



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_MILLER 1-30 PAD

P_MILLER 17-30

P_MILLER 17-30

Plan: PLAN #1 1-13-10 RHS

Standard Planning Report

14 January, 2010





P MILLER 17-30
COLORADO NORTHERN ZONE - 83
SECTION 30 T3N R66W
703 FNL 665 FEL
LAT: 40° 12' 3.697 N
LONG: 104° 48' 46.775 W

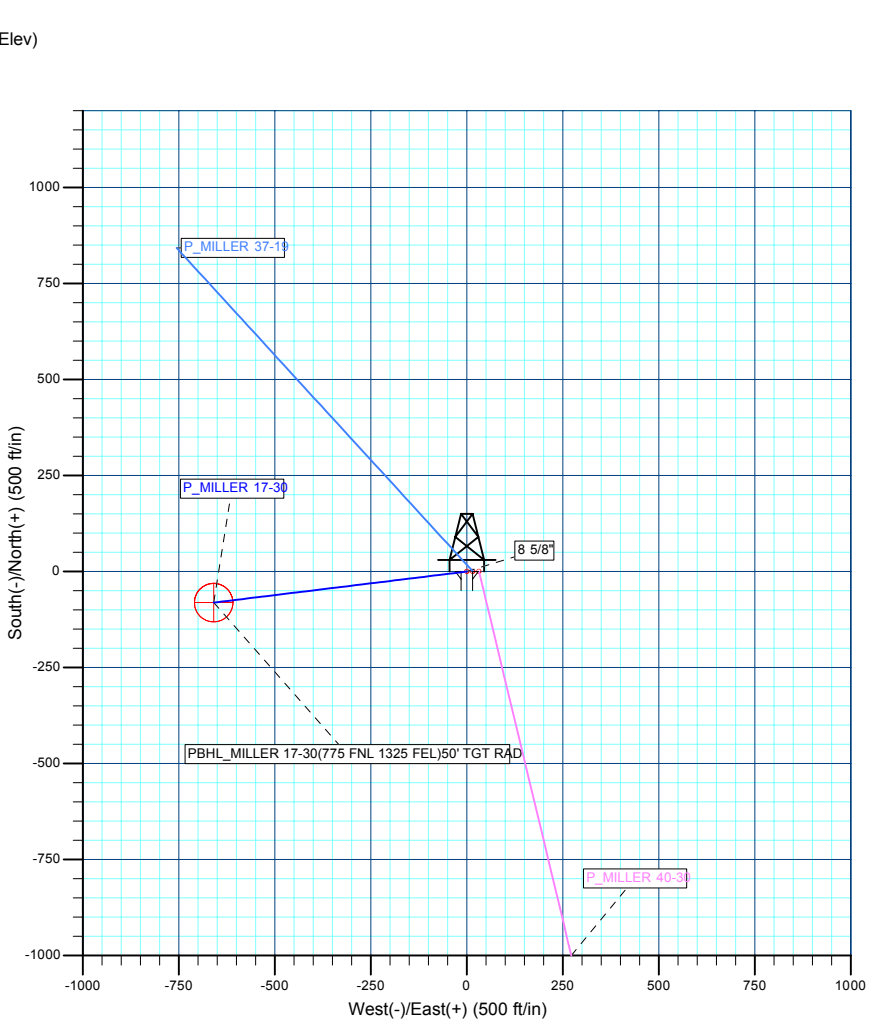
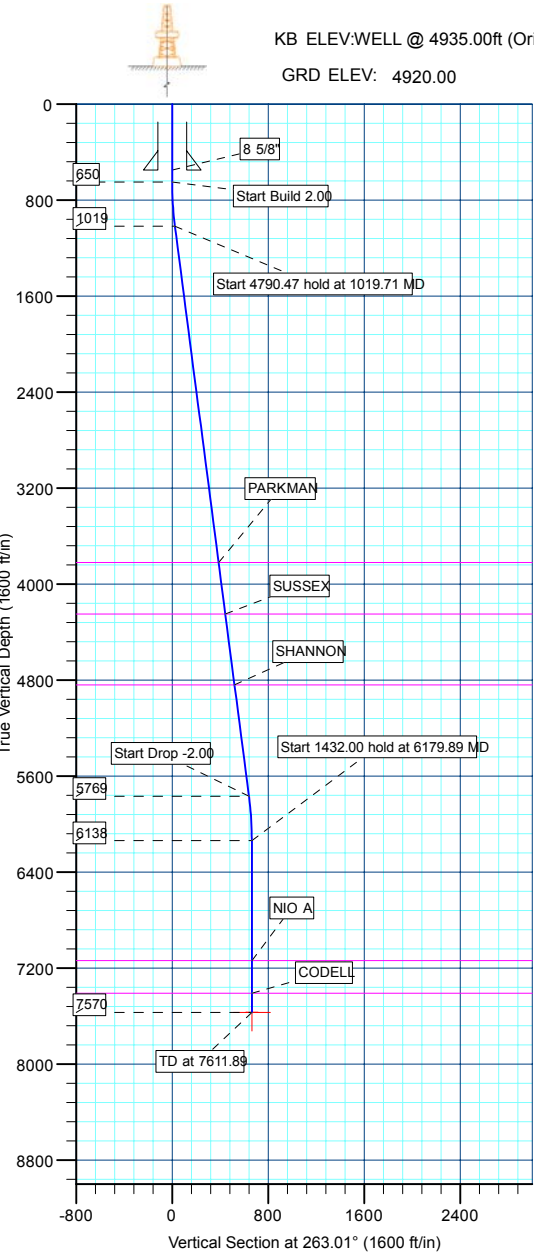


WELL DETAILS: P_MILLER 17-30						
+N/-S	+E/-W	Northing	Easting	Ground Level:	Latitude	Longitude
0.00	0.00	1316819.95	3191898.21	4920.00	40° 12' 3.697 N	104° 48' 46.775 W

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3820.00	3844.52	PARKMAN
4250.00	4278.12	SUSSEX
4840.00	4873.07	SHANNON
7138.00	7179.89	NIO A
7411.00	7452.89	CODELL

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		
650.00	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00		
1019.71	7.39	263.01	1018.69	-2.90	-23.65	2.00	263.01	23.82		
5810.18	7.39	263.01	5769.31	-77.96	-635.57	0.00	0.00	640.33		
6179.89	0.00	0.00	6138.00	-80.86	-659.22	2.00	180.00	664.16		
7611.89	0.00	0.00	7570.00	-80.86	-659.22	0.00	0.00	664.16		PBHL_MILLER 17-30(775 FNL 1325 FEL)50' TGT RAD

CASING DETAILS			
TVD	MD	Name	Size
550.00	550.00	8 5/8"	8.62



WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	7570.00	-80.86	-659.22	1316733.98	3191239.64	40° 12' 2.898 N	104° 48' 55.271 W	Circle (Radius: 50.00)

Plan: PLAN #1 1-13-10 RHS (P_MILLER 17-30/P_MILLER 17-30)
 Created By: Robert H. Scott

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MILLER 17-30
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4935.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4935.00ft (Original Well Elev)
Site:	WELD_MILLER 1-30 PAD	North Reference:	True
Well:	P_MILLER 17-30	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MILLER 17-30		
Design:	PLAN #1 1-13-10 RHS		

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

Site	WELD_MILLER 1-30 PAD, SECTION 30 T3N R66W				
Site Position:		Northing:	1,316,819.95ft	Latitude:	40° 12' 3.697 N
From:	Lat/Long	Easting:	3,191,898.21ft	Longitude:	104° 48' 46.775 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	0.44 °

Well	P_MILLER 17-30					
Well Position	+N/-S	0.00 ft	Northing:	1,316,819.95 ft	Latitude:	40° 12' 3.697 N
	+E/-W	0.00 ft	Easting:	3,191,898.21 ft	Longitude:	104° 48' 46.775 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,920.00 ft

Wellbore	P_MILLER 17-30				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/14/2010	9.06	66.93	53,170

Design	PLAN #1 1-13-10 RHS			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	263.01

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
650.00	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,019.71	7.39	263.01	1,018.69	-2.90	-23.65	2.00	2.00	0.00	263.01	
5,810.18	7.39	263.01	5,769.31	-77.96	-635.57	0.00	0.00	0.00	0.00	
6,179.89	0.00	0.00	6,138.00	-80.86	-659.22	2.00	-2.00	0.00	180.00	
7,611.89	0.00	0.00	7,570.00	-80.86	-659.22	0.00	0.00	0.00	0.00	PBHL_MILLER 17-:

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MILLER 17-30
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4935.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4935.00ft (Original Well Elev)
Site:	WELD_MILLER 1-30 PAD	North Reference:	True
Well:	P_MILLER 17-30	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MILLER 17-30		
Design:	PLAN #1 1-13-10 RHS		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Start Build 2.00									
650.00	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	1.00	263.01	700.00	-0.05	-0.43	0.44	2.00	2.00	0.00
800.00	3.00	263.01	799.93	-0.48	-3.90	3.93	2.00	2.00	0.00
900.00	5.00	263.01	899.68	-1.33	-10.82	10.90	2.00	2.00	0.00
1,000.00	7.00	263.01	999.13	-2.60	-21.19	21.35	2.00	2.00	0.00
Start 4790.47 hold at 1019.71 MD									
1,019.71	7.39	263.01	1,018.69	-2.90	-23.65	23.82	2.00	2.00	0.00
1,100.00	7.39	263.01	1,098.31	-4.16	-33.90	34.16	0.00	0.00	0.00
1,200.00	7.39	263.01	1,197.48	-5.73	-46.68	47.03	0.00	0.00	0.00
1,300.00	7.39	263.01	1,296.64	-7.29	-59.45	59.90	0.00	0.00	0.00
1,400.00	7.39	263.01	1,395.81	-8.86	-72.22	72.76	0.00	0.00	0.00
1,500.00	7.39	263.01	1,494.98	-10.43	-85.00	85.63	0.00	0.00	0.00
1,600.00	7.39	263.01	1,594.15	-11.99	-97.77	98.50	0.00	0.00	0.00
1,700.00	7.39	263.01	1,693.32	-13.56	-110.54	111.37	0.00	0.00	0.00
1,800.00	7.39	263.01	1,792.49	-15.13	-123.32	124.24	0.00	0.00	0.00
1,900.00	7.39	263.01	1,891.65	-16.69	-136.09	137.11	0.00	0.00	0.00
2,000.00	7.39	263.01	1,990.82	-18.26	-148.87	149.98	0.00	0.00	0.00
2,100.00	7.39	263.01	2,089.99	-19.83	-161.64	162.85	0.00	0.00	0.00
2,200.00	7.39	263.01	2,189.16	-21.39	-174.41	175.72	0.00	0.00	0.00
2,300.00	7.39	263.01	2,288.33	-22.96	-187.19	188.59	0.00	0.00	0.00
2,400.00	7.39	263.01	2,387.50	-24.53	-199.96	201.46	0.00	0.00	0.00
2,500.00	7.39	263.01	2,486.66	-26.09	-212.74	214.33	0.00	0.00	0.00
2,600.00	7.39	263.01	2,585.83	-27.66	-225.51	227.20	0.00	0.00	0.00
2,700.00	7.39	263.01	2,685.00	-29.23	-238.28	240.07	0.00	0.00	0.00
2,800.00	7.39	263.01	2,784.17	-30.80	-251.06	252.94	0.00	0.00	0.00
2,900.00	7.39	263.01	2,883.34	-32.36	-263.83	265.81	0.00	0.00	0.00
3,000.00	7.39	263.01	2,982.51	-33.93	-276.60	278.68	0.00	0.00	0.00
3,100.00	7.39	263.01	3,081.68	-35.50	-289.38	291.55	0.00	0.00	0.00
3,200.00	7.39	263.01	3,180.84	-37.06	-302.15	304.42	0.00	0.00	0.00
3,300.00	7.39	263.01	3,280.01	-38.63	-314.93	317.29	0.00	0.00	0.00
3,400.00	7.39	263.01	3,379.18	-40.20	-327.70	330.16	0.00	0.00	0.00
3,500.00	7.39	263.01	3,478.35	-41.76	-340.47	343.03	0.00	0.00	0.00
3,600.00	7.39	263.01	3,577.52	-43.33	-353.25	355.89	0.00	0.00	0.00
3,700.00	7.39	263.01	3,676.69	-44.90	-366.02	368.76	0.00	0.00	0.00
3,800.00	7.39	263.01	3,775.85	-46.46	-378.79	381.63	0.00	0.00	0.00
PARKMAN									
3,844.52	7.39	263.01	3,820.00	-47.16	-384.48	387.36	0.00	0.00	0.00
3,900.00	7.39	263.01	3,875.02	-48.03	-391.57	394.50	0.00	0.00	0.00
4,000.00	7.39	263.01	3,974.19	-49.60	-404.34	407.37	0.00	0.00	0.00
4,100.00	7.39	263.01	4,073.36	-51.17	-417.12	420.24	0.00	0.00	0.00
4,200.00	7.39	263.01	4,172.53	-52.73	-429.89	433.11	0.00	0.00	0.00
SUSSEX									
4,278.12	7.39	263.01	4,250.00	-53.96	-439.87	443.17	0.00	0.00	0.00
4,300.00	7.39	263.01	4,271.70	-54.30	-442.66	445.98	0.00	0.00	0.00
4,400.00	7.39	263.01	4,370.86	-55.87	-455.44	458.85	0.00	0.00	0.00
4,500.00	7.39	263.01	4,470.03	-57.43	-468.21	471.72	0.00	0.00	0.00
4,600.00	7.39	263.01	4,569.20	-59.00	-480.99	484.59	0.00	0.00	0.00
4,700.00	7.39	263.01	4,668.37	-60.57	-493.76	497.46	0.00	0.00	0.00
4,800.00	7.39	263.01	4,767.54	-62.13	-506.53	510.33	0.00	0.00	0.00
SHANNON									
4,873.07	7.39	263.01	4,840.00	-63.28	-515.87	519.73	0.00	0.00	0.00
4,900.00	7.39	263.01	4,866.71	-63.70	-519.31	523.20	0.00	0.00	0.00

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4935.00ft (Original Well Elev)
Site:	WELD_MILLER 1-30 PAD	North Reference:	True
Well:	P_MILLER 17-30	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MILLER 17-30		
Design:	PLAN #1 1-13-10 RHS		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,000.00	7.39	263.01	4,965.88	-65.27	-532.08	536.07	0.00	0.00	0.00
5,100.00	7.39	263.01	5,065.04	-66.83	-544.85	548.94	0.00	0.00	0.00
5,200.00	7.39	263.01	5,164.21	-68.40	-557.63	561.81	0.00	0.00	0.00
5,300.00	7.39	263.01	5,263.38	-69.97	-570.40	574.68	0.00	0.00	0.00
5,400.00	7.39	263.01	5,362.55	-71.53	-583.18	587.55	0.00	0.00	0.00
5,500.00	7.39	263.01	5,461.72	-73.10	-595.95	600.42	0.00	0.00	0.00
5,600.00	7.39	263.01	5,560.89	-74.67	-608.72	613.29	0.00	0.00	0.00
5,700.00	7.39	263.01	5,660.05	-76.24	-621.50	626.16	0.00	0.00	0.00
5,800.00	7.39	263.01	5,759.22	-77.80	-634.27	639.03	0.00	0.00	0.00
Start Drop -2.00									
5,810.18	7.39	263.01	5,769.31	-77.96	-635.57	640.33	0.00	0.00	0.00
5,900.00	5.60	263.01	5,858.56	-79.20	-645.66	650.50	2.00	-2.00	0.00
6,000.00	3.60	263.01	5,958.23	-80.17	-653.61	658.51	2.00	-2.00	0.00
6,100.00	1.60	263.01	6,058.12	-80.73	-658.11	663.04	2.00	-2.00	0.00
Start 1432.00 hold at 6179.89 MD									
6,179.89	0.00	0.00	6,138.00	-80.86	-659.22	664.16	2.00	-2.00	0.00
6,200.00	0.00	0.00	6,158.11	-80.86	-659.22	664.16	0.00	0.00	0.00
6,300.00	0.00	0.00	6,258.11	-80.86	-659.22	664.16	0.00	0.00	0.00
6,400.00	0.00	0.00	6,358.11	-80.86	-659.22	664.16	0.00	0.00	0.00
6,500.00	0.00	0.00	6,458.11	-80.86	-659.22	664.16	0.00	0.00	0.00
6,600.00	0.00	0.00	6,558.11	-80.86	-659.22	664.16	0.00	0.00	0.00
6,700.00	0.00	0.00	6,658.11	-80.86	-659.22	664.16	0.00	0.00	0.00
6,800.00	0.00	0.00	6,758.11	-80.86	-659.22	664.16	0.00	0.00	0.00
6,900.00	0.00	0.00	6,858.11	-80.86	-659.22	664.16	0.00	0.00	0.00
7,000.00	0.00	0.00	6,958.11	-80.86	-659.22	664.16	0.00	0.00	0.00
7,100.00	0.00	0.00	7,058.11	-80.86	-659.22	664.16	0.00	0.00	0.00
NIO A									
7,179.89	0.00	0.00	7,138.00	-80.86	-659.22	664.16	0.00	0.00	0.00
7,200.00	0.00	0.00	7,158.11	-80.86	-659.22	664.16	0.00	0.00	0.00
7,300.00	0.00	0.00	7,258.11	-80.86	-659.22	664.16	0.00	0.00	0.00
7,400.00	0.00	0.00	7,358.11	-80.86	-659.22	664.16	0.00	0.00	0.00
CODELL									
7,452.89	0.00	0.00	7,411.00	-80.86	-659.22	664.16	0.00	0.00	0.00
7,500.00	0.00	0.00	7,458.11	-80.86	-659.22	664.16	0.00	0.00	0.00
7,600.00	0.00	0.00	7,558.11	-80.86	-659.22	664.16	0.00	0.00	0.00
PBHL_MILLER 17-30(775 FNL 1325 FEL)50' TGT RAD									
7,611.89	0.00	0.00	7,570.00	-80.86	-659.22	664.16	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
PBHL_MILLER 17-30 - hit/miss target - Shape - Circle (radius 50.00)	0.00	0.00	7,570.00	-80.86	-659.22	1,316,733.98	3,191,239.64	40° 12' 2.898 N	104° 48' 55.271 W

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4935.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4935.00ft (Original Well Elev)
Site:	WELD_MILLER 1-30 PAD	North Reference:	True
Well:	P_MILLER 17-30	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MILLER 17-30		
Design:	PLAN #1 1-13-10 RHS		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
550.00	550.00	8 5/8"	8.62	11.00

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,844.52	3,820.00	PARKMAN			
4,278.12	4,250.00	SUSSEX			
4,873.07	4,840.00	SHANNON			
7,179.89	7,138.00	NIO A			
7,452.89	7,411.00	CODELL			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
650.00	650.00	0.00	0.00	Start Build 2.00
1,019.71	1,018.69	-2.90	-23.65	Start 4790.47 hold at 1019.71 MD
5,810.18	5,769.31	-77.96	-635.57	Start Drop -2.00
6,179.89	6,138.00	-80.86	-659.22	Start 1432.00 hold at 6179.89 MD
7,611.89	7,570.00	-80.86	-659.22	TD at 7611.89



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_MILLER 1-30 PAD
P_MILLER 17-30**

**P_MILLER 17-30
PLAN #1 1-13-10 RHS**

Anticollision Report

14 January, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MILLER 17-30
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4935.00ft (Original Well Elev)
Reference Site:	WELD_MILLER 1-30 PAD	MD Reference:	WELL @ 4935.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MILLER 17-30	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MILLER 17-30	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 1-13-10 RHS		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	0.00 to 20,000.00ft	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	1/14/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	7,611.89	PLAN #1 1-13-10 RHS (P_MILLER 17-30)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
WELD_MILLER 1-30 PAD						
P_MILLER 37-19 - P_MILLER 37-19 - PLAN #1 1-13-10	650.00	650.00	15.93	13.26	5.979	CC
P_MILLER 37-19 - P_MILLER 37-19 - PLAN #1 1-13-10	700.00	700.18	16.08	13.20	5.585	ES
P_MILLER 37-19 - P_MILLER 37-19 - PLAN #1 1-13-10	800.00	800.46	17.56	14.27	5.334	SF
P_MILLER 40-30 - P_MILLER 40-30 - PLAN #1 1-13-10	650.00	650.00	31.85	29.18	11.956	CC, ES
P_MILLER 40-30 - P_MILLER 40-30 - PLAN #1 1-13-10	700.00	699.87	32.38	29.51	11.300	SF

Offset Design													Offset Site Error:	0.00 ft
WELD_MILLER 1-30 PAD - P_MILLER 37-19 - P_MILLER 37-19 - PLAN #1 1-13-10 RHS													Offset Well Error:	0.00 ft
Survey Program: 0-MWD														
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	88.73	0.35	15.92	15.93					
100.00	100.00	100.00	100.00	0.10	0.10	88.73	0.35	15.92	15.93	15.73	0.19	83.358		
200.00	200.00	200.00	200.00	0.32	0.32	88.73	0.35	15.92	15.93	15.29	0.64	24.861		
300.00	300.00	300.00	300.00	0.55	0.55	88.73	0.35	15.92	15.93	14.84	1.09	14.609		
400.00	400.00	400.00	400.00	0.77	0.77	88.73	0.35	15.92	15.93	14.39	1.54	10.344		
500.00	500.00	500.00	500.00	0.99	0.99	88.73	0.35	15.92	15.93	13.94	1.99	8.006		
600.00	600.00	600.00	600.00	1.22	1.22	88.73	0.35	15.92	15.93	13.49	2.44	6.530		
650.00	650.00	650.00	650.00	1.33	1.33	88.73	0.35	15.92	15.93	13.26	2.66	5.979	CC	
700.00	700.00	700.18	700.18	1.44	1.44	-175.61	0.68	15.62	16.08	13.20	2.88	5.585	ES	
800.00	799.93	800.46	800.40	1.64	1.66	174.68	3.27	13.25	17.56	14.27	3.29	5.334	SF	
900.00	899.68	900.52	900.20	1.85	1.89	160.22	8.42	8.53	21.67	17.95	3.72	5.826		
1,000.00	999.13	1,000.19	999.32	2.10	2.14	147.29	16.12	1.48	29.40	25.22	4.18	7.033		
1,019.71	1,018.69	1,019.78	1,018.75	2.15	2.19	145.19	17.93	-0.17	31.38	27.10	4.28	7.333		
1,100.00	1,098.31	1,099.38	1,097.54	2.36	2.41	137.23	26.29	-7.84	40.09	35.39	4.70	8.527		
1,200.00	1,197.48	1,198.01	1,194.68	2.64	2.72	127.91	38.89	-19.37	52.38	47.10	5.28	9.923		
1,300.00	1,296.64	1,295.86	1,290.40	2.94	3.07	119.55	53.81	-33.04	66.86	60.96	5.90	11.333		
1,400.00	1,395.81	1,393.72	1,385.58	3.24	3.46	112.67	70.58	-48.40	83.57	77.02	6.55	12.766		
1,500.00	1,494.98	1,491.88	1,481.02	3.55	3.88	108.01	87.53	-63.92	101.16	93.97	7.20	14.056		
1,600.00	1,594.15	1,590.04	1,576.45	3.86	4.31	104.74	104.47	-79.44	119.22	111.37	7.85	15.184		
1,700.00	1,693.32	1,688.21	1,671.89	4.17	4.76	102.33	121.42	-94.96	137.55	129.04	8.51	16.165		
1,800.00	1,792.49	1,786.37	1,767.32	4.49	5.21	100.49	138.36	-110.48	156.06	146.89	9.17	17.021		
1,900.00	1,891.65	1,884.53	1,862.76	4.81	5.66	99.05	155.30	-126.00	174.70	164.87	9.83	17.769		

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MILLER 17-30
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4935.00ft (Original Well Elev)
Reference Site:	WELD_MILLER 1-30 PAD	MD Reference:	WELL @ 4935.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MILLER 17-30	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MILLER 17-30	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												WELD_MILLER 1-30 PAD - P_MILLER 37-19 - P_MILLER 37-19 - PLAN #1 1-13-10 RHS	Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance					Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)		Separation Factor	
2,000.00	1,990.82	1,982.69	1,958.19	5.13	6.13	97.88	172.25	-141.52	193.42	182.92	10.50	18.426		
2,100.00	2,089.99	2,080.86	2,053.63	5.46	6.59	96.91	189.19	-157.04	212.21	201.04	11.16	19.008		
2,200.00	2,189.16	2,179.02	2,149.07	5.78	7.06	96.11	206.13	-172.56	231.04	219.21	11.83	19.525		
2,300.00	2,288.33	2,277.18	2,244.50	6.11	7.53	95.42	223.08	-188.08	249.91	237.41	12.50	19.988		
2,400.00	2,387.50	2,375.34	2,339.94	6.43	8.01	94.83	240.02	-203.59	268.82	255.64	13.18	20.403		
2,500.00	2,486.66	2,473.51	2,435.37	6.76	8.48	94.32	256.97	-219.11	287.74	273.89	13.85	20.779		
2,600.00	2,585.83	2,571.67	2,530.81	7.09	8.96	93.87	273.91	-234.63	306.69	292.16	14.52	21.119		
2,700.00	2,685.00	2,669.83	2,626.24	7.42	9.44	93.48	290.85	-250.15	325.65	310.45	15.20	21.429		
2,800.00	2,784.17	2,767.99	2,721.68	7.75	9.92	93.13	307.80	-265.67	344.62	328.75	15.87	21.712		
2,900.00	2,883.34	2,866.16	2,817.11	8.07	10.40	92.81	324.74	-281.19	363.61	347.06	16.55	21.972		
3,000.00	2,982.51	2,964.32	2,912.55	8.40	10.88	92.53	341.68	-296.71	382.60	365.38	17.23	22.211		
3,100.00	3,081.68	3,062.48	3,007.99	8.73	11.36	92.27	358.63	-312.23	401.61	383.70	17.90	22.432		
3,200.00	3,180.84	3,160.64	3,103.42	9.06	11.84	92.04	375.57	-327.75	420.62	402.03	18.58	22.637		
3,300.00	3,280.01	3,258.81	3,198.86	9.40	12.32	91.82	392.52	-343.27	439.63	420.37	19.26	22.827		
3,400.00	3,379.18	3,356.97	3,294.29	9.73	12.80	91.63	409.46	-358.78	458.65	438.72	19.94	23.004		
3,500.00	3,478.35	3,455.13	3,389.73	10.06	13.29	91.44	426.40	-374.30	477.68	457.06	20.62	23.169		
3,600.00	3,577.52	3,553.29	3,485.16	10.39	13.77	91.28	443.35	-389.82	496.71	475.41	21.30	23.323		
3,700.00	3,676.69	3,651.46	3,580.60	10.72	14.25	91.12	460.29	-405.34	515.75	493.77	21.98	23.467		
3,800.00	3,775.85	3,749.62	3,676.04	11.05	14.74	90.98	477.24	-420.86	534.78	512.13	22.66	23.603		
3,900.00	3,875.02	3,847.78	3,771.47	11.38	15.22	90.85	494.18	-436.38	553.83	530.49	23.34	23.731		
4,000.00	3,974.19	3,945.94	3,866.91	11.72	15.71	90.72	511.12	-451.90	572.87	548.85	24.02	23.851		
4,100.00	4,073.36	4,044.11	3,962.34	12.05	16.19	90.61	528.07	-467.42	591.92	567.22	24.70	23.965		
4,200.00	4,172.53	4,142.27	4,057.78	12.38	16.68	90.50	545.01	-482.94	610.96	585.58	25.38	24.072		
4,300.00	4,271.70	4,240.43	4,153.21	12.71	17.16	90.39	561.95	-498.46	630.02	603.95	26.06	24.174		
4,400.00	4,370.86	4,338.59	4,248.65	13.04	17.65	90.30	578.90	-513.97	649.07	622.32	26.74	24.271		
4,500.00	4,470.03	4,436.76	4,344.08	13.38	18.13	90.20	595.84	-529.49	668.12	640.70	27.42	24.362		
4,600.00	4,569.20	4,534.92	4,439.52	13.71	18.62	90.12	612.79	-545.01	687.18	659.07	28.11	24.449		
4,700.00	4,668.37	4,633.08	4,534.96	14.04	19.11	90.04	629.73	-560.53	706.23	677.45	28.79	24.532		
4,800.00	4,767.54	4,731.24	4,630.39	14.37	19.59	89.96	646.67	-576.05	725.29	695.82	29.47	24.611		
4,900.00	4,866.71	4,829.41	4,725.83	14.71	20.08	89.89	663.62	-591.57	744.35	714.20	30.15	24.686		
5,000.00	4,965.88	4,927.57	4,821.26	15.04	20.56	89.82	680.56	-607.09	763.41	732.58	30.83	24.758		
5,100.00	5,065.04	5,025.73	4,916.70	15.37	21.05	89.75	697.50	-622.61	782.47	750.96	31.52	24.827		
5,200.00	5,164.21	5,123.89	5,012.13	15.71	21.54	89.69	714.45	-638.13	801.54	769.34	32.20	24.893		
5,300.00	5,263.38	5,222.06	5,107.57	16.04	22.02	89.63	731.39	-653.65	820.60	787.72	32.88	24.956		
5,400.00	5,362.55	5,320.22	5,203.00	16.37	22.51	89.57	748.34	-669.16	839.66	806.10	33.56	25.016		
5,500.00	5,461.72	5,418.38	5,298.44	16.70	23.00	89.52	765.28	-684.68	858.73	824.48	34.25	25.074		
5,600.00	5,560.89	5,516.54	5,393.88	17.04	23.48	89.46	782.22	-700.20	877.80	842.87	34.93	25.130		
5,700.00	5,660.05	5,644.11	5,518.42	17.37	23.99	89.49	802.56	-718.83	895.45	859.80	35.64	25.121		
5,800.00	5,759.22	5,777.11	5,649.42	17.70	24.40	89.73	819.41	-734.26	909.42	873.09	36.33	25.030		
5,810.18	5,769.31	5,790.70	5,662.87	17.74	24.44	89.77	820.88	-735.61	910.64	874.23	36.40	25.015		
5,900.00	5,858.56	5,911.14	5,782.38	17.98	24.74	90.26	831.84	-745.65	919.67	882.69	36.98	24.872		
6,000.00	5,958.23	6,045.92	5,916.73	18.18	25.00	90.67	839.70	-752.84	926.14	888.67	37.47	24.715		
6,100.00	6,058.12	6,181.09	6,051.82	18.35	25.18	90.95	842.89	-755.77	928.79	890.91	37.88	24.522		
6,179.89	6,138.00	6,267.28	6,138.00	18.46	25.27	-5.97	842.97	-755.84	928.87	890.75	38.12	24.367		
6,200.00	6,158.11	6,287.39	6,158.11	18.49	25.29	-5.97	842.97	-755.84	928.87	890.69	38.18	24.331		
6,300.00	6,258.11	6,387.39	6,258.11	18.64	25.41	-5.97	842.97	-755.84	928.87	890.39	38.47	24.142		
6,400.00	6,358.11	6,487.39	6,358.11	18.79	25.53	-5.97	842.97	-755.84	928.87	890.09	38.78	23.953		
6,500.00	6,458.11	6,587.39	6,458.11	18.95	25.65	-5.97	842.97	-755.84	928.87	889.78	39.09	23.765		
6,600.00	6,558.11	6,687.39	6,558.11	19.10	25.77	-5.97	842.97	-755.84	928.87	889.47	39.39	23.578		
6,700.00	6,658.11	6,787.39	6,658.11	19.26	25.89	-5.97	842.97	-755.84	928.87	889.16	39.71	23.393		
6,800.00	6,758.11	6,887.39	6,758.11	19.41	26.01	-5.97	842.97	-755.84	928.87	888.84	40.02	23.209		
6,900.00	6,858.11	6,987.39	6,858.11	19.57	26.14	-5.97	842.97	-755.84	928.87	888.53	40.34	23.027		

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



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MILLER 17-30
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4935.00ft (Original Well Elev)
Reference Site:	WELD_MILLER 1-30 PAD	MD Reference:	WELL @ 4935.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MILLER 17-30	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MILLER 17-30	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft	
Survey Program: 0-MWD												Offset Well Error:		0.00 ft
Reference		Offset		Semi Major Axis			Distance					Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)		Separation Factor	
7,000.00	6,958.11	7,087.39	6,958.11	19.73	26.27	-5.97	842.97	-755.84	928.87	888.21	40.66	22.845		
7,100.00	7,058.11	7,187.39	7,058.11	19.89	26.39	-5.97	842.97	-755.84	928.87	887.89	40.98	22.666		
7,200.00	7,158.11	7,287.39	7,158.11	20.06	26.52	-5.97	842.97	-755.84	928.87	887.56	41.31	22.488		
7,300.00	7,258.11	7,387.39	7,258.11	20.22	26.65	-5.97	842.97	-755.84	928.87	887.23	41.63	22.311		
7,400.00	7,358.11	7,487.39	7,358.11	20.39	26.78	-5.97	842.97	-755.84	928.87	886.90	41.96	22.136		
7,500.00	7,458.11	7,587.39	7,458.11	20.55	26.92	-5.97	842.97	-755.84	928.87	886.57	42.29	21.963		
7,600.00	7,558.11	7,687.39	7,558.11	20.72	27.05	-5.97	842.97	-755.84	928.87	886.24	42.63	21.791		
7,611.89	7,570.00	7,699.28	7,570.00	20.74	27.07	-5.97	842.97	-755.84	928.87	886.20	42.67	21.770		

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MILLER 17-30
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4935.00ft (Original Well Elev)
Reference Site:	WELD_MILLER 1-30 PAD	MD Reference:	WELL @ 4935.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MILLER 17-30	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MILLER 17-30	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design													WELD_MILLER 1-30 PAD - P_MILLER 40-30 - P_MILLER 40-30 - PLAN #1 1-13-10 RHS	Offset Site Error:	0.00 ft
Survey Program: 0-MWD														Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
0.00	0.00	0.00	0.00	0.00	0.00	89.37	0.35	31.84	31.85						
100.00	100.00	100.00	100.00	0.10	0.10	89.37	0.35	31.84	31.85	31.65	0.19	166.685			
200.00	200.00	200.00	200.00	0.32	0.32	89.37	0.35	31.84	31.85	31.20	0.64	49.713			
300.00	300.00	300.00	300.00	0.55	0.55	89.37	0.35	31.84	31.85	30.76	1.09	29.213			
400.00	400.00	400.00	400.00	0.77	0.77	89.37	0.35	31.84	31.85	30.31	1.54	20.684			
500.00	500.00	500.00	500.00	0.99	0.99	89.37	0.35	31.84	31.85	29.86	1.99	16.009			
600.00	600.00	600.00	600.00	1.22	1.22	89.37	0.35	31.84	31.85	29.41	2.44	13.058			
650.00	650.00	650.00	650.00	1.33	1.33	89.37	0.35	31.84	31.85	29.18	2.66	11.956	CC, ES		
700.00	700.00	699.87	699.87	1.44	1.43	-172.98	-0.07	31.94	32.38	29.51	2.87	11.300	SF		
800.00	799.93	799.40	799.33	1.64	1.61	-168.37	-3.44	32.75	36.77	33.54	3.24	11.364			
900.00	899.68	898.33	898.02	1.85	1.80	-161.89	-10.11	34.36	46.05	42.43	3.63	12.697			
1,000.00	999.13	996.28	995.43	2.10	2.02	-155.98	-19.97	36.73	60.58	56.54	4.04	14.982			
1,019.71	1,018.69	1,015.43	1,014.44	2.15	2.07	-154.97	-22.28	37.28	64.08	59.94	4.13	15.509			
1,100.00	1,098.31	1,093.03	1,091.27	2.36	2.27	-151.20	-32.89	39.83	79.45	74.94	4.51	17.630			
1,200.00	1,197.48	1,188.67	1,185.50	2.64	2.56	-146.83	-48.74	43.64	100.75	95.75	5.01	20.123			
1,300.00	1,296.64	1,283.01	1,277.88	2.94	2.89	-142.91	-67.37	48.12	124.63	119.09	5.54	22.503			
1,400.00	1,395.81	1,375.89	1,368.15	3.24	3.27	-139.43	-88.59	53.22	151.19	145.09	6.10	24.804			
1,500.00	1,494.98	1,467.14	1,456.11	3.55	3.69	-136.37	-112.20	58.89	180.48	173.80	6.67	27.051			
1,600.00	1,594.15	1,556.63	1,541.57	3.86	4.16	-133.67	-137.98	65.08	212.51	205.24	7.26	29.261			
1,700.00	1,693.32	1,644.24	1,624.40	4.17	4.67	-131.30	-165.72	71.75	247.26	239.39	7.86	31.447			
1,800.00	1,792.49	1,729.86	1,704.47	4.49	5.21	-129.21	-195.21	78.84	284.68	276.21	8.47	33.615			
1,900.00	1,891.65	1,813.43	1,781.71	4.81	5.79	-127.36	-226.21	86.29	324.71	315.63	9.08	35.770			
2,000.00	1,990.82	1,894.86	1,856.06	5.13	6.40	-125.72	-258.52	94.05	367.28	357.59	9.69	37.908			
2,100.00	2,089.99	1,983.01	1,935.89	5.46	7.09	-124.18	-294.84	102.78	411.46	401.13	10.33	39.831			
2,200.00	2,189.16	2,072.20	2,016.67	5.78	7.80	-122.92	-331.61	111.61	455.85	444.87	10.98	41.529			
2,300.00	2,288.33	2,161.40	2,097.46	6.11	8.52	-121.88	-368.38	120.45	500.39	488.76	11.62	43.051			
2,400.00	2,387.50	2,250.59	2,178.24	6.43	9.24	-121.01	-405.15	129.28	545.04	532.77	12.27	44.419			
2,500.00	2,486.66	2,339.79	2,259.02	6.76	9.97	-120.27	-441.92	138.12	589.77	576.86	12.92	45.654			
2,600.00	2,585.83	2,428.98	2,339.80	7.09	10.71	-119.64	-478.69	146.96	634.58	621.01	13.57	46.776			
2,700.00	2,685.00	2,518.18	2,420.58	7.42	11.45	-119.09	-515.46	155.79	679.43	665.22	14.22	47.797			
2,800.00	2,784.17	2,607.37	2,501.37	7.75	12.18	-118.60	-552.23	164.63	724.34	709.47	14.86	48.731			
2,900.00	2,883.34	2,696.57	2,582.15	8.07	12.93	-118.18	-589.00	173.46	769.27	753.76	15.51	49.589			
3,000.00	2,982.51	2,785.76	2,662.93	8.40	13.67	-117.80	-625.77	182.30	814.24	798.08	16.16	50.379			
3,100.00	3,081.68	2,874.96	2,743.71	8.73	14.42	-117.46	-662.54	191.13	859.24	842.42	16.82	51.098			
3,200.00	3,180.84	2,964.15	2,824.49	9.06	15.16	-117.15	-699.31	199.97	904.25	886.78	17.48	51.743			
3,300.00	3,280.01	3,053.35	2,905.28	9.40	15.91	-116.87	-736.07	208.80	949.29	931.15	18.14	52.340			
3,400.00	3,379.18	3,142.54	2,986.06	9.73	16.66	-116.62	-772.84	217.64	994.34	975.54	18.80	52.894			
3,500.00	3,478.35	3,231.74	3,066.84	10.06	17.41	-116.39	-809.61	226.48	1,039.41	1,019.94	19.46	53.410			
3,600.00	3,577.52	3,320.93	3,147.62	10.39	18.16	-116.18	-846.38	235.31	1,084.48	1,064.36	20.12	53.890			
3,700.00	3,676.69	3,410.13	3,228.40	10.72	18.91	-115.98	-883.15	244.15	1,129.57	1,108.78	20.79	54.339			
3,800.00	3,775.85	3,499.32	3,309.18	11.05	19.66	-115.80	-919.92	252.98	1,174.67	1,153.22	21.45	54.759			
3,900.00	3,875.02	3,588.52	3,389.97	11.38	20.41	-115.64	-956.69	261.82	1,219.78	1,197.66	22.12	55.153			
4,000.00	3,974.19	3,677.72	3,470.75	11.72	21.16	-115.48	-993.46	270.65	1,264.89	1,242.11	22.78	55.523			
4,100.00	4,073.36	3,766.91	3,551.53	12.05	21.91	-115.34	-1,030.23	279.49	1,310.01	1,286.56	23.45	55.871			
4,200.00	4,172.53	3,856.11	3,632.31	12.38	22.66	-115.20	-1,067.00	288.32	1,355.14	1,331.03	24.11	56.200			
4,300.00	4,271.70	3,945.30	3,713.09	12.71	23.42	-115.08	-1,103.77	297.16	1,400.27	1,375.49	24.78	56.511			
4,400.00	4,370.86	4,034.50	3,793.88	13.04	24.17	-114.96	-1,140.54	305.99	1,445.41	1,419.96	25.45	56.805			
4,500.00	4,470.03	4,123.69	3,874.66	13.38	24.92	-114.85	-1,177.31	314.83	1,490.55	1,464.44	26.11	57.083			
4,600.00	4,569.20	4,212.89	3,955.44	13.71	25.68	-114.75	-1,214.08	323.67	1,535.70	1,508.92	26.78	57.347			
4,700.00	4,668.37	4,302.08	4,036.22	14.04	26.43	-114.65	-1,250.84	332.50	1,580.85	1,553.40	27.45	57.598			
4,800.00	4,767.54	4,391.28	4,117.00	14.37	27.19	-114.55	-1,287.61	341.34	1,626.00	1,597.89	28.11	57.836			
4,900.00	4,866.71	4,480.47	4,197.79	14.71	27.94	-114.47	-1,324.38	350.17	1,671.16	1,642.38	28.78	58.064			

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MILLER 17-30
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4935.00ft (Original Well Elev)
Reference Site:	WELD_MILLER 1-30 PAD	MD Reference:	WELL @ 4935.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MILLER 17-30	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MILLER 17-30	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design													WELD_MILLER 1-30 PAD - P_MILLER 40-30 - P_MILLER 40-30 - PLAN #1 1-13-10 RHS	Offset Site Error:	0.00 ft
Survey Program: 0-MWD														Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
5,000.00	4,965.88	4,569.67	4,278.57	15.04	28.69	-114.38	-1,361.15	359.01	1,716.32	1,686.87	29.45	58.280			
5,100.00	5,065.04	4,658.86	4,359.35	15.37	29.45	-114.30	-1,397.92	367.84	1,761.48	1,731.36	30.12	58.487			
5,200.00	5,164.21	4,748.06	4,440.13	15.71	30.20	-114.23	-1,434.69	376.68	1,806.65	1,775.86	30.79	58.684			
5,300.00	5,263.38	4,837.25	4,520.91	16.04	30.96	-114.16	-1,471.46	385.51	1,851.81	1,820.36	31.45	58.873			
5,400.00	5,362.55	4,926.45	4,601.70	16.37	31.71	-114.09	-1,508.23	394.35	1,896.98	1,864.86	32.12	59.054			
5,500.00	5,461.72	5,015.64	4,682.48	16.70	32.47	-114.03	-1,545.00	403.19	1,942.16	1,909.36	32.79	59.227			
5,600.00	5,560.89	5,104.84	4,763.26	17.04	33.22	-113.96	-1,581.77	412.02	1,987.33	1,953.87	33.46	59.393			
5,700.00	5,660.05	5,194.03	4,844.04	17.37	33.98	-113.90	-1,618.54	420.86	2,032.50	1,998.37	34.13	59.552			
5,800.00	5,759.22	5,283.23	4,924.82	17.70	34.73	-113.85	-1,655.31	429.69	2,077.68	2,042.88	34.80	59.706			
5,810.18	5,769.31	5,301.15	4,941.07	17.74	34.87	-113.84	-1,662.67	431.46	2,082.27	2,047.37	34.90	59.669			
5,900.00	5,858.56	5,370.50	5,190.47	17.98	36.37	-114.41	-1,761.31	455.16	2,118.41	2,082.18	36.22	58.480			
6,000.00	5,958.23	5,895.00	5,501.93	18.18	37.78	-114.82	-1,849.27	476.30	2,148.17	2,110.65	37.52	57.261			
6,100.00	6,058.12	6,238.95	5,840.95	18.35	38.76	-115.03	-1,904.51	489.57	2,165.76	2,127.21	38.55	56.177			
6,179.89	6,138.00	6,521.28	6,122.70	18.46	39.15	147.93	-1,920.06	493.31	2,170.53	2,131.37	39.16	55.428			
6,200.00	6,158.11	6,556.68	6,158.11	18.49	39.17	147.93	-1,920.14	493.33	2,170.55	2,131.32	39.23	55.325			
6,300.00	6,258.11	6,656.68	6,258.11	18.64	39.24	147.93	-1,920.14	493.33	2,170.55	2,131.05	39.50	54.950			
6,400.00	6,358.11	6,756.68	6,358.11	18.79	39.30	147.93	-1,920.14	493.33	2,170.55	2,130.78	39.77	54.582			
6,500.00	6,458.11	6,856.68	6,458.11	18.95	39.36	147.93	-1,920.14	493.33	2,170.55	2,130.51	40.04	54.214			
6,600.00	6,558.11	6,956.68	6,558.11	19.10	39.42	147.93	-1,920.14	493.33	2,170.55	2,130.24	40.31	53.847			
6,700.00	6,658.11	7,056.68	6,658.11	19.26	39.49	147.93	-1,920.14	493.33	2,170.55	2,129.97	40.59	53.481			
6,800.00	6,758.11	7,156.68	6,758.11	19.41	39.56	147.93	-1,920.14	493.33	2,170.55	2,129.69	40.86	53.116			
6,900.00	6,858.11	7,256.68	6,858.11	19.57	39.62	147.93	-1,920.14	493.33	2,170.55	2,129.40	41.15	52.752			
7,000.00	6,958.11	7,356.68	6,958.11	19.73	39.69	147.93	-1,920.14	493.33	2,170.55	2,129.12	41.43	52.389			
7,100.00	7,058.11	7,456.68	7,058.11	19.89	39.76	147.93	-1,920.14	493.33	2,170.55	2,128.83	41.72	52.027			
7,200.00	7,158.11	7,556.68	7,158.11	20.06	39.83	147.93	-1,920.14	493.33	2,170.55	2,128.54	42.01	51.668			
7,300.00	7,258.11	7,656.68	7,258.11	20.22	39.90	147.93	-1,920.14	493.33	2,170.55	2,128.25	42.30	51.310			
7,400.00	7,358.11	7,756.68	7,358.11	20.39	39.98	147.93	-1,920.14	493.33	2,170.55	2,127.95	42.60	50.953			
7,500.00	7,458.11	7,856.68	7,458.11	20.55	40.05	147.93	-1,920.14	493.33	2,170.55	2,127.65	42.90	50.599			
7,600.00	7,558.11	7,956.68	7,558.11	20.72	40.12	147.93	-1,920.14	493.33	2,170.55	2,127.35	43.20	50.246			
7,611.89	7,570.00	7,968.57	7,570.00	20.74	40.13	147.93	-1,920.14	493.33	2,170.55	2,127.32	43.23	50.204			

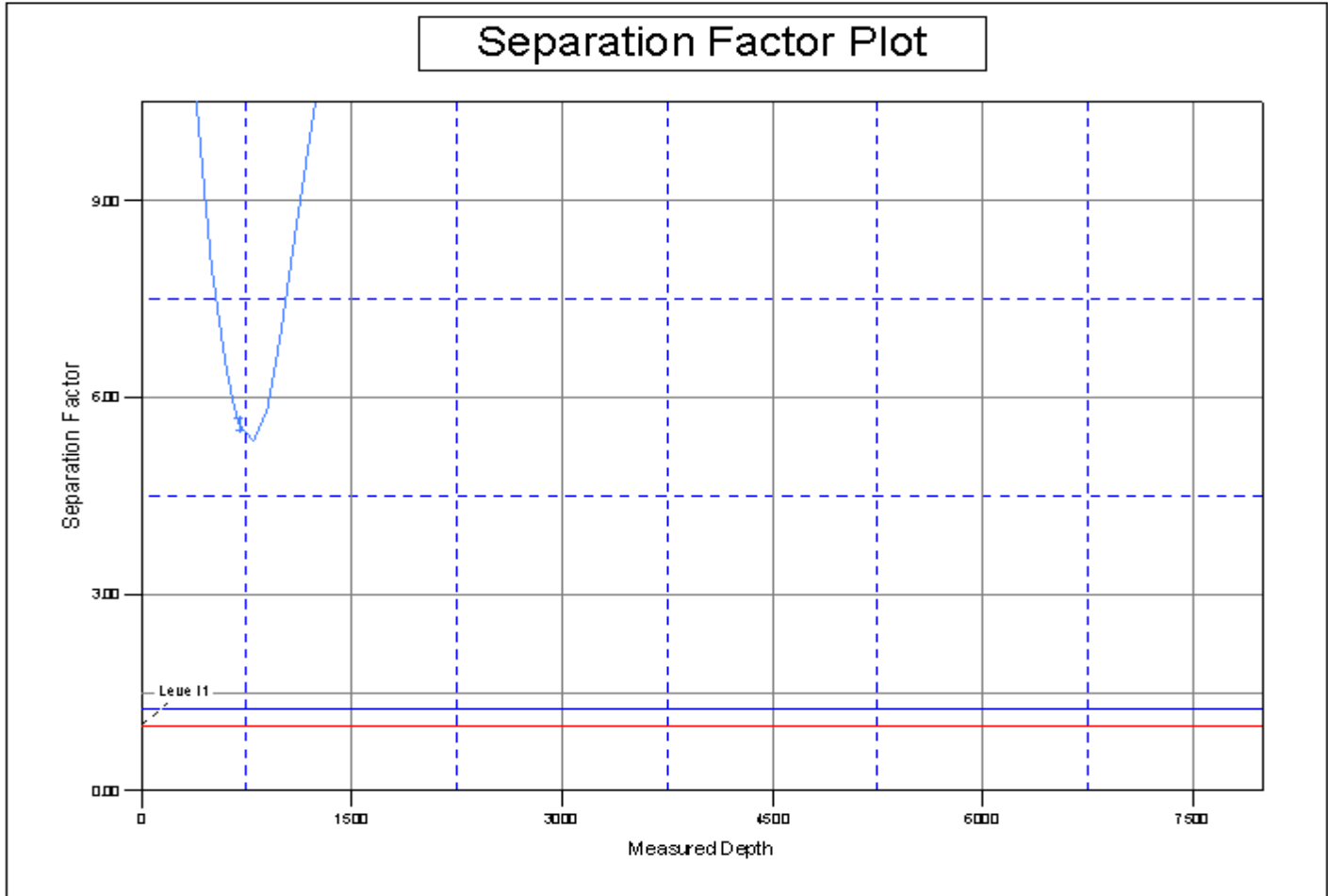
Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MILLER 17-30
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4935.00ft (Original Well Elev)
Reference Site:	WELD_MILLER 1-30 PAD	MD Reference:	WELL @ 4935.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MILLER 17-30	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MILLER 17-30	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4935.00ft (Original Well Elev) Coordinates are relative to: P_MILLER 17-30
 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: 0.44°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MILLER 17-30
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4935.00ft (Original Well Elev)
Reference Site:	WELD_MILLER 1-30 PAD	MD Reference:	WELL @ 4935.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MILLER 17-30	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MILLER 17-30	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4935.00ft (Original Well Elev) Coordinates are relative to: P_MILLER 17-30
 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: 0.44°



LEGEND

WELL 37-19, P_MILLER 37-19, PLAN#1 1-13-10 RHS \0 P_MILLER 40-30, P_MILLER 40-30, PLAN#1 1-13-10 RHS \0