



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_NRC 5 PAD

P_NRC 41-8

P_NRC 41-8

Plan: PLAN #1 1-5-10 RHS

Standard Planning Report

05 January, 2010





**P_NRC 41-8
 COLORADO NORTHERN ZONE - 83
 SECTION 8 T1N R67W
 1550 FNL 1532 FEL
 LAT: 40° 4' 6.765 N
 LONG: 104° 54' 38.102 W**

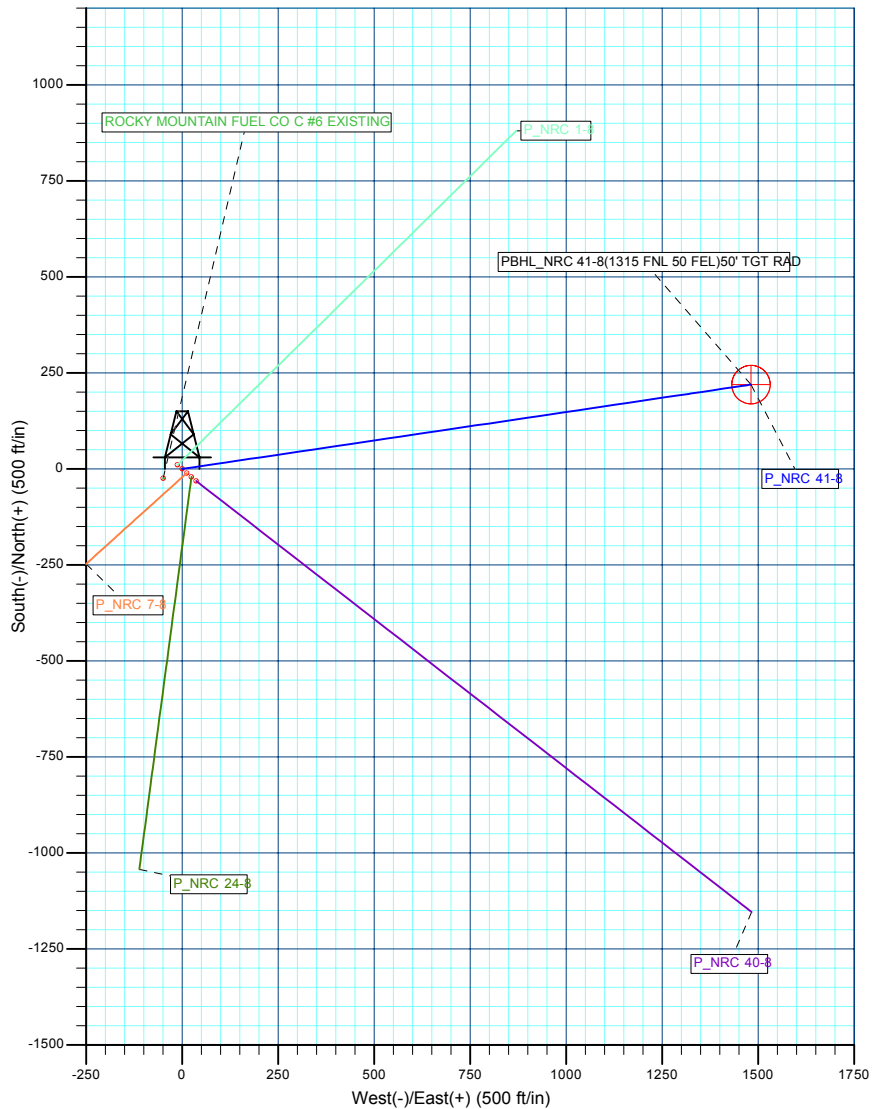
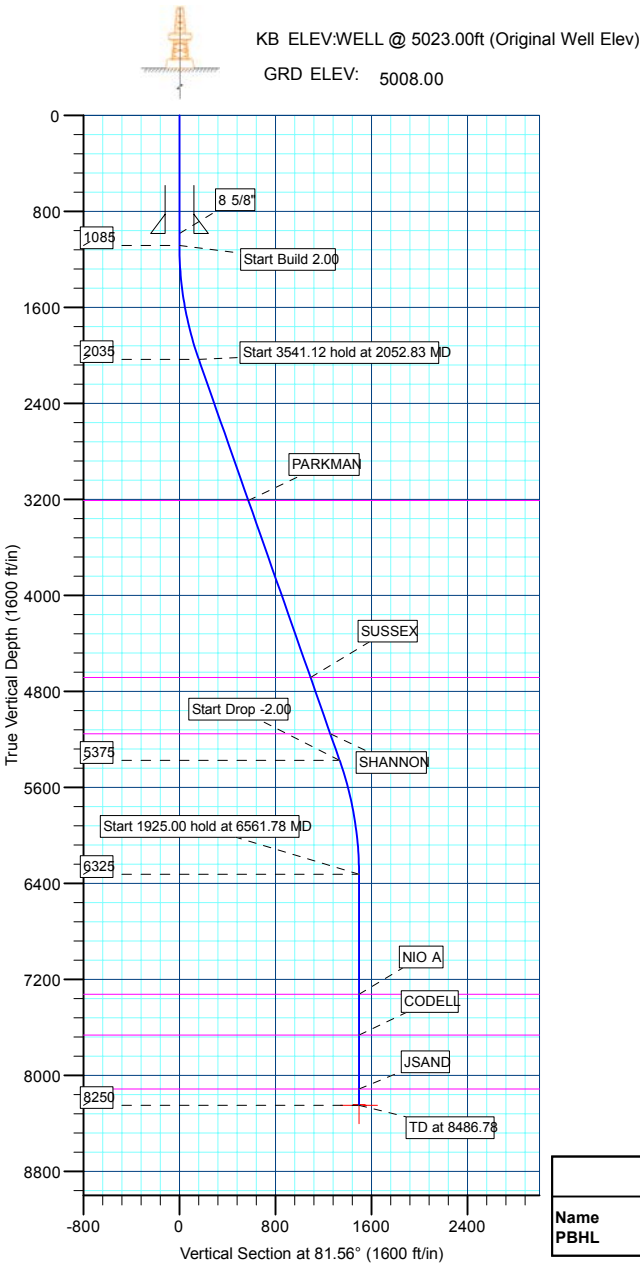


WELL DETAILS: P_NRC 41-8						
+N/-S	+E/-W	Northing	Easting	Ground Level:	Latitude	Longitude
0.00	0.00	1268364.66	3164959.82	5008.00	40° 4' 6.765 N	104° 54' 38.102 W

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3210.00	3298.73	PARKMAN
4685.00	4862.10	SUSSEX
5155.00	5360.26	SHANNON
7325.00	7561.78	NIO A
7665.00	7901.78	CODELL
8115.00	8351.78	JSAND

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		
1085.00	0.00	0.00	1085.00	0.00	0.00	0.00	0.00	0.00		
2052.83	19.36	81.56	2034.52	23.76	160.18	2.00	81.56	161.93		
5593.95	19.36	81.56	5375.48	195.96	1321.17	0.00	0.00	1335.62		
6561.78	0.00	0.00	6325.00	219.72	1481.35	2.00	180.00	1497.56		
8486.78	0.00	0.00	8250.00	219.72	1481.35	0.00	0.00	1497.56	PBHL_NRC 41-8(1315 FNL 50 FEL)50' TGT RAD	

CASING DETAILS			
TVD	MD	Name	Size
985.00	985.00	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	8250.00	219.72	1481.35	1268594.22	3166439.68	40° 4' 8.936 N	104° 54' 19.048 W	Circle (Radius: 50.00)

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_NRC 41-8
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site:	WELD_NRC 5 PAD	North Reference:	True
Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NRC 41-8		
Design:	PLAN #1 1-5-10 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_NRC 5 PAD, SECTION 8 T1N R67W				
Site Position:		Northing:	1,268,375.16 ft	Latitude:	40° 4' 6.870 N
From:	Lat/Long	Easting:	3,164,947.72 ft	Longitude:	104° 54' 38.257 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	0.38 °

Well	P_NRC 41-8					
Well Position	+N/-S	-10.58 ft	Northing:	1,268,364.66 ft	Latitude:	40° 4' 6.765 N
	+E/-W	12.03 ft	Easting:	3,164,959.82 ft	Longitude:	104° 54' 38.102 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	5,008.00 ft

Wellbore	P_NRC 41-8				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	1/5/2010	9.07	66.81	53,111

Design	PLAN #1 1-5-10 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	81.56

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	
1,085.00	0.00	0.00	1,085.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,052.83	19.36	81.56	2,034.52	23.76	160.18	2.00	2.00	0.00	81.56	
5,593.95	19.36	81.56	5,375.48	195.96	1,321.17	0.00	0.00	0.00	0.00	
6,561.78	0.00	0.00	6,325.00	219.72	1,481.35	2.00	-2.00	0.00	180.00	
8,486.78	0.00	0.00	8,250.00	219.72	1,481.35	0.00	0.00	0.00	0.00	PBHL_NRC 41-8(1:

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_NRC 41-8
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site:	WELD_NRC 5 PAD	North Reference:	True
Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NRC 41-8		
Design:	PLAN #1 1-5-10 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									
1,085.00	0.00	0.00	1,085.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.30	81.56	1,100.00	0.01	0.04	0.04	2.00	2.00	0.00
1,200.00	2.30	81.56	1,199.97	0.34	2.28	2.31	2.00	2.00	0.00
1,300.00	4.30	81.56	1,299.80	1.18	7.98	8.06	2.00	2.00	0.00
1,400.00	6.30	81.56	1,399.37	2.54	17.11	17.30	2.00	2.00	0.00
1,500.00	8.30	81.56	1,498.55	4.40	29.68	30.01	2.00	2.00	0.00
1,600.00	10.30	81.56	1,597.23	6.77	45.67	46.17	2.00	2.00	0.00
1,700.00	12.30	81.56	1,695.29	9.65	65.05	65.76	2.00	2.00	0.00
1,800.00	14.30	81.56	1,792.60	13.02	87.80	88.76	2.00	2.00	0.00
1,900.00	16.30	81.56	1,889.05	16.89	113.90	115.15	2.00	2.00	0.00
2,000.00	18.30	81.56	1,984.52	21.26	143.32	144.89	2.00	2.00	0.00
Start 3541.12 hold at 2052.83 MD									
2,052.83	19.36	81.56	2,034.52	23.76	160.18	161.93	2.00	2.00	0.00
2,100.00	19.36	81.56	2,079.03	26.05	175.65	177.57	0.00	0.00	0.00
2,200.00	19.36	81.56	2,173.38	30.92	208.43	210.71	0.00	0.00	0.00
2,300.00	19.36	81.56	2,267.72	35.78	241.22	243.86	0.00	0.00	0.00
2,400.00	19.36	81.56	2,362.07	40.64	274.01	277.00	0.00	0.00	0.00
2,500.00	19.36	81.56	2,456.42	45.50	306.79	310.15	0.00	0.00	0.00
2,600.00	19.36	81.56	2,550.77	50.37	339.58	343.29	0.00	0.00	0.00
2,700.00	19.36	81.56	2,645.11	55.23	372.36	376.44	0.00	0.00	0.00
2,800.00	19.36	81.56	2,739.46	60.09	405.15	409.58	0.00	0.00	0.00
2,900.00	19.36	81.56	2,833.81	64.96	437.94	442.73	0.00	0.00	0.00
3,000.00	19.36	81.56	2,928.15	69.82	470.72	475.87	0.00	0.00	0.00
3,100.00	19.36	81.56	3,022.50	74.68	503.51	509.02	0.00	0.00	0.00
3,200.00	19.36	81.56	3,116.85	79.55	536.29	542.16	0.00	0.00	0.00
PARKMAN									
3,298.73	19.36	81.56	3,210.00	84.35	568.66	574.88	0.00	0.00	0.00
3,300.00	19.36	81.56	3,211.20	84.41	569.08	575.30	0.00	0.00	0.00
3,400.00	19.36	81.56	3,305.54	89.27	601.86	608.45	0.00	0.00	0.00
3,500.00	19.36	81.56	3,399.89	94.13	634.65	641.59	0.00	0.00	0.00
3,600.00	19.36	81.56	3,494.24	99.00	667.44	674.74	0.00	0.00	0.00
3,700.00	19.36	81.56	3,588.59	103.86	700.22	707.88	0.00	0.00	0.00
3,800.00	19.36	81.56	3,682.93	108.72	733.01	741.03	0.00	0.00	0.00
3,900.00	19.36	81.56	3,777.28	113.59	765.79	774.17	0.00	0.00	0.00
4,000.00	19.36	81.56	3,871.63	118.45	798.58	807.32	0.00	0.00	0.00
4,100.00	19.36	81.56	3,965.98	123.31	831.37	840.46	0.00	0.00	0.00
4,200.00	19.36	81.56	4,060.32	128.17	864.15	873.61	0.00	0.00	0.00
4,300.00	19.36	81.56	4,154.67	133.04	896.94	906.75	0.00	0.00	0.00
4,400.00	19.36	81.56	4,249.02	137.90	929.72	939.90	0.00	0.00	0.00
4,500.00	19.36	81.56	4,343.37	142.76	962.51	973.04	0.00	0.00	0.00
4,600.00	19.36	81.56	4,437.71	147.63	995.30	1,006.18	0.00	0.00	0.00
4,700.00	19.36	81.56	4,532.06	152.49	1,028.08	1,039.33	0.00	0.00	0.00
4,800.00	19.36	81.56	4,626.41	157.35	1,060.87	1,072.47	0.00	0.00	0.00
SUSSEX									
4,862.10	19.36	81.56	4,685.00	160.37	1,081.23	1,093.06	0.00	0.00	0.00
4,900.00	19.36	81.56	4,720.76	162.22	1,093.65	1,105.62	0.00	0.00	0.00
5,000.00	19.36	81.56	4,815.10	167.08	1,126.44	1,138.76	0.00	0.00	0.00
5,100.00	19.36	81.56	4,909.45	171.94	1,159.23	1,171.91	0.00	0.00	0.00
5,200.00	19.36	81.56	5,003.80	176.80	1,192.01	1,205.05	0.00	0.00	0.00
5,300.00	19.36	81.56	5,098.15	181.67	1,224.80	1,238.20	0.00	0.00	0.00
SHANNON									
5,360.26	19.36	81.56	5,155.00	184.60	1,244.55	1,258.17	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_NRC 41-8
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site:	WELD_NRC 5 PAD	North Reference:	True
Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NRC 41-8		
Design:	PLAN #1 1-5-10 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)
5,400.00	19.36	81.56	5,192.49	186.53	1,257.58	1,271.34	0.00	0.00	0.00
5,500.00	19.36	81.56	5,286.84	191.39	1,290.37	1,304.49	0.00	0.00	0.00
Start Drop -2.00									
5,593.95	19.36	81.56	5,375.48	195.96	1,321.17	1,335.62	0.00	0.00	0.00
5,600.00	19.24	81.56	5,381.19	196.25	1,323.15	1,337.62	2.00	-2.00	0.00
5,700.00	17.24	81.56	5,476.16	200.85	1,354.10	1,368.92	2.00	-2.00	0.00
5,800.00	15.24	81.56	5,572.17	204.95	1,381.76	1,396.87	2.00	-2.00	0.00
5,900.00	13.24	81.56	5,669.09	208.56	1,406.08	1,421.46	2.00	-2.00	0.00
6,000.00	11.24	81.56	5,766.82	211.66	1,427.04	1,442.65	2.00	-2.00	0.00
6,100.00	9.24	81.56	5,865.22	214.27	1,444.62	1,460.42	2.00	-2.00	0.00
6,200.00	7.24	81.56	5,964.19	216.37	1,458.79	1,474.75	2.00	-2.00	0.00
6,300.00	5.24	81.56	6,063.59	217.97	1,469.53	1,485.61	2.00	-2.00	0.00
6,400.00	3.24	81.56	6,163.31	219.05	1,476.84	1,492.99	2.00	-2.00	0.00
6,500.00	1.24	81.56	6,263.23	219.62	1,480.69	1,496.89	2.00	-2.00	0.00
Start 1925.00 hold at 6561.78 MD									
6,561.78	0.00	0.00	6,325.00	219.72	1,481.35	1,497.56	2.00	-2.00	-132.03
6,600.00	0.00	0.00	6,363.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
6,700.00	0.00	0.00	6,463.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
6,800.00	0.00	0.00	6,563.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
6,900.00	0.00	0.00	6,663.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
7,000.00	0.00	0.00	6,763.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
7,100.00	0.00	0.00	6,863.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
7,200.00	0.00	0.00	6,963.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
7,300.00	0.00	0.00	7,063.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
7,400.00	0.00	0.00	7,163.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
7,500.00	0.00	0.00	7,263.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
NIO A									
7,561.78	0.00	0.00	7,325.00	219.72	1,481.35	1,497.56	0.00	0.00	0.00
7,600.00	0.00	0.00	7,363.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
7,700.00	0.00	0.00	7,463.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
7,800.00	0.00	0.00	7,563.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
7,900.00	0.00	0.00	7,663.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
CODELL									
7,901.78	0.00	0.00	7,665.00	219.72	1,481.35	1,497.56	0.00	0.00	0.00
8,000.00	0.00	0.00	7,763.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
8,100.00	0.00	0.00	7,863.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
8,200.00	0.00	0.00	7,963.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
8,300.00	0.00	0.00	8,063.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
JSAND									
8,351.78	0.00	0.00	8,115.00	219.72	1,481.35	1,497.56	0.00	0.00	0.00
8,400.00	0.00	0.00	8,163.22	219.72	1,481.35	1,497.56	0.00	0.00	0.00
PBHL_NRC 41-8(1315 FNL 50 FEL)50' TGT RAD									
8,486.78	0.00	0.00	8,250.00	219.72	1,481.35	1,497.56	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_NRC 41-8
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site:	WELD_NRC 5 PAD	North Reference:	True
Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NRC 41-8		
Design:	PLAN #1 1-5-10 RHS		

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
PBHL_NRC 41-8(131)	0.00	0.00	8,250.00	219.72	1,481.35	1,268,594.22	3,166,439.68	40° 4' 8.936 N	104° 54' 19.048 W
- plan hits target center									
- Circle (radius 50.00)									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
985.00	985.00	8 5/8"	8.62	11.00

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,298.73	3,210.00	PARKMAN			
4,862.10	4,685.00	SUSSEX			
5,360.26	5,155.00	SHANNON			
7,561.78	7,325.00	NIO A			
7,901.78	7,665.00	CODELL			
8,351.78	8,115.00	JSAND			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,085.00	1,085.00	0.00	0.00	Start Build 2.00
2,052.83	2,034.52	23.76	160.18	Start 3541.12 hold at 2052.83 MD
5,593.95	5,375.48	195.96	1,321.17	Start Drop -2.00
6,561.78	6,325.00	219.72	1,481.35	Start 1925.00 hold at 6561.78 MD
8,486.78	8,250.00	219.72	1,481.35	TD at 8486.78



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_NRC 5 PAD
P_NRC 41-8**

**P_NRC 41-8
PLAN #1 1-5-10 RHS**

Anticollision Report

05 January, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 41-8
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Reference Site:	WELD_NRC 5 PAD	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 41-8	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-5-10 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 1-5-10 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	1/5/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	8,486.78	PLAN #1 1-5-10 RHS (P_NRC 41-8)	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_NRC 5 PAD						
P_NRC 1-8 - P_NRC 1-8 - PLAN #1 1-5-10 RHS	1,085.00	1,085.00	16.02	11.41	3.469	CC
P_NRC 1-8 - P_NRC 1-8 - PLAN #1 1-5-10 RHS	1,100.00	1,100.01	16.05	11.36	3.426	ES
P_NRC 1-8 - P_NRC 1-8 - PLAN #1 1-5-10 RHS	1,200.00	1,200.03	17.36	12.26	3.403	SF
P_NRC 24-8 - P_NRC 24-8 - PLAN #1 1-5-10 RHS	1,177.50	1,176.88	31.91	26.95	6.425	CC
P_NRC 24-8 - P_NRC 24-8 - PLAN #1 1-5-10 RHS	1,200.00	1,199.19	31.94	26.89	6.324	ES
P_NRC 24-8 - P_NRC 24-8 - PLAN #1 1-5-10 RHS	1,300.00	1,297.95	33.57	28.13	6.171	SF
P_NRC 40-8 - P_NRC 40-8 - PLAN #1 1-5-10 RHS	1,085.00	1,085.00	48.22	43.60	10.440	CC
P_NRC 40-8 - P_NRC 40-8 - PLAN #1 1-5-10 RHS	1,100.00	1,099.75	48.23	43.55	10.306	ES
P_NRC 40-8 - P_NRC 40-8 - PLAN #1 1-5-10 RHS	1,300.00	1,296.27	51.16	45.71	9.384	SF
P_NRC 7-8 - P_NRC 7-8 - PLAN #1 1-5-10 RHS	1,226.08	1,225.86	14.80	9.63	2.863	CC, ES, SF
ROCKY MOUNTAIN FUEL CO C #6 EXISTING - ROCK	1,085.00	1,067.00	54.81	11.82	1.275	Level 3, CC
ROCKY MOUNTAIN FUEL CO C #6 EXISTING - ROCK	1,200.00	1,181.97	57.01	9.22	1.193	Level 2, ES, SF

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis					Distance					Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	-48.68	10.58	-12.03	16.02				
100.00	100.00	100.00	100.00	0.10	0.10	-48.68	10.58	-12.03	16.02	15.83	0.19	83.875	
200.00	200.00	200.00	200.00	0.32	0.32	-48.68	10.58	-12.03	16.02	15.38	0.64	25.015	
300.00	300.00	300.00	300.00	0.55	0.55	-48.68	10.58	-12.03	16.02	14.93	1.09	14.700	
400.00	400.00	400.00	400.00	0.77	0.77	-48.68	10.58	-12.03	16.02	14.48	1.54	10.408	
500.00	500.00	500.00	500.00	0.99	0.99	-48.68	10.58	-12.03	16.02	14.04	1.99	8.056	
600.00	600.00	600.00	600.00	1.22	1.22	-48.68	10.58	-12.03	16.02	13.59	2.44	6.571	
700.00	700.00	700.00	700.00	1.44	1.44	-48.68	10.58	-12.03	16.02	13.14	2.89	5.548	
800.00	800.00	800.00	800.00	1.67	1.67	-48.68	10.58	-12.03	16.02	12.69	3.34	4.801	
900.00	900.00	900.00	900.00	1.89	1.89	-48.68	10.58	-12.03	16.02	12.24	3.79	4.231	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-48.68	10.58	-12.03	16.02	11.79	4.24	3.782	
1,085.00	1,085.00	1,085.00	1,085.00	2.31	2.31	-48.68	10.58	-12.03	16.02	11.41	4.62	3.469	CC
1,100.00	1,100.00	1,100.01	1,100.01	2.34	2.34	-130.21	10.61	-12.01	16.05	11.36	4.68	3.426	ES
1,200.00	1,199.97	1,200.03	1,200.00	2.54	2.56	-128.43	12.20	-10.39	17.36	12.26	5.10	3.403	SF
1,300.00	1,299.80	1,299.97	1,299.77	2.76	2.78	-124.94	16.24	-6.29	20.75	15.22	5.53	3.753	
1,400.00	1,399.37	1,399.76	1,399.13	2.98	3.01	-121.23	22.71	0.26	26.28	20.31	5.97	4.401	

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_NRC 41-8
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Reference Site:	WELD_NRC 5 PAD	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 41-8	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design													WELD_NRC 5 PAD - P_NRC 1-8 - P_NRC 1-8 - PLAN #1 1-5-10 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			
1,500.00	1,498.55	1,499.33	1,497.89	3.23	3.26	-118.09	31.58	9.26	34.00	27.55	6.45	5.270			
1,600.00	1,597.23	1,598.62	1,595.87	3.50	3.53	-115.66	42.82	20.66	43.90	36.91	6.98	6.287			
1,700.00	1,695.29	1,697.55	1,692.90	3.82	3.83	-113.82	56.39	34.41	55.94	48.36	7.58	7.381			
1,800.00	1,792.60	1,796.08	1,788.80	4.18	4.18	-112.42	72.23	50.48	70.10	61.84	8.26	8.488			
1,900.00	1,889.05	1,894.34	1,883.66	4.60	4.58	-111.42	90.22	68.72	86.30	77.27	9.03	9.556			
2,000.00	1,984.52	1,992.75	1,978.45	5.08	5.01	-111.99	108.80	87.55	103.97	94.09	9.88	10.523			
2,052.83	2,034.52	2,044.61	2,028.40	5.36	5.24	-112.83	118.59	97.48	113.85	103.50	10.35	10.996			
2,100.00	2,079.03	2,090.87	2,072.95	5.63	5.45	-113.79	127.32	106.34	122.87	112.08	10.79	11.387			
2,200.00	2,173.38	2,188.94	2,167.41	6.21	5.92	-115.44	145.84	125.11	142.08	130.33	11.74	12.097			
2,300.00	2,267.72	2,287.01	2,261.87	6.81	6.39	-116.69	164.35	143.88	161.37	148.64	12.73	12.679			
2,400.00	2,362.07	2,385.07	2,356.33	7.42	6.88	-117.67	182.86	162.65	180.72	166.99	13.73	13.162			
2,500.00	2,456.42	2,483.14	2,450.78	8.05	7.38	-118.46	201.37	181.42	200.11	185.36	14.75	13.566			
2,600.00	2,550.77	2,581.21	2,545.24	8.69	7.88	-119.12	219.89	200.19	219.54	203.75	15.79	13.907			
2,700.00	2,645.11	2,679.28	2,639.70	9.34	8.38	-119.66	238.40	218.96	238.98	222.15	16.83	14.199			
2,800.00	2,739.46	2,777.34	2,734.16	9.99	8.89	-120.13	256.91	237.73	258.45	240.56	17.89	14.450			
2,900.00	2,833.81	2,875.41	2,828.61	10.64	9.41	-120.53	275.42	256.50	277.92	258.98	18.95	14.668			
3,000.00	2,928.15	2,973.48	2,923.07	11.30	9.92	-120.88	293.94	275.27	297.41	277.40	20.02	14.859			
3,100.00	3,022.50	3,071.55	3,017.53	11.97	10.44	-121.18	312.45	294.04	316.91	295.82	21.09	15.027			
3,200.00	3,116.85	3,169.61	3,111.98	12.64	10.97	-121.45	330.96	312.81	336.42	314.25	22.17	15.176			
3,300.00	3,211.20	3,267.68	3,206.44	13.30	11.49	-121.69	349.48	331.58	355.93	332.68	23.25	15.309			
3,400.00	3,305.54	3,365.75	3,300.90	13.98	12.02	-121.90	367.99	350.36	375.45	351.11	24.34	15.428			
3,500.00	3,399.89	3,463.82	3,395.36	14.65	12.54	-122.10	386.50	369.13	394.97	369.55	25.42	15.535			
3,600.00	3,494.24	3,561.88	3,489.81	15.32	13.07	-122.27	405.01	387.90	414.50	387.98	26.52	15.632			
3,700.00	3,588.59	3,659.95	3,584.27	16.00	13.60	-122.43	423.53	406.67	434.03	406.42	27.61	15.720			
3,800.00	3,682.93	3,758.02	3,678.73	16.68	14.13	-122.58	442.04	425.44	453.56	424.86	28.70	15.801			
3,900.00	3,777.28	3,856.09	3,773.19	17.36	14.66	-122.71	460.55	444.21	473.10	443.29	29.80	15.875			
4,000.00	3,871.63	3,954.15	3,867.64	18.04	15.20	-122.83	479.06	462.98	492.63	461.73	30.90	15.943			
4,100.00	3,965.98	4,052.22	3,962.10	18.72	15.73	-122.95	497.58	481.75	512.17	480.17	32.00	16.005			
4,200.00	4,060.32	4,150.29	4,056.56	19.40	16.26	-123.05	516.09	500.52	531.71	498.61	33.10	16.063			
4,300.00	4,154.67	4,248.36	4,151.02	20.08	16.80	-123.15	534.60	519.29	551.26	517.05	34.20	16.116			
4,400.00	4,249.02	4,346.42	4,245.47	20.76	17.33	-123.24	553.12	538.06	570.80	535.49	35.31	16.166			
4,500.00	4,343.37	4,444.49	4,339.93	21.44	17.87	-123.33	571.63	556.83	590.35	553.93	36.41	16.213			
4,600.00	4,437.71	4,542.56	4,434.39	22.13	18.40	-123.41	590.14	575.60	609.89	572.38	37.52	16.256			
4,700.00	4,532.06	4,640.63	4,528.84	22.81	18.94	-123.48	608.65	594.38	629.44	590.82	38.62	16.296			
4,800.00	4,626.41	4,738.70	4,623.30	23.50	19.48	-123.55	627.17	613.15	648.99	609.26	39.73	16.334			
4,900.00	4,720.76	4,836.76	4,717.76	24.18	20.01	-123.62	645.68	631.92	668.54	627.70	40.84	16.370			
5,000.00	4,815.10	4,934.83	4,812.22	24.87	20.55	-123.68	664.19	650.69	688.09	646.14	41.95	16.404			
5,100.00	4,909.45	5,032.90	4,906.67	25.55	21.09	-123.74	682.70	669.46	707.64	664.59	43.06	16.435			
5,200.00	5,003.80	5,130.97	5,001.13	26.24	21.63	-123.80	701.22	688.23	727.19	683.03	44.17	16.465			
5,300.00	5,098.15	5,229.03	5,095.59	26.92	22.16	-123.85	719.73	707.00	746.75	701.47	45.28	16.493			
5,400.00	5,192.49	5,327.10	5,190.05	27.61	22.70	-123.90	738.24	725.77	766.30	719.91	46.39	16.520			
5,500.00	5,286.84	5,425.17	5,284.50	28.29	23.24	-123.95	756.75	744.54	785.85	738.36	47.50	16.545			
5,593.95	5,375.48	5,517.30	5,373.24	28.94	23.75	-123.99	774.15	762.18	804.22	756.68	48.54	16.568			
5,600.00	5,381.19	5,523.24	5,378.96	28.98	23.78	-124.01	775.27	763.31	805.40	756.80	48.61	16.570			
5,700.00	5,476.16	5,621.50	5,473.61	29.49	24.32	-124.25	793.82	782.12	823.88	774.24	49.64	16.598			
5,800.00	5,572.17	5,720.19	5,568.70	29.95	24.83	-124.27	812.34	800.90	840.43	789.80	50.63	16.598			
5,900.00	5,669.09	5,819.58	5,665.13	30.37	25.22	-124.25	829.23	818.02	855.02	803.54	51.48	16.610			
6,000.00	5,766.82	5,919.40	5,762.77	30.74	25.58	-124.23	843.81	832.81	867.60	815.38	52.23	16.612			
6,100.00	5,865.22	6,019.60	5,861.44	31.05	25.90	-124.23	856.04	845.21	878.16	825.28	52.88	16.607			
6,200.00	5,964.19	6,120.10	5,960.96	31.32	26.17	-124.23	865.87	855.18	886.68	833.24	53.43	16.594			
6,300.00	6,063.59	6,220.84	6,061.14	31.55	26.40	-124.24	873.25	862.66	893.14	839.24	53.89	16.573			
6,400.00	6,163.31	6,321.75	6,161.80	31.72	26.58	-124.26	878.16	867.64	897.52	843.27	54.25	16.544			

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_NRC 41-8
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Reference Site:	WELD_NRC 5 PAD	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 41-8	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												WELD_NRC 5 PAD - P_NRC 1-8 - P_NRC 1-8 - PLAN #1 1-5-10 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 Tooface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)		Separation Factor	
6,500.00	6,263.23	6,422.76	6,262.74	31.85	26.72	-124.29	880.58	870.09	899.83	845.32	54.51	16.507		
6,561.78	6,325.00	6,485.02	6,325.00	31.91	26.79	-42.74	880.86	870.37	900.22	845.59	54.63	16.479		
6,600.00	6,363.22	6,523.24	6,363.22	31.94	26.83	-42.74	880.86	870.37	900.22	845.51	54.71	16.456		
6,700.00	6,463.22	6,623.24	6,463.22	32.04	26.94	-42.74	880.86	870.37	900.22	845.30	54.92	16.391		
6,800.00	6,563.22	6,723.24	6,563.22	32.13	27.06	-42.74	880.86	870.37	900.22	845.08	55.14	16.325		
6,900.00	6,663.22	6,823.24	6,663.22	32.23	27.17	-42.74	880.86	870.37	900.22	844.85	55.37	16.260		
7,000.00	6,763.22	6,923.24	6,763.22	32.33	27.29	-42.74	880.86	870.37	900.22	844.63	55.59	16.194		
7,100.00	6,863.22	7,023.24	6,863.22	32.43	27.40	-42.74	880.86	870.37	900.22	844.40	55.82	16.128		
7,200.00	6,963.22	7,123.24	6,963.22	32.53	27.52	-42.74	880.86	870.37	900.22	844.17	56.05	16.061		
7,300.00	7,063.22	7,223.24	7,063.22	32.64	27.64	-42.74	880.86	870.37	900.22	843.94	56.28	15.995		
7,400.00	7,163.22	7,323.24	7,163.22	32.74	27.76	-42.74	880.86	870.37	900.22	843.70	56.52	15.928		
7,500.00	7,263.22	7,423.24	7,263.22	32.84	27.89	-42.74	880.86	870.37	900.22	843.46	56.76	15.861		
7,600.00	7,363.22	7,523.24	7,363.22	32.95	28.01	-42.74	880.86	870.37	900.22	843.22	57.00	15.794		
7,700.00	7,463.22	7,623.24	7,463.22	33.06	28.14	-42.74	880.86	870.37	900.22	842.98	57.24	15.726		
7,800.00	7,563.22	7,723.24	7,563.22	33.17	28.26	-42.74	880.86	870.37	900.22	842.73	57.49	15.659		
7,900.00	7,663.22	7,823.24	7,663.22	33.28	28.39	-42.74	880.86	870.37	900.22	842.48	57.74	15.592		
8,000.00	7,763.22	7,923.24	7,763.22	33.39	28.52	-42.74	880.86	870.37	900.22	842.23	57.99	15.524		
8,100.00	7,863.22	8,023.24	7,863.22	33.50	28.65	-42.74	880.86	870.37	900.22	841.98	58.24	15.457		
8,200.00	7,963.22	8,123.24	7,963.22	33.61	28.78	-42.74	880.86	870.37	900.22	841.72	58.50	15.389		
8,300.00	8,063.22	8,223.24	8,063.22	33.73	28.91	-42.74	880.86	870.37	900.22	841.46	58.76	15.321		
8,400.00	8,163.22	8,323.24	8,163.22	33.84	29.05	-42.74	880.86	870.37	900.22	841.20	59.02	15.254		
8,451.81	8,215.03	8,375.05	8,215.03	33.90	29.12	-42.74	880.86	870.37	900.22	841.07	59.15	15.219		
8,486.78	8,250.00	8,395.02	8,235.00	33.95	29.14	-42.74	880.86	870.37	900.34	841.12	59.22	15.202		

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 41-8
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Reference Site:	WELD_NRC 5 PAD	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 41-8	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design													WELD_NRC 5 PAD - P_NRC 24-8 - P_NRC 24-8 - PLAN #1 1-5-10 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 Tooface (°)	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	130.46	-20.77	24.35	32.00						
100.00	100.00	100.00	100.00	0.10	0.10	130.46	-20.77	24.35	32.00	31.81	0.19	167.509			
200.00	200.00	200.00	200.00	0.32	0.32	130.46	-20.77	24.35	32.00	31.36	0.64	49.959			
300.00	300.00	300.00	300.00	0.55	0.55	130.46	-20.77	24.35	32.00	30.91	1.09	29.357			
400.00	400.00	400.00	400.00	0.77	0.77	130.46	-20.77	24.35	32.00	30.46	1.54	20.786			
500.00	500.00	500.00	500.00	0.99	0.99	130.46	-20.77	24.35	32.00	30.01	1.99	16.088			
600.00	600.00	600.00	600.00	1.22	1.22	130.46	-20.77	24.35	32.00	29.56	2.44	13.123			
700.00	700.00	700.00	700.00	1.44	1.44	130.46	-20.77	24.35	32.00	29.11	2.89	11.080			
800.00	800.00	800.00	800.00	1.67	1.67	130.46	-20.77	24.35	32.00	28.67	3.34	9.588			
900.00	900.00	900.00	900.00	1.89	1.89	130.46	-20.77	24.35	32.00	28.22	3.79	8.450			
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	130.46	-20.77	24.35	32.00	27.77	4.24	7.553			
1,085.00	1,085.00	1,085.00	1,085.00	2.31	2.31	130.46	-20.77	24.35	32.00	27.38	4.62	6.929			
1,100.00	1,100.00	1,099.91	1,099.91	2.34	2.34	49.01	-20.81	24.34	32.00	27.32	4.68	6.837			
1,177.50	1,177.48	1,176.88	1,176.86	2.50	2.47	53.13	-22.23	24.15	31.91	26.95	4.97	6.425 CC			
1,200.00	1,199.97	1,199.19	1,199.16	2.54	2.51	55.44	-23.02	24.05	31.94	26.89	5.05	6.324 ES			
1,300.00	1,299.80	1,297.95	1,297.75	2.76	2.69	71.01	-28.61	23.31	33.57	28.13	5.44	6.171 SF			
1,400.00	1,399.37	1,395.73	1,395.12	2.98	2.88	90.62	-37.46	22.13	40.53	34.68	5.85	6.928			
1,500.00	1,498.55	1,492.12	1,490.75	3.23	3.09	106.77	-49.40	20.54	55.12	48.85	6.27	8.787			
1,600.00	1,597.23	1,586.71	1,584.15	3.50	3.32	117.36	-64.21	18.58	77.09	70.38	6.71	11.491			
1,700.00	1,695.29	1,679.15	1,674.90	3.82	3.59	123.92	-81.62	16.26	105.48	98.32	7.17	14.720			
1,800.00	1,792.60	1,771.50	1,765.08	4.18	3.89	128.22	-101.37	13.64	139.09	131.43	7.66	18.163			
1,900.00	1,889.05	1,864.04	1,855.39	4.60	4.22	131.52	-121.38	10.98	175.63	167.45	8.19	21.456			
2,000.00	1,984.52	1,955.43	1,944.58	5.08	4.57	134.17	-141.14	8.35	214.90	206.16	8.75	24.571			
2,052.83	2,034.52	2,003.20	1,991.20	5.36	4.75	135.38	-151.46	6.98	236.75	227.70	9.05	26.149			
2,100.00	2,079.03	2,045.69	2,032.67	5.63	4.92	136.62	-160.65	5.76	256.65	247.30	9.35	27.438			
2,200.00	2,173.38	2,135.78	2,120.58	6.21	5.28	138.69	-180.13	3.17	299.10	289.10	10.00	29.900			
2,300.00	2,267.72	2,225.86	2,208.50	6.81	5.65	140.25	-199.60	0.58	341.79	331.12	10.67	32.042			
2,400.00	2,362.07	2,315.94	2,296.41	7.42	6.03	141.47	-219.08	-2.01	384.64	373.29	11.34	33.905			
2,500.00	2,456.42	2,406.03	2,384.33	8.05	6.42	142.44	-238.55	-4.60	427.61	415.57	12.03	35.536			
2,600.00	2,550.77	2,496.11	2,472.24	8.69	6.81	143.24	-258.03	-7.18	470.65	457.92	12.73	36.973			
2,700.00	2,645.11	2,586.19	2,560.16	9.34	7.20	143.91	-277.50	-9.77	513.77	500.33	13.43	38.244			
2,800.00	2,739.46	2,676.28	2,648.07	9.99	7.60	144.47	-296.97	-12.36	556.92	542.78	14.14	39.376			
2,900.00	2,833.81	2,766.36	2,735.99	10.64	8.00	144.95	-316.45	-14.95	600.12	585.26	14.86	40.390			
3,000.00	2,928.15	2,856.44	2,823.90	11.30	8.41	145.36	-335.92	-17.54	643.34	627.77	15.58	41.302			
3,100.00	3,022.50	2,946.52	2,911.82	11.97	8.81	145.73	-355.40	-20.13	686.59	670.30	16.30	42.126			
3,200.00	3,116.85	3,036.61	2,999.73	12.64	9.22	146.05	-374.87	-22.71	729.86	712.84	17.02	42.875			
3,300.00	3,211.20	3,126.69	3,087.64	13.30	9.63	146.33	-394.35	-25.30	773.15	755.40	17.75	43.557			
3,400.00	3,305.54	3,216.77	3,175.56	13.98	10.04	146.59	-413.82	-27.89	816.45	797.97	18.48	44.183			
3,500.00	3,399.89	3,306.86	3,263.47	14.65	10.45	146.82	-433.30	-30.48	859.76	840.55	19.21	44.757			
3,600.00	3,494.24	3,396.94	3,351.39	15.32	10.86	147.02	-452.77	-33.07	903.08	883.14	19.94	45.287			
3,700.00	3,588.59	3,487.02	3,439.30	16.00	11.28	147.21	-472.25	-35.66	946.41	925.74	20.67	45.777			
3,800.00	3,682.93	3,577.11	3,527.22	16.68	11.69	147.38	-491.72	-38.24	989.75	968.34	21.41	46.232			
3,900.00	3,777.28	3,667.19	3,615.13	17.36	12.11	147.54	-511.20	-40.83	1,033.10	1,010.96	22.14	46.656			
4,000.00	3,871.63	3,757.27	3,703.05	18.04	12.52	147.68	-530.67	-43.42	1,076.45	1,053.57	22.88	47.052			
4,100.00	3,965.98	3,847.36	3,790.96	18.72	12.94	147.82	-550.15	-46.01	1,119.80	1,096.19	23.61	47.423			
4,200.00	4,060.32	3,937.44	3,878.88	19.40	13.36	147.94	-569.62	-48.60	1,163.16	1,138.82	24.35	47.771			
4,300.00	4,154.67	4,027.52	3,966.79	20.08	13.78	148.06	-589.10	-51.18	1,206.53	1,181.44	25.08	48.098			
4,400.00	4,249.02	4,117.60	4,054.71	20.76	14.20	148.16	-608.57	-53.77	1,249.90	1,224.08	25.82	48.407			
4,500.00	4,343.37	4,207.69	4,142.62	21.44	14.62	148.26	-628.05	-56.36	1,293.27	1,266.70	26.56	48.684			
4,600.00	4,437.71	4,297.77	4,230.54	22.13	15.04	148.36	-647.52	-58.95	1,336.64	1,309.33	27.32	48.934			
4,700.00	4,532.06	4,387.85	4,318.45	22.81	15.46	148.44	-667.00	-61.54	1,380.02	1,351.95	28.07	49.169			
4,800.00	4,626.41	4,477.94	4,406.37	23.50	15.88	148.52	-686.47	-64.13	1,423.40	1,394.58	28.82	49.391			

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_NRC 41-8
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Reference Site:	WELD_NRC 5 PAD	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 41-8	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design													WELD_NRC 5 PAD - P_NRC 24-8 - P_NRC 24-8 - PLAN #1 1-5-10 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			
4,900.00	4,720.76	4,568.02	4,494.28	24.18	16.30	148.60	-705.94	-66.71	1,466.78	1,437.21	29.57	49.600			
5,000.00	4,815.10	4,658.10	4,582.19	24.87	16.72	148.67	-725.42	-69.30	1,510.16	1,479.84	30.33	49.799			
5,100.00	4,909.45	4,748.19	4,670.11	25.55	17.14	148.74	-744.89	-71.89	1,553.55	1,522.47	31.08	49.986			
5,200.00	5,003.80	4,838.27	4,758.02	26.24	17.56	148.81	-764.37	-74.48	1,596.94	1,565.10	31.83	50.165			
5,300.00	5,098.15	4,928.35	4,845.94	26.92	17.98	148.87	-783.84	-77.07	1,640.33	1,607.74	32.59	50.334			
5,400.00	5,192.49	5,018.44	4,933.85	27.61	18.40	148.93	-803.32	-79.66	1,683.72	1,650.37	33.34	50.495			
5,500.00	5,286.84	5,108.52	5,021.77	28.29	18.83	148.98	-822.79	-82.24	1,727.11	1,693.01	34.10	50.648			
5,593.95	5,375.48	5,193.15	5,104.36	28.94	19.22	149.03	-841.09	-84.68	1,767.87	1,733.06	34.81	50.785			
5,600.00	5,381.19	5,198.60	5,109.69	28.98	19.25	149.07	-842.27	-84.83	1,770.50	1,735.63	34.86	50.784			
5,700.00	5,476.16	5,289.41	5,198.30	29.49	19.68	149.55	-861.90	-87.44	1,812.37	1,776.70	35.67	50.813			
5,800.00	5,572.17	5,381.42	5,288.10	29.95	20.11	149.93	-881.79	-90.09	1,851.49	1,815.04	36.45	50.800			
5,900.00	5,669.09	5,474.54	5,378.98	30.37	20.54	150.22	-901.92	-92.76	1,887.82	1,850.62	37.20	50.752			
6,000.00	5,766.82	5,568.63	5,470.81	30.74	20.99	150.42	-922.26	-95.46	1,921.31	1,883.40	37.91	50.677			
6,100.00	5,865.22	5,663.60	5,563.49	31.05	21.43	150.54	-942.79	-98.19	1,951.95	1,913.36	38.59	50.577			
6,200.00	5,964.19	5,759.32	5,656.90	31.32	21.88	150.58	-963.49	-100.94	1,979.71	1,940.47	39.23	50.458			
6,300.00	6,063.59	5,902.57	5,797.02	31.55	22.47	150.42	-992.97	-104.86	2,004.03	1,964.06	39.97	50.141			
6,400.00	6,163.31	6,100.36	5,992.47	31.72	23.00	150.19	-1,022.77	-108.82	2,021.29	1,980.65	40.64	49.733			
6,500.00	6,263.23	6,302.52	6,193.90	31.85	23.39	150.07	-1,039.34	-111.02	2,030.61	1,989.45	41.16	49.334			
6,561.78	6,325.00	6,428.46	6,319.80	31.91	23.56	-128.40	-1,042.53	-111.45	2,032.32	1,990.92	41.40	49.089			
6,600.00	6,363.22	6,471.89	6,363.22	31.94	23.61	-128.40	-1,042.55	-111.45	2,032.32	1,990.82	41.51	48.962			
6,700.00	6,463.22	6,571.89	6,463.22	32.04	23.71	-128.40	-1,042.55	-111.45	2,032.32	1,990.55	41.77	48.655			
6,800.00	6,563.22	6,671.89	6,563.22	32.13	23.82	-128.40	-1,042.55	-111.45	2,032.32	1,990.29	42.03	48.353			
6,900.00	6,663.22	6,771.89	6,663.22	32.23	23.93	-128.40	-1,042.55	-111.45	2,032.32	1,990.03	42.30	48.051			
7,000.00	6,763.22	6,871.89	6,763.22	32.33	24.03	-128.40	-1,042.55	-111.45	2,032.32	1,989.76	42.56	47.749			
7,100.00	6,863.22	6,971.89	6,863.22	32.43	24.14	-128.40	-1,042.55	-111.45	2,032.32	1,989.49	42.83	47.448			
7,200.00	6,963.22	7,071.89	6,963.22	32.53	24.26	-128.40	-1,042.55	-111.45	2,032.32	1,989.22	43.11	47.147			
7,300.00	7,063.22	7,171.89	7,063.22	32.64	24.37	-128.40	-1,042.55	-111.45	2,032.32	1,988.94	43.38	46.847			
7,400.00	7,163.22	7,271.89	7,163.22	32.74	24.48	-128.40	-1,042.55	-111.45	2,032.32	1,988.66	43.66	46.547			
7,500.00	7,263.22	7,371.89	7,263.22	32.84	24.60	-128.40	-1,042.55	-111.45	2,032.32	1,988.38	43.94	46.248			
7,600.00	7,363.22	7,471.89	7,363.22	32.95	24.72	-128.40	-1,042.55	-111.45	2,032.32	1,988.10	44.23	45.951			
7,700.00	7,463.22	7,571.89	7,463.22	33.06	24.84	-128.40	-1,042.55	-111.45	2,032.32	1,987.81	44.52	45.654			
7,800.00	7,563.22	7,671.89	7,563.22	33.17	24.96	-128.40	-1,042.55	-111.45	2,032.32	1,987.52	44.81	45.358			
7,900.00	7,663.22	7,771.89	7,663.22	33.28	25.08	-128.40	-1,042.55	-111.45	2,032.32	1,987.23	45.10	45.064			
8,000.00	7,763.22	7,871.89	7,763.22	33.39	25.20	-128.40	-1,042.55	-111.45	2,032.32	1,986.93	45.39	44.770			
8,100.00	7,863.22	7,971.89	7,863.22	33.50	25.33	-128.40	-1,042.55	-111.45	2,032.32	1,986.63	45.69	44.479			
8,200.00	7,963.22	8,071.89	7,963.22	33.61	25.45	-128.40	-1,042.55	-111.45	2,032.32	1,986.33	45.99	44.188			
8,300.00	8,063.22	8,171.89	8,063.22	33.73	25.58	-128.40	-1,042.55	-111.45	2,032.32	1,986.03	46.30	43.899			
8,400.00	8,163.22	8,271.89	8,163.22	33.84	25.71	-128.40	-1,042.55	-111.45	2,032.32	1,985.72	46.60	43.612			
8,486.78	8,250.00	8,358.67	8,250.00	33.95	25.82	-128.40	-1,042.55	-111.45	2,032.32	1,985.46	46.87	43.363			

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 41-8
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Reference Site:	WELD_NRC 5 PAD	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 41-8	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												WELD_NRC 5 PAD - P_NRC 40-8 - P_NRC 40-8 - PLAN #1 1-5-10 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	130.51	-31.32	36.66	48.22					
100.00	100.00	100.00	100.00	0.10	0.10	130.51	-31.32	36.66	48.22	48.03	0.19	252.404		
200.00	200.00	200.00	200.00	0.32	0.32	130.51	-31.32	36.66	48.22	47.58	0.64	75.278		
300.00	300.00	300.00	300.00	0.55	0.55	130.51	-31.32	36.66	48.22	47.13	1.09	44.236		
400.00	400.00	400.00	400.00	0.77	0.77	130.51	-31.32	36.66	48.22	46.68	1.54	31.320		
500.00	500.00	500.00	500.00	0.99	0.99	130.51	-31.32	36.66	48.22	46.23	1.99	24.242		
600.00	600.00	600.00	600.00	1.22	1.22	130.51	-31.32	36.66	48.22	45.78	2.44	19.774		
700.00	700.00	700.00	700.00	1.44	1.44	130.51	-31.32	36.66	48.22	45.33	2.89	16.696		
800.00	800.00	800.00	800.00	1.67	1.67	130.51	-31.32	36.66	48.22	44.88	3.34	14.447		
900.00	900.00	900.00	900.00	1.89	1.89	130.51	-31.32	36.66	48.22	44.43	3.79	12.733		
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	130.51	-31.32	36.66	48.22	43.99	4.24	11.382		
1,085.00	1,085.00	1,085.00	1,085.00	2.31	2.31	130.51	-31.32	36.66	48.22	43.60	4.62	10.440	CC	
1,100.00	1,100.00	1,099.75	1,099.75	2.34	2.34	48.98	-31.35	36.69	48.23	43.55	4.68	10.306	ES	
1,200.00	1,199.97	1,198.07	1,198.04	2.54	2.52	50.81	-32.69	38.43	49.00	43.94	5.06	9.684		
1,300.00	1,299.80	1,296.27	1,296.08	2.76	2.71	55.19	-36.10	42.82	51.16	45.71	5.45	9.384	SF	
1,400.00	1,399.37	1,394.24	1,393.64	2.98	2.91	61.42	-41.55	49.84	55.20	49.34	5.86	9.414		
1,500.00	1,498.55	1,491.87	1,490.51	3.23	3.14	68.49	-49.01	59.45	61.67	55.36	6.31	9.773		
1,600.00	1,597.23	1,589.08	1,586.48	3.50	3.40	75.43	-58.44	71.61	71.00	64.19	6.81	10.426		
1,700.00	1,695.29	1,685.75	1,681.36	3.82	3.69	81.60	-69.80	86.24	83.40	76.02	7.38	11.299		
1,800.00	1,792.60	1,781.80	1,774.95	4.18	4.03	86.74	-83.02	103.28	98.87	90.83	8.04	12.302		
1,900.00	1,889.05	1,877.15	1,867.10	4.60	4.42	90.86	-98.04	122.64	117.34	108.55	8.79	13.350		
2,000.00	1,984.52	1,971.71	1,957.62	5.08	4.87	94.10	-114.78	144.22	138.68	129.03	9.65	14.374		
2,052.83	2,034.52	2,021.33	2,004.74	5.36	5.13	95.51	-124.30	156.48	151.07	140.92	10.15	14.890		
2,100.00	2,079.03	2,065.45	2,046.42	5.63	5.37	96.73	-133.18	167.92	162.72	152.11	10.61	15.329		
2,200.00	2,173.38	2,158.50	2,133.56	6.21	5.94	98.23	-153.19	193.72	188.94	177.29	11.65	16.220		
2,300.00	2,267.72	2,250.73	2,218.83	6.81	6.56	98.68	-174.73	221.47	217.02	204.28	12.73	17.044		
2,400.00	2,362.07	2,343.59	2,303.58	7.42	7.24	98.48	-197.99	251.44	246.73	232.86	13.87	17.793		
2,500.00	2,456.42	2,438.95	2,390.37	8.05	7.98	98.21	-222.22	282.66	276.80	261.74	15.06	18.375		
2,600.00	2,550.77	2,534.32	2,477.16	8.69	8.73	97.99	-246.44	313.88	306.88	290.59	16.28	18.845		
2,700.00	2,645.11	2,629.68	2,563.95	9.34	9.50	97.81	-270.67	345.10	336.96	319.43	17.52	19.228		
2,800.00	2,739.46	2,725.05	2,650.75	9.99	10.28	97.66	-294.89	376.32	367.04	348.26	18.78	19.546		
2,900.00	2,833.81	2,820.41	2,737.54	10.64	11.07	97.53	-319.12	407.54	397.12	377.08	20.05	19.811		
3,000.00	2,928.15	2,915.77	2,824.33	11.30	11.86	97.42	-343.34	438.76	427.21	405.88	21.32	20.035		
3,100.00	3,022.50	3,011.14	2,911.12	11.97	12.66	97.32	-367.57	469.97	457.29	434.68	22.61	20.226		
3,200.00	3,116.85	3,106.50	2,997.91	12.64	13.46	97.24	-391.79	501.19	487.38	463.48	23.90	20.391		
3,300.00	3,211.20	3,201.87	3,084.71	13.30	14.27	97.17	-416.02	532.41	517.47	492.27	25.20	20.534		
3,400.00	3,305.54	3,297.23	3,171.50	13.98	15.08	97.10	-440.25	563.63	547.56	521.05	26.50	20.659		
3,500.00	3,399.89	3,392.59	3,258.29	14.65	15.89	97.04	-464.47	594.85	577.65	549.83	27.81	20.769		
3,600.00	3,494.24	3,487.96	3,345.08	15.32	16.70	96.99	-488.70	626.07	607.74	578.61	29.12	20.867		
3,700.00	3,588.59	3,583.32	3,431.87	16.00	17.52	96.94	-512.92	657.29	637.83	607.39	30.44	20.954		
3,800.00	3,682.93	3,678.69	3,518.66	16.68	18.34	96.90	-537.15	688.51	667.92	636.16	31.76	21.032		
3,900.00	3,777.28	3,774.05	3,605.46	17.36	19.16	96.86	-561.37	719.73	698.01	664.93	33.08	21.102		
4,000.00	3,871.63	3,869.42	3,692.25	18.04	19.98	96.82	-585.60	750.94	728.10	693.70	34.40	21.165		
4,100.00	3,965.98	3,964.78	3,779.04	18.72	20.80	96.79	-609.82	782.16	758.19	722.47	35.73	21.223		
4,200.00	4,060.32	4,060.14	3,865.83	19.40	21.62	96.76	-634.05	813.38	788.28	751.23	37.05	21.275		
4,300.00	4,154.67	4,155.51	3,952.62	20.08	22.44	96.73	-658.28	844.60	818.38	780.00	38.38	21.323		
4,400.00	4,249.02	4,250.87	4,039.42	20.76	23.27	96.70	-682.50	875.82	848.47	808.76	39.71	21.367		
4,500.00	4,343.37	4,346.24	4,126.21	21.44	24.09	96.67	-706.73	907.04	878.56	837.52	41.04	21.407		
4,600.00	4,437.71	4,441.60	4,213.00	22.13	24.92	96.65	-730.95	938.26	908.65	866.28	42.37	21.445		
4,700.00	4,532.06	4,536.96	4,299.79	22.81	25.74	96.63	-755.18	969.48	938.75	895.04	43.70	21.479		
4,800.00	4,626.41	4,632.33	4,386.58	23.50	26.57	96.61	-779.40	1,000.70	968.84	923.80	45.04	21.511		
4,900.00	4,720.76	4,727.69	4,473.37	24.18	27.40	96.59	-803.63	1,031.91	998.93	952.56	46.37	21.541		

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_NRC 41-8
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Reference Site:	WELD_NRC 5 PAD	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 41-8	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												WELD_NRC 5 PAD - P_NRC 40-8 - P_NRC 40-8 - PLAN #1 1-5-10 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	4,815.10	4,823.06	4,560.17	24.87	28.22	96.57	-827.85	1,063.13	1,029.02	981.32	47.71	21.569		
5,100.00	4,909.45	4,918.42	4,646.96	25.55	29.05	96.55	-852.08	1,094.35	1,059.12	1,010.07	49.05	21.595		
5,200.00	5,003.80	5,013.79	4,733.75	26.24	29.88	96.54	-876.31	1,125.57	1,089.21	1,038.83	50.38	21.619		
5,300.00	5,098.15	5,109.15	4,820.54	26.92	30.71	96.52	-900.53	1,156.79	1,119.30	1,067.58	51.72	21.642		
5,400.00	5,192.49	5,204.51	4,907.33	27.61	31.54	96.51	-924.76	1,188.01	1,149.40	1,096.34	53.06	21.663		
5,500.00	5,286.84	5,299.88	4,994.13	28.29	32.37	96.49	-948.98	1,219.23	1,179.49	1,125.09	54.40	21.683		
5,593.95	5,375.48	5,389.47	5,075.66	28.94	33.14	96.48	-971.74	1,248.56	1,207.76	1,152.11	55.65	21.701		
5,600.00	5,381.19	5,395.24	5,080.92	28.98	33.19	96.52	-973.21	1,250.45	1,209.58	1,153.84	55.74	21.700		
5,700.00	5,476.16	5,492.50	5,169.44	29.49	34.03	97.03	-997.91	1,282.28	1,239.46	1,182.39	57.06	21.720		
5,800.00	5,572.17	5,622.71	5,289.25	29.95	34.88	97.38	-1,029.14	1,322.53	1,267.49	1,209.15	58.33	21.728		
5,900.00	5,669.09	5,755.25	5,413.47	30.37	35.64	97.66	-1,057.47	1,359.04	1,292.43	1,232.94	59.49	21.725		
6,000.00	5,766.82	5,889.94	5,541.74	30.74	36.33	97.90	-1,082.62	1,391.44	1,314.19	1,253.66	60.53	21.712		
6,100.00	5,865.22	6,026.54	5,673.66	31.05	36.93	98.09	-1,104.32	1,419.41	1,332.68	1,271.24	61.43	21.693		
6,200.00	5,964.19	6,164.78	5,808.73	31.32	37.44	98.23	-1,122.34	1,442.63	1,347.80	1,285.60	62.21	21.666		
6,300.00	6,063.59	6,304.39	5,946.41	31.55	37.86	98.32	-1,136.46	1,460.82	1,359.51	1,296.66	62.85	21.632		
6,400.00	6,163.31	6,445.03	6,086.08	31.72	38.17	98.37	-1,146.50	1,473.77	1,367.74	1,304.40	63.34	21.593		
6,500.00	6,263.23	6,586.37	6,227.09	31.85	38.39	98.38	-1,152.35	1,481.31	1,372.45	1,308.75	63.71	21.543		
6,561.78	6,325.00	6,673.89	6,314.57	31.91	38.48	179.92	-1,153.84	1,483.22	1,373.60	1,309.74	63.86	21.510		
6,600.00	6,363.22	6,722.55	6,363.22	31.94	38.53	179.91	-1,153.97	1,483.39	1,373.69	1,309.76	63.94	21.485		
6,700.00	6,463.22	6,822.55	6,463.22	32.04	38.60	179.91	-1,153.97	1,483.39	1,373.69	1,309.57	64.12	21.424		
6,800.00	6,563.22	6,922.55	6,563.22	32.13	38.67	179.91	-1,153.97	1,483.39	1,373.69	1,309.39	64.30	21.362		
6,900.00	6,663.22	7,022.55	6,663.22	32.23	38.75	179.91	-1,153.97	1,483.39	1,373.69	1,309.20	64.49	21.300		
7,000.00	6,763.22	7,122.55	6,763.22	32.33	38.82	179.91	-1,153.97	1,483.39	1,373.69	1,309.01	64.68	21.237		
7,100.00	6,863.22	7,222.55	6,863.22	32.43	38.90	179.91	-1,153.97	1,483.39	1,373.69	1,308.82	64.88	21.174		
7,200.00	6,963.22	7,322.55	6,963.22	32.53	38.98	179.91	-1,153.97	1,483.39	1,373.69	1,308.62	65.07	21.110		
7,300.00	7,063.22	7,422.55	7,063.22	32.64	39.06	179.91	-1,153.97	1,483.39	1,373.69	1,308.42	65.27	21.046		
7,400.00	7,163.22	7,522.55	7,163.22	32.74	39.14	179.91	-1,153.97	1,483.39	1,373.69	1,308.22	65.47	20.981		
7,500.00	7,263.22	7,622.55	7,263.22	32.84	39.22	179.91	-1,153.97	1,483.39	1,373.69	1,308.02	65.68	20.916		
7,600.00	7,363.22	7,722.55	7,363.22	32.95	39.30	179.91	-1,153.97	1,483.39	1,373.69	1,307.81	65.88	20.850		
7,700.00	7,463.22	7,822.55	7,463.22	33.06	39.39	179.91	-1,153.97	1,483.39	1,373.69	1,307.60	66.09	20.785		
7,800.00	7,563.22	7,922.55	7,563.22	33.17	39.47	179.91	-1,153.97	1,483.39	1,373.69	1,307.39	66.30	20.719		
7,900.00	7,663.22	8,022.55	7,663.22	33.28	39.56	179.91	-1,153.97	1,483.39	1,373.69	1,307.18	66.52	20.652		
8,000.00	7,763.22	8,122.55	7,763.22	33.39	39.65	179.91	-1,153.97	1,483.39	1,373.69	1,306.96	66.73	20.586		
8,100.00	7,863.22	8,222.55	7,863.22	33.50	39.73	179.91	-1,153.97	1,483.39	1,373.69	1,306.74	66.95	20.519		
8,200.00	7,963.22	8,322.55	7,963.22	33.61	39.82	179.91	-1,153.97	1,483.39	1,373.69	1,306.52	67.17	20.451		
8,300.00	8,063.22	8,422.55	8,063.22	33.73	39.91	179.91	-1,153.97	1,483.39	1,373.69	1,306.30	67.39	20.384		
8,400.00	8,163.22	8,522.55	8,163.22	33.84	40.01	179.91	-1,153.97	1,483.39	1,373.69	1,306.08	67.62	20.316		
8,486.78	8,250.00	8,609.32	8,250.00	33.95	40.09	179.91	-1,153.97	1,483.39	1,373.69	1,305.88	67.81	20.257		

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 41-8
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Reference Site:	WELD_NRC 5 PAD	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 41-8	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												WELD_NRC 5 PAD - P_NRC 7-8 - P_NRC 7-8 - PLAN #1 1-5-10 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 Tooface (°)	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	130.61	-10.56	12.31	16.22					
100.00	100.00	100.00	100.00	0.10	0.10	130.61	-10.56	12.31	16.22	16.03	0.19	84.909		
200.00	200.00	200.00	200.00	0.32	0.32	130.61	-10.56	12.31	16.22	15.58	0.64	25.324		
300.00	300.00	300.00	300.00	0.55	0.55	130.61	-10.56	12.31	16.22	15.13	1.09	14.881		
400.00	400.00	400.00	400.00	0.77	0.77	130.61	-10.56	12.31	16.22	14.68	1.54	10.536		
500.00	500.00	500.00	500.00	0.99	0.99	130.61	-10.56	12.31	16.22	14.23	1.99	8.155		
600.00	600.00	600.00	600.00	1.22	1.22	130.61	-10.56	12.31	16.22	13.78	2.44	6.652		
700.00	700.00	700.00	700.00	1.44	1.44	130.61	-10.56	12.31	16.22	13.33	2.89	5.617		
800.00	800.00	800.00	800.00	1.67	1.67	130.61	-10.56	12.31	16.22	12.88	3.34	4.860		
900.00	900.00	900.00	900.00	1.89	1.89	130.61	-10.56	12.31	16.22	12.43	3.79	4.283		
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	130.61	-10.56	12.31	16.22	11.99	4.24	3.829		
1,085.00	1,085.00	1,085.00	1,085.00	2.31	2.31	130.61	-10.56	12.31	16.22	11.60	4.62	3.512		
1,100.00	1,100.00	1,100.01	1,100.01	2.34	2.34	49.29	-10.59	12.29	16.19	11.51	4.68	3.459		
1,200.00	1,199.97	1,199.91	1,199.88	2.54	2.52	64.67	-12.10	10.60	14.97	9.90	5.06	2.956		
1,226.08	1,226.02	1,225.86	1,225.81	2.60	2.57	73.19	-12.88	9.74	14.80	9.63	5.17	2.863 CC, ES, SF		
1,300.00	1,299.80	1,299.05	1,298.85	2.76	2.71	103.51	-15.91	6.38	17.20	11.73	5.46	3.147		
1,400.00	1,399.37	1,396.78	1,396.17	2.98	2.91	133.19	-21.91	-0.27	30.17	24.32	5.85	5.155		
1,500.00	1,498.55	1,493.35	1,492.02	3.23	3.13	146.11	-29.75	-8.97	51.99	45.76	6.23	8.341		
1,600.00	1,597.23	1,589.56	1,587.47	3.50	3.37	152.41	-37.85	-17.95	78.31	71.69	6.62	11.831		
1,700.00	1,695.29	1,684.79	1,681.94	3.82	3.61	156.20	-45.86	-26.83	108.17	101.16	7.01	15.435		
1,800.00	1,792.60	1,778.92	1,775.33	4.18	3.87	158.78	-53.77	-35.61	141.39	133.99	7.40	19.112		
1,900.00	1,889.05	1,871.85	1,867.52	4.60	4.13	160.67	-61.59	-44.28	177.89	170.10	7.79	22.839		
2,000.00	1,984.52	1,963.46	1,958.40	5.08	4.39	162.14	-69.29	-52.82	217.61	209.43	8.18	26.601		
2,052.83	2,034.52	2,011.28	2,005.85	5.36	4.53	162.78	-73.32	-57.28	239.87	231.48	8.39	28.599		
2,100.00	2,079.03	2,053.79	2,048.03	5.63	4.65	163.40	-76.89	-61.25	260.15	251.54	8.61	30.214		
2,200.00	2,173.38	2,143.93	2,137.45	6.21	4.92	164.45	-84.47	-69.66	303.22	294.12	9.09	33.356		
2,300.00	2,267.72	2,234.06	2,226.87	6.81	5.19	165.24	-92.05	-78.06	346.34	336.76	9.58	36.154		
2,400.00	2,362.07	2,324.19	2,316.29	7.42	5.46	165.85	-99.64	-86.47	389.51	379.43	10.08	38.656		
2,500.00	2,456.42	2,414.33	2,405.70	8.05	5.73	166.34	-107.22	-94.88	432.71	422.13	10.58	40.900		
2,600.00	2,550.77	2,504.46	2,495.12	8.69	6.01	166.74	-114.80	-103.29	475.92	464.83	11.09	42.922		
2,700.00	2,645.11	2,594.59	2,584.54	9.34	6.29	167.08	-122.38	-111.69	519.16	507.56	11.60	44.749		
2,800.00	2,739.46	2,684.73	2,673.96	9.99	6.57	167.36	-129.96	-120.10	562.40	550.28	12.12	46.407		
2,900.00	2,833.81	2,774.86	2,763.38	10.64	6.86	167.61	-137.54	-128.51	605.66	593.02	12.64	47.916		
3,000.00	2,928.15	2,864.99	2,852.80	11.30	7.14	167.82	-145.12	-136.91	648.92	635.76	13.16	49.296		
3,100.00	3,022.50	2,955.13	2,942.22	11.97	7.43	168.00	-152.70	-145.32	692.19	678.50	13.69	50.560		
3,200.00	3,116.85	3,045.26	3,031.64	12.64	7.71	168.16	-160.28	-153.73	735.47	721.25	14.22	51.723		
3,300.00	3,211.20	3,135.39	3,121.06	13.30	8.00	168.31	-167.86	-162.14	778.74	763.99	14.75	52.795		
3,400.00	3,305.54	3,225.53	3,210.48	13.98	8.29	168.44	-175.45	-170.54	822.03	806.74	15.28	53.786		
3,500.00	3,399.89	3,315.66	3,299.90	14.65	8.58	168.55	-183.03	-178.95	865.31	849.49	15.82	54.705		
3,600.00	3,494.24	3,405.79	3,389.32	15.32	8.87	168.66	-190.61	-187.36	908.60	892.25	16.35	55.559		
3,700.00	3,588.59	3,495.92	3,478.74	16.00	9.16	168.76	-198.19	-195.77	951.89	935.00	16.89	56.354		
3,800.00	3,682.93	3,586.06	3,568.16	16.68	9.45	168.84	-205.77	-204.17	995.18	977.75	17.43	57.096		
3,900.00	3,777.28	3,676.19	3,657.58	17.36	9.74	168.92	-213.35	-212.58	1,038.48	1,020.51	17.97	57.790		
4,000.00	3,871.63	3,766.32	3,746.99	18.04	10.04	169.00	-220.93	-220.99	1,081.77	1,063.26	18.51	58.440		
4,100.00	3,965.98	3,856.46	3,836.41	18.72	10.33	169.06	-228.51	-229.40	1,125.07	1,106.02	19.05	59.051		
4,200.00	4,060.32	3,946.59	3,925.83	19.40	10.62	169.13	-236.09	-237.80	1,168.37	1,148.77	19.60	59.625		
4,300.00	4,154.67	4,036.72	4,015.25	20.08	10.91	169.19	-243.67	-246.21	1,211.67	1,191.53	20.14	60.167		
4,400.00	4,249.02	4,126.86	4,104.67	20.76	11.21	169.24	-251.26	-254.62	1,254.97	1,234.28	20.68	60.677		
4,500.00	4,343.37	4,216.99	4,194.09	21.44	11.50	169.29	-258.84	-263.02	1,298.27	1,277.04	21.23	61.160		
4,600.00	4,437.71	4,307.12	4,283.51	22.13	11.80	169.34	-266.42	-271.43	1,341.57	1,319.80	21.77	61.617		
4,700.00	4,532.06	4,397.26	4,372.93	22.81	12.09	169.38	-274.00	-279.84	1,384.87	1,362.55	22.32	62.050		
4,800.00	4,626.41	4,487.39	4,462.35	23.50	12.39	169.43	-281.58	-288.25	1,428.18	1,405.31	22.87	62.460		

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_NRC 41-8
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Reference Site:	WELD_NRC 5 PAD	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 41-8	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												WELD_NRC 5 PAD - P_NRC 7-8 - P_NRC 7-8 - PLAN #1 1-5-10 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 Tooface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)		Separation Factor	
4,900.00	4,720.76	4,577.52	4,551.77	24.18	12.68	169.46	-289.16	-296.65	1,471.48	1,448.07	23.41	62.851		
5,000.00	4,815.10	4,667.65	4,641.19	24.87	12.98	169.50	-296.74	-305.06	1,514.78	1,490.82	23.96	63.222		
5,100.00	4,909.45	4,757.79	4,730.61	25.55	13.27	169.54	-304.32	-313.47	1,558.09	1,533.58	24.51	63.576		
5,200.00	5,003.80	4,847.92	4,820.03	26.24	13.57	169.57	-311.90	-321.88	1,601.39	1,576.34	25.06	63.913		
5,300.00	5,098.15	4,938.05	4,909.45	26.92	13.86	169.60	-319.48	-330.28	1,644.70	1,619.09	25.60	64.235		
5,400.00	5,192.49	5,028.19	4,998.87	27.61	14.16	169.63	-327.07	-338.69	1,688.01	1,661.85	26.15	64.542		
5,500.00	5,286.84	5,118.32	5,088.29	28.29	14.45	169.66	-334.65	-347.10	1,731.31	1,704.61	26.70	64.836		
5,593.95	5,375.48	5,203.00	5,172.29	28.94	14.73	169.69	-341.77	-355.00	1,772.00	1,744.78	27.22	65.101		
5,600.00	5,381.19	5,208.46	5,177.71	28.98	14.75	169.70	-342.23	-355.51	1,774.61	1,747.35	27.26	65.095		
5,700.00	5,476.16	5,299.40	5,267.93	29.49	15.05	169.87	-349.88	-363.99	1,816.17	1,788.25	27.92	65.040		
5,800.00	5,572.17	5,391.73	5,359.53	29.95	15.35	170.01	-357.64	-372.60	1,854.59	1,826.03	28.55	64.950		
5,900.00	5,669.09	5,485.31	5,452.37	30.37	15.66	170.11	-365.51	-381.33	1,889.80	1,860.65	29.15	64.832		
6,000.00	5,766.82	5,580.04	5,546.35	30.74	15.97	170.18	-373.48	-390.17	1,921.78	1,892.07	29.71	64.690		
6,100.00	5,865.22	5,675.81	5,641.36	31.05	16.29	170.22	-381.54	-399.10	1,950.49	1,920.26	30.23	64.528		
6,200.00	5,964.19	5,772.49	5,737.28	31.32	16.61	170.23	-389.67	-408.12	1,975.88	1,945.17	30.71	64.348		
6,300.00	6,063.59	5,869.97	5,833.98	31.55	16.93	170.22	-397.87	-417.21	1,997.94	1,966.80	31.14	64.154		
6,400.00	6,163.31	5,968.13	5,931.37	31.72	17.25	170.17	-406.12	-426.37	2,016.63	1,985.10	31.54	63.947		
6,500.00	6,263.23	6,158.73	6,120.84	31.85	17.76	170.02	-419.83	-441.57	2,030.83	1,998.77	32.06	63.345		
6,561.78	6,325.00	6,335.14	6,297.03	31.91	18.07	-108.49	-425.24	-447.56	2,034.08	2,001.66	32.42	62.744		
6,600.00	6,363.22	6,401.33	6,363.22	31.94	18.17	-108.49	-425.45	-447.80	2,034.18	2,001.58	32.60	62.402		
6,700.00	6,463.22	6,501.33	6,463.22	32.04	18.31	-108.49	-425.45	-447.80	2,034.18	2,001.25	32.93	61.774		
6,800.00	6,563.22	6,601.33	6,563.22	32.13	18.46	-108.49	-425.45	-447.80	2,034.18	2,000.92	33.26	61.153		
6,900.00	6,663.22	6,701.33	6,663.22	32.23	18.61	-108.49	-425.45	-447.80	2,034.18	2,000.58	33.60	60.540		
7,000.00	6,763.22	6,801.33	6,763.22	32.33	18.76	-108.49	-425.45	-447.80	2,034.18	2,000.24	33.94	59.935		
7,100.00	6,863.22	6,901.33	6,863.22	32.43	18.91	-108.49	-425.45	-447.80	2,034.18	1,999.90	34.28	59.337		
7,200.00	6,963.22	7,001.33	6,963.22	32.53	19.06	-108.49	-425.45	-447.80	2,034.18	1,999.56	34.63	58.746		
7,300.00	7,063.22	7,101.33	7,063.22	32.64	19.22	-108.49	-425.45	-447.80	2,034.18	1,999.21	34.97	58.164		
7,400.00	7,163.22	7,201.33	7,163.22	32.74	19.37	-108.49	-425.45	-447.80	2,034.18	1,998.86	35.32	57.589		
7,500.00	7,263.22	7,301.33	7,263.22	32.84	19.53	-108.49	-425.45	-447.80	2,034.18	1,998.51	35.67	57.022		
7,600.00	7,363.22	7,401.33	7,363.22	32.95	19.69	-108.49	-425.45	-447.80	2,034.18	1,998.15	36.03	56.462		
7,700.00	7,463.22	7,501.33	7,463.22	33.06	19.85	-108.49	-425.45	-447.80	2,034.18	1,997.80	36.38	55.910		
7,800.00	7,563.22	7,601.33	7,563.22	33.17	20.01	-108.49	-425.45	-447.80	2,034.18	1,997.44	36.74	55.366		
7,900.00	7,663.22	7,701.33	7,663.22	33.28	20.17	-108.49	-425.45	-447.80	2,034.18	1,997.08	37.10	54.829		
8,000.00	7,763.22	7,801.33	7,763.22	33.39	20.33	-108.49	-425.45	-447.80	2,034.18	1,996.72	37.46	54.300		
8,100.00	7,863.22	7,901.33	7,863.22	33.50	20.50	-108.49	-425.45	-447.80	2,034.18	1,996.36	37.83	53.778		
8,200.00	7,963.22	8,001.33	7,963.22	33.61	20.66	-108.49	-425.45	-447.80	2,034.18	1,995.99	38.19	53.264		
8,300.00	8,063.22	8,101.33	8,063.22	33.73	20.83	-108.49	-425.45	-447.80	2,034.18	1,995.62	38.56	52.756		
8,400.00	8,163.22	8,201.33	8,163.22	33.84	21.00	-108.49	-425.45	-447.80	2,034.18	1,995.25	38.93	52.257		
8,486.78	8,250.00	8,288.11	8,250.00	33.95	21.14	-108.49	-425.45	-447.80	2,034.18	1,994.93	39.25	51.829		

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 41-8
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Reference Site:	WELD_NRC 5 PAD	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 41-8	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												WELD_NRC 5 PAD - ROCKY MOUNTAIN FUEL CO C #6 EXISTING - ROCKY MOUNTAIN FUEL CO	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 Tooface (°)	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	-116.01	-24.04	-49.26	57.69					
100.00	100.00	82.00	82.00	0.10	1.64	-116.01	-24.04	-49.26	54.81	53.07	1.74	31.581		
200.00	200.00	182.00	182.00	0.32	5.28	-116.01	-24.04	-49.26	54.81	49.21	5.60	9.787		
300.00	300.00	282.00	282.00	0.55	9.28	-116.01	-24.04	-49.26	54.81	44.98	9.83	5.579		
400.00	400.00	382.00	382.00	0.77	13.28	-116.01	-24.04	-49.26	54.81	40.76	14.05	3.901		
500.00	500.00	482.00	482.00	0.99	17.28	-116.01	-24.04	-49.26	54.81	36.54	18.27	2.999		
600.00	600.00	582.00	582.00	1.22	21.28	-116.01	-24.04	-49.26	54.81	32.31	22.50	2.436		
700.00	700.00	682.00	682.00	1.44	25.28	-116.01	-24.04	-49.26	54.81	28.09	26.72	2.051		
800.00	800.00	782.00	782.00	1.67	29.28	-116.01	-24.04	-49.26	54.81	23.86	30.95	1.771		
900.00	900.00	882.00	882.00	1.89	33.28	-116.01	-24.04	-49.26	54.81	19.64	35.17	1.558		
1,000.00	1,000.00	982.00	982.00	2.12	37.28	-116.01	-24.04	-49.26	54.81	15.41	39.40	1.391	Level 3	
1,085.00	1,085.00	1,067.00	1,067.00	2.31	40.68	-116.01	-24.04	-49.26	54.81	11.82	42.99	1.275	Level 3, CC	
1,100.00	1,100.00	1,082.00	1,082.00	2.34	41.28	162.44	-24.04	-49.26	54.85	11.23	43.62	1.257	Level 3	
1,200.00	1,199.97	1,181.97	1,181.97	2.54	45.28	163.11	-24.04	-49.26	57.01	9.22	47.79	1.193	Level 2, ES, SF	
1,300.00	1,299.80	1,281.80	1,281.80	2.76	49.27	164.61	-24.04	-49.26	62.55	10.64	51.90	1.205	Level 2	
1,400.00	1,399.37	1,381.37	1,381.37	2.98	53.25	166.54	-24.04	-49.26	71.49	15.57	55.92	1.278	Level 3	
1,500.00	1,498.55	1,480.55	1,480.55	3.23	57.22	168.51	-24.04	-49.26	83.91	24.07	59.83	1.402	Level 3	
1,600.00	1,597.23	1,579.23	1,579.23	3.50	61.17	170.30	-24.04	-49.26	99.80	36.18	63.62	1.569		
1,700.00	1,695.29	1,677.29	1,677.29	3.82	65.09	171.83	-24.04	-49.26	119.17	51.91	67.26	1.772		
1,800.00	1,792.60	1,774.60	1,774.60	4.18	68.98	173.09	-24.04	-49.26	141.98	71.24	70.74	2.007		
1,900.00	1,889.05	1,871.05	1,871.05	4.60	72.84	174.12	-24.04	-49.26	168.22	94.18	74.04	2.272		
2,000.00	1,984.52	1,966.52	1,966.52	5.08	76.66	174.95	-24.04	-49.26	197.83	120.68	77.15	2.564		
2,052.83	2,034.52	2,016.52	2,016.52	5.36	78.66	175.32	-24.04	-49.26	214.82	136.11	78.72	2.729		
2,100.00	2,079.03	2,061.03	2,061.03	5.63	80.44	175.64	-24.04	-49.26	230.42	149.90	80.52	2.862		
2,200.00	2,173.38	2,155.38	2,155.38	6.21	84.22	176.18	-24.04	-49.26	263.49	179.14	84.35	3.124		
2,300.00	2,267.72	2,249.72	2,249.72	6.81	87.99	176.61	-24.04	-49.26	296.57	208.39	88.19	3.363		
2,400.00	2,362.07	2,344.07	2,344.07	7.42	91.76	176.95	-24.04	-49.26	329.67	237.64	92.03	3.582		
2,500.00	2,456.42	2,438.42	2,438.42	8.05	95.54	177.23	-24.04	-49.26	362.78	266.90	95.88	3.784		
2,600.00	2,550.77	2,532.77	2,532.77	8.69	99.31	177.46	-24.04	-49.26	395.89	296.16	99.73	3.970		
2,700.00	2,645.11	2,627.11	2,627.11	9.34	103.08	177.66	-24.04	-49.26	429.01	325.42	103.59	4.142		
2,800.00	2,739.46	2,721.46	2,721.46	9.99	106.86	177.82	-24.04	-49.26	462.13	354.68	107.45	4.301		
2,900.00	2,833.81	2,815.81	2,815.81	10.64	110.63	177.97	-24.04	-49.26	495.25	383.95	111.31	4.449		
3,000.00	2,928.15	2,910.15	2,910.15	11.30	114.41	178.10	-24.04	-49.26	528.38	413.21	115.17	4.588		
3,100.00	3,022.50	3,004.50	3,004.50	11.97	118.18	178.21	-24.04	-49.26	561.51	442.47	119.04	4.717		
3,200.00	3,116.85	3,098.85	3,098.85	12.64	121.95	178.31	-24.04	-49.26	594.64	471.74	122.90	4.838		
3,300.00	3,211.20	3,193.20	3,193.20	13.30	125.73	178.40	-24.04	-49.26	627.77	501.00	126.77	4.952		
3,400.00	3,305.54	3,287.54	3,287.54	13.98	129.50	178.48	-24.04	-49.26	660.91	530.26	130.64	5.059		
3,500.00	3,399.89	3,381.89	3,381.89	14.65	133.28	178.55	-24.04	-49.26	694.04	559.53	134.52	5.160		
3,600.00	3,494.24	3,476.24	3,476.24	15.32	137.05	178.62	-24.04	-49.26	727.18	588.79	138.39	5.255		
3,700.00	3,588.59	3,570.59	3,570.59	16.00	140.82	178.68	-24.04	-49.26	760.31	618.05	142.26	5.345		
3,800.00	3,682.93	3,664.93	3,664.93	16.68	144.60	178.73	-24.04	-49.26	793.45	647.32	146.14	5.430		
3,900.00	3,777.28	3,759.28	3,759.28	17.36	148.37	178.78	-24.04	-49.26	826.59	676.58	150.01	5.510		
4,000.00	3,871.63	3,853.63	3,853.63	18.04	152.15	178.83	-24.04	-49.26	859.73	705.84	153.89	5.587		
4,100.00	3,965.98	3,947.98	3,947.98	18.72	155.92	178.87	-24.04	-49.26	892.87	735.10	157.76	5.660		
4,200.00	4,060.32	4,042.32	4,042.32	19.40	159.69	178.91	-24.04	-49.26	926.01	764.37	161.64	5.729		
4,300.00	4,154.67	4,136.67	4,136.67	20.08	163.47	178.95	-24.04	-49.26	959.14	793.63	165.52	5.795		
4,400.00	4,249.02	4,231.02	4,231.02	20.76	167.24	178.99	-24.04	-49.26	992.28	822.89	169.39	5.858		
4,500.00	4,343.37	4,325.37	4,325.37	21.44	171.01	179.02	-24.04	-49.26	1,025.42	852.15	173.27	5.918		
4,600.00	4,437.71	4,419.71	4,419.71	22.13	174.79	179.05	-24.04	-49.26	1,058.57	881.41	177.15	5.975		
4,700.00	4,532.06	4,514.06	4,514.06	22.81	178.56	179.08	-24.04	-49.26	1,091.71	910.67	181.03	6.030		
4,800.00	4,626.41	4,608.41	4,608.41	23.50	182.34	179.11	-24.04	-49.26	1,124.85	939.94	184.91	6.083		
4,900.00	4,720.76	4,702.76	4,702.76	24.18	186.11	179.13	-24.04	-49.26	1,157.99	969.20	188.79	6.134		

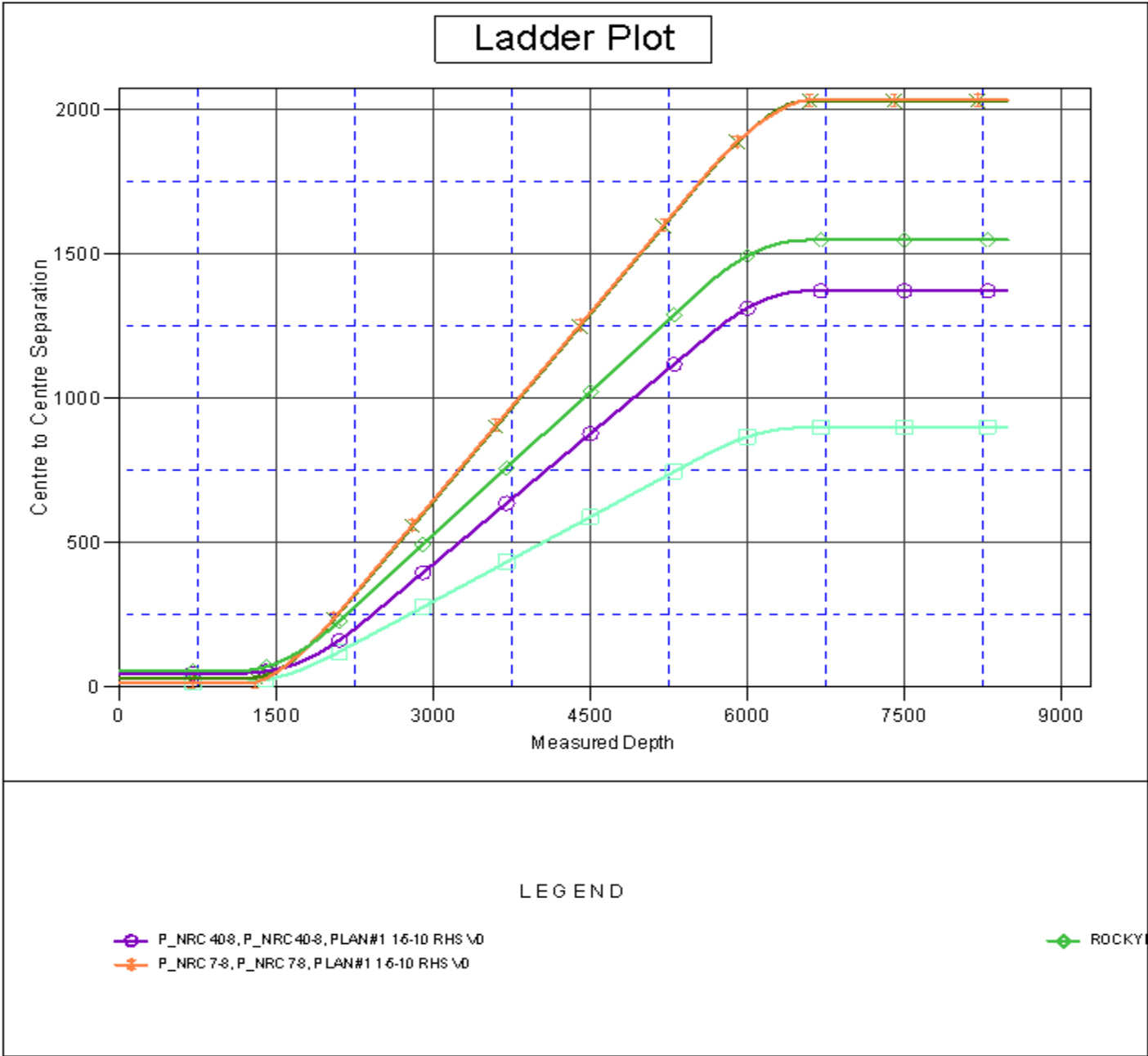
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 41-8
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Reference Site:	WELD_NRC 5 PAD	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 41-8	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design													WELD_NRC 5 PAD - ROCKY MOUNTAIN FUEL CO C #6 EXISTING - ROCKY MOUNTAIN FUEL CO	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			
5,000.00	4,815.10	4,797.10	4,797.10	24.87	189.88	179.16	-24.04	-49.26	1,191.13	998.46	192.67	6.182			
5,100.00	4,909.45	4,891.45	4,891.45	25.55	193.66	179.18	-24.04	-49.26	1,224.27	1,027.72	196.55	6.229			
5,200.00	5,003.80	4,985.80	4,985.80	26.24	197.43	179.20	-24.04	-49.26	1,257.41	1,056.98	200.43	6.273			
5,300.00	5,098.15	5,080.15	5,080.15	26.92	201.21	179.22	-24.04	-49.26	1,290.55	1,086.24	204.31	6.317			
5,400.00	5,192.49	5,174.49	5,174.49	27.61	204.98	179.24	-24.04	-49.26	1,323.70	1,115.50	208.19	6.358			
5,500.00	5,286.84	5,268.84	5,268.84	28.29	208.75	179.26	-24.04	-49.26	1,356.84	1,144.76	212.08	6.398			
5,593.95	5,375.48	5,357.48	5,357.48	28.94	212.30	179.28	-24.04	-49.26	1,387.97	1,172.25	215.72	6.434			
5,600.00	5,381.19	5,363.19	5,363.19	28.98	212.53	179.28	-24.04	-49.26	1,389.97	1,173.88	216.10	6.432			
5,700.00	5,476.16	5,458.16	5,458.16	29.49	216.33	179.30	-24.04	-49.26	1,421.26	1,199.05	222.21	6.396			
5,800.00	5,572.17	5,554.17	5,554.17	29.95	220.17	179.32	-24.04	-49.26	1,449.22	1,220.93	228.29	6.348			
5,900.00	5,669.09	5,651.09	5,651.09	30.37	224.04	179.34	-24.04	-49.26	1,473.81	1,239.62	234.19	6.293			
6,000.00	5,766.82	5,748.82	5,748.82	30.74	227.95	179.35	-24.04	-49.26	1,495.00	1,255.12	239.88	6.232			
6,100.00	5,865.22	5,847.22	5,847.22	31.05	231.89	179.36	-24.04	-49.26	1,512.76	1,267.43	245.34	6.166			
6,200.00	5,964.19	5,946.19	5,946.19	31.32	235.85	179.37	-24.04	-49.26	1,527.09	1,276.53	250.56	6.095			
6,300.00	6,063.59	6,045.59	6,045.59	31.55	239.82	179.38	-24.04	-49.26	1,537.95	1,282.44	255.51	6.019			
6,400.00	6,163.31	6,145.31	6,145.31	31.72	243.81	179.39	-24.04	-49.26	1,545.33	1,285.16	260.17	5.940			
6,500.00	6,263.23	6,245.23	6,245.23	31.85	247.81	179.39	-24.04	-49.26	1,549.23	1,284.71	264.52	5.857			
6,561.78	6,325.00	6,307.00	6,307.00	31.91	250.28	-99.05	-24.04	-49.26	1,549.90	1,282.84	267.06	5.804			
6,600.00	6,363.22	6,345.22	6,345.22	31.94	251.81	-99.05	-24.04	-49.26	1,549.90	1,281.25	268.65	5.769			
6,700.00	6,463.22	6,445.22	6,445.22	32.04	255.81	-99.05	-24.04	-49.26	1,549.90	1,277.09	272.81	5.681			
6,800.00	6,563.22	6,545.22	6,545.22	32.13	259.81	-99.05	-24.04	-49.26	1,549.90	1,272.92	276.98	5.596			
6,900.00	6,663.22	6,645.22	6,645.22	32.23	263.81	-99.05	-24.04	-49.26	1,549.90	1,268.75	281.14	5.513			
7,000.00	6,763.22	6,745.22	6,745.22	32.33	267.81	-99.05	-24.04	-49.26	1,549.90	1,264.59	285.31	5.432			
7,100.00	6,863.22	6,845.22	6,845.22	32.43	271.81	-99.05	-24.04	-49.26	1,549.90	1,260.42	289.48	5.354			
7,200.00	6,963.22	6,945.22	6,945.22	32.53	275.81	-99.05	-24.04	-49.26	1,549.90	1,256.24	293.65	5.278			
7,300.00	7,063.22	7,045.22	7,045.22	32.64	279.81	-99.05	-24.04	-49.26	1,549.90	1,252.07	297.83	5.204			
7,400.00	7,163.22	7,145.22	7,145.22	32.74	283.81	-99.05	-24.04	-49.26	1,549.90	1,247.90	302.00	5.132			
7,500.00	7,263.22	7,245.22	7,245.22	32.84	287.81	-99.05	-24.04	-49.26	1,549.90	1,243.72	306.18	5.062			
7,600.00	7,363.22	7,345.22	7,345.22	32.95	291.81	-99.05	-24.04	-49.26	1,549.90	1,239.55	310.35	4.994			
7,700.00	7,463.22	7,445.22	7,445.22	33.06	295.81	-99.05	-24.04	-49.26	1,549.90	1,235.37	314.53	4.928			
7,800.00	7,563.22	7,545.22	7,545.22	33.17	299.81	-99.05	-24.04	-49.26	1,549.90	1,231.19	318.71	4.863			
7,900.00	7,663.22	7,645.22	7,645.22	33.28	303.81	-99.05	-24.04	-49.26	1,549.90	1,227.01	322.89	4.800			
8,000.00	7,763.22	7,745.22	7,745.22	33.39	307.81	-99.05	-24.04	-49.26	1,549.90	1,222.83	327.07	4.739			
8,100.00	7,863.22	7,845.22	7,845.22	33.50	311.81	-99.05	-24.04	-49.26	1,549.90	1,218.65	331.25	4.679			
8,200.00	7,963.22	7,945.22	7,945.22	33.61	315.81	-99.05	-24.04	-49.26	1,549.90	1,214.47	335.43	4.621			
8,300.00	8,063.22	8,045.22	8,045.22	33.73	319.81	-99.05	-24.04	-49.26	1,549.90	1,210.29	339.61	4.564			
8,400.00	8,163.22	8,145.22	8,145.22	33.84	323.81	-99.05	-24.04	-49.26	1,549.90	1,206.10	343.79	4.508			
8,486.78	8,250.00	8,232.00	8,232.00	33.95	327.28	-99.05	-24.04	-49.26	1,549.90	1,202.47	347.42	4.461			

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 41-8
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5023.00ft (Original Well Elev)
Reference Site:	WELD_NRC 5 PAD	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 41-8	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-5-10 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5023.00ft (Original Well Elev) Coordinates are relative to: P_NRC 41-8
 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: 0.38°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 41-8
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Reference Site:	WELD_NRC 5 PAD	MD Reference:	WELL @ 5023.00ft (Original Well Elev)
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Reference Well:	P_NRC 41-8	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 41-8	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-5-10 RHS	Offset TVD Reference:	Offset Datum

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