56	2,781.84	2,422.59	359.25	7.743	
6,200.00	6,096.06	5,248.78	4,927.43	261.64	214.98	-153.40	-1,460.19	-581.96	2,808.49	2,444.91	363.59	7.724	
6,300.00	6,196.06	5,339.68	5,010.05	264.86	220.34	-153.46	-1,495.12	-596.64	2,850.11	2,479.73	370.38	7.695	
6,400.00	6,296.06	5,430.58	5,092.67	268.10	225.71	-153.51	-1,530.06	-611.32	2,891.72	2,514.54	377.18	7.667	
6,500.00	6,396.06	5,521.47	5,175.30	271.36	231.08	-153.56	-1,564.99	-625.99	2,933.33	2,549.34	384.00	7.639	
6,600.00	6,496.06	5,612.37	5,257.92	274.64	236.45	-153.61	-1,599.92	-640.67	2,974.95	2,584.12	390.83	7.612	
6,700.00	6,596.06	5,703.27	5,340.54	277.94	241.82	-153.66	-1,634.86	-655.35	3,016.57	2,618.89	397.68	7.585	
6,800.00	6,696.06	7,100.02	6,696.06	281.25	292.51	-153.99	-1,890.60	-762.80	3,019.80	2,576.80	443.00	6.817	
6,900.00	6,796.06	7,200.02	6,796.06	284.59	290.08	-153.99	-1,890.60	-762.80	3,019.80	2,576.75	443.05	6.816	
7,000.00	6,896.06	7,300.02	6,896.06	287.94	287.69	-153.99	-1,890.60	-762.80	3,019.80	2,576.67	443.13	6.815	
7,100.00	6,996.06	7,400.02	6,996.06	291.30	285.34	-153.99	-1,890.60	-762.80	3,019.80	2,576.55	443.25	6.813	
7,200.00	7,096.06	7,500.02	7,096.06	294.69	283.02	-153.99	-1,890.60	-762.80	3,019.80	2,576.40	443.40	6.811	
7,300.00	7,196.06	7,600.02	7,196.06	298.09	280.75	-153.99	-1,890.60	-762.80	3,019.80	2,576.22	443.58	6.808	
7,400.00	7,296.06	7,700.02	7,296.06	301.50	278.51	-153.99	-1,890.60	-762.80	3,019.80	2,576.00	443.80	6.804	
7,500.00	7,396.06	7,800.02	7,396.06	304.93	276.31	-153.99	-1,890.60	-762.80	3,019.80	2,575.74	444.05	6.801	
7,600.00	7,496.06	7,900.02	7,496.06	308.37	274.15	-153.99	-1,890.60	-762.80	3,019.80	2,575.45	444.35	6.796	
7,700.00	7,596.06	8,000.02	7,596.06	311.82	272.03	-153.99	-1,890.60	-762.80	3,019.80	2,575.12	444.68	6.791	
7,800.00	7,696.06	8,100.02	7,696.06	315.29	269.96	-153.99	-1,890.60	-762.80	3,019.80	2,574.74	445.06	6.785	
7,900.00	7,796.06	8,200.02	7,796.06	318.77	267.93	-153.99	-1,890.60	-762.80	3,019.80	2,574.32	445.47	6.779	
7,980.94	7,877.00	8,280.97	7,877.00	321.59	266.32	-153.99	-1,890.60	-762.80	3,019.80	2,573.95	445.85	6.773	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	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		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	130.99	-29.14	33.53	44.42				
100.00	100.00	100.00	100.00	1.70	1.70	130.99	-29.14	33.53	44.42	41.02	3.40	13.065	
200.00	200.00	200.00	200.00	5.70	5.70	130.99	-29.14	33.53	44.42	33.02	11.40	3.896	
300.00	300.00	300.00	300.00	9.70	9.70	130.99	-29.14	33.53	44.42	25.02	19.40	2.290	
400.00	400.00	400.00	400.00	13.70	13.70	130.99	-29.14	33.53	44.42	17.02	27.40	1.621	
500.00	500.00	500.00	500.00	17.70	17.70	130.99	-29.14	33.53	44.42	9.02	35.40	1.255	Level 3
600.00	600.00	600.00	600.00	21.70	21.70	130.99	-29.14	33.53	44.42	1.02	43.40	1.023	Level 2
700.00	700.00	700.00	700.00	25.70	25.70	130.99	-29.14	33.53	44.42	-6.98	51.40	0.864	Level 1
800.00	800.00	800.00	800.00	29.70	29.70	130.99	-29.14	33.53	44.42	-14.98	59.40	0.748	Level 1
900.00	900.00	900.00	900.00	33.70	33.70	130.99	-29.14	33.53	44.42	-22.98	67.40	0.659	Level 1, CC
1,000.00	999.98	998.99	998.97	37.37	36.04	97.18	-28.88	35.22	45.74	-27.67	73.41	0.623	Level 1, SF
1,100.00	1,099.84	1,097.87	1,097.71	40.80	37.09	98.48	-28.09	40.28	49.71	-28.17	77.89	0.638	Level 1, ES
1,200.00	1,199.45	1,196.53	1,196.00	44.35	38.51	100.22	-26.78	48.68	56.38	-26.48	82.85	0.680	Level 1
1,300.00	1,298.70	1,294.85	1,293.60	48.01	40.32	102.03	-24.96	60.37	65.76	-22.53	88.29	0.745	Level 1
1,400.00	1,397.47	1,392.74	1,390.32	51.78	42.47	103.69	-22.64	75.30	77.86	-16.30	94.16	0.827	Level 1
1,500.00	1,495.62	1,490.09	1,485.93	55.67	44.95	105.07	-19.82	93.37	92.66	-7.78	100.44	0.923	Level 1
1,523.56	1,518.65	1,512.94	1,508.28	56.61	45.59	105.36	-19.09	98.07	96.54	-5.44	101.99	0.947	Level 1
1,600.00	1,593.28	1,586.87	1,580.31	59.68	47.75	105.93	-16.53	114.50	109.87	2.72	107.14	1.025	Level 2
1,700.00	1,690.92	1,683.06	1,673.34	63.77	50.84	105.37	-12.78	138.62	128.76	14.57	114.19	1.128	Level 2
1,800.00	1,788.57	1,780.38	1,766.84	67.93	54.23	104.14	-8.63	165.28	148.90	27.37	121.53	1.225	Level 2
1,900.00	1,886.21	1,878.27	1,860.87	72.13	57.86	103.17	-4.44	192.21	169.16	40.04	129.11	1.310	Level 3
2,000.00	1,983.85	1,976.16	1,954.89	76.39	61.65	102.40	-0.24	219.14	189.45	52.58	136.87	1.384	Level 3
2,100.00	2,081.49	2,074.05	2,048.91	80.68	65.58	101.78	3.95	246.06	209.76	64.99	144.77	1.449	Level 3
2,200.00	2,179.13	2,171.94	2,142.93	85.00	69.63	101.28	8.14	272.99	230.10	77.30	152.80	1.506	
2,300.00	2,276.77	2,269.84	2,236.96	89.35	73.77	100.85	12.33	299.92	250.45	89.52	160.93	1.556	
2,400.00	2,374.41	2,367.73	2,330.98	93.72	77.99	100.49	16.52	326.85	270.81	101.66	169.15	1.601	
2,500.00	2,472.05	2,465.62	2,425.00	98.11	82.29	100.18	20.71	353.77	291.18	113.74	177.44	1.641	
2,600.00	2,569.69	2,563.51	2,519.02	102.52	86.64	99.91	24.91	380.70	311.56	125.75	185.81	1.677	
2,700.00	2,667.33	2,661.40	2,613.04	106.95	91.04	99.67	29.10	407.63	331.94	137.72	194.23	1.709	
2,800.00	2,764.97	2,759.29	2,707.07	111.39	95.48	99.46	33.29	434.56	352.33	149.64	202.70	1.738	
2,900.00	2,862.61	2,857.19	2,801.09	115.84	99.96	99.27	37.48	461.48	372.73	161.52	211.21	1.765	
3,000.00	2,960.25	2,955.08	2,895.11	120.31	104.48	99.11	41.67	488.41	393.12	173.36	219.76	1.789	
3,100.00	3,057.89	3,052.97	2,989.13	124.78	109.02	98.96	45.87	515.34	413.52	185.17	228.35	1.811	
3,200.00	3,155.53	3,150.86	3,083.15	129.26	113.59	98.82	50.06	542.26	433.92	196.96	236.97	1.831	
3,300.00	3,253.17	3,248.75	3,177.18	133.75	118.17	98.69	54.25	569.19	454.33	208.71	245.61	1.850	
3,400.00	3,350.81	3,346.65	3,271.20	138.24	122.78	98.58	58.44	596.12	474.73	220.45	254.28	1.867	
3,500.00	3,448.45	3,444.54	3,365.22	142.74	127.41	98.48	62.63	623.05	495.14	232.17	262.97	1.883	
3,600.00	3,546.09	3,542.43	3,459.24	147.25	132.05	98.38	66.83	649.97	515.55	243.87	271.68	1.898	
3,700.00	3,643.73	3,640.32	3,553.26	151.77	136.71	98.29	71.02	676.90	535.96	255.55	280.41	1.911	
3,800.00	3,741.37	3,738.21	3,647.29	156.28	141.38	98.21	75.21	703.83	556.37	267.21	289.15	1.924	
3,900.00	3,839.01	3,836.10	3,741.31	160.81	146.06	98.13	79.40	730.76	576.78	278.87	297.91	1.936	
4,000.00	3,936.65	3,934.00	3,835.33	165.33	150.75	98.06	83.59	757.68	597.19	290.51	306.68	1.947	
4,100.00	4,034.30	4,031.89	3,929.35	169.86	155.45	98.00	87.78	784.61	617.61	302.14	315.47	1.958	
4,200.00	4,131.94	4,129.78	4,023.37	174.39	160.16	97.93	91.98	811.54	638.02	313.75	324.27	1.968	
4,300.00	4,229.58	4,227.67	4,117.40	178.93	164.88	97.87	96.17	838.47	658.43	325.36	333.07	1.977	
4,400.00	4,327.22	4,325.56	4,211.42	183.47	169.60	97.82	100.36	865.39	678.85	336.96	341.89	1.986	
4,500.00	4,424.86	4,423.45	4,305.44	188.01	174.33	97.77	104.55	892.32	699.27	348.55	350.71	1.994	
4,600.00	4,522.50	4,521.35	4,399.46	192.56	179.07	97.72	108.74	919.25	719.68	360.14	359.55	2.002	
4,700.00	4,620.14	4,619.24	4,493.49	197.10	183.81	97.67	112.94	946.17	740.10	371.72	368.39	2.009	
4,800.00	4,717.78	4,717.13	4,587.51	201.65	188.56	97.63	117.13	973.10	760.52	383.29	377.23	2.016	
4,900.00	4,815.42	4,815.02	4,681.53	206.20	193.31	97.59	121.32	1,000.03	780.94	394.85	386.09	2.023	
5,000.00	4,913.06	4,912.91	4,775.55	210.76	198.07	97.55	125.51	1,026.96	801.36	406.41	394.95	2.029	

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	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	5,010.70	5,010.81	4,869.57	215.31	202.83	97.51	129.70	1,053.88	821.77	417.96	403.81	2.035	
5,200.00	5,108.34	5,108.70	4,963.60	219.87	207.59	97.48	133.89	1,080.81	842.19	429.51	412.68	2.041	
5,300.00	5,205.98	5,206.59	5,057.62	224.43	212.36	97.44	138.09	1,107.74	862.61	441.05	421.56	2.046	
5,400.00	5,303.62	5,304.48	5,151.64	228.99	217.13	97.41	142.28	1,134.67	883.03	452.59	430.44	2.051	
5,500.00	5,401.26	5,402.37	5,245.66	233.55	221.91	97.38	146.47	1,161.59	903.45	464.13	439.33	2.056	
5,512.38	5,413.35	5,416.98	5,259.70	234.11	222.61	97.38	147.09	1,165.58	905.97	465.44	440.53	2.057	
5,600.00	5,499.18	5,524.21	5,363.35	238.05	227.70	97.70	151.31	1,192.72	922.46	473.02	449.44	2.052	
5,700.00	5,597.74	5,647.77	5,483.96	242.41	233.30	97.99	155.44	1,219.20	938.39	479.06	459.33	2.043	
5,800.00	5,696.83	5,772.41	5,606.67	246.62	238.67	98.22	158.78	1,240.68	951.19	482.27	468.92	2.028	
5,900.00	5,796.32	5,897.89	5,731.06	250.68	243.79	98.37	161.32	1,256.97	960.81	482.63	478.18	2.009	
6,000.00	5,896.11	6,024.00	5,856.67	254.59	248.60	98.46	163.02	1,267.89	967.21	480.13	487.08	1.986	
6,100.00	5,996.06	6,150.49	5,983.03	258.36	253.16	98.49	163.87	1,273.35	970.36	474.75	495.61	1.958	
6,135.94	6,032.00	6,196.00	6,028.54	259.59	254.74	132.78	163.96	1,273.97	970.70	472.18	498.53	1.947	
6,200.00	6,096.06	6,263.52	6,096.06	261.64	255.72	132.78	163.97	1,274.01	970.73	469.09	501.63	1.935	
6,300.00	6,196.06	6,363.52	6,196.06	264.86	256.86	132.78	163.97	1,274.01	970.73	464.63	506.10	1.918	
6,400.00	6,296.06	6,463.52	6,296.06	268.10	258.04	132.78	163.97	1,274.01	970.73	460.08	510.65	1.901	
6,500.00	6,396.06	6,563.52	6,396.06	271.36	259.29	132.78	163.97	1,274.01	970.73	455.46	515.27	1.884	
6,600.00	6,496.06	6,663.52	6,496.06	274.64	260.59	132.78	163.97	1,274.01	970.73	450.75	519.97	1.867	
6,700.00	6,596.06	6,763.52	6,596.06	277.94	261.94	132.78	163.97	1,274.01	970.73	445.98	524.75	1.850	
6,800.00	6,696.06	6,863.52	6,696.06	281.25	263.35	132.78	163.97	1,274.01	970.73	441.13	529.60	1.833	
6,900.00	6,796.06	6,963.52	6,796.06	284.59	264.81	132.78	163.97	1,274.01	970.73	436.21	534.52	1.816	
7,000.00	6,896.06	7,063.52	6,896.06	287.94	266.32	132.78	163.97	1,274.01	970.73	431.21	539.51	1.799	
7,100.00	6,996.06	7,163.52	6,996.06	291.30	267.89	132.78	163.97	1,274.01	970.73	426.15	544.57	1.783	
7,200.00	7,096.06	7,263.52	7,096.06	294.69	269.50	132.78	163.97	1,274.01	970.73	421.02	549.70	1.766	
7,300.00	7,196.06	7,363.52	7,196.06	298.09	271.17	132.78	163.97	1,274.01	970.73	415.83	554.90	1.749	
7,400.00	7,296.06	7,463.52	7,296.06	301.50	272.88	132.78	163.97	1,274.01	970.73	410.57	560.16	1.733	
7,500.00	7,396.06	7,563.52	7,396.06	304.93	274.64	132.78	163.97	1,274.01	970.73	405.25	565.48	1.717	
7,600.00	7,496.06	7,663.52	7,496.06	308.37	276.45	132.78	163.97	1,274.01	970.73	399.87	570.86	1.700	
7,700.00	7,596.06	7,763.52	7,596.06	311.82	278.30	132.78	163.97	1,274.01	970.73	394.42	576.30	1.684	
7,800.00	7,696.06	7,863.52	7,696.06	315.29	280.20	132.78	163.97	1,274.01	970.73	388.92	581.80	1.668	
7,900.00	7,796.06	7,963.52	7,796.06	318.77	282.14	132.78	163.97	1,274.01	970.73	383.37	587.36	1.653	
7,980.94	7,877.00	8,044.46	7,877.00	321.59	283.74	132.78	163.97	1,274.01	970.73	378.83	591.89	1.640	



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	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								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	131.87	-40.07	44.70	60.03				
100.00	100.00	100.00	100.00	1.70	1.70	131.87	-40.07	44.70	60.03	56.63	3.40	17.657	
200.00	200.00	200.00	200.00	5.70	5.70	131.87	-40.07	44.70	60.03	48.63	11.40	5.266	
300.00	300.00	300.00	300.00	9.70	9.70	131.87	-40.07	44.70	60.03	40.63	19.40	3.095	
400.00	400.00	400.00	400.00	13.70	13.70	131.87	-40.07	44.70	60.03	32.63	27.40	2.191	
500.00	500.00	500.00	500.00	17.70	17.70	131.87	-40.07	44.70	60.03	24.63	35.40	1.696	
600.00	600.00	600.00	600.00	21.70	21.70	131.87	-40.07	44.70	60.03	16.63	43.40	1.383	Level 3
700.00	700.00	700.00	700.00	25.70	25.70	131.87	-40.07	44.70	60.03	8.63	51.40	1.168	Level 2
800.00	800.00	800.00	800.00	29.70	29.70	131.87	-40.07	44.70	60.03	0.63	59.40	1.011	Level 2
900.00	900.00	900.00	900.00	33.70	33.70	131.87	-40.07	44.70	60.03	-7.37	67.40	0.891	Level 1, CC
1,000.00	999.98	998.71	998.69	37.37	33.72	100.45	-41.76	44.49	61.33	-9.76	71.09	0.863	Level 1, ES, SF
1,100.00	1,099.84	1,096.75	1,096.59	40.80	29.89	108.24	-46.77	43.87	66.07	-4.61	70.69	0.935	Level 1
1,200.00	1,199.45	1,193.47	1,192.95	44.35	26.11	118.53	-54.97	42.84	76.25	5.85	70.40	1.083	Level 2
1,300.00	1,298.70	1,288.26	1,287.07	48.01	22.52	128.54	-66.14	41.45	93.54	23.27	70.27	1.331	Level 3
1,400.00	1,397.47	1,380.55	1,378.30	51.78	19.23	136.67	-79.97	39.73	118.48	48.17	70.31	1.685	
1,500.00	1,495.62	1,469.86	1,466.11	55.67	16.47	142.70	-96.13	37.71	150.78	80.22	70.57	2.137	
1,523.56	1,518.65	1,490.42	1,486.25	56.61	15.86	143.85	-100.23	37.20	159.41	88.75	70.66	2.256	
1,600.00	1,593.28	1,556.14	1,550.42	59.68	14.52	147.23	-114.31	35.45	189.10	117.87	71.23	2.655	
1,700.00	1,690.92	1,640.12	1,631.91	63.77	13.48	150.34	-134.41	32.94	230.99	158.80	72.19	3.200	
1,800.00	1,788.57	1,727.72	1,716.46	67.93	13.96	152.61	-157.14	30.10	275.19	201.79	73.40	3.749	
1,900.00	1,886.21	1,816.91	1,802.54	72.13	15.54	154.30	-180.34	27.21	319.73	244.67	75.06	4.259	
2,000.00	1,983.85	1,906.10	1,888.61	76.39	18.05	155.57	-203.54	24.32	364.44	286.04	78.39	4.649	
2,100.00	2,081.49	1,995.29	1,974.68	80.68	21.19	156.57	-226.74	21.43	409.26	325.50	83.76	4.886	
2,200.00	2,179.13	2,084.48	2,060.75	85.00	24.70	157.37	-249.94	18.53	454.16	363.97	90.19	5.036	
2,300.00	2,276.77	2,173.67	2,146.82	89.35	28.43	158.02	-273.14	15.64	499.11	402.14	96.97	5.147	
2,400.00	2,374.41	2,262.86	2,232.89	93.72	32.31	158.57	-296.34	12.75	544.12	440.20	103.92	5.236	
2,500.00	2,472.05	2,352.05	2,318.97	98.11	36.29	159.03	-319.54	9.85	589.15	478.20	110.95	5.310	
2,600.00	2,569.69	2,441.24	2,405.04	102.52	40.34	159.43	-342.74	6.96	634.21	516.18	118.03	5.373	
2,700.00	2,667.33	2,530.43	2,491.11	106.95	44.44	159.78	-365.94	4.07	679.30	554.16	125.14	5.428	
2,800.00	2,764.97	2,619.62	2,577.18	111.39	48.58	160.08	-389.14	1.17	724.40	592.12	132.27	5.477	
2,900.00	2,862.61	2,708.81	2,663.25	115.84	52.75	160.35	-412.34	-1.72	769.51	630.09	139.42	5.519	
3,000.00	2,960.25	2,798.00	2,749.32	120.31	56.95	160.59	-435.54	-4.61	814.64	668.05	146.59	5.557	
3,100.00	3,057.89	2,887.19	2,835.39	124.78	61.16	160.80	-458.74	-7.50	859.78	706.02	153.76	5.592	
3,200.00	3,155.53	2,976.38	2,921.47	129.26	65.39	160.99	-481.94	-10.40	904.92	743.98	160.94	5.623	
3,300.00	3,253.17	3,065.57	3,007.54	133.75	69.63	161.17	-505.15	-13.29	950.07	781.94	168.13	5.651	
3,400.00	3,350.81	3,154.76	3,093.61	138.24	73.88	161.32	-528.35	-16.18	995.23	819.91	175.33	5.676	
3,500.00	3,448.45	3,243.96	3,179.68	142.74	78.14	161.47	-551.55	-19.08	1,040.40	857.87	182.53	5.700	
3,600.00	3,546.09	3,333.15	3,265.75	147.25	82.41	161.60	-574.75	-21.97	1,085.57	895.84	189.73	5.722	
3,700.00	3,643.73	3,422.34	3,351.82	151.77	86.68	161.72	-597.95	-24.86	1,130.74	933.80	196.94	5.742	
3,800.00	3,741.37	3,511.53	3,437.90	156.28	90.96	161.83	-621.15	-27.76	1,175.92	971.77	204.15	5.760	
3,900.00	3,839.01	3,600.72	3,523.97	160.81	95.24	161.94	-644.35	-30.65	1,221.10	1,009.73	211.37	5.777	
4,000.00	3,936.65	3,689.91	3,610.04	165.33	99.53	162.03	-667.55	-33.54	1,266.28	1,047.70	218.58	5.793	
4,100.00	4,034.30	3,779.10	3,696.11	169.86	103.82	162.12	-690.75	-36.44	1,311.47	1,085.66	225.80	5.808	
4,200.00	4,131.94	3,868.29	3,782.18	174.39	108.11	162.21	-713.95	-39.33	1,356.66	1,123.63	233.03	5.822	
4,300.00	4,229.58	3,957.48	3,868.25	178.93	112.40	162.29	-737.15	-42.22	1,401.85	1,161.59	240.25	5.835	
4,400.00	4,327.22	4,046.67	3,954.33	183.47	116.70	162.36	-760.35	-45.11	1,447.04	1,199.56	247.48	5.847	
4,500.00	4,424.86	4,135.86	4,040.40	188.01	121.00	162.43	-783.55	-48.01	1,492.23	1,237.52	254.71	5.859	
4,600.00	4,522.50	4,225.05	4,126.47	192.56	125.30	162.49	-806.75	-50.90	1,537.43	1,275.49	261.94	5.869	
4,700.00	4,620.14	4,314.24	4,212.54	197.10	129.60	162.56	-829.95	-53.79	1,582.63	1,313.46	269.17	5.880	
4,800.00	4,717.78	4,403.43	4,298.61	201.65	133.91	162.61	-853.16	-56.69	1,627.83	1,351.42	276.41	5.889	
4,900.00	4,815.42	4,492.62	4,384.68	206.20	138.22	162.67	-876.36	-59.58	1,673.03	1,389.39	283.64	5.898	
5,000.00	4,913.06	4,581.81	4,470.76	210.76	142.52	162.72	-899.56	-62.47	1,718.23	1,427.35	290.88	5.907	

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> WELD_CARMA 6 PAD - P_CARMA 22-36 - P_CARMA 22-36 - PLAN #1 12-16-09 RHS												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-UNKNOWN												<b>Offset Well Error:</b>	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	5,010.70	4,671.00	4,556.83	215.31	146.83	162.77	-922.76	-65.37	1,763.43	1,465.32	298.11	5.915	
5,200.00	5,108.34	4,760.20	4,642.90	219.87	151.14	162.82	-945.96	-68.26	1,808.63	1,503.28	305.35	5.923	
5,300.00	5,205.98	4,849.39	4,728.97	224.43	155.45	162.86	-969.16	-71.15	1,853.84	1,541.25	312.59	5.931	
5,400.00	5,303.62	4,938.58	4,815.04	228.99	159.76	162.90	-992.36	-74.05	1,899.04	1,579.21	319.83	5.938	
5,500.00	5,401.26	5,027.77	4,901.11	233.55	164.07	162.94	-1,015.56	-76.94	1,944.25	1,617.18	327.07	5.944	
5,512.38	5,413.35	5,038.81	4,911.77	234.11	164.61	162.95	-1,018.43	-77.30	1,949.85	1,621.88	327.97	5.945	
5,600.00	5,499.18	5,117.53	4,987.74	238.05	168.41	163.22	-1,038.91	-79.85	1,988.31	1,651.96	336.34	5.912	
5,700.00	5,597.74	5,208.71	5,075.73	242.41	172.82	163.47	-1,062.63	-82.81	2,029.36	1,683.68	345.69	5.871	
5,800.00	5,696.83	5,301.20	5,164.98	246.62	177.30	163.67	-1,086.69	-85.81	2,067.35	1,712.57	354.78	5.827	
5,900.00	5,796.32	5,394.89	5,255.40	250.68	181.83	163.81	-1,111.06	-88.85	2,102.21	1,738.62	363.60	5.782	
6,000.00	5,896.11	5,568.18	5,423.13	254.59	190.07	163.84	-1,154.20	-94.23	2,133.39	1,758.24	375.15	5.687	
6,100.00	5,996.06	5,938.23	5,788.01	258.36	205.63	163.71	-1,213.82	-101.66	2,152.22	1,758.00	394.22	5.459	
6,135.94	6,032.00	6,075.14	5,924.52	259.59	210.66	-162.02	-1,223.95	-102.92	2,155.07	1,753.98	401.09	5.373	
6,200.00	6,096.06	6,246.73	6,096.06	261.64	214.11	-162.04	-1,227.62	-103.38	2,156.02	1,748.78	407.24	5.294	
6,300.00	6,196.06	6,346.73	6,196.06	264.86	210.92	-162.04	-1,227.62	-103.38	2,156.02	1,749.22	406.80	5.300	
6,400.00	6,296.06	6,446.73	6,296.06	268.10	207.76	-162.04	-1,227.62	-103.38	2,156.02	1,749.65	406.37	5.306	
6,500.00	6,396.06	6,546.73	6,396.06	271.36	204.62	-162.04	-1,227.62	-103.38	2,156.02	1,750.05	405.97	5.311	
6,600.00	6,496.06	6,646.73	6,496.06	274.64	201.52	-162.04	-1,227.62	-103.38	2,156.02	1,750.44	405.58	5.316	
6,700.00	6,596.06	6,746.73	6,596.06	277.94	198.44	-162.04	-1,227.62	-103.38	2,156.02	1,750.80	405.21	5.321	
6,800.00	6,696.06	6,846.73	6,696.06	281.25	195.40	-162.04	-1,227.62	-103.38	2,156.02	1,751.15	404.87	5.325	
6,900.00	6,796.06	6,946.73	6,796.06	284.59	192.40	-162.04	-1,227.62	-103.38	2,156.02	1,751.48	404.54	5.330	
7,000.00	6,896.06	7,046.73	6,896.06	287.94	189.43	-162.04	-1,227.62	-103.38	2,156.02	1,751.79	404.23	5.334	
7,100.00	6,996.06	7,146.73	6,996.06	291.30	186.50	-162.04	-1,227.62	-103.38	2,156.02	1,752.08	403.94	5.338	
7,200.00	7,096.06	7,246.73	7,096.06	294.69	183.62	-162.04	-1,227.62	-103.38	2,156.02	1,752.35	403.67	5.341	
7,300.00	7,196.06	7,346.73	7,196.06	298.09	180.77	-162.04	-1,227.62	-103.38	2,156.02	1,752.61	403.41	5.344	
7,400.00	7,296.06	7,446.73	7,296.06	301.50	177.97	-162.04	-1,227.62	-103.38	2,156.02	1,752.84	403.18	5.348	
7,500.00	7,396.06	7,546.73	7,396.06	304.93	175.21	-162.04	-1,227.62	-103.38	2,156.02	1,753.05	402.97	5.350	
7,600.00	7,496.06	7,646.73	7,496.06	308.37	172.51	-162.04	-1,227.62	-103.38	2,156.02	1,753.24	402.78	5.353	
7,700.00	7,596.06	7,746.73	7,596.06	311.82	169.85	-162.04	-1,227.62	-103.38	2,156.02	1,753.41	402.61	5.355	
7,800.00	7,696.06	7,846.73	7,696.06	315.29	167.25	-162.04	-1,227.62	-103.38	2,156.02	1,753.56	402.46	5.357	
7,900.00	7,796.06	7,946.73	7,796.06	318.77	164.70	-162.04	-1,227.62	-103.38	2,156.02	1,753.68	402.33	5.359	
7,980.94	7,877.00	8,027.68	7,877.00	321.59	162.68	-162.04	-1,227.62	-103.38	2,156.02	1,753.77	402.25	5.360	



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design WELD_CARMA 6 PAD - P_CARMA 32-36 - P_CARMA 32-36 - PLAN #1 12-16-09 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
0.00	0.00	0.00	0.00	0.00	0.00	134.35	-10.92	11.18	15.63				
100.00	100.00	100.00	100.00	1.70	0.10	134.35	-10.92	11.18	15.63	13.83	1.80	8.704	
200.00	200.00	200.00	200.00	5.70	0.32	134.35	-10.92	11.18	15.63	9.61	6.02	2.596	
300.00	300.00	300.00	300.00	9.70	0.55	134.35	-10.92	11.18	15.63	5.38	10.25	1.525	
400.00	400.00	400.00	400.00	13.70	0.77	134.35	-10.92	11.18	15.63	1.16	14.47	1.080	Level 2
500.00	500.00	500.00	500.00	17.70	0.99	134.35	-10.92	11.18	15.63	-3.07	18.69	0.836	Level 1
600.00	600.00	600.00	600.00	21.70	1.22	134.35	-10.92	11.18	15.63	-7.29	22.92	0.682	Level 1
700.00	700.00	700.00	700.00	25.70	1.44	134.35	-10.92	11.18	15.63	-11.52	27.14	0.576	Level 1
800.00	800.00	800.00	800.00	29.70	1.67	134.35	-10.92	11.18	15.63	-15.74	31.37	0.498	Level 1
900.00	900.00	900.00	900.00	33.70	1.89	134.35	-10.92	11.18	15.63	-19.97	35.59	0.439	Level 1, CC
915.11	915.11	915.11	915.11	34.25	1.92	100.34	-10.95	11.15	15.63	-20.55	36.18	0.432	Level 1
1,000.00	999.98	999.94	999.92	37.37	2.10	112.39	-12.04	9.84	16.13	-23.33	39.46	0.409	Level 1, ES, SF
1,100.00	1,099.84	1,099.16	1,099.00	40.80	2.28	140.33	-15.35	5.86	21.22	-21.81	43.03	0.493	Level 1
1,200.00	1,199.45	1,196.98	1,196.45	44.35	2.48	161.15	-20.76	-0.65	35.17	-11.44	46.61	0.754	Level 1
1,300.00	1,298.70	1,292.74	1,291.52	48.01	2.71	171.70	-28.12	-9.48	57.47	7.27	50.20	1.145	Level 2
1,400.00	1,397.47	1,385.86	1,383.53	51.78	2.95	177.14	-37.22	-20.42	86.99	33.20	53.79	1.617	
1,500.00	1,495.62	1,475.80	1,471.93	55.67	3.23	-179.78	-47.82	-33.15	123.09	65.72	57.37	2.146	
1,523.56	1,518.65	1,496.49	1,492.18	56.61	3.29	-179.24	-50.51	-36.38	132.50	74.30	58.21	2.276	
1,600.00	1,593.28	1,562.55	1,556.66	59.68	3.53	-177.86	-59.72	-47.45	164.40	103.19	61.21	2.686	
1,700.00	1,690.92	1,646.85	1,638.41	63.77	3.87	-176.55	-72.85	-63.23	208.54	143.37	65.17	3.200	
1,800.00	1,788.57	1,728.70	1,717.19	67.93	4.24	-175.57	-87.07	-80.31	255.27	186.11	69.16	3.691	
1,900.00	1,886.21	1,808.08	1,792.95	72.13	4.63	-174.81	-102.22	-98.52	304.46	231.30	73.16	4.161	
2,000.00	1,983.85	1,884.98	1,865.69	76.39	5.07	-174.19	-118.18	-117.70	356.02	278.83	77.19	4.612	
2,100.00	2,081.49	1,959.42	1,935.44	80.68	5.52	-173.67	-134.82	-137.68	409.81	328.57	81.24	5.045	
2,200.00	2,179.13	2,031.41	2,002.23	85.00	6.00	-173.23	-152.00	-158.33	465.73	380.44	85.29	5.460	
2,300.00	2,276.77	2,100.00	2,065.21	89.35	6.49	-172.85	-169.36	-179.19	523.68	434.33	89.36	5.861	
2,400.00	2,374.41	2,172.41	2,131.04	93.72	7.04	-172.49	-188.67	-202.39	583.46	490.02	93.45	6.244	
2,500.00	2,472.05	2,252.19	2,203.37	98.11	7.67	-172.16	-210.20	-228.25	643.70	546.12	97.57	6.597	
2,600.00	2,569.69	2,331.96	2,275.70	102.52	8.30	-171.88	-231.72	-254.11	703.94	602.23	101.70	6.921	
2,700.00	2,667.33	2,411.74	2,348.04	106.95	8.95	-171.65	-253.24	-279.97	764.19	658.34	105.85	7.220	
2,800.00	2,764.97	2,491.52	2,420.37	111.39	9.60	-171.45	-274.76	-305.83	824.45	714.45	110.00	7.495	
2,900.00	2,862.61	2,571.29	2,492.71	115.84	10.26	-171.28	-296.28	-331.69	884.71	770.55	114.17	7.749	
3,000.00	2,960.25	2,651.07	2,565.04	120.31	10.92	-171.13	-317.81	-357.55	944.98	826.64	118.34	7.986	
3,100.00	3,057.89	2,730.84	2,637.38	124.78	11.59	-171.00	-339.33	-383.41	1,005.25	882.74	122.51	8.205	
3,200.00	3,155.53	2,810.62	2,709.71	129.26	12.26	-170.88	-360.85	-409.26	1,065.53	938.83	126.70	8.410	
3,300.00	3,253.17	2,890.39	2,782.04	133.75	12.93	-170.77	-382.37	-435.12	1,125.80	994.92	130.88	8.601	
3,400.00	3,350.81	2,970.17	2,854.38	138.24	13.60	-170.68	-403.89	-460.98	1,186.08	1,051.00	135.08	8.781	
3,500.00	3,448.45	3,049.94	2,926.71	142.74	14.28	-170.60	-425.42	-486.84	1,246.36	1,107.09	139.28	8.949	
3,600.00	3,546.09	3,129.72	2,999.05	147.25	14.96	-170.52	-446.94	-512.70	1,306.65	1,163.17	143.48	9.107	
3,700.00	3,643.73	3,209.49	3,071.38	151.77	15.64	-170.45	-468.46	-538.56	1,366.93	1,219.24	147.69	9.256	
3,800.00	3,741.37	3,289.27	3,143.71	156.28	16.32	-170.39	-489.98	-564.42	1,427.22	1,275.32	151.90	9.396	
3,900.00	3,839.01	3,369.05	3,216.05	160.81	17.00	-170.33	-511.50	-590.28	1,487.50	1,331.39	156.11	9.529	
4,000.00	3,936.65	3,448.82	3,288.38	165.33	17.68	-170.27	-533.03	-616.14	1,547.79	1,387.47	160.32	9.654	
4,100.00	4,034.30	3,528.60	3,360.72	169.86	18.36	-170.22	-554.55	-642.00	1,608.08	1,443.53	164.54	9.773	
4,200.00	4,131.94	3,608.37	3,433.05	174.39	19.05	-170.18	-576.07	-667.86	1,668.37	1,499.60	168.76	9.886	
4,300.00	4,229.58	3,688.15	3,505.38	178.93	19.73	-170.13	-597.59	-693.71	1,728.66	1,555.67	172.99	9.993	
4,400.00	4,327.22	3,767.92	3,577.72	183.47	20.42	-170.09	-619.11	-719.57	1,788.95	1,611.73	177.21	10.095	
4,500.00	4,424.86	3,847.70	3,650.05	188.01	21.10	-170.05	-640.64	-745.43	1,849.24	1,667.80	181.44	10.192	
4,600.00	4,522.50	3,927.47	3,722.39	192.56	21.79	-170.02	-662.16	-771.29	1,909.53	1,723.86	185.67	10.285	
4,700.00	4,620.14	4,007.25	3,794.72	197.10	22.47	-169.98	-683.68	-797.15	1,969.82	1,779.92	189.90	10.373	
4,800.00	4,717.78	4,087.02	3,867.06	201.65	23.16	-169.95	-705.20	-823.01	2,030.11	1,835.98	194.13	10.457	
4,900.00	4,815.42	4,166.80	3,939.39	206.20	23.85	-169.92	-726.72	-848.87	2,090.40	1,892.04	198.37	10.538	

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design WELD_CARMA 6 PAD - P_CARMA 32-36 - P_CARMA 32-36 - 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
5,000.00	4,913.06	4,246.57	4,011.72	210.76	24.54	-169.90	-748.25	-874.73	2,150.70	1,948.09	202.60	10.615	
5,100.00	5,010.70	4,326.35	4,084.06	215.31	25.22	-169.87	-769.77	-900.59	2,210.99	2,004.15	206.84	10.689	
5,200.00	5,108.34	4,406.13	4,156.39	219.87	25.91	-169.84	-791.29	-926.45	2,271.28	2,060.21	211.08	10.760	
5,300.00	5,205.98	4,485.90	4,228.73	224.43	26.60	-169.82	-812.81	-952.30	2,331.58	2,116.26	215.32	10.829	
5,400.00	5,303.62	4,565.68	4,301.06	228.99	27.29	-169.80	-834.33	-978.16	2,391.87	2,172.31	219.56	10.894	
5,500.00	5,401.26	4,645.45	4,373.39	233.55	27.98	-169.78	-855.86	-1,004.02	2,452.16	2,228.37	223.80	10.957	
5,512.38	5,413.35	4,655.33	4,382.35	234.11	28.07	-169.77	-858.52	-1,007.22	2,459.63	2,235.31	224.32	10.965	
5,600.00	5,499.18	4,726.01	4,446.44	238.05	28.68	-169.98	-877.59	-1,030.14	2,511.40	2,282.97	228.43	10.994	
5,700.00	5,597.74	4,808.53	4,521.26	242.41	29.39	-170.17	-899.85	-1,056.88	2,567.85	2,334.97	232.88	11.026	
5,800.00	5,696.83	4,892.93	4,597.79	246.62	30.12	-170.33	-922.62	-1,084.24	2,621.43	2,384.36	237.07	11.057	
5,900.00	5,796.32	4,979.11	4,675.93	250.68	30.86	-170.46	-945.87	-1,112.18	2,672.08	2,431.08	241.00	11.088	
6,000.00	5,896.11	5,066.95	4,755.58	254.59	31.62	-170.55	-969.57	-1,140.65	2,719.74	2,475.08	244.65	11.117	
6,100.00	5,996.06	5,386.88	5,049.66	258.36	33.81	-170.41	-1,049.97	-1,237.25	2,763.94	2,515.19	248.75	11.111	
6,135.94	6,032.00	6,288.46	5,930.65	259.59	36.80	-135.76	-1,160.77	-1,370.39	2,771.14	2,519.37	251.77	11.006	
6,200.00	6,096.06	6,453.89	6,096.06	261.64	36.94	-135.76	-1,162.01	-1,371.87	2,771.21	2,516.96	254.25	10.900	
6,300.00	6,196.06	6,553.89	6,196.06	264.86	37.01	-135.76	-1,162.01	-1,371.87	2,771.21	2,513.32	257.90	10.745	
6,400.00	6,296.06	6,653.89	6,296.06	268.10	37.08	-135.76	-1,162.01	-1,371.87	2,771.21	2,509.65	261.56	10.595	
6,500.00	6,396.06	6,753.89	6,396.06	271.36	37.15	-135.76	-1,162.01	-1,371.87	2,771.21	2,505.97	265.24	10.448	
6,600.00	6,496.06	6,853.89	6,496.06	274.64	37.23	-135.76	-1,162.01	-1,371.87	2,771.21	2,502.28	268.93	10.305	
6,700.00	6,596.06	6,953.89	6,596.06	277.94	37.30	-135.76	-1,162.01	-1,371.87	2,771.21	2,498.57	272.64	10.164	
6,800.00	6,696.06	7,053.89	6,696.06	281.25	37.38	-135.76	-1,162.01	-1,371.87	2,771.21	2,494.85	276.36	10.027	
6,900.00	6,796.06	7,153.89	6,796.06	284.59	37.46	-135.76	-1,162.01	-1,371.87	2,771.21	2,491.11	280.10	9.894	
7,000.00	6,896.06	7,253.89	6,896.06	287.94	37.54	-135.76	-1,162.01	-1,371.87	2,771.21	2,487.36	283.85	9.763	
7,100.00	6,996.06	7,353.89	6,996.06	291.30	37.62	-135.76	-1,162.01	-1,371.87	2,771.21	2,483.60	287.62	9.635	
7,200.00	7,096.06	7,453.89	7,096.06	294.69	37.70	-135.76	-1,162.01	-1,371.87	2,771.21	2,479.82	291.39	9.510	
7,300.00	7,196.06	7,553.89	7,196.06	298.09	37.78	-135.76	-1,162.01	-1,371.87	2,771.21	2,476.03	295.18	9.388	
7,400.00	7,296.06	7,653.89	7,296.06	301.50	37.86	-135.76	-1,162.01	-1,371.87	2,771.21	2,472.23	298.98	9.269	
7,500.00	7,396.06	7,753.89	7,396.06	304.93	37.95	-135.76	-1,162.01	-1,371.87	2,771.21	2,468.42	302.79	9.152	
7,600.00	7,496.06	7,853.89	7,496.06	308.37	38.03	-135.76	-1,162.01	-1,371.87	2,771.21	2,464.60	306.61	9.038	
7,700.00	7,596.06	7,953.89	7,596.06	311.82	38.12	-135.76	-1,162.01	-1,371.87	2,771.21	2,460.77	310.44	8.927	
7,800.00	7,696.06	8,053.89	7,696.06	315.29	38.21	-135.76	-1,162.01	-1,371.87	2,771.21	2,456.93	314.28	8.818	
7,900.00	7,796.06	8,153.89	7,796.06	318.77	38.30	-135.76	-1,162.01	-1,371.87	2,771.21	2,453.08	318.13	8.711	
7,980.94	7,877.00	8,234.83	7,877.00	321.59	38.37	-135.76	-1,162.01	-1,371.87	2,771.21	2,449.96	321.26	8.626	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	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
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	-37.49	10.93	-8.38	13.77				
100.00	100.00	100.00	100.00	1.70	0.10	-37.49	10.93	-8.38	13.77	11.98	1.80	7.671	
200.00	200.00	200.00	200.00	5.70	0.32	-37.49	10.93	-8.38	13.77	7.75	6.02	2.288	
300.00	300.00	300.00	300.00	9.70	0.55	-37.49	10.93	-8.38	13.77	3.53	10.25	1.344 Level 3	
400.00	400.00	400.00	400.00	13.70	0.77	-37.49	10.93	-8.38	13.77	-0.70	14.47	0.952 Level 1	
500.00	500.00	500.00	500.00	17.70	0.99	-37.49	10.93	-8.38	13.77	-4.92	18.69	0.737 Level 1	
600.00	600.00	600.00	600.00	21.70	1.22	-37.49	10.93	-8.38	13.77	-9.15	22.92	0.601 Level 1	
700.00	700.00	700.00	700.00	25.70	1.44	-37.49	10.93	-8.38	13.77	-13.37	27.14	0.507 Level 1	
800.00	800.00	800.00	800.00	29.70	1.67	-37.49	10.93	-8.38	13.77	-17.60	31.37	0.439 Level 1	
900.00	900.00	900.00	900.00	33.70	1.89	-37.49	10.93	-8.38	13.77	-21.82	35.59	0.387 Level 1	
973.51	973.50	973.44	973.43	36.40	2.04	-79.51	10.39	-9.16	13.65	-24.79	38.44	0.355 Level 1, CC	
1,000.00	999.98	999.86	999.84	37.37	2.10	-86.08	9.94	-9.81	13.74	-25.73	39.47	0.348 Level 1, ES, SF	
1,100.00	1,099.84	1,099.02	1,098.86	40.80	2.29	-120.15	6.99	-14.06	18.06	-24.99	43.06	0.419 Level 1	
1,200.00	1,199.45	1,196.79	1,196.26	44.35	2.49	-143.66	2.18	-21.01	31.90	-14.75	46.65	0.684 Level 1	
1,300.00	1,298.70	1,292.55	1,291.32	48.01	2.71	-154.29	-4.37	-30.45	54.19	3.94	50.25	1.078 Level 2	
1,400.00	1,397.47	1,385.69	1,383.36	51.78	2.96	-159.40	-12.47	-42.14	83.59	29.74	53.86	1.552	
1,500.00	1,495.62	1,476.03	1,472.16	55.67	3.23	-162.16	-21.94	-55.81	119.47	62.02	57.45	2.080	
1,523.56	1,518.65	1,497.69	1,493.39	56.61	3.31	-162.64	-24.37	-59.32	128.69	70.40	58.29	2.208	
1,600.00	1,593.28	1,567.82	1,562.15	59.68	3.55	-164.00	-32.24	-70.67	158.92	97.61	61.30	2.592	
1,700.00	1,690.92	1,659.58	1,652.11	63.77	3.87	-165.16	-42.53	-85.52	198.54	133.26	65.28	3.042	
1,800.00	1,788.57	1,751.34	1,742.07	67.93	4.21	-165.93	-52.83	-100.37	238.20	168.92	69.29	3.438	
1,900.00	1,886.21	1,843.09	1,832.03	72.13	4.57	-166.48	-63.12	-115.23	277.90	204.57	73.32	3.790	
2,000.00	1,983.85	1,934.85	1,921.99	76.39	4.93	-166.89	-73.42	-130.08	317.60	240.22	77.39	4.104	
2,100.00	2,081.49	2,026.61	2,011.95	80.68	5.30	-167.22	-83.71	-144.93	357.32	275.86	81.47	4.386	
2,200.00	2,179.13	2,118.36	2,101.91	85.00	5.67	-167.47	-94.00	-159.78	397.05	311.49	85.57	4.640	
2,300.00	2,276.77	2,210.12	2,191.87	89.35	6.05	-167.68	-104.30	-174.64	436.78	347.11	89.68	4.871	
2,400.00	2,374.41	2,301.88	2,281.83	93.72	6.43	-167.86	-114.59	-189.49	476.52	382.72	93.80	5.080	
2,500.00	2,472.05	2,393.64	2,371.79	98.11	6.81	-168.01	-124.89	-204.34	516.26	418.32	97.94	5.271	
2,600.00	2,569.69	2,485.39	2,461.75	102.52	7.20	-168.13	-135.18	-219.19	556.00	453.92	102.08	5.446	
2,700.00	2,667.33	2,577.15	2,551.71	106.95	7.59	-168.24	-145.47	-234.05	595.75	489.51	106.24	5.608	
2,800.00	2,764.97	2,668.91	2,641.67	111.39	7.98	-168.34	-155.77	-248.90	635.49	525.09	110.40	5.756	
2,900.00	2,862.61	2,760.66	2,731.63	115.84	8.37	-168.43	-166.06	-263.75	675.24	560.67	114.57	5.894	
3,000.00	2,960.25	2,852.42	2,821.59	120.31	8.77	-168.50	-176.36	-278.60	714.99	596.25	118.74	6.021	
3,100.00	3,057.89	2,944.18	2,911.55	124.78	9.16	-168.57	-186.65	-293.46	754.74	631.82	122.92	6.140	
3,200.00	3,155.53	3,035.93	3,001.51	129.26	9.56	-168.63	-196.94	-308.31	794.49	667.39	127.10	6.251	
3,300.00	3,253.17	3,127.69	3,091.47	133.75	9.96	-168.68	-207.24	-323.16	834.24	702.95	131.29	6.354	
3,400.00	3,350.81	3,219.45	3,181.43	138.24	10.36	-168.73	-217.53	-338.01	873.99	738.51	135.48	6.451	
3,500.00	3,448.45	3,311.21	3,271.39	142.74	10.76	-168.78	-227.83	-352.87	913.74	774.06	139.68	6.542	
3,600.00	3,546.09	3,402.96	3,361.35	147.25	11.16	-168.82	-238.12	-367.72	953.50	809.62	143.88	6.627	
3,700.00	3,643.73	3,494.72	3,451.31	151.77	11.56	-168.86	-248.41	-382.57	993.25	845.17	148.08	6.708	
3,800.00	3,741.37	3,586.48	3,541.27	156.28	11.96	-168.90	-258.71	-397.42	1,033.00	880.72	152.28	6.783	
3,900.00	3,839.01	3,678.23	3,631.23	160.81	12.36	-168.93	-269.00	-412.28	1,072.76	916.27	156.49	6.855	
4,000.00	3,936.65	3,769.99	3,721.19	165.33	12.76	-168.96	-279.30	-427.13	1,112.51	951.81	160.70	6.923	
4,100.00	4,034.30	3,861.75	3,811.15	169.86	13.16	-168.99	-289.59	-441.98	1,152.26	987.35	164.91	6.987	
4,200.00	4,131.94	3,953.50	3,901.11	174.39	13.56	-169.01	-299.88	-456.83	1,192.02	1,022.90	169.12	7.048	
4,300.00	4,229.58	4,045.26	3,991.07	178.93	13.97	-169.04	-310.18	-471.69	1,231.77	1,058.44	173.34	7.106	
4,400.00	4,327.22	4,137.02	4,081.03	183.47	14.37	-169.06	-320.47	-486.54	1,271.53	1,093.97	177.55	7.161	
4,500.00	4,424.86	4,228.78	4,170.99	188.01	14.77	-169.08	-330.76	-501.39	1,311.28	1,129.51	181.77	7.214	
4,600.00	4,522.50	4,320.53	4,260.95	192.56	15.18	-169.11	-341.06	-516.24	1,351.04	1,165.05	185.99	7.264	
4,700.00	4,620.14	4,412.29	4,350.91	197.10	15.58	-169.12	-351.35	-531.10	1,390.79	1,200.58	190.21	7.312	
4,800.00	4,717.78	4,504.05	4,440.87	201.65	15.98	-169.14	-361.65	-545.95	1,430.55	1,236.11	194.43	7.358	
4,900.00	4,815.42	4,595.80	4,530.83	206.20	16.39	-169.16	-371.94	-560.80	1,470.30	1,271.65	198.66	7.401	

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> WELD_CARMA 6 PAD - P_CARMA 5-36 - P_CARMA 5-36 - PLAN #1 12-16-09 RHS												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	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	4,913.06	4,687.56	4,620.79	210.76	16.79	-169.18	-382.23	-575.65	1,510.06	1,307.18	202.88	7.443	
5,100.00	5,010.70	4,779.32	4,710.75	215.31	17.20	-169.19	-392.53	-590.51	1,549.81	1,342.71	207.11	7.483	
5,200.00	5,108.34	4,871.07	4,800.71	219.87	17.60	-169.21	-402.82	-605.36	1,589.57	1,378.24	211.33	7.522	
5,300.00	5,205.98	4,962.83	4,890.67	224.43	18.01	-169.22	-413.12	-620.21	1,629.33	1,413.76	215.56	7.559	
5,400.00	5,303.62	5,054.59	4,980.63	228.99	18.41	-169.24	-423.41	-635.06	1,669.08	1,449.29	219.79	7.594	
5,500.00	5,401.26	5,146.35	5,070.59	233.55	18.82	-169.25	-433.70	-649.92	1,708.84	1,484.82	224.02	7.628	
5,512.38	5,413.35	5,157.70	5,081.73	234.11	18.87	-169.25	-434.98	-651.75	1,713.76	1,489.22	224.54	7.632	
5,600.00	5,499.18	5,238.61	5,161.05	238.05	19.22	-169.39	-444.06	-664.85	1,747.38	1,518.83	228.55	7.645	
5,700.00	5,597.74	5,332.14	5,252.74	242.41	19.64	-169.51	-454.55	-679.99	1,782.76	1,549.87	232.89	7.655	
5,800.00	5,696.83	5,426.82	5,345.57	246.62	20.06	-169.59	-465.17	-695.32	1,814.91	1,577.95	236.96	7.659	
5,900.00	5,796.32	5,522.53	5,439.41	250.68	20.48	-169.64	-475.91	-710.81	1,843.79	1,603.03	240.76	7.658	
6,000.00	5,896.11	5,758.14	5,671.81	254.59	21.20	-169.58	-497.73	-742.30	1,866.47	1,621.92	244.56	7.632	
6,100.00	5,996.06	6,036.31	5,949.12	258.36	21.72	-169.55	-509.44	-759.20	1,876.69	1,628.62	248.07	7.565	
6,135.94	6,032.00	6,119.20	6,032.00	259.59	21.83	-135.25	-509.97	-759.96	1,877.24	1,628.11	249.13	7.535	
6,200.00	6,096.06	6,183.26	6,096.06	261.64	21.91	-135.25	-509.97	-759.96	1,877.24	1,625.76	251.48	7.465	
6,300.00	6,196.06	6,283.26	6,196.06	264.86	22.02	-135.25	-509.97	-759.96	1,877.24	1,622.08	255.15	7.357	
6,400.00	6,296.06	6,383.26	6,296.06	268.10	22.14	-135.25	-509.97	-759.96	1,877.24	1,618.39	258.85	7.252	
6,500.00	6,396.06	6,483.26	6,396.06	271.36	22.27	-135.25	-509.97	-759.96	1,877.24	1,614.68	262.55	7.150	
6,600.00	6,496.06	6,583.26	6,496.06	274.64	22.39	-135.25	-509.97	-759.96	1,877.24	1,610.96	266.28	7.050	
6,700.00	6,596.06	6,683.26	6,596.06	277.94	22.51	-135.25	-509.97	-759.96	1,877.24	1,607.22	270.02	6.952	
6,800.00	6,696.06	6,783.26	6,696.06	281.25	22.64	-135.25	-509.97	-759.96	1,877.24	1,603.47	273.77	6.857	
6,900.00	6,796.06	6,883.26	6,796.06	284.59	22.77	-135.25	-509.97	-759.96	1,877.24	1,599.70	277.54	6.764	
7,000.00	6,896.06	6,983.26	6,896.06	287.94	22.90	-135.25	-509.97	-759.96	1,877.24	1,595.92	281.31	6.673	
7,100.00	6,996.06	7,083.26	6,996.06	291.30	23.03	-135.25	-509.97	-759.96	1,877.24	1,592.13	285.11	6.584	
7,200.00	7,096.06	7,183.26	7,096.06	294.69	23.16	-135.25	-509.97	-759.96	1,877.24	1,588.33	288.91	6.498	
7,300.00	7,196.06	7,283.26	7,196.06	298.09	23.29	-135.25	-509.97	-759.96	1,877.24	1,584.51	292.72	6.413	
7,400.00	7,296.06	7,383.26	7,296.06	301.50	23.43	-135.25	-509.97	-759.96	1,877.24	1,580.69	296.55	6.330	
7,500.00	7,396.06	7,483.26	7,396.06	304.93	23.56	-135.25	-509.97	-759.96	1,877.24	1,576.85	300.39	6.249	
7,600.00	7,496.06	7,583.26	7,496.06	308.37	23.70	-135.25	-509.97	-759.96	1,877.24	1,573.00	304.23	6.170	
7,700.00	7,596.06	7,683.26	7,596.06	311.82	23.84	-135.25	-509.97	-759.96	1,877.24	1,569.15	308.09	6.093	
7,800.00	7,696.06	7,783.26	7,696.06	315.29	23.98	-135.25	-509.97	-759.96	1,877.24	1,565.28	311.96	6.018	
7,900.00	7,796.06	7,883.26	7,796.06	318.77	24.12	-135.25	-509.97	-759.96	1,877.24	1,561.40	315.83	5.944	
7,950.16	7,846.22	7,933.42	7,846.22	320.52	24.20	-135.25	-509.97	-759.96	1,877.24	1,559.46	317.78	5.907	
7,980.94	7,877.00	7,954.20	7,867.00	321.59	24.22	-135.25	-509.97	-759.96	1,877.26	1,558.31	318.96	5.886	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	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						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	-157.83	-116.57	-47.50	127.62				
100.00	100.00	79.00	79.00	1.70	1.58	-157.83	-116.57	-47.50	125.88	122.60	3.28	38.377	
200.00	200.00	179.00	179.00	5.70	5.16	-157.83	-116.57	-47.50	125.88	115.02	10.86	11.591	
300.00	300.00	279.00	279.00	9.70	9.16	-157.83	-116.57	-47.50	125.88	107.02	18.86	6.674	
400.00	400.00	379.00	379.00	13.70	13.16	-157.83	-116.57	-47.50	125.88	99.02	26.86	4.686	
500.00	500.00	479.00	479.00	17.70	17.16	-157.83	-116.57	-47.50	125.88	91.02	34.86	3.611	
600.00	600.00	579.00	579.00	21.70	21.16	-157.83	-116.57	-47.50	125.88	83.02	42.86	2.937	
700.00	700.00	679.00	679.00	25.70	25.16	-157.83	-116.57	-47.50	125.88	75.02	50.86	2.475	
800.00	800.00	779.00	779.00	29.70	29.16	-157.83	-116.57	-47.50	125.88	67.02	58.86	2.139	
900.00	900.00	879.00	879.00	33.70	33.16	-157.83	-116.57	-47.50	125.88	59.02	66.86	1.883 CC	
1,000.00	999.98	978.98	978.98	37.37	37.16	168.03	-116.57	-47.50	127.59	53.10	74.49	1.713	
1,100.00	1,099.84	1,078.84	1,078.84	40.80	41.15	168.48	-116.57	-47.50	132.71	50.94	81.77	1.623 ES	
1,200.00	1,199.45	1,178.45	1,178.45	44.35	45.14	169.15	-116.57	-47.50	141.26	52.23	89.03	1.587 SF	
1,300.00	1,298.70	1,277.70	1,277.70	48.01	49.11	169.97	-116.57	-47.50	153.25	57.04	96.21	1.593	
1,400.00	1,397.47	1,376.47	1,376.47	51.78	53.06	170.84	-116.57	-47.50	168.68	65.39	103.28	1.633	
1,500.00	1,495.62	1,474.62	1,474.62	55.67	56.98	171.71	-116.57	-47.50	187.55	77.34	110.21	1.702	
1,523.56	1,518.65	1,497.65	1,497.65	56.61	57.91	171.91	-116.57	-47.50	192.49	80.68	111.82	1.722	
1,600.00	1,593.28	1,572.28	1,572.28	59.68	60.89	172.55	-116.57	-47.50	208.85	91.26	117.59	1.776	
1,700.00	1,690.92	1,669.92	1,669.92	63.77	64.80	173.25	-116.57	-47.50	230.29	105.11	125.18	1.840	
1,800.00	1,788.57	1,767.57	1,767.57	67.93	68.70	173.82	-116.57	-47.50	251.76	118.95	132.80	1.896	
1,900.00	1,886.21	1,865.21	1,865.21	72.13	72.61	174.31	-116.57	-47.50	273.24	132.80	140.44	1.946	
2,000.00	1,983.85	1,962.85	1,962.85	76.39	76.51	174.73	-116.57	-47.50	294.74	146.65	148.10	1.990	
2,100.00	2,081.49	2,060.49	2,060.49	80.68	80.42	175.09	-116.57	-47.50	316.25	160.49	155.77	2.030	
2,200.00	2,179.13	2,158.13	2,158.13	85.00	84.33	175.40	-116.57	-47.50	337.78	174.32	163.46	2.066	
2,300.00	2,276.77	2,255.77	2,255.77	89.35	88.23	175.68	-116.57	-47.50	359.31	188.16	171.15	2.099	
2,400.00	2,374.41	2,353.41	2,353.41	93.72	92.14	175.92	-116.57	-47.50	380.85	201.99	178.86	2.129	
2,500.00	2,472.05	2,451.05	2,451.05	98.11	96.04	176.14	-116.57	-47.50	402.40	215.82	186.58	2.157	
2,600.00	2,569.69	2,548.69	2,548.69	102.52	99.95	176.34	-116.57	-47.50	423.95	229.64	194.30	2.182	
2,700.00	2,667.33	2,646.33	2,646.33	106.95	103.85	176.51	-116.57	-47.50	445.50	243.47	202.04	2.205	
2,800.00	2,764.97	2,743.97	2,743.97	111.39	107.76	176.68	-116.57	-47.50	467.06	257.29	209.77	2.226	
2,900.00	2,862.61	2,841.61	2,841.61	115.84	111.66	176.82	-116.57	-47.50	488.62	271.11	217.52	2.246	
3,000.00	2,960.25	2,939.25	2,939.25	120.31	115.57	176.96	-116.57	-47.50	510.19	284.92	225.27	2.265	
3,100.00	3,057.89	3,036.89	3,036.89	124.78	119.48	177.08	-116.57	-47.50	531.76	298.74	233.02	2.282	
3,200.00	3,155.53	3,134.53	3,134.53	129.26	123.38	177.19	-116.57	-47.50	553.32	312.55	240.78	2.298	
3,300.00	3,253.17	3,232.17	3,232.17	133.75	127.29	177.30	-116.57	-47.50	574.90	326.36	248.54	2.313	
3,400.00	3,350.81	3,329.81	3,329.81	138.24	131.19	177.40	-116.57	-47.50	596.47	340.17	256.30	2.327	
3,500.00	3,448.45	3,427.45	3,427.45	142.74	135.10	177.49	-116.57	-47.50	618.04	353.98	264.07	2.340	
3,600.00	3,546.09	3,525.09	3,525.09	147.25	139.00	177.57	-116.57	-47.50	639.62	367.78	271.84	2.353	
3,700.00	3,643.73	3,622.73	3,622.73	151.77	142.91	177.65	-116.57	-47.50	661.20	381.59	279.61	2.365	
3,800.00	3,741.37	3,720.37	3,720.37	156.28	146.81	177.73	-116.57	-47.50	682.77	395.39	287.38	2.376	
3,900.00	3,839.01	3,818.01	3,818.01	160.81	150.72	177.80	-116.57	-47.50	704.35	409.20	295.16	2.386	
4,000.00	3,936.65	3,915.65	3,915.65	165.33	154.63	177.86	-116.57	-47.50	725.93	423.00	302.94	2.396	
4,100.00	4,034.30	4,013.30	4,013.30	169.86	158.53	177.92	-116.57	-47.50	747.52	436.80	310.72	2.406	
4,200.00	4,131.94	4,110.94	4,110.94	174.39	162.44	177.98	-116.57	-47.50	769.10	450.60	318.50	2.415	
4,300.00	4,229.58	4,208.58	4,208.58	178.93	166.34	178.04	-116.57	-47.50	790.68	464.40	326.28	2.423	
4,400.00	4,327.22	4,306.22	4,306.22	183.47	170.25	178.09	-116.57	-47.50	812.26	478.20	334.07	2.431	
4,500.00	4,424.86	4,403.86	4,403.86	188.01	174.15	178.14	-116.57	-47.50	833.85	492.00	341.85	2.439	
4,600.00	4,522.50	4,501.50	4,501.50	192.56	178.06	178.19	-116.57	-47.50	855.43	505.79	349.64	2.447	
4,700.00	4,620.14	4,599.14	4,599.14	197.10	181.97	178.23	-116.57	-47.50	877.02	519.59	357.43	2.454	
4,800.00	4,717.78	4,696.78	4,696.78	201.65	185.87	178.27	-116.57	-47.50	898.60	533.39	365.22	2.460	
4,900.00	4,815.42	4,794.42	4,794.42	206.20	189.78	178.31	-116.57	-47.50	920.19	547.18	373.01	2.467	
5,000.00	4,913.06	4,892.06	4,892.06	210.76	193.68	178.35	-116.57	-47.50	941.77	560.98	380.80	2.473	

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	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
5,100.00	5,010.70	4,989.70	4,989.70	215.31	197.59	178.39	-116.57	-47.50	963.36	574.77	388.59	2.479	
5,200.00	5,108.34	5,087.34	5,087.34	219.87	201.49	178.42	-116.57	-47.50	984.95	588.56	396.38	2.485	
5,300.00	5,205.98	5,184.98	5,184.98	224.43	205.40	178.46	-116.57	-47.50	1,006.53	602.36	404.18	2.490	
5,400.00	5,303.62	5,282.62	5,282.62	228.99	209.30	178.49	-116.57	-47.50	1,028.12	616.15	411.97	2.496	
5,500.00	5,401.26	5,380.26	5,380.26	233.55	213.21	178.52	-116.57	-47.50	1,049.71	629.94	419.77	2.501	
5,512.38	5,413.35	5,392.35	5,392.35	234.11	213.69	178.53	-116.57	-47.50	1,052.38	631.65	420.73	2.501	
5,600.00	5,499.18	5,478.18	5,478.18	238.05	217.13	178.56	-116.57	-47.50	1,069.99	640.91	429.08	2.494	
5,700.00	5,597.74	5,576.74	5,576.74	242.41	221.07	178.59	-116.57	-47.50	1,086.86	648.67	438.19	2.480	
5,800.00	5,696.83	5,675.83	5,675.83	246.62	225.03	178.61	-116.57	-47.50	1,100.29	653.46	446.83	2.462	
5,900.00	5,796.32	5,775.32	5,775.32	250.68	229.01	178.63	-116.57	-47.50	1,110.25	655.28	454.97	2.440	
6,000.00	5,896.11	5,875.11	5,875.11	254.59	233.00	178.64	-116.57	-47.50	1,116.74	654.14	462.59	2.414	
6,100.00	5,996.06	5,975.06	5,975.06	258.36	237.00	178.65	-116.57	-47.50	1,119.73	650.06	469.67	2.384	
6,135.94	6,032.00	6,011.00	6,011.00	259.59	238.44	-147.06	-116.57	-47.50	1,119.96	647.97	471.99	2.373	
6,200.00	6,096.06	6,075.06	6,075.06	261.64	241.00	-147.06	-116.57	-47.50	1,119.96	643.17	476.79	2.349	
6,300.00	6,196.06	6,175.06	6,175.06	264.86	245.00	-147.06	-116.57	-47.50	1,119.96	635.66	484.30	2.313	
6,400.00	6,296.06	6,275.06	6,275.06	268.10	249.00	-147.06	-116.57	-47.50	1,119.96	628.14	491.82	2.277	
6,500.00	6,396.06	6,375.06	6,375.06	271.36	253.00	-147.06	-116.57	-47.50	1,119.96	620.60	499.36	2.243	
6,600.00	6,496.06	6,475.06	6,475.06	274.64	257.00	-147.06	-116.57	-47.50	1,119.96	613.05	506.91	2.209	
6,700.00	6,596.06	6,575.06	6,575.06	277.94	261.00	-147.06	-116.57	-47.50	1,119.96	605.48	514.47	2.177	
6,800.00	6,696.06	6,675.06	6,675.06	281.25	265.00	-147.06	-116.57	-47.50	1,119.96	597.91	522.05	2.145	
6,900.00	6,796.06	6,775.06	6,775.06	284.59	269.00	-147.06	-116.57	-47.50	1,119.96	590.32	529.64	2.115	
7,000.00	6,896.06	6,875.06	6,875.06	287.94	273.00	-147.06	-116.57	-47.50	1,119.96	582.72	537.24	2.085	
7,100.00	6,996.06	6,975.06	6,975.06	291.30	277.00	-147.06	-116.57	-47.50	1,119.96	575.11	544.85	2.056	
7,200.00	7,096.06	7,075.06	7,075.06	294.69	281.00	-147.06	-116.57	-47.50	1,119.96	567.48	552.48	2.027	
7,300.00	7,196.06	7,175.06	7,175.06	298.09	285.00	-147.06	-116.57	-47.50	1,119.96	559.85	560.11	2.000	
7,400.00	7,296.06	7,275.06	7,275.06	301.50	289.00	-147.06	-116.57	-47.50	1,119.96	552.20	567.75	1.973	
7,500.00	7,396.06	7,375.06	7,375.06	304.93	293.00	-147.06	-116.57	-47.50	1,119.96	544.55	575.41	1.946	
7,600.00	7,496.06	7,475.06	7,475.06	308.37	297.00	-147.06	-116.57	-47.50	1,119.96	536.89	583.07	1.921	
7,700.00	7,596.06	7,575.06	7,575.06	311.82	301.00	-147.06	-116.57	-47.50	1,119.96	529.22	590.74	1.896	
7,800.00	7,696.06	7,675.06	7,675.06	315.29	305.00	-147.06	-116.57	-47.50	1,119.96	521.54	598.42	1.872	
7,900.00	7,796.06	7,775.06	7,775.06	318.77	309.00	-147.06	-116.57	-47.50	1,119.96	513.85	606.11	1.848	
7,980.94	7,877.00	7,856.00	7,856.00	321.59	312.24	-147.06	-116.57	-47.50	1,119.96	507.62	612.34	1.829	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4879.00ft (Original Well Elev) Coordinates are relative to: P\_CARMA 3-36  
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°

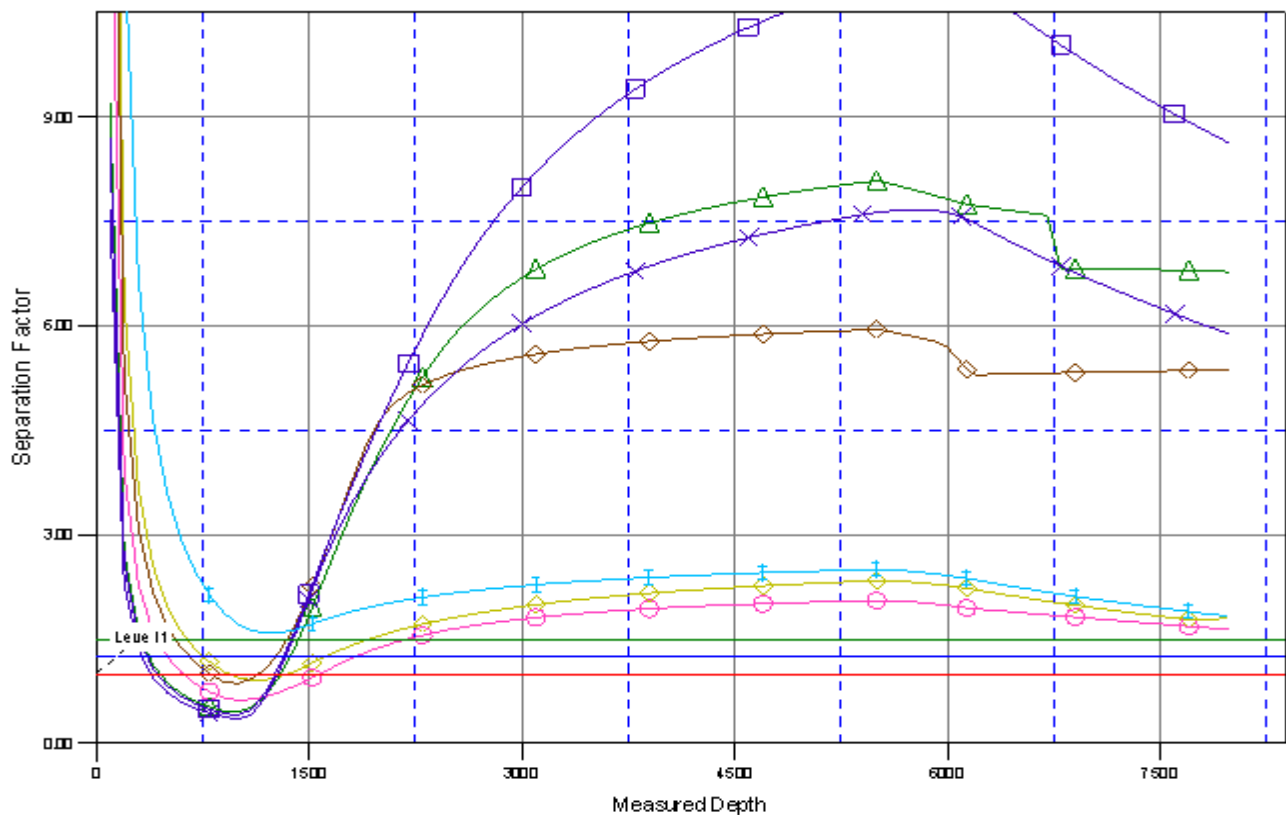




<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_CARMA 3-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_CARMA 6 PAD	<b>MD Reference:</b>	WELL @ 4879.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_CARMA 3-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_CARMA 3-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 12-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4879.00ft (Original Well Elev) Coordinates are relative to: P\_CARMA 3-36  
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\_CARMA32-36, P\_CARMA32-36, PLAN#1 12-16-09 RHS \0
- ◆ P\_CARMA536, P\_CARMA5-36, PLAN#1 12-16-09 RHS \0
- + STATE