



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_MILLER 1-30 PAD

P_MILLER 37-19

P_MILLER 37-19

Plan: PLAN #1 1-13-10 RHS

Standard Planning Report

14 January, 2010



P. MILLER 37-19
COLORADO NORTHERN ZONE - 83
SECTION 30 T3N R66W
703 FNL 649 FEL
LAT: 40° 12' 3.701 N
LONG: 104° 48' 46.570 W



Azimuths to True North
Magnetic North: 9.06°
Magnetic Field
Strength: 53170.1snT
Dip Angle: 66.93°
Date: 1/14/2010
Model: IGRF2010

WELL DETAILS: P_MILLER 37-19

+N/-S	+E/-W	Northing	Easting	Ground Level:	Latitude	Longitude	Slot
0.00	0.00	1316820.42	3191914.13	4920.00	40° 12' 3.701 N	104° 48' 46.570 W	

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3820.00	3897.70	PARKMAN
4230.00	4319.41	SUSSEX
4820.00	4926.27	SHANNON
7076.00	7205.28	NIO A
7417.00	7546.28	CODEL

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	
1326.84	13.54	317.51	1320.56	58.69	-53.75	2.00	317.51	79.58	
5528.44	13.54	317.51	5405.44	783.93	-718.01	0.00	0.00	1063.05	
6205.28	0.00	0.00	6076.00	842.61	-771.76	2.00	180.00	1142.63	
7709.28	0.00	0.00	7580.00	842.61	-771.76	0.00	0.00	1142.63	PBHL_MILLER 37-19(150 FSL 1410 FEL)

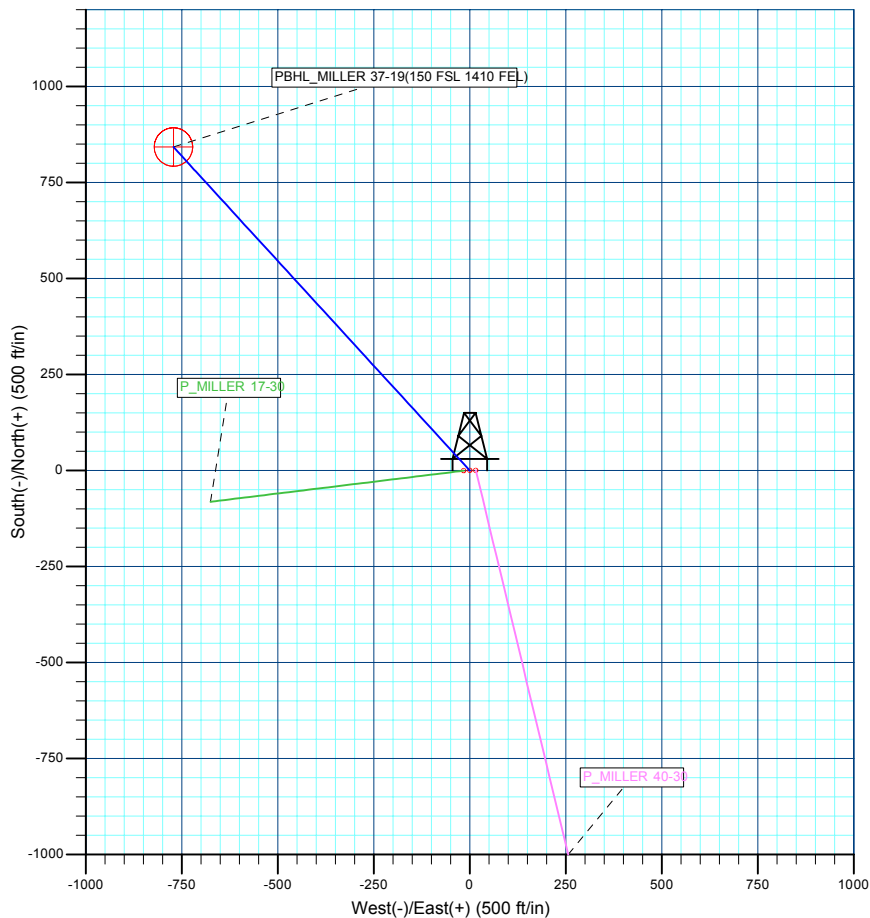
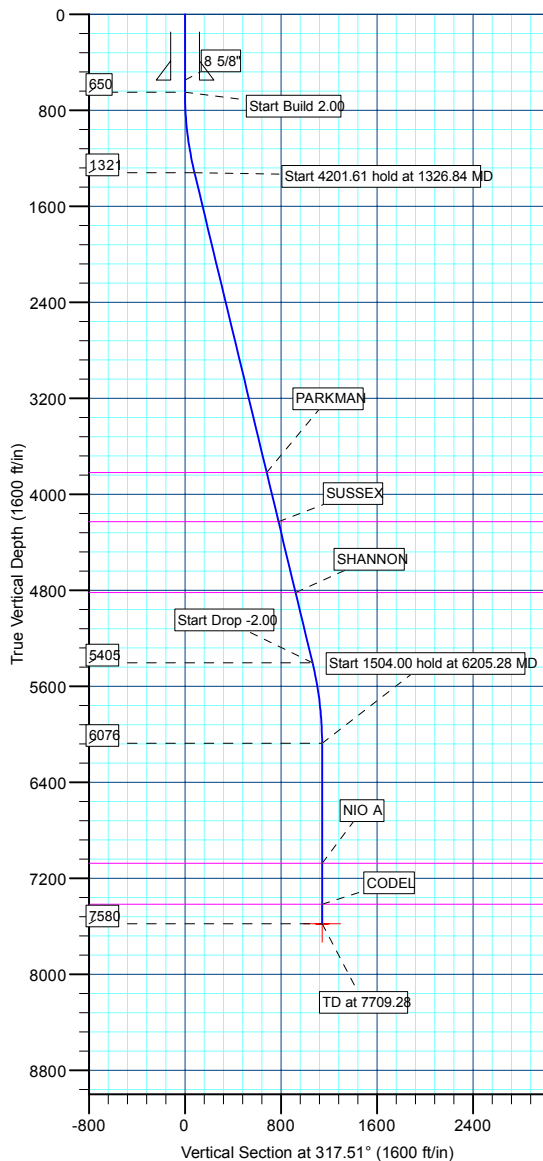
CASING DETAILS

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



KB ELEV:WELL @ 4935.00ft (Original Well Elev)

GRD ELEV: 4920.00



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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	7580.00	842.61	-771.76	1317657.03	3191135.87	40° 12' 12.028 N	104° 48' 56.516 W	Circle (Radius: 50.00)

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MILLER 37-19
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 37-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MILLER 37-19		
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:	1,316,819.95 ft	Latitude:	40° 12' 3.697 N
From:	Lat/Long	Easting:	3,191,898.21 ft	Longitude:	104° 48' 46.775 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	0.44 °

Well	P_MILLER 37-19,					
Well Position	+N/-S	0.35 ft	Northing:	1,316,820.42 ft	Latitude:	40° 12' 3.701 N
	+E/-W	15.92 ft	Easting:	3,191,914.13 ft	Longitude:	104° 48' 46.570 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,920.00 ft

Wellbore	P_MILLER 37-19				
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	317.51

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	
1,326.84	13.54	317.51	1,320.56	58.69	-53.75	2.00	2.00	0.00	317.51	
5,528.44	13.54	317.51	5,405.44	783.93	-718.01	0.00	0.00	0.00	0.00	
6,205.28	0.00	0.00	6,076.00	842.61	-771.76	2.00	-2.00	0.00	180.00	
7,709.28	0.00	0.00	7,580.00	842.61	-771.76	0.00	0.00	0.00	0.00	PBHL_MILLER 37-

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MILLER 37-19
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 37-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MILLER 37-19		
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	317.51	700.00	0.32	-0.29	0.44	2.00	2.00	0.00
800.00	3.00	317.51	799.93	2.90	-2.65	3.93	2.00	2.00	0.00
900.00	5.00	317.51	899.68	8.04	-7.36	10.90	2.00	2.00	0.00
1,000.00	7.00	317.51	999.13	15.75	-14.42	21.35	2.00	2.00	0.00
1,100.00	9.00	317.51	1,098.15	26.01	-23.82	35.27	2.00	2.00	0.00
1,200.00	11.00	317.51	1,196.63	38.81	-35.55	52.63	2.00	2.00	0.00
1,300.00	13.00	317.51	1,294.44	54.15	-49.59	73.42	2.00	2.00	0.00
Start 4201.61 hold at 1326.84 MD									
1,326.84	13.54	317.51	1,320.56	58.69	-53.75	79.58	2.00	2.00	0.00
1,400.00	13.54	317.51	1,391.69	71.32	-65.32	96.71	0.00	0.00	0.00
1,500.00	13.54	317.51	1,488.91	88.58	-81.13	120.12	0.00	0.00	0.00
1,600.00	13.54	317.51	1,586.13	105.84	-96.94	143.52	0.00	0.00	0.00
1,700.00	13.54	317.51	1,683.35	123.10	-112.75	166.93	0.00	0.00	0.00
1,800.00	13.54	317.51	1,780.58	140.36	-128.56	190.34	0.00	0.00	0.00
1,900.00	13.54	317.51	1,877.80	157.62	-144.37	213.74	0.00	0.00	0.00
2,000.00	13.54	317.51	1,975.02	174.88	-160.18	237.15	0.00	0.00	0.00
2,100.00	13.54	317.51	2,072.24	192.14	-175.99	260.56	0.00	0.00	0.00
2,200.00	13.54	317.51	2,169.46	209.40	-191.80	283.96	0.00	0.00	0.00
2,300.00	13.54	317.51	2,266.69	226.67	-207.60	307.37	0.00	0.00	0.00
2,400.00	13.54	317.51	2,363.91	243.93	-223.41	330.78	0.00	0.00	0.00
2,500.00	13.54	317.51	2,461.13	261.19	-239.22	354.18	0.00	0.00	0.00
2,600.00	13.54	317.51	2,558.35	278.45	-255.03	377.59	0.00	0.00	0.00
2,700.00	13.54	317.51	2,655.57	295.71	-270.84	401.00	0.00	0.00	0.00
2,800.00	13.54	317.51	2,752.80	312.97	-286.65	424.41	0.00	0.00	0.00
2,900.00	13.54	317.51	2,850.02	330.23	-302.46	447.81	0.00	0.00	0.00
3,000.00	13.54	317.51	2,947.24	347.49	-318.27	471.22	0.00	0.00	0.00
3,100.00	13.54	317.51	3,044.46	364.75	-334.08	494.63	0.00	0.00	0.00
3,200.00	13.54	317.51	3,141.68	382.01	-349.89	518.03	0.00	0.00	0.00
3,300.00	13.54	317.51	3,238.91	399.27	-365.70	541.44	0.00	0.00	0.00
3,400.00	13.54	317.51	3,336.13	416.54	-381.51	564.85	0.00	0.00	0.00
3,500.00	13.54	317.51	3,433.35	433.80	-397.32	588.25	0.00	0.00	0.00
3,600.00	13.54	317.51	3,530.57	451.06	-413.13	611.66	0.00	0.00	0.00
3,700.00	13.54	317.51	3,627.79	468.32	-428.94	635.07	0.00	0.00	0.00
3,800.00	13.54	317.51	3,725.02	485.58	-444.75	658.47	0.00	0.00	0.00
PARKMAN									
3,897.70	13.54	317.51	3,820.00	502.44	-460.19	681.34	0.00	0.00	0.00
3,900.00	13.54	317.51	3,822.24	502.84	-460.56	681.88	0.00	0.00	0.00
4,000.00	13.54	317.51	3,919.46	520.10	-476.37	705.29	0.00	0.00	0.00
4,100.00	13.54	317.51	4,016.68	537.36	-492.18	728.69	0.00	0.00	0.00
4,200.00	13.54	317.51	4,113.90	554.62	-507.99	752.10	0.00	0.00	0.00
4,300.00	13.54	317.51	4,211.13	571.88	-523.79	775.51	0.00	0.00	0.00
SUSSEX									
4,319.41	13.54	317.51	4,230.00	575.24	-526.86	780.05	0.00	0.00	0.00
4,400.00	13.54	317.51	4,308.35	589.15	-539.60	798.92	0.00	0.00	0.00
4,500.00	13.54	317.51	4,405.57	606.41	-555.41	822.32	0.00	0.00	0.00
4,600.00	13.54	317.51	4,502.79	623.67	-571.22	845.73	0.00	0.00	0.00
4,700.00	13.54	317.51	4,600.01	640.93	-587.03	869.14	0.00	0.00	0.00
4,800.00	13.54	317.51	4,697.24	658.19	-602.84	892.54	0.00	0.00	0.00
4,900.00	13.54	317.51	4,794.46	675.45	-618.65	915.95	0.00	0.00	0.00
SHANNON									
4,926.27	13.54	317.51	4,820.00	679.99	-622.81	922.10	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MILLER 37-19
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 37-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MILLER 37-19		
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	13.54	317.51	4,891.68	692.71	-634.46	939.36	0.00	0.00	0.00
5,100.00	13.54	317.51	4,988.90	709.97	-650.27	962.76	0.00	0.00	0.00
5,200.00	13.54	317.51	5,086.12	727.23	-666.08	986.17	0.00	0.00	0.00
5,300.00	13.54	317.51	5,183.35	744.49	-681.89	1,009.58	0.00	0.00	0.00
5,400.00	13.54	317.51	5,280.57	761.76	-697.70	1,032.98	0.00	0.00	0.00
5,500.00	13.54	317.51	5,377.79	779.02	-713.51	1,056.39	0.00	0.00	0.00
Start Drop -2.00									
5,528.44	13.54	317.51	5,405.44	783.93	-718.01	1,063.05	0.00	0.00	0.00
5,600.00	12.11	317.51	5,475.21	795.64	-728.73	1,078.93	2.00	-2.00	0.00
5,700.00	10.11	317.51	5,573.34	809.84	-741.74	1,098.19	2.00	-2.00	0.00
5,800.00	8.11	317.51	5,672.07	821.51	-752.43	1,114.01	2.00	-2.00	0.00
5,900.00	6.11	317.51	5,771.30	830.63	-760.78	1,126.38	2.00	-2.00	0.00
6,000.00	4.11	317.51	5,870.90	837.19	-766.79	1,135.28	2.00	-2.00	0.00
6,100.00	2.11	317.51	5,970.74	841.19	-770.45	1,140.70	2.00	-2.00	0.00
6,200.00	0.11	317.51	6,070.72	842.61	-771.75	1,142.63	2.00	-2.00	0.00
Start 1504.00 hold at 6205.28 MD									
6,205.28	0.00	0.00	6,076.00	842.61	-771.76	1,142.63	2.00	-2.00	0.00
6,300.00	0.00	0.00	6,170.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
6,400.00	0.00	0.00	6,270.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
6,500.00	0.00	0.00	6,370.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
6,600.00	0.00	0.00	6,470.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
6,700.00	0.00	0.00	6,570.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
6,800.00	0.00	0.00	6,670.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
6,900.00	0.00	0.00	6,770.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
7,000.00	0.00	0.00	6,870.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
7,100.00	0.00	0.00	6,970.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
7,200.00	0.00	0.00	7,070.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
NIO A									
7,205.28	0.00	0.00	7,076.00	842.61	-771.76	1,142.63	0.00	0.00	0.00
7,300.00	0.00	0.00	7,170.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
7,400.00	0.00	0.00	7,270.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
7,500.00	0.00	0.00	7,370.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
CODEL									
7,546.28	0.00	0.00	7,417.00	842.61	-771.76	1,142.63	0.00	0.00	0.00
7,600.00	0.00	0.00	7,470.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
7,700.00	0.00	0.00	7,570.72	842.61	-771.76	1,142.63	0.00	0.00	0.00
PBHL_MILLER 37-19(150 FSL 1410 FEL)									
7,709.28	0.00	0.00	7,580.00	842.61	-771.76	1,142.63	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_MILLER 37-19	0.00	0.00	7,580.00	842.61	-771.76	1,317,657.03	3,191,135.87	40° 12' 12.028 N	104° 48' 56.516 W
- plan hits target center									
- Circle (radius 50.00)									

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MILLER 37-19
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 37-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MILLER 37-19		
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 (°)	
3,897.70	3,820.00	PARKMAN				
4,319.41	4,230.00	SUSSEX				
4,926.27	4,820.00	SHANNON				
7,205.28	7,076.00	NIO A				
7,546.28	7,417.00	CODEL				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
650.00	650.00	0.00	0.00	Start Build 2.00	
1,326.84	1,320.56	58.69	-53.75	Start 4201.61 hold at 1326.84 MD	
5,528.44	5,405.44	783.93	-718.01	Start Drop -2.00	
6,205.28	6,076.00	842.61	-771.76	Start 1504.00 hold at 6205.28 MD	
7,709.28	7,580.00	842.61	-771.76	TD at 7709.28	



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_MILLER 1-30 PAD
P_MILLER 37-19**

**P_MILLER 37-19
PLAN #1 1-13-10 RHS**

Anticollision Report

14 January, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MILLER 37-19
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 37-19	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MILLER 37-19	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	7,709.28	PLAN #1 1-13-10 RHS (P_MILLER 37-19)	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 17-30 - P_MILLER 17-30 - PLAN #1 1-13-10	650.00	650.00	15.93	13.26	5.979	CC
P_MILLER 17-30 - P_MILLER 17-30 - PLAN #1 1-13-10	700.00	699.72	16.07	13.20	5.586	ES
P_MILLER 17-30 - P_MILLER 17-30 - PLAN #1 1-13-10	800.00	799.09	17.54	14.25	5.329	SF
P_MILLER 40-30 - P_MILLER 40-30 - PLAN #1 1-13-10	650.00	650.00	15.92	13.26	5.978	CC, ES
P_MILLER 40-30 - P_MILLER 40-30 - PLAN #1 1-13-10	700.00	699.92	16.34	13.46	5.689	SF

Offset Design												
WELD_MILLER 1-30 PAD - P_MILLER 17-30 - P_MILLER 17-30 - PLAN #1 1-13-10 RHS												
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
0.00	0.00	0.00	0.00	0.00	0.00	-91.27	-0.35	-15.92	15.93			
100.00	100.00	100.00	100.00	0.10	0.10	-91.27	-0.35	-15.92	15.93	15.73	0.19	83.358
200.00	200.00	200.00	200.00	0.32	0.32	-91.27	-0.35	-15.92	15.93	15.29	0.64	24.861
300.00	300.00	300.00	300.00	0.55	0.55	-91.27	-0.35	-15.92	15.93	14.84	1.09	14.609
400.00	400.00	400.00	400.00	0.77	0.77	-91.27	-0.35	-15.92	15.93	14.39	1.54	10.344
500.00	500.00	500.00	500.00	0.99	0.99	-91.27	-0.35	-15.92	15.93	13.94	1.99	8.006
600.00	600.00	600.00	600.00	1.22	1.22	-91.27	-0.35	-15.92	15.93	13.49	2.44	6.530
650.00	650.00	650.00	650.00	1.33	1.33	-91.27	-0.35	-15.92	15.93	13.26	2.66	5.979 CC
700.00	700.00	699.72	699.72	1.44	1.44	-50.09	-0.40	-16.35	16.07	13.20	2.88	5.586 ES
800.00	799.93	799.09	799.02	1.66	1.64	-59.67	-0.82	-19.77	17.54	14.25	3.29	5.329 SF
900.00	899.68	898.23	897.92	1.89	1.85	-73.95	-1.66	-26.59	21.61	17.88	3.72	5.801
1,000.00	999.13	997.00	996.16	2.14	2.09	-86.69	-2.91	-36.76	29.25	25.06	4.19	6.980
1,100.00	1,098.15	1,096.05	1,094.39	2.41	2.35	-96.64	-4.45	-49.32	39.90	35.19	4.71	8.475
1,200.00	1,196.63	1,195.00	1,192.52	2.72	2.63	-105.88	-6.00	-61.96	52.18	46.90	5.28	9.888
1,300.00	1,294.44	1,293.55	1,290.25	3.08	2.92	-114.17	-7.54	-74.55	66.68	60.79	5.89	11.328
1,326.84	1,320.56	1,319.91	1,316.39	3.19	3.00	-116.22	-7.96	-77.92	71.01	64.96	6.05	11.729
1,400.00	1,391.69	1,391.73	1,387.61	3.49	3.21	-121.07	-9.08	-87.09	83.39	76.87	6.52	12.786
1,500.00	1,488.91	1,489.90	1,484.96	3.91	3.52	-125.75	-10.62	-99.63	100.98	93.82	7.17	14.090
1,600.00	1,586.13	1,588.06	1,582.31	4.36	3.82	-129.03	-12.16	-112.17	119.04	111.22	7.82	15.226
1,700.00	1,683.35	1,686.22	1,679.65	4.81	4.13	-131.44	-13.70	-124.71	137.37	128.89	8.47	16.212
1,800.00	1,780.58	1,784.38	1,777.00	5.27	4.44	-133.28	-15.23	-137.25	155.88	146.75	9.13	17.070
1,900.00	1,877.80	1,882.55	1,874.35	5.74	4.76	-134.74	-16.77	-149.78	174.51	164.72	9.79	17.818

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 37-19
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 37-19	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MILLER 37-19	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 17-30 - P_MILLER 17-30 - PLAN #1 1-13-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,000.00	1,975.02	1,980.71	1,971.69	6.21	5.07	-135.91	-18.31	-162.32	193.23	182.77	10.46	18.475	
2,100.00	2,072.24	2,078.87	2,069.04	6.68	5.39	-136.87	-19.85	-174.86	212.02	200.89	11.13	19.056	
2,200.00	2,169.46	2,177.03	2,166.38	7.16	5.71	-137.68	-21.39	-187.40	230.85	219.06	11.80	19.571	
2,300.00	2,266.69	2,275.20	2,263.73	7.64	6.03	-138.36	-22.92	-199.94	249.72	237.26	12.47	20.432	
2,400.00	2,363.91	2,373.36	2,361.08	8.13	6.35	-138.95	-24.46	-212.48	268.63	255.49	13.14	20.445	
2,500.00	2,461.13	2,471.52	2,458.42	8.61	6.67	-139.47	-26.00	-225.02	287.55	273.74	13.81	20.818	
2,600.00	2,558.35	2,569.68	2,555.77	9.10	6.99	-139.91	-27.54	-237.56	306.50	292.01	14.49	21.156	
2,700.00	2,655.57	2,667.85	2,653.11	9.58	7.31	-140.31	-29.08	-250.10	325.46	310.29	15.16	21.464	
2,800.00	2,752.80	2,766.01	2,750.46	10.07	7.63	-140.66	-30.61	-262.64	344.43	328.59	15.84	21.745	
2,900.00	2,850.02	2,864.17	2,847.81	10.56	7.96	-140.98	-32.15	-275.18	363.42	346.90	16.52	22.003	
3,000.00	2,947.24	2,962.33	2,945.15	11.05	8.28	-141.26	-33.69	-287.71	382.41	365.22	17.19	22.240	
3,100.00	3,044.46	3,060.50	3,042.50	11.54	8.60	-141.52	-35.23	-300.25	401.41	383.54	17.87	22.459	
3,200.00	3,141.68	3,158.66	3,139.85	12.03	8.93	-141.76	-36.77	-312.79	420.43	401.87	18.55	22.661	
3,300.00	3,238.91	3,256.82	3,237.19	12.52	9.25	-141.97	-38.31	-325.33	439.44	420.21	19.23	22.850	
3,400.00	3,336.13	3,354.98	3,334.54	13.02	9.58	-142.17	-39.84	-337.87	458.46	438.55	19.91	23.025	
3,500.00	3,433.35	3,453.15	3,431.88	13.51	9.90	-142.35	-41.38	-350.41	477.49	456.90	20.59	23.188	
3,600.00	3,530.57	3,551.31	3,529.23	14.00	10.23	-142.51	-42.92	-362.95	496.52	475.25	21.27	23.341	
3,700.00	3,627.79	3,649.47	3,626.58	14.49	10.55	-142.67	-44.46	-375.49	515.56	493.60	21.95	23.484	
3,800.00	3,725.02	3,747.63	3,723.92	14.99	10.88	-142.81	-46.00	-388.03	534.59	511.96	22.64	23.618	
3,900.00	3,822.24	3,845.80	3,821.27	15.48	11.20	-142.95	-47.53	-400.57	553.64	530.32	23.32	23.744	
4,000.00	3,919.46	3,943.96	3,918.62	15.98	11.53	-143.07	-49.07	-413.11	572.68	548.68	24.00	23.863	
4,100.00	4,016.68	4,042.12	4,015.96	16.47	11.86	-143.19	-50.61	-425.64	591.73	567.05	24.68	23.976	
4,200.00	4,113.90	4,140.28	4,113.31	16.96	12.18	-143.30	-52.15	-438.18	610.77	585.41	25.36	24.082	
4,300.00	4,211.13	4,238.45	4,210.65	17.46	12.51	-143.40	-53.69	-450.72	629.82	603.78	26.04	24.182	
4,400.00	4,308.35	4,336.61	4,308.00	17.95	12.83	-143.50	-55.22	-463.26	648.88	622.15	26.73	24.278	
4,500.00	4,405.57	4,434.77	4,405.35	18.45	13.16	-143.59	-56.76	-475.80	667.93	640.52	27.41	24.368	
4,600.00	4,502.79	4,532.93	4,502.69	18.94	13.49	-143.67	-58.30	-488.34	686.99	658.89	28.09	24.454	
4,700.00	4,600.01	4,631.10	4,600.04	19.44	13.81	-143.76	-59.84	-500.88	706.04	677.27	28.78	24.536	
4,800.00	4,697.24	4,729.26	4,697.39	19.93	14.14	-143.83	-61.38	-513.42	725.10	695.64	29.46	24.614	
4,900.00	4,794.46	4,827.42	4,794.73	20.43	14.47	-143.91	-62.91	-525.96	744.16	714.02	30.14	24.688	
5,000.00	4,891.68	4,925.58	4,892.08	20.92	14.79	-143.98	-64.45	-538.50	763.22	732.40	30.83	24.759	
5,100.00	4,988.90	5,023.75	4,989.42	21.42	15.12	-144.04	-65.99	-551.04	782.28	750.77	31.51	24.827	
5,200.00	5,086.12	5,121.91	5,086.77	21.91	15.45	-144.11	-67.53	-563.57	801.35	769.15	32.19	24.892	
5,300.00	5,183.35	5,220.07	5,184.12	22.41	15.77	-144.17	-69.07	-576.11	820.41	787.53	32.88	24.954	
5,400.00	5,280.57	5,318.23	5,281.46	22.91	16.10	-144.22	-70.61	-588.65	839.47	805.91	33.56	25.014	
5,500.00	5,377.79	5,416.40	5,378.81	23.40	16.43	-144.28	-72.14	-601.19	858.54	824.30	34.24	25.071	
5,528.44	5,405.44	5,444.32	5,406.50	23.54	16.52	-144.29	-72.58	-604.76	863.96	829.52	34.44	25.087	
5,600.00	5,475.21	5,514.69	5,476.29	23.85	16.75	-144.45	-73.68	-613.75	876.89	841.96	34.93	25.101	
5,700.00	5,573.34	5,613.44	5,574.21	24.18	17.08	-144.52	-75.23	-626.36	892.56	856.99	35.57	25.093	
5,800.00	5,672.07	5,712.54	5,672.49	24.47	17.41	-144.44	-76.78	-639.02	905.42	869.23	36.19	25.020	
5,900.00	5,771.30	5,811.86	5,770.99	24.72	17.74	-144.20	-78.34	-651.71	915.49	878.70	36.79	24.886	
6,000.00	5,870.90	5,911.61	5,870.12	24.92	18.01	-143.92	-79.69	-662.68	922.77	885.49	37.28	24.753	
6,100.00	5,970.74	6,011.79	5,969.99	25.08	18.20	-143.70	-80.61	-670.24	927.23	889.59	37.65	24.630	
6,205.28	6,076.00	6,117.54	6,075.65	25.21	18.37	-173.99	-81.13	-674.47	928.85	890.92	37.94	24.483	
6,300.00	6,170.72	6,212.61	6,170.72	25.31	18.51	174.03	-81.21	-675.14	928.87	890.65	38.21	24.309	
6,400.00	6,270.72	6,312.61	6,270.72	25.42	18.66	174.03	-81.21	-675.14	928.87	890.35	38.51	24.118	
6,500.00	6,370.72	6,412.61	6,370.72	25.54	18.81	174.03	-81.21	-675.14	928.87	890.05	38.82	23.929	
6,600.00	6,470.72	6,512.61	6,470.72	25.66	18.97	174.03	-81.21	-675.14	928.87	889.74	39.12	23.742	
6,700.00	6,570.72	6,612.61	6,570.72	25.78	19.12	174.03	-81.21	-675.14	928.87	889.43	39.43	23.555	
6,800.00	6,670.72	6,712.61	6,670.72	25.91	19.28	174.03	-81.21	-675.14	928.87	889.12	39.75	23.370	
6,900.00	6,770.72	6,812.61	6,770.72	26.03	19.43	174.03	-81.21	-675.14	928.87	888.80	40.06	23.186	
7,000.00	6,870.72	6,912.61	6,870.72	26.15	19.59	174.03	-81.21	-675.14	928.87	888.49	40.38	23.004	

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 37-19
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 37-19	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MILLER 37-19	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 17-30 - P_MILLER 17-30 - 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						
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
7,100.00	6,970.72	7,012.61	6,970.72	26.28	19.75	174.03	-81.21	-675.14	928.87	888.17	40.70	22.823	
7,200.00	7,070.72	7,112.61	7,070.72	26.41	19.92	174.03	-81.21	-675.14	928.87	887.84	41.02	22.643	
7,300.00	7,170.72	7,212.61	7,170.72	26.54	20.08	174.03	-81.21	-675.14	928.87	887.52	41.35	22.465	
7,400.00	7,270.72	7,312.61	7,270.72	26.67	20.24	174.03	-81.21	-675.14	928.87	887.19	41.67	22.289	
7,500.00	7,370.72	7,412.61	7,370.72	26.80	20.41	174.03	-81.21	-675.14	928.87	886.86	42.00	22.114	
7,600.00	7,470.72	7,512.61	7,470.72	26.93	20.57	174.03	-81.21	-675.14	928.87	886.53	42.34	21.941	
7,669.18	7,539.90	7,581.79	7,539.90	27.03	20.69	174.03	-81.21	-675.14	928.87	886.30	42.57	21.822	
7,709.28	7,580.00	7,611.89	7,570.00	27.08	20.74	174.03	-81.21	-675.14	928.92	886.24	42.68	21.763	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MILLER 37-19
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 37-19	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MILLER 37-19	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
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	90.00	0.00	15.92	15.92				
100.00	100.00	100.00	100.00	0.10	0.10	90.00	0.00	15.92	15.92	15.73	0.19	83.337	
200.00	200.00	200.00	200.00	0.32	0.32	90.00	0.00	15.92	15.92	15.28	0.64	24.855	
300.00	300.00	300.00	300.00	0.55	0.55	90.00	0.00	15.92	15.92	14.83	1.09	14.606	
400.00	400.00	400.00	400.00	0.77	0.77	90.00	0.00	15.92	15.92	14.38	1.54	10.341	
500.00	500.00	500.00	500.00	0.99	0.99	90.00	0.00	15.92	15.92	13.93	1.99	8.004	
600.00	600.00	600.00	600.00	1.22	1.22	90.00	0.00	15.92	15.92	13.48	2.44	6.529	
650.00	650.00	650.00	650.00	1.33	1.33	90.00	0.00	15.92	15.92	13.26	2.66	5.978 CC, ES	
700.00	700.00	699.92	699.92	1.44	1.43	135.09	-0.42	16.02	16.34	13.46	2.87	5.689 SF	
800.00	799.93	799.42	799.35	1.66	1.61	151.35	-3.79	16.83	20.61	17.34	3.26	6.316	
900.00	899.68	897.91	897.60	1.89	1.80	167.97	-10.42	18.43	31.79	28.12	3.66	8.681	
1,000.00	999.13	994.75	993.92	2.14	2.01	178.02	-20.14	20.76	50.53	46.47	4.07	12.430	
1,100.00	1,098.15	1,089.33	1,087.61	2.41	2.26	-176.43	-32.69	23.78	76.31	71.83	4.47	17.062	
1,200.00	1,196.63	1,181.12	1,178.09	2.72	2.53	-173.19	-47.73	27.39	108.61	103.73	4.88	22.250	
1,300.00	1,294.44	1,269.66	1,264.84	3.08	2.84	-171.15	-64.91	31.52	147.07	141.78	5.29	27.792	
1,326.84	1,320.56	1,292.81	1,287.43	3.19	2.92	-170.73	-69.83	32.70	158.39	152.99	5.40	29.330	
1,400.00	1,391.69	1,354.92	1,347.83	3.49	3.18	-169.83	-83.90	36.08	190.52	184.79	5.73	33.222	
1,500.00	1,488.91	1,437.74	1,427.85	3.91	3.55	-168.83	-104.64	41.07	236.63	230.43	6.20	38.182	
1,600.00	1,586.13	1,518.13	1,504.90	4.36	3.95	-167.99	-126.92	46.42	285.18	278.51	6.67	42.778	
1,700.00	1,683.35	1,600.00	1,582.68	4.81	4.39	-167.24	-151.76	52.39	336.08	328.93	7.15	47.000	
1,800.00	1,780.58	1,671.54	1,650.03	5.27	4.83	-166.64	-175.22	58.03	389.16	381.54	7.62	51.061	
1,900.00	1,877.80	1,744.59	1,718.15	5.74	5.31	-166.09	-200.86	64.19	444.40	436.30	8.10	54.838	
2,000.00	1,975.02	1,815.23	1,783.37	6.21	5.80	-165.59	-227.26	70.53	501.67	493.08	8.59	58.426	
2,100.00	2,072.24	1,883.50	1,845.74	6.68	6.31	-165.14	-254.24	77.01	560.87	551.80	9.07	61.833	
2,200.00	2,169.46	1,958.93	1,914.09	7.16	6.90	-164.69	-285.27	84.47	621.49	611.90	9.58	64.862	
2,300.00	2,266.69	2,038.30	1,985.97	7.64	7.53	-164.30	-317.99	92.33	682.21	672.10	10.11	67.484	
2,400.00	2,363.91	2,117.67	2,057.86	8.13	8.16	-163.97	-350.71	100.20	742.96	732.31	10.64	69.822	
2,500.00	2,461.13	2,197.04	2,129.74	8.61	8.81	-163.69	-383.43	108.06	803.71	792.54	11.18	71.913	
2,600.00	2,558.35	2,276.41	2,201.62	9.10	9.45	-163.45	-416.15	115.92	864.48	852.76	11.72	73.789	
2,700.00	2,655.57	2,355.78	2,273.51	9.58	10.11	-163.24	-448.87	123.78	925.26	913.00	12.26	75.485	
2,800.00	2,752.80	2,435.15	2,345.39	10.07	10.76	-163.06	-481.59	131.64	986.04	973.24	12.80	77.023	
2,900.00	2,850.02	2,514.52	2,417.27	10.56	11.41	-162.89	-514.30	139.51	1,046.83	1,033.48	13.35	78.425	
3,000.00	2,947.24	2,593.89	2,489.16	11.05	12.07	-162.75	-547.02	147.37	1,107.62	1,093.72	13.90	79.705	
3,100.00	3,044.46	2,673.26	2,561.04	11.54	12.73	-162.62	-579.74	155.23	1,168.42	1,153.97	14.45	80.877	
3,200.00	3,141.68	2,752.63	2,632.92	12.03	13.39	-162.50	-612.46	163.09	1,229.22	1,214.22	15.00	81.956	
3,300.00	3,238.91	2,832.00	2,704.81	12.52	14.06	-162.40	-645.18	170.96	1,290.02	1,274.47	15.55	82.951	
3,400.00	3,336.13	2,911.37	2,776.69	13.02	14.72	-162.30	-677.90	178.82	1,350.82	1,334.72	16.11	83.872	
3,500.00	3,433.35	2,990.74	2,848.58	13.51	15.38	-162.21	-710.62	186.68	1,411.63	1,394.97	16.66	84.726	
3,600.00	3,530.57	3,070.11	2,920.46	14.00	16.05	-162.13	-743.34	194.54	1,472.44	1,455.22	17.22	85.520	
3,700.00	3,627.79	3,149.48	2,992.34	14.49	16.72	-162.06	-776.06	202.41	1,533.25	1,515.48	17.77	86.259	
3,800.00	3,725.02	3,228.85	3,064.23	14.99	17.38	-161.99	-808.78	210.27	1,594.07	1,575.73	18.33	86.951	
3,900.00	3,822.24	3,308.22	3,136.11	15.48	18.05	-161.93	-841.49	218.13	1,654.88	1,635.99	18.89	87.598	
4,000.00	3,919.46	3,387.59	3,207.99	15.98	18.72	-161.87	-874.21	225.99	1,715.70	1,696.24	19.45	88.204	
4,100.00	4,016.68	3,466.96	3,279.88	16.47	19.38	-161.81	-906.93	233.85	1,776.51	1,756.50	20.01	88.774	
4,200.00	4,113.90	3,546.33	3,351.76	16.96	20.05	-161.76	-939.65	241.72	1,837.33	1,816.76	20.57	89.310	
4,300.00	4,211.13	3,625.70	3,423.64	17.46	20.72	-161.72	-972.37	249.58	1,898.15	1,877.01	21.13	89.816	
4,400.00	4,308.35	3,705.07	3,495.53	17.95	21.39	-161.67	-1,005.09	257.44	1,958.97	1,937.27	21.70	90.294	
4,500.00	4,405.57	3,784.44	3,567.41	18.45	22.06	-161.63	-1,037.81	265.30	2,019.79	1,997.53	22.26	90.745	
4,600.00	4,502.79	3,863.82	3,639.30	18.94	22.73	-161.59	-1,070.53	273.17	2,080.61	2,057.79	22.82	91.173	
4,700.00	4,600.01	3,943.19	3,711.18	19.44	23.40	-161.55	-1,103.25	281.03	2,141.43	2,118.04	23.38	91.578	
4,800.00	4,697.24	4,022.56	3,783.06	19.93	24.07	-161.52	-1,135.97	288.89	2,202.25	2,178.30	23.95	91.964	
4,900.00	4,794.46	4,101.93	3,854.95	20.43	24.74	-161.48	-1,168.69	296.75	2,263.07	2,238.56	24.51	92.330	

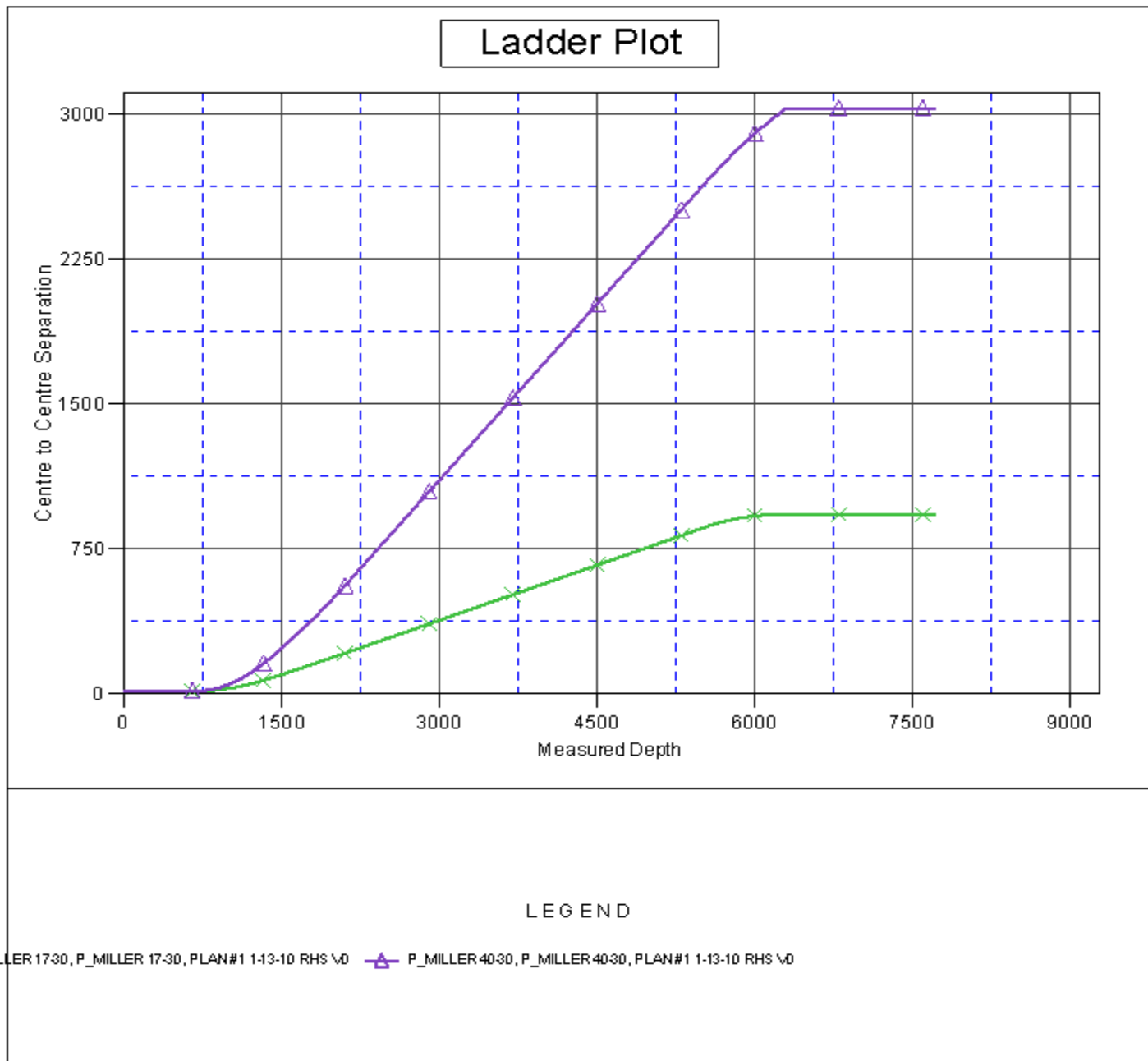
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MILLER 37-19
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 37-19	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MILLER 37-19	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						
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	4,891.68	4,181.30	3,926.83	20.92	25.41	-161.45	-1,201.40	304.61	2,323.89	2,298.82	25.07	92.678	
5,100.00	4,988.90	4,260.67	3,998.71	21.42	26.08	-161.42	-1,234.12	312.48	2,384.72	2,359.08	25.64	93.011	
5,200.00	5,086.12	4,340.04	4,070.60	21.91	26.75	-161.39	-1,266.84	320.34	2,445.54	2,419.34	26.20	93.327	
5,300.00	5,183.35	4,419.41	4,142.48	22.41	27.42	-161.36	-1,299.56	328.20	2,506.36	2,479.59	26.77	93.630	
5,400.00	5,280.57	4,498.78	4,214.36	22.91	28.09	-161.34	-1,332.28	336.06	2,567.19	2,539.85	27.33	93.920	
5,500.00	5,377.79	4,578.15	4,286.25	23.40	28.77	-161.31	-1,365.00	343.93	2,628.01	2,600.11	27.90	94.196	
5,528.44	5,405.44	4,600.72	4,306.69	23.54	28.96	-161.31	-1,374.31	346.16	2,645.31	2,617.25	28.06	94.273	
5,600.00	5,475.21	4,658.02	4,358.59	23.85	29.44	-161.62	-1,397.93	351.84	2,688.16	2,659.52	28.64	93.849	
5,700.00	5,573.34	4,739.74	4,432.60	24.18	30.13	-162.00	-1,431.62	359.93	2,745.74	2,716.33	29.41	93.376	
5,800.00	5,672.07	4,823.30	4,508.28	24.47	30.84	-162.33	-1,466.06	368.21	2,800.58	2,770.44	30.14	92.919	
5,900.00	5,771.30	4,908.58	4,585.51	24.72	31.56	-162.59	-1,501.22	376.66	2,852.61	2,821.76	30.84	92.486	
6,000.00	5,870.90	4,995.48	4,664.22	24.92	32.30	-162.80	-1,537.04	385.27	2,901.77	2,870.26	31.51	92.081	
6,100.00	5,970.74	5,083.90	4,744.30	25.08	33.05	-162.97	-1,573.49	394.03	2,948.02	2,915.88	32.15	91.707	
6,205.28	6,076.00	5,178.51	4,829.98	25.21	33.85	154.42	-1,612.49	403.40	2,993.51	2,960.74	32.77	91.344	
6,300.00	6,170.72	5,269.29	4,917.72	25.31	34.18	155.67	-1,620.49	407.41	3,032.35	2,996.14	33.21	89.752	
6,400.00	6,270.72	5,369.29	5,017.72	25.42	34.24	155.67	-1,620.49	407.41	3,032.35	2,995.84	33.51	88.066	
6,500.00	6,370.72	5,469.29	5,117.72	25.54	34.31	155.67	-1,620.49	407.41	3,032.35	2,995.54	33.80	86.391	
6,600.00	6,470.72	5,569.29	5,217.72	25.66	34.37	155.67	-1,620.49	407.41	3,032.35	2,995.24	34.11	84.720	
6,700.00	6,570.72	5,669.29	5,317.72	25.78	34.43	155.67	-1,620.49	407.41	3,032.35	2,994.94	34.41	83.054	
6,800.00	6,670.72	5,769.29	5,417.72	25.91	34.50	155.67	-1,620.49	407.41	3,032.35	2,994.63	34.72	81.393	
6,900.00	6,770.72	5,869.29	5,517.72	26.03	34.56	155.67	-1,620.49	407.41	3,032.35	2,994.32	35.03	79.736	
7,000.00	6,870.72	5,969.29	5,617.72	26.15	34.63	155.67	-1,620.49	407.41	3,032.35	2,994.01	35.34	78.085	
7,100.00	6,970.72	6,069.29	5,717.72	26.28	34.70	155.67	-1,620.49	407.41	3,032.35	2,993.69	35.66	76.439	
7,200.00	7,070.72	6,169.29	5,817.72	26.41	34.77	155.67	-1,620.49	407.41	3,032.35	2,993.37	35.98	74.799	
7,300.00	7,170.72	6,269.29	5,917.72	26.54	34.84	155.67	-1,620.49	407.41	3,032.35	2,993.05	36.30	73.164	
7,400.00	7,270.72	6,369.29	6,017.72	26.67	34.91	155.67	-1,620.49	407.41	3,032.35	2,992.73	36.62	71.535	
7,500.00	7,370.72	6,469.29	6,117.72	26.80	34.98	155.67	-1,620.49	407.41	3,032.35	2,992.40	36.95	69.911	
7,600.00	7,470.72	6,569.29	6,217.72	26.93	35.06	155.67	-1,620.49	407.41	3,032.35	2,992.08	37.27	68.293	
7,709.28	7,580.00	6,678.57	6,326.00	27.08	35.14	155.67	-1,620.49	407.41	3,032.35	2,991.71	37.63	66.725	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MILLER 37-19
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 37-19	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MILLER 37-19	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

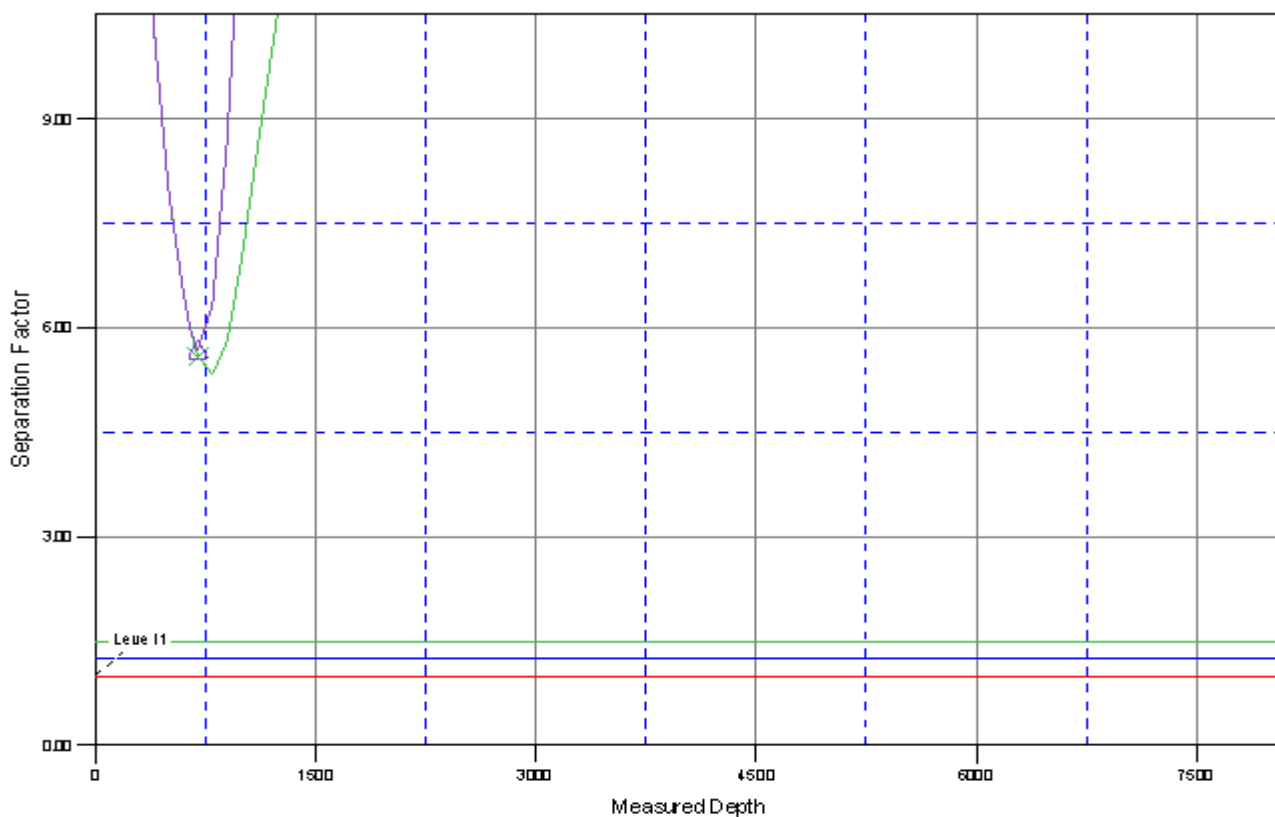
Reference Depths are relative to WELL @ 4935.00ft (Original Well Elev) Coordinates are relative to: P_MILLER 37-19
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.44°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MILLER 37-19
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 37-19	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MILLER 37-19	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 37-19
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°

Separation Factor Plot



LEGEND

WELL 17-30, P_MILLER 17-30, PLAN#1 1-13-10 RHS \0  P_MILLER 40-30, P_MILLER 40-30, PLAN#1 1-13-10 RHS \0