



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_NRC 20-9 PAD

P_NRC 38-9

P_NRC 38-9

Plan: PLAN #1 1-6-10 RHS

Standard Planning Report

06 January, 2010





Azimuths to True North
Magnetic North: 9.09°

Magnetic Field
Strength: 53088.8nT
Dip Angle: 66.80°
Date: 1/6/2010
Model: IGRF2010

WELL DETAILS: P_NRC 38-9

+N/-S	+E/-W	Northing	Ground Level: Easting	5024.00 Latitude	Longitude	Slot
0.00	0.00	1265727.40	3170269.86	40° 3' 40.349 N	104° 53' 30.034 W	

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3202.00	3324.87	PARKMAN
4677.00	4936.39	SUSSEX
5147.00	5449.90	SHANNON
7317.00	7655.11	NIO A
7657.00	7995.11	CODELL
8107.00	8445.11	JSAND

SECTION DETAILS

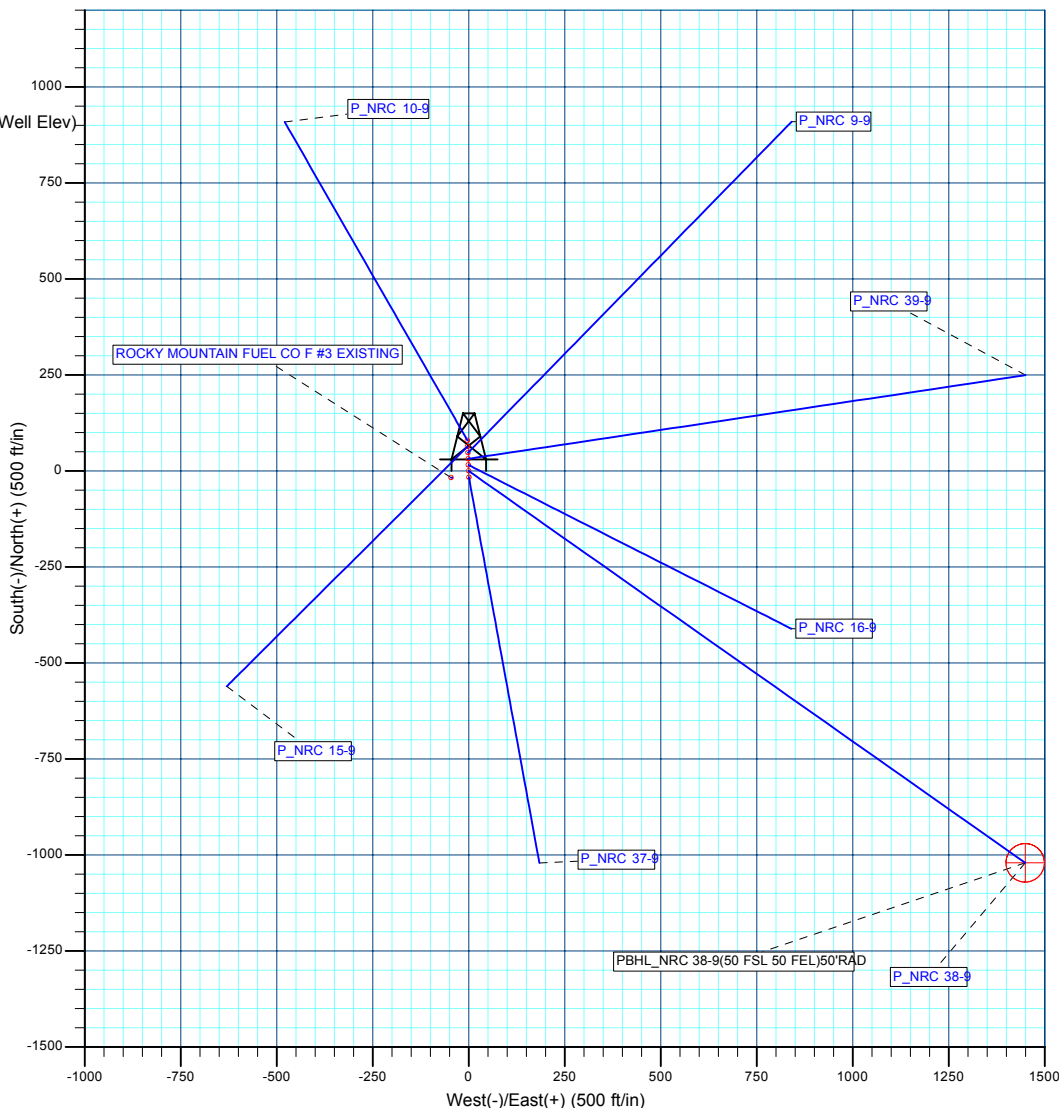
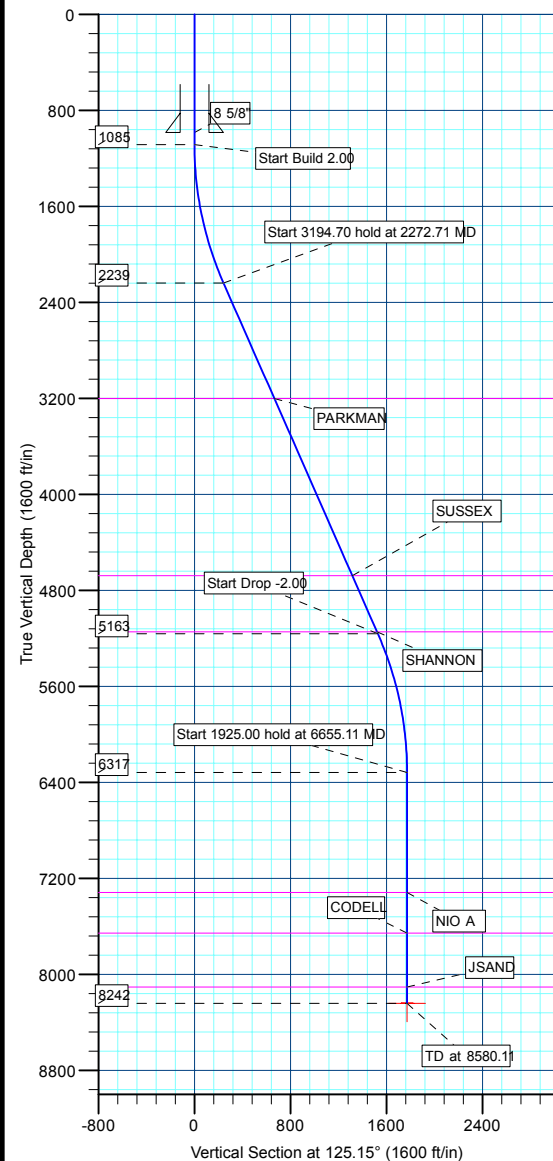
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1085.00	0.00	0.00	1085.00	0.00	0.00	0.00	0.00	0.00	
2272.71	23.75	125.15	2238.97	-139.72	198.45	2.00	125.15	242.70	
5467.41	23.75	125.15	5163.03	-880.56	1250.67	0.00	0.00	1529.56	
6655.11	0.00	0.00	6317.00	-1020.28	1449.12	2.00	180.00	1772.26	
8580.11	0.00	0.00	8242.00	-1020.28	1449.12	0.00	0.00	1772.26	PBHL_NRC 38-9(50 FSL 50 FEL)50°RAD

CASING DETAILS

TVD	MD	Name	Size
985.00	985.00	8 5/8"	8.62



KB ELEV:WELL @ 5039.00ft (Original Well Elev)
GRD ELEV: 5024.00



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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	8242.00	-1020.28	1449.12	1264717.09	3171725.94	40° 3' 30.265 N 104° 53' 11.396 W		Circle (Radius: 50.00)

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_NRC 38-9
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site:	WELD_NRC 20-9 PAD	North Reference:	True
Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NRC 38-9		
Design:	PLAN #1 1-6-10 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 20-9 PAD, SECTION 9 T1N R67W			
Site Position:		Northing:	1,265,759.10 ft	Latitude:	40° 3' 40.662 N
From:	Lat/Long	Easting:	3,170,268.24 ft	Longitude:	104° 53' 30.052 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	0.39 °

Well	P_NRC 38-9					
Well Position	+N/-S	-31.71 ft	Northing:	1,265,727.40 ft	Latitude:	40° 3' 40.349 N
	+E/-W	1.40 ft	Easting:	3,170,269.86 ft	Longitude:	104° 53' 30.034 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	5,024.00 ft

Wellbore	P_NRC 38-9				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/6/2010	9.09	66.80	53,089

Design	PLAN #1 1-6-10 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	125.15

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	
2,272.71	23.75	125.15	2,238.97	-139.72	198.45	2.00	2.00	0.00	125.15	
5,467.41	23.75	125.15	5,163.03	-880.56	1,250.67	0.00	0.00	0.00	0.00	
6,655.11	0.00	0.00	6,317.00	-1,020.28	1,449.12	2.00	-2.00	0.00	180.00	
8,580.11	0.00	0.00	8,242.00	-1,020.28	1,449.12	0.00	0.00	0.00	0.00	PBHL_NRC 38-9(5i

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_NRC 38-9
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site:	WELD_NRC 20-9 PAD	North Reference:	True
Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NRC 38-9		
Design:	PLAN #1 1-6-10 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	125.15	1,100.00	-0.02	0.03	0.04	2.00	2.00	0.00
1,200.00	2.30	125.15	1,199.97	-1.33	1.89	2.31	2.00	2.00	0.00
1,300.00	4.30	125.15	1,299.80	-4.64	6.59	8.06	2.00	2.00	0.00
1,400.00	6.30	125.15	1,399.37	-9.96	14.15	17.30	2.00	2.00	0.00
1,500.00	8.30	125.15	1,498.55	-17.27	24.54	30.01	2.00	2.00	0.00
1,600.00	10.30	125.15	1,597.23	-26.58	37.75	46.17	2.00	2.00	0.00
1,700.00	12.30	125.15	1,695.29	-37.86	53.77	65.76	2.00	2.00	0.00
1,800.00	14.30	125.15	1,792.60	-51.10	72.58	88.76	2.00	2.00	0.00
1,900.00	16.30	125.15	1,889.05	-66.29	94.15	115.15	2.00	2.00	0.00
2,000.00	18.30	125.15	1,984.52	-83.41	118.47	144.89	2.00	2.00	0.00
2,100.00	20.30	125.15	2,078.90	-102.44	145.49	177.94	2.00	2.00	0.00
2,200.00	22.30	125.15	2,172.06	-123.35	175.19	214.26	2.00	2.00	0.00
Start 3194.70 hold at 2272.71 MD									
2,272.71	23.75	125.15	2,238.97	-139.72	198.45	242.70	2.00	2.00	0.00
2,300.00	23.75	125.15	2,263.95	-146.05	207.44	253.69	0.00	0.00	0.00
2,400.00	23.75	125.15	2,355.48	-169.24	240.37	293.97	0.00	0.00	0.00
2,500.00	23.75	125.15	2,447.01	-192.43	273.31	334.25	0.00	0.00	0.00
2,600.00	23.75	125.15	2,538.54	-215.62	306.24	374.54	0.00	0.00	0.00
2,700.00	23.75	125.15	2,630.07	-238.81	339.18	414.82	0.00	0.00	0.00
2,800.00	23.75	125.15	2,721.60	-262.00	372.12	455.10	0.00	0.00	0.00
2,900.00	23.75	125.15	2,813.12	-285.19	405.05	495.38	0.00	0.00	0.00
3,000.00	23.75	125.15	2,904.65	-308.38	437.99	535.66	0.00	0.00	0.00
3,100.00	23.75	125.15	2,996.18	-331.57	470.93	575.94	0.00	0.00	0.00
3,200.00	23.75	125.15	3,087.71	-354.76	503.86	616.22	0.00	0.00	0.00
3,300.00	23.75	125.15	3,179.24	-377.95	536.80	656.50	0.00	0.00	0.00
PARKMAN									
3,324.87	23.75	125.15	3,202.00	-383.71	544.99	666.52	0.00	0.00	0.00
3,400.00	23.75	125.15	3,270.77	-401.14	569.74	696.79	0.00	0.00	0.00
3,500.00	23.75	125.15	3,362.29	-424.33	602.67	737.07	0.00	0.00	0.00
3,600.00	23.75	125.15	3,453.82	-447.51	635.61	777.35	0.00	0.00	0.00
3,700.00	23.75	125.15	3,545.35	-470.70	668.55	817.63	0.00	0.00	0.00
3,800.00	23.75	125.15	3,636.88	-493.89	701.48	857.91	0.00	0.00	0.00
3,900.00	23.75	125.15	3,728.41	-517.08	734.42	898.19	0.00	0.00	0.00
4,000.00	23.75	125.15	3,819.93	-540.27	767.36	938.47	0.00	0.00	0.00
4,100.00	23.75	125.15	3,911.46	-563.46	800.29	978.75	0.00	0.00	0.00
4,200.00	23.75	125.15	4,002.99	-586.65	833.23	1,019.04	0.00	0.00	0.00
4,300.00	23.75	125.15	4,094.52	-609.84	866.17	1,059.32	0.00	0.00	0.00
4,400.00	23.75	125.15	4,186.05	-633.03	899.10	1,099.60	0.00	0.00	0.00
4,500.00	23.75	125.15	4,277.58	-656.22	932.04	1,139.88	0.00	0.00	0.00
4,600.00	23.75	125.15	4,369.10	-679.41	964.98	1,180.16	0.00	0.00	0.00
4,700.00	23.75	125.15	4,460.63	-702.60	997.91	1,220.44	0.00	0.00	0.00
4,800.00	23.75	125.15	4,552.16	-725.79	1,030.85	1,260.72	0.00	0.00	0.00
4,900.00	23.75	125.15	4,643.69	-748.98	1,063.79	1,301.00	0.00	0.00	0.00
SUSSEX									
4,936.39	23.75	125.15	4,677.00	-757.42	1,075.77	1,315.66	0.00	0.00	0.00
5,000.00	23.75	125.15	4,735.22	-772.17	1,096.72	1,341.29	0.00	0.00	0.00
5,100.00	23.75	125.15	4,826.75	-795.36	1,129.66	1,381.57	0.00	0.00	0.00
5,200.00	23.75	125.15	4,918.27	-818.55	1,162.60	1,421.85	0.00	0.00	0.00
5,300.00	23.75	125.15	5,009.80	-841.74	1,195.53	1,462.13	0.00	0.00	0.00
5,400.00	23.75	125.15	5,101.33	-864.93	1,228.47	1,502.41	0.00	0.00	0.00
SHANNON									

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site:	WELD_NRC 20-9 PAD	North Reference:	True
Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NRC 38-9		
Design:	PLAN #1 1-6-10 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)
5,449.90	23.75	125.15	5,147.00	-876.50	1,244.90	1,522.51	0.00	0.00	0.00
Start Drop -2.00									
5,467.41	23.75	125.15	5,163.03	-880.56	1,250.67	1,529.56	0.00	0.00	0.00
5,500.00	23.10	125.15	5,192.93	-888.02	1,261.27	1,542.52	2.00	-2.00	0.00
5,600.00	21.10	125.15	5,285.58	-909.68	1,292.03	1,580.15	2.00	-2.00	0.00
5,700.00	19.10	125.15	5,379.48	-929.47	1,320.13	1,614.51	2.00	-2.00	0.00
5,800.00	17.10	125.15	5,474.53	-947.35	1,345.54	1,645.58	2.00	-2.00	0.00
5,900.00	15.10	125.15	5,570.60	-963.32	1,368.21	1,673.32	2.00	-2.00	0.00
6,000.00	13.10	125.15	5,667.58	-977.35	1,388.14	1,697.68	2.00	-2.00	0.00
6,100.00	11.10	125.15	5,765.35	-989.42	1,405.28	1,718.65	2.00	-2.00	0.00
6,200.00	9.10	125.15	5,863.80	-999.51	1,419.62	1,736.19	2.00	-2.00	0.00
6,300.00	7.10	125.15	5,962.80	-1,007.63	1,431.14	1,750.28	2.00	-2.00	0.00
6,400.00	5.10	125.15	6,062.22	-1,013.75	1,439.83	1,760.91	2.00	-2.00	0.00
6,500.00	3.10	125.15	6,161.96	-1,017.86	1,445.68	1,768.06	2.00	-2.00	0.00
6,600.00	1.10	125.15	6,261.89	-1,019.98	1,448.68	1,771.73	2.00	-2.00	0.00
Start 1925.00 hold at 6655.11 MD									
6,655.11	0.00	0.00	6,317.00	-1,020.28	1,449.12	1,772.26	2.00	-2.00	-227.07
6,700.00	0.00	0.00	6,361.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
6,800.00	0.00	0.00	6,461.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
6,900.00	0.00	0.00	6,561.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
7,000.00	0.00	0.00	6,661.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
7,100.00	0.00	0.00	6,761.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
7,200.00	0.00	0.00	6,861.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
7,300.00	0.00	0.00	6,961.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
7,400.00	0.00	0.00	7,061.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
7,500.00	0.00	0.00	7,161.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
7,600.00	0.00	0.00	7,261.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
NIO A									
7,655.11	0.00	0.00	7,317.00	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
7,700.00	0.00	0.00	7,361.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
7,800.00	0.00	0.00	7,461.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
7,900.00	0.00	0.00	7,561.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
CODELL									
7,995.11	0.00	0.00	7,657.00	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
8,000.00	0.00	0.00	7,661.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
8,100.00	0.00	0.00	7,761.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
8,200.00	0.00	0.00	7,861.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
8,300.00	0.00	0.00	7,961.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
8,400.00	0.00	0.00	8,061.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
JSAND									
8,445.11	0.00	0.00	8,107.00	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
8,500.00	0.00	0.00	8,161.89	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00
PBHL_NRC 38-9(50 FSL 50 FEL)50'RAD									
8,580.11	0.00	0.00	8,242.00	-1,020.28	1,449.12	1,772.26	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_NRC 38-9
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site:	WELD_NRC 20-9 PAD	North Reference:	True
Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NRC 38-9		
Design:	PLAN #1 1-6-10 RHS		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
PBHL_NRC 38-9(50 F - plan hits target center - Circle (radius 50.00)	0.00	0.00	8,242.00	-1,020.28	1,449.12	1,264,717.09	3,171,725.94	40° 3' 30.265 N	104° 53' 11.396 W

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

Formations						
Measured Depth	Vertical Depth				Dip	Dip Direction
(ft)	(ft)		Name	Lithology	(°)	(°)
3,324.87	3,202.00		PARKMAN			
4,936.39	4,677.00		SUSSEX			
5,449.90	5,147.00		SHANNON			
7,655.11	7,317.00		NIO A			
7,995.11	7,657.00		CODELL			
8,445.11	8,107.00		JSAND			

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W	Comment	
(ft)	(ft)	(ft)	(ft)		
1,085.00	1,085.00	0.00	0.00	Start Build 2.00	
2,272.71	2,238.97	-139.72	198.45	Start 3194.70 hold at 2272.71 MD	
5,467.41	5,163.03	-880.56	1,250.67	Start Drop -2.00	
6,655.11	6,317.00	-1,020.28	1,449.12	Start 1925.00 hold at 6655.11 MD	
8,580.11	8,242.00	-1,020.28	1,449.12	TD at 8580.11	



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_NRC 20-9 PAD
P_NRC 38-9**

**P_NRC 38-9
PLAN #1 1-6-10 RHS**

Anticollision Report

06 January, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 1-6-10 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	1/6/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	8,580.11	PLAN #1 1-6-10 RHS (P_NRC 38-9)	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 20-9 PAD						
P_NRC 10-9 - P_NRC 10-9 - PLAN #1 1-6-10 RHS	1,085.00	1,085.00	79.85	75.23	17.288	CC
P_NRC 10-9 - P_NRC 10-9 - PLAN #1 1-6-10 RHS	1,100.00	1,099.64	79.91	75.23	17.068	ES
P_NRC 10-9 - P_NRC 10-9 - PLAN #1 1-6-10 RHS	1,200.00	1,197.06	83.30	78.22	16.399	SF
P_NRC 15-9 - P_NRC 15-9 - PLAN #1 1-6-10 RHS	1,190.10	1,191.62	63.74	58.73	12.728	CC
P_NRC 15-9 - P_NRC 15-9 - PLAN #1 1-6-10 RHS	1,200.00	1,201.64	63.74	58.70	12.638	ES
P_NRC 15-9 - P_NRC 15-9 - PLAN #1 1-6-10 RHS	1,400.00	1,402.51	68.04	62.23	11.709	SF
P_NRC 16-9 - P_NRC 16-9 - PLAN #1 1-6-10 RHS	1,085.00	1,085.00	15.68	11.06	3.395	CC
P_NRC 16-9 - P_NRC 16-9 - PLAN #1 1-6-10 RHS	1,200.00	1,200.30	15.96	10.91	3.160	ES
P_NRC 16-9 - P_NRC 16-9 - PLAN #1 1-6-10 RHS	1,400.00	1,400.82	17.80	11.95	3.041	SF
P_NRC 37-9 - P_NRC 37-9 - PLAN #1 1-6-10 RHS	1,085.00	1,085.00	16.04	11.42	3.473	CC
P_NRC 37-9 - P_NRC 37-9 - PLAN #1 1-6-10 RHS	1,100.00	1,099.92	16.06	11.38	3.432	ES
P_NRC 37-9 - P_NRC 37-9 - PLAN #1 1-6-10 RHS	1,200.00	1,199.34	16.99	11.95	3.376	SF
P_NRC 39-9 - P_NRC 39-9 - PLAN #1 1-6-10 RHS	1,085.00	1,085.00	31.74	-11.67	0.731	Level 1, CC
P_NRC 39-9 - P_NRC 39-9 - PLAN #1 1-6-10 RHS	1,100.00	1,099.98	31.77	-12.02	0.726	Level 1, ES, SF
P_NRC 9-9 - P_NRC 9-9 - PLAN #1 1-6-10 RHS	1,085.00	1,085.00	47.76	43.14	10.340	CC
P_NRC 9-9 - P_NRC 9-9 - PLAN #1 1-6-10 RHS	1,100.00	1,099.83	47.81	43.13	10.212	ES
P_NRC 9-9 - P_NRC 9-9 - PLAN #1 1-6-10 RHS	1,200.00	1,198.62	50.73	45.65	9.988	SF
ROCKY MOUNTAIN FUEL CO F #3 EXISTING - ROCK\	1,085.00	1,066.00	49.12	44.53	10.694	CC
ROCKY MOUNTAIN FUEL CO F #3 EXISTING - ROCK\	1,100.00	1,081.00	49.14	44.48	10.552	ES
ROCKY MOUNTAIN FUEL CO F #3 EXISTING - ROCK\	1,300.00	1,280.80	54.04	48.57	9.873	SF

WELD_NRC 20-9 PAD - P_NRC 10-9 - P_NRC 10-9 - PLAN #1 1-6-10 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	-2.41	79.78	-3.36	79.85				
100.00	100.00	100.00	100.00	0.10	0.10	-2.41	79.78	-3.36	79.85	79.66	0.19	417.958	
200.00	200.00	200.00	200.00	0.32	0.32	-2.41	79.78	-3.36	79.85	79.21	0.64	124.654	
300.00	300.00	300.00	300.00	0.55	0.55	-2.41	79.78	-3.36	79.85	78.76	1.09	73.251	
400.00	400.00	400.00	400.00	0.77	0.77	-2.41	79.78	-3.36	79.85	78.31	1.54	51.864	
500.00	500.00	500.00	500.00	0.99	0.99	-2.41	79.78	-3.36	79.85	77.86	1.99	40.143	
600.00	600.00	600.00	600.00	1.22	1.22	-2.41	79.78	-3.36	79.85	77.41	2.44	32.743	
700.00	700.00	700.00	700.00	1.44	1.44	-2.41	79.78	-3.36	79.85	76.96	2.89	27.647	

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 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NRC 20-9 PAD - P_NRC 10-9 - P_NRC 10-9 - PLAN #1 1-6-10 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
800.00	800.00	800.00	800.00	1.67	1.67	-2.41	79.78	-3.36	79.85	76.51	3.34	23.924	
900.00	900.00	900.00	900.00	1.89	1.89	-2.41	79.78	-3.36	79.85	76.06	3.79	21.084	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-2.41	79.78	-3.36	79.85	75.61	4.24	18.847	
1,085.00	1,085.00	1,085.00	1,085.00	2.31	2.31	-2.41	79.78	-3.36	79.85	75.23	4.62	17.288 CC	
1,100.00	1,100.00	1,099.64	1,099.64	2.34	2.34	-127.59	79.81	-3.38	79.91	75.23	4.68	17.068 ES	
1,200.00	1,199.97	1,197.06	1,197.03	2.52	2.56	-129.43	81.68	-4.45	83.30	78.22	5.08	16.399 SF	
1,300.00	1,299.80	1,293.72	1,293.54	2.72	2.77	-133.44	86.37	-7.14	92.26	86.78	5.48	16.829	
1,400.00	1,399.37	1,389.00	1,388.43	2.93	3.00	-138.37	93.76	-11.38	107.37	101.49	5.89	18.243	
1,500.00	1,498.55	1,482.30	1,481.02	3.16	3.23	-143.16	103.64	-17.05	129.06	122.77	6.28	20.534	
1,600.00	1,597.23	1,573.06	1,570.71	3.43	3.47	-147.23	115.75	-24.00	157.40	150.72	6.68	23.569	
1,700.00	1,695.29	1,660.83	1,656.96	3.74	3.73	-150.46	129.81	-32.07	192.22	185.15	7.06	27.214	
1,800.00	1,792.60	1,752.02	1,746.31	4.10	4.02	-153.15	145.59	-41.13	231.86	224.41	7.46	31.092	
1,900.00	1,889.05	1,841.76	1,834.24	4.53	4.33	-155.26	161.13	-50.04	274.80	266.96	7.85	35.011	
2,000.00	1,984.52	1,929.93	1,920.64	5.01	4.64	-156.96	176.40	-58.81	320.95	312.71	8.24	38.948	
2,100.00	2,078.90	2,016.42	2,005.39	5.57	4.96	-158.35	191.37	-67.40	370.20	361.57	8.63	42.888	
2,200.00	2,172.06	2,101.14	2,088.41	6.21	5.28	-159.49	206.04	-75.82	422.49	413.47	9.02	46.821	
2,272.71	2,238.97	2,161.56	2,147.61	6.72	5.51	-160.19	216.50	-81.82	462.37	453.06	9.31	49.664	
2,300.00	2,263.95	2,184.05	2,169.65	6.92	5.60	-160.55	220.40	-84.06	477.64	468.20	9.44	50.583	
2,400.00	2,355.48	2,266.45	2,250.39	7.66	5.92	-161.69	234.66	-92.24	533.68	523.74	9.94	53.707	
2,500.00	2,447.01	2,348.84	2,331.13	8.43	6.24	-162.62	248.93	-100.43	589.84	579.40	10.44	56.500	
2,600.00	2,538.54	2,431.24	2,411.87	9.21	6.57	-163.39	263.19	-108.62	646.08	635.13	10.95	59.004	
2,700.00	2,630.07	2,513.64	2,492.61	10.00	6.90	-164.03	277.46	-116.81	702.39	690.92	11.47	61.258	
2,800.00	2,721.60	2,596.04	2,573.35	10.81	7.23	-164.58	291.73	-124.99	758.75	746.77	11.99	63.294	
2,900.00	2,813.12	2,678.44	2,654.09	11.61	7.57	-165.06	305.99	-133.18	815.16	802.64	12.51	65.138	
3,000.00	2,904.65	2,760.84	2,734.83	12.43	7.91	-165.47	320.26	-141.37	871.60	858.55	13.04	66.815	
3,100.00	2,996.18	2,843.23	2,815.57	13.25	8.25	-165.83	334.53	-149.55	928.06	914.48	13.58	68.347	
3,200.00	3,087.71	2,925.63	2,896.31	14.07	8.59	-166.16	348.79	-157.74	984.55	970.43	14.12	69.749	
3,300.00	3,179.24	3,008.03	2,977.04	14.90	8.93	-166.44	363.06	-165.93	1,041.06	1,026.40	14.66	71.037	
3,400.00	3,270.77	3,090.43	3,057.78	15.72	9.28	-166.70	377.33	-174.12	1,097.58	1,082.38	15.20	72.222	
3,500.00	3,362.29	3,172.83	3,138.52	16.55	9.62	-166.93	391.59	-182.30	1,154.12	1,138.37	15.74	73.317	
3,600.00	3,453.82	3,255.23	3,219.26	17.39	9.97	-167.14	405.86	-190.49	1,210.66	1,194.38	16.29	74.330	
3,700.00	3,545.35	3,337.62	3,300.00	18.22	10.31	-167.33	420.13	-198.68	1,267.22	1,250.39	16.84	75.271	
3,800.00	3,636.88	3,420.02	3,380.74	19.06	10.66	-167.51	434.39	-206.87	1,323.79	1,306.40	17.38	76.146	
3,900.00	3,728.41	3,502.42	3,461.48	19.89	11.01	-167.67	448.66	-215.05	1,380.36	1,362.43	17.94	76.962	
4,000.00	3,819.93	3,584.82	3,542.22	20.73	11.36	-167.82	462.92	-223.24	1,436.95	1,418.46	18.49	77.724	
4,100.00	3,911.46	3,667.22	3,622.96	21.57	11.71	-167.96	477.19	-231.43	1,493.53	1,474.49	19.04	78.438	
4,200.00	4,002.99	3,749.61	3,703.70	22.41	12.06	-168.08	491.46	-239.61	1,550.13	1,530.53	19.60	79.107	
4,300.00	4,094.52	3,832.01	3,784.44	23.25	12.41	-168.20	505.72	-247.80	1,606.72	1,586.57	20.15	79.736	
4,400.00	4,186.05	3,914.41	3,865.18	24.09	12.76	-168.31	519.99	-255.99	1,663.33	1,642.62	20.71	80.328	
4,500.00	4,277.58	3,996.81	3,945.92	24.94	13.11	-168.41	534.26	-264.18	1,719.93	1,698.67	21.26	80.885	
4,600.00	4,369.10	4,079.21	4,026.66	25.78	13.46	-168.51	548.52	-272.36	1,776.54	1,754.72	21.82	81.412	
4,700.00	4,460.63	4,161.61	4,107.40	26.62	13.81	-168.60	562.79	-280.55	1,833.15	1,810.77	22.38	81.910	
4,800.00	4,552.16	4,244.00	4,188.14	27.47	14.17	-168.69	577.06	-288.74	1,889.77	1,866.83	22.94	82.381	
4,900.00	4,643.69	4,326.40	4,268.88	28.31	14.52	-168.77	591.32	-296.93	1,946.39	1,922.89	23.50	82.828	
5,000.00	4,735.22	4,408.80	4,349.62	29.15	14.87	-168.84	605.59	-305.11	2,003.01	1,978.95	24.06	83.253	
5,100.00	4,826.75	4,491.20	4,430.36	30.00	15.23	-168.91	619.85	-313.30	2,059.63	2,035.01	24.62	83.656	
5,200.00	4,918.27	4,573.60	4,511.10	30.84	15.58	-168.98	634.12	-321.49	2,116.26	2,091.08	25.18	84.040	
5,300.00	5,009.80	4,656.00	4,591.84	31.69	15.93	-169.04	648.39	-329.68	2,172.88	2,147.14	25.74	84.406	
5,400.00	5,101.33	4,738.39	4,672.58	32.54	16.29	-169.10	662.65	-337.86	2,229.51	2,203.21	26.31	84.754	
5,467.41	5,163.03	4,793.94	4,727.00	33.11	16.53	-169.14	672.27	-343.38	2,267.69	2,241.00	26.68	84.980	
5,500.00	5,192.93	4,820.90	4,753.42	33.35	16.64	-169.24	676.94	-346.06	2,285.99	2,259.06	26.93	84.882	
5,600.00	5,285.58	4,904.87	4,835.71	33.97	17.00	-169.52	691.48	-354.40	2,340.27	2,312.61	27.66	84.623	

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 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NRC 20-9 PAD - P_NRC 10-9 - P_NRC 10-9 - PLAN #1 1-6-10 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
5,700.00	5,379.48	4,990.67	4,919.77	34.54	17.37	-169.76	706.33	-362.93	2,391.62	2,363.27	28.35	84.360	
5,800.00	5,474.53	5,078.18	5,005.52	35.06	17.75	-169.95	721.48	-371.62	2,440.00	2,410.99	29.01	84.096	
5,900.00	5,570.60	5,167.30	5,092.85	35.53	18.13	-170.12	736.91	-380.48	2,485.35	2,455.71	29.64	83.838	
6,000.00	5,667.58	5,257.92	5,181.65	35.94	18.52	-170.25	752.60	-389.48	2,527.61	2,497.37	30.24	83.587	
6,100.00	5,765.35	5,349.93	5,271.81	36.31	18.92	-170.35	768.54	-398.63	2,566.72	2,535.92	30.80	83.347	
6,200.00	5,863.80	5,443.22	5,363.22	36.62	19.32	-170.42	784.69	-407.90	2,602.64	2,571.33	31.31	83.120	
6,300.00	5,962.80	5,537.68	5,455.77	36.88	19.73	-170.47	801.04	-417.28	2,635.34	2,603.55	31.79	82.907	
6,400.00	6,062.22	5,633.18	5,549.36	37.09	20.14	-170.49	817.58	-426.77	2,664.77	2,632.55	32.22	82.708	
6,500.00	6,161.96	5,729.62	5,643.85	37.25	20.56	-170.49	834.27	-436.35	2,690.89	2,658.29	32.61	82.526	
6,600.00	6,261.89	5,826.87	5,739.15	37.37	20.98	-170.47	851.11	-446.02	2,713.69	2,680.74	32.95	82.360	
6,655.11	6,317.00	5,981.94	5,891.50	37.41	21.53	-45.20	876.16	-460.39	2,724.65	2,691.30	33.35	81.693	
6,700.00	6,361.89	6,454.38	6,361.89	37.45	22.49	-44.99	908.89	-479.18	2,727.64	2,693.34	34.30	79.515	
6,800.00	6,461.89	6,554.38	6,461.89	37.52	22.62	-44.99	908.89	-479.18	2,727.64	2,693.01	34.63	78.768	
6,900.00	6,561.89	6,654.38	6,561.89	37.60	22.76	-44.99	908.89	-479.18	2,727.64	2,692.68	34.96	78.013	
7,000.00	6,661.89	6,754.38	6,661.89	37.68	22.90	-44.99	908.89	-479.18	2,727.64	2,692.34	35.30	77.266	
7,100.00	6,761.89	6,854.38	6,761.89	37.76	23.04	-44.99	908.89	-479.18	2,727.64	2,692.00	35.64	76.529	
7,200.00	6,861.89	6,954.38	6,861.89	37.84	23.18	-44.99	908.89	-479.18	2,727.64	2,691.66	35.98	75.801	
7,300.00	6,961.89	7,054.38	6,961.89	37.92	23.32	-44.99	908.89	-479.18	2,727.64	2,691.31	36.33	75.082	
7,400.00	7,061.89	7,154.38	7,061.89	38.00	23.46	-44.99	908.89	-479.18	2,727.64	2,690.96	36.68	74.372	
7,500.00	7,161.89	7,254.38	7,161.89	38.08	23.61	-44.99	908.89	-479.18	2,727.64	2,690.61	37.02	73.671	
7,600.00	7,261.89	7,354.38	7,261.89	38.17	23.75	-44.99	908.89	-479.18	2,727.64	2,690.26	37.38	72.979	
7,700.00	7,361.89	7,454.38	7,361.89	38.25	23.90	-44.99	908.89	-479.18	2,727.64	2,689.91	37.73	72.296	
7,800.00	7,461.89	7,554.38	7,461.89	38.34	24.05	-44.99	908.89	-479.18	2,727.64	2,689.56	38.08	71.622	
7,900.00	7,561.89	7,654.38	7,561.89	38.43	24.20	-44.99	908.89	-479.18	2,727.64	2,689.20	38.44	70.957	
8,000.00	7,661.89	7,754.38	7,661.89	38.52	24.35	-44.99	908.89	-479.18	2,727.64	2,688.84	38.80	70.301	
8,100.00	7,761.89	7,854.38	7,761.89	38.61	24.50	-44.99	908.89	-479.18	2,727.64	2,688.48	39.16	69.654	
8,200.00	7,861.89	7,954.38	7,861.89	38.70	24.65	-44.99	908.89	-479.18	2,727.64	2,688.12	39.52	69.015	
8,300.00	7,961.89	8,054.38	7,961.89	38.79	24.81	-44.99	908.89	-479.18	2,727.64	2,687.75	39.89	68.386	
8,400.00	8,061.89	8,154.38	8,061.89	38.89	24.96	-44.99	908.89	-479.18	2,727.64	2,687.39	40.25	67.764	
8,500.00	8,161.89	8,254.38	8,161.89	38.98	25.12	-44.99	908.89	-479.18	2,727.64	2,687.02	40.62	67.152	
8,580.11	8,242.00	8,334.49	8,242.00	39.06	25.25	-44.99	908.89	-479.18	2,727.64	2,686.73	40.91	66.667	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NRC 20-9 PAD - P_NRC 15-9 - P_NRC 15-9 - PLAN #1 1-6-10 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	-2.51	63.75	-2.80	63.81				
100.00	100.00	100.00	100.00	0.10	0.10	-2.51	63.75	-2.80	63.81	63.62	0.19	333.993	
200.00	200.00	200.00	200.00	0.32	0.32	-2.51	63.75	-2.80	63.81	63.17	0.64	99.612	
300.00	300.00	300.00	300.00	0.55	0.55	-2.51	63.75	-2.80	63.81	62.72	1.09	58.535	
400.00	400.00	400.00	400.00	0.77	0.77	-2.51	63.75	-2.80	63.81	62.27	1.54	41.444	
500.00	500.00	500.00	500.00	0.99	0.99	-2.51	63.75	-2.80	63.81	61.82	1.99	32.078	
600.00	600.00	600.00	600.00	1.22	1.22	-2.51	63.75	-2.80	63.81	61.37	2.44	26.165	
700.00	700.00	700.00	700.00	1.44	1.44	-2.51	63.75	-2.80	63.81	60.92	2.89	22.093	
800.00	800.00	800.00	800.00	1.67	1.67	-2.51	63.75	-2.80	63.81	60.47	3.34	19.117	
900.00	900.00	900.00	900.00	1.89	1.89	-2.51	63.75	-2.80	63.81	60.02	3.79	16.848	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-2.51	63.75	-2.80	63.81	59.57	4.24	15.061	
1,085.00	1,085.00	1,085.00	1,085.00	2.31	2.31	-2.51	63.75	-2.80	63.81	59.19	4.62	13.815	
1,100.00	1,100.00	1,100.23	1,100.23	2.34	2.34	-127.72	63.72	-2.83	63.81	59.13	4.68	13.635	
1,190.10	1,190.08	1,191.62	1,191.60	2.51	2.50	-130.37	62.35	-4.20	63.74	58.73	5.01	12.728 CC	
1,200.00	1,199.97	1,201.64	1,201.61	2.52	2.52	-130.91	62.07	-4.48	63.74	58.70	5.04	12.638 ES	
1,300.00	1,299.80	1,302.54	1,302.33	2.72	2.71	-138.87	57.92	-8.65	64.45	59.02	5.42	11.886	
1,400.00	1,399.37	1,402.51	1,401.86	2.93	2.92	-150.74	51.35	-15.26	68.04	62.23	5.81	11.709 SF	
1,500.00	1,498.55	1,501.13	1,499.66	3.16	3.15	-164.22	42.46	-24.18	77.09	70.88	6.21	12.417	
1,600.00	1,597.23	1,598.01	1,595.27	3.43	3.40	-176.62	31.43	-35.27	93.27	86.65	6.62	14.088	
1,700.00	1,695.29	1,693.70	1,689.34	3.74	3.69	173.92	19.04	-47.71	116.50	109.44	7.06	16.508	
1,800.00	1,792.60	1,788.61	1,782.63	4.10	3.99	167.82	6.71	-60.10	145.07	137.55	7.52	19.299	
1,900.00	1,889.05	1,882.57	1,874.98	4.53	4.30	163.94	-5.49	-72.35	177.82	169.82	8.00	22.232	
2,000.00	1,984.52	1,975.47	1,966.29	5.01	4.63	161.46	-17.55	-84.47	214.14	205.63	8.50	25.188	
2,100.00	2,078.90	2,067.17	2,056.43	5.57	4.96	159.87	-29.46	-96.44	253.69	244.66	9.03	28.108	
2,200.00	2,172.06	2,157.59	2,145.30	6.21	5.29	158.84	-41.21	-108.23	296.30	286.73	9.57	30.961	
2,272.71	2,238.97	2,222.45	2,209.05	6.72	5.53	158.33	-49.63	-116.69	329.13	319.15	9.98	32.987	
2,300.00	2,263.95	2,246.65	2,232.84	6.92	5.62	158.28	-52.77	-119.85	341.74	331.58	10.16	33.637	
2,400.00	2,355.48	2,335.33	2,320.00	7.66	5.96	158.12	-64.29	-131.42	387.95	377.11	10.84	35.793	
2,500.00	2,447.01	2,424.01	2,407.17	8.43	6.30	157.99	-75.81	-142.99	434.16	422.62	11.53	37.646	
2,600.00	2,538.54	2,512.69	2,494.33	9.21	6.65	157.88	-87.32	-154.56	480.37	468.13	12.24	39.248	
2,700.00	2,630.07	2,601.37	2,581.49	10.00	7.00	157.80	-98.84	-166.13	526.58	513.63	12.96	40.644	
2,800.00	2,721.60	2,690.05	2,668.66	10.81	7.35	157.73	-110.36	-177.70	572.79	559.11	13.68	41.867	
2,900.00	2,813.12	2,778.72	2,755.82	11.61	7.70	157.66	-121.87	-189.27	619.01	604.60	14.41	42.948	
3,000.00	2,904.65	2,867.40	2,842.98	12.43	8.05	157.61	-133.39	-200.83	665.22	650.07	15.15	43.907	
3,100.00	2,996.18	2,956.08	2,930.15	13.25	8.41	157.57	-144.91	-212.40	711.44	695.55	15.89	44.764	
3,200.00	3,087.71	3,044.76	3,017.31	14.07	8.77	157.53	-156.42	-223.97	757.65	741.01	16.64	45.535	
3,300.00	3,179.24	3,133.44	3,104.47	14.90	9.13	157.49	-167.94	-235.54	803.87	786.48	17.39	46.230	
3,400.00	3,270.77	3,222.12	3,191.64	15.72	9.49	157.46	-179.46	-247.11	850.09	831.94	18.14	46.861	
3,500.00	3,362.29	3,310.80	3,278.80	16.55	9.85	157.43	-190.97	-258.68	896.30	877.41	18.90	47.436	
3,600.00	3,453.82	3,399.48	3,365.96	17.39	10.21	157.40	-202.49	-270.25	942.52	922.87	19.65	47.962	
3,700.00	3,545.35	3,488.15	3,453.13	18.22	10.58	157.38	-214.01	-281.82	988.73	968.32	20.41	48.446	
3,800.00	3,636.88	3,576.83	3,540.29	19.06	10.94	157.36	-225.52	-293.39	1,034.95	1,013.78	21.17	48.892	
3,900.00	3,728.41	3,665.51	3,627.45	19.89	11.30	157.34	-237.04	-304.96	1,081.17	1,059.24	21.93	49.304	
4,000.00	3,819.93	3,754.19	3,714.62	20.73	11.67	157.32	-248.56	-316.53	1,127.38	1,104.69	22.69	49.688	
4,100.00	3,911.46	3,842.87	3,801.78	21.57	12.04	157.31	-260.07	-328.10	1,173.60	1,150.15	23.45	50.045	
4,200.00	4,002.99	3,931.55	3,888.94	22.41	12.40	157.29	-271.59	-339.66	1,219.82	1,195.60	24.21	50.378	
4,300.00	4,094.52	4,020.23	3,976.11	23.25	12.77	157.28	-283.11	-351.23	1,266.03	1,241.06	24.98	50.691	
4,400.00	4,186.05	4,108.91	4,063.27	24.09	13.14	157.26	-294.62	-362.80	1,312.25	1,286.51	25.74	50.984	
4,500.00	4,277.58	4,197.58	4,150.43	24.94	13.50	157.25	-306.14	-374.37	1,358.47	1,331.97	26.50	51.260	
4,600.00	4,369.10	4,286.26	4,237.60	25.78	13.87	157.24	-317.66	-385.94	1,404.68	1,377.42	27.26	51.521	
4,700.00	4,460.63	4,374.94	4,324.76	26.62	14.24	157.23	-329.17	-397.51	1,450.90	1,422.87	28.03	51.768	
4,800.00	4,552.16	4,463.62	4,411.92	27.47	14.61	157.22	-340.69	-409.08	1,497.12	1,468.33	28.79	52.002	

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 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NRC 20-9 PAD - P_NRC 15-9 - P_NRC 15-9 - PLAN #1 1-6-10 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
4,900.00	4,643.69	4,552.30	4,499.09	28.31	14.98	157.21	-352.21	-420.65	1,543.34	1,513.78	29.55	52.224	
5,000.00	4,735.22	4,640.98	4,586.25	29.15	15.35	157.20	-363.72	-432.22	1,589.55	1,559.24	30.31	52.435	
5,100.00	4,826.75	4,729.66	4,673.41	30.00	15.72	157.19	-375.24	-443.79	1,635.77	1,604.69	31.08	52.637	
5,200.00	4,918.27	4,818.34	4,760.58	30.84	16.09	157.18	-386.76	-455.36	1,681.99	1,650.15	31.84	52.829	
5,300.00	5,009.80	4,907.02	4,847.74	31.69	16.45	157.18	-398.27	-466.92	1,728.20	1,695.60	32.60	53.013	
5,400.00	5,101.33	4,995.69	4,934.90	32.54	16.82	157.17	-409.79	-478.49	1,774.42	1,741.06	33.36	53.189	
5,467.41	5,163.03	5,055.47	4,993.66	33.11	17.07	157.17	-417.55	-486.29	1,805.58	1,771.70	33.87	53.304	
5,500.00	5,192.93	5,084.45	5,022.14	33.35	17.20	157.29	-421.32	-490.07	1,820.49	1,786.34	34.15	53.310	
5,600.00	5,285.58	5,174.31	5,110.47	33.97	17.57	157.62	-432.99	-501.80	1,864.33	1,829.38	34.94	53.351	
5,700.00	5,379.48	5,265.52	5,200.11	34.54	17.95	157.87	-444.83	-513.69	1,905.25	1,869.51	35.74	53.307	
5,800.00	5,474.53	5,357.95	5,290.96	35.06	18.34	158.06	-456.83	-525.75	1,943.20	1,906.66	36.54	53.182	
5,900.00	5,570.60	5,451.49	5,382.91	35.53	18.73	158.17	-468.98	-537.96	1,978.15	1,940.85	37.31	53.025	
6,000.00	5,667.58	5,546.04	5,475.84	35.94	19.13	158.23	-481.26	-550.29	2,010.07	1,972.03	38.04	52.841	
6,100.00	5,765.35	5,641.47	5,569.64	36.31	19.52	158.22	-493.66	-562.74	2,038.92	2,000.18	38.74	52.633	
6,200.00	5,863.80	5,737.67	5,664.20	36.62	19.93	158.17	-506.15	-575.29	2,064.68	2,025.28	39.40	52.404	
6,300.00	5,962.80	5,834.53	5,759.40	36.88	20.33	158.05	-518.73	-587.93	2,087.35	2,047.33	40.02	52.159	
6,400.00	6,062.22	5,956.57	5,879.48	37.09	20.76	157.82	-534.10	-603.37	2,106.69	2,066.06	40.63	51.846	
6,500.00	6,161.96	6,119.71	6,041.12	37.25	21.18	157.53	-549.56	-618.90	2,120.48	2,079.28	41.20	51.474	
6,600.00	6,261.89	6,285.46	6,206.35	37.37	21.50	157.36	-558.59	-627.98	2,128.02	2,086.42	41.60	51.152	
6,655.11	6,317.00	6,377.40	6,298.24	37.41	21.63	-77.54	-560.69	-630.08	2,129.47	2,087.71	41.76	50.993	
6,700.00	6,361.89	6,441.05	6,361.89	37.45	21.71	-77.54	-560.96	-630.36	2,129.59	2,087.69	41.91	50.819	
6,800.00	6,461.89	6,541.05	6,461.89	37.52	21.84	-77.54	-560.96	-630.36	2,129.59	2,087.44	42.16	50.515	
6,900.00	6,561.89	6,641.05	6,561.89	37.60	21.96	-77.54	-560.96	-630.36	2,129.59	2,087.19	42.41	50.218	
7,000.00	6,661.89	6,741.05	6,661.89	37.68	22.08	-77.54	-560.96	-630.36	2,129.59	2,086.94	42.66	49.921	
7,100.00	6,761.89	6,841.05	6,761.89	37.76	22.21	-77.54	-560.96	-630.36	2,129.59	2,086.68	42.92	49.623	
7,200.00	6,861.89	6,941.05	6,861.89	37.84	22.34	-77.54	-560.96	-630.36	2,129.59	2,086.42	43.17	49.325	
7,300.00	6,961.89	7,041.05	6,961.89	37.92	22.47	-77.54	-560.96	-630.36	2,129.59	2,086.16	43.44	49.028	
7,400.00	7,061.89	7,141.05	7,061.89	38.00	22.60	-77.54	-560.96	-630.36	2,129.59	2,085.89	43.70	48.730	
7,500.00	7,161.89	7,241.05	7,161.89	38.08	22.73	-77.54	-560.96	-630.36	2,129.59	2,085.62	43.97	48.433	
7,600.00	7,261.89	7,341.05	7,261.89	38.17	22.86	-77.54	-560.96	-630.36	2,129.59	2,085.35	44.24	48.136	
7,700.00	7,361.89	7,441.05	7,361.89	38.25	23.00	-77.54	-560.96	-630.36	2,129.59	2,085.08	44.51	47.840	
7,800.00	7,461.89	7,541.05	7,461.89	38.34	23.13	-77.54	-560.96	-630.36	2,129.59	2,084.80	44.79	47.544	
7,900.00	7,561.89	7,641.05	7,561.89	38.43	23.27	-77.54	-560.96	-630.36	2,129.59	2,084.52	45.07	47.249	
8,000.00	7,661.89	7,741.05	7,661.89	38.52	23.41	-77.54	-560.96	-630.36	2,129.59	2,084.24	45.35	46.955	
8,100.00	7,761.89	7,841.05	7,761.89	38.61	23.55	-77.54	-560.96	-630.36	2,129.59	2,083.96	45.64	46.662	
8,200.00	7,861.89	7,941.05	7,861.89	38.70	23.69	-77.54	-560.96	-630.36	2,129.59	2,083.67	45.93	46.370	
8,300.00	7,961.89	8,041.05	7,961.89	38.79	23.83	-77.54	-560.96	-630.36	2,129.59	2,083.38	46.22	46.078	
8,400.00	8,061.89	8,141.05	8,061.89	38.89	23.98	-77.54	-560.96	-630.36	2,129.59	2,083.09	46.51	45.788	
8,500.00	8,161.89	8,241.05	8,161.89	38.98	24.12	-77.54	-560.96	-630.36	2,129.59	2,082.79	46.80	45.500	
8,580.11	8,242.00	8,321.16	8,242.00	39.06	24.24	-77.54	-560.96	-630.36	2,129.59	2,082.55	47.04	45.269	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NRC 20-9 PAD - P_NRC 16-9 - P_NRC 16-9 - PLAN #1 1-6-10 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
0.00	0.00	0.00	0.00	0.00	0.00	-2.05	15.67	-0.56	15.68				
100.00	100.00	100.00	100.00	0.10	0.10	-2.05	15.67	-0.56	15.68	15.49	0.19	82.084	
200.00	200.00	200.00	200.00	0.32	0.32	-2.05	15.67	-0.56	15.68	15.04	0.64	24.481	
300.00	300.00	300.00	300.00	0.55	0.55	-2.05	15.67	-0.56	15.68	14.59	1.09	14.386	
400.00	400.00	400.00	400.00	0.77	0.77	-2.05	15.67	-0.56	15.68	14.14	1.54	10.186	
500.00	500.00	500.00	500.00	0.99	0.99	-2.05	15.67	-0.56	15.68	13.69	1.99	7.884	
600.00	600.00	600.00	600.00	1.22	1.22	-2.05	15.67	-0.56	15.68	13.24	2.44	6.431	
700.00	700.00	700.00	700.00	1.44	1.44	-2.05	15.67	-0.56	15.68	12.79	2.89	5.430	
800.00	800.00	800.00	800.00	1.67	1.67	-2.05	15.67	-0.56	15.68	12.34	3.34	4.698	
900.00	900.00	900.00	900.00	1.89	1.89	-2.05	15.67	-0.56	15.68	11.89	3.79	4.141	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-2.05	15.67	-0.56	15.68	11.45	4.24	3.701	
1,085.00	1,085.00	1,085.00	1,085.00	2.31	2.31	-2.05	15.67	-0.56	15.68	11.06	4.62	3.395 CC	
1,100.00	1,100.00	1,100.04	1,100.04	2.34	2.34	-127.18	15.65	-0.52	15.69	11.01	4.68	3.352	
1,200.00	1,199.97	1,200.30	1,200.27	2.52	2.53	-126.52	14.62	1.51	15.96	10.91	5.05	3.160 ES	
1,300.00	1,299.80	1,300.56	1,300.36	2.72	2.73	-124.93	12.01	6.67	16.66	11.22	5.44	3.063	
1,400.00	1,399.37	1,400.82	1,400.18	2.93	2.94	-122.64	7.81	14.95	17.80	11.95	5.85	3.041 SF	
1,500.00	1,498.55	1,501.05	1,499.59	3.16	3.18	-119.94	2.03	26.34	19.42	13.11	6.31	3.076	
1,600.00	1,597.23	1,601.27	1,598.48	3.43	3.45	-117.10	-5.31	40.82	21.52	14.69	6.83	3.150	
1,700.00	1,695.29	1,701.36	1,696.70	3.74	3.76	-115.26	-14.02	57.98	24.25	16.82	7.43	3.264	
1,800.00	1,792.60	1,801.25	1,794.63	4.10	4.10	-119.32	-22.92	75.52	28.41	20.37	8.04	3.533	
1,900.00	1,889.05	1,900.95	1,892.39	4.53	4.45	-127.15	-31.79	93.03	34.68	26.07	8.61	4.027	
2,000.00	1,984.52	2,000.35	1,989.84	5.01	4.82	-135.82	-40.64	110.48	43.83	34.73	9.10	4.818	
2,100.00	2,078.90	2,099.32	2,086.87	5.57	5.19	-143.55	-49.46	127.85	56.40	46.89	9.51	5.928	
2,200.00	2,172.06	2,197.73	2,183.36	6.21	5.58	-149.78	-58.22	145.13	72.61	62.71	9.90	7.335	
2,272.71	2,238.97	2,268.88	2,253.11	6.72	5.86	-153.42	-64.56	157.62	86.70	76.52	10.18	8.520	
2,300.00	2,263.95	2,295.51	2,279.22	6.92	5.97	-154.63	-66.93	162.30	92.36	82.06	10.30	8.968	
2,400.00	2,355.48	2,393.09	2,374.90	7.66	6.36	-158.02	-75.62	179.43	113.38	102.60	10.78	10.515	
2,500.00	2,447.01	2,490.68	2,470.57	8.43	6.76	-160.36	-84.31	196.56	134.67	123.37	11.30	11.917	
2,600.00	2,538.54	2,588.26	2,566.25	9.21	7.16	-162.05	-93.00	213.70	156.11	144.27	11.84	13.184	
2,700.00	2,630.07	2,685.85	2,661.92	10.00	7.56	-163.34	-101.68	230.83	177.65	165.25	12.40	14.330	
2,800.00	2,721.60	2,783.43	2,757.60	10.81	7.97	-164.34	-110.37	247.96	199.25	186.29	12.96	15.369	
2,900.00	2,813.12	2,881.02	2,853.27	11.61	8.38	-165.15	-119.06	265.09	220.90	207.36	13.54	16.313	
3,000.00	2,904.65	2,978.60	2,948.95	12.43	8.80	-165.82	-127.75	282.23	242.59	228.46	14.13	17.173	
3,100.00	2,996.18	3,076.19	3,044.63	13.25	9.21	-166.37	-136.44	299.36	264.30	249.59	14.72	17.959	
3,200.00	3,087.71	3,173.77	3,140.30	14.07	9.63	-166.85	-145.13	316.49	286.04	270.72	15.31	18.680	
3,300.00	3,179.24	3,271.36	3,235.98	14.90	10.04	-167.25	-153.82	333.62	307.79	291.87	15.91	19.343	
3,400.00	3,270.77	3,368.94	3,331.65	15.72	10.46	-167.60	-162.51	350.76	329.55	313.03	16.52	19.954	
3,500.00	3,362.29	3,466.53	3,427.33	16.55	10.88	-167.91	-171.20	367.89	351.32	334.20	17.12	20.519	
3,600.00	3,453.82	3,564.11	3,523.00	17.39	11.30	-168.18	-179.89	385.02	373.10	355.37	17.73	21.042	
3,700.00	3,545.35	3,661.70	3,618.68	18.22	11.72	-168.43	-188.58	402.15	394.89	376.55	18.34	21.528	
3,800.00	3,636.88	3,759.28	3,714.35	19.06	12.14	-168.64	-197.27	419.29	416.68	397.73	18.96	21.981	
3,900.00	3,728.41	3,856.87	3,810.03	19.89	12.57	-168.84	-205.96	436.42	438.48	418.91	19.57	22.404	
4,000.00	3,819.93	3,954.45	3,905.70	20.73	12.99	-169.02	-214.65	453.55	460.29	440.10	20.19	22.799	
4,100.00	3,911.46	4,052.04	4,001.38	21.57	13.41	-169.18	-223.34	470.68	482.09	461.28	20.81	23.169	
4,200.00	4,002.99	4,149.62	4,097.05	22.41	13.84	-169.32	-232.03	487.82	503.90	482.48	21.43	23.516	
4,300.00	4,094.52	4,247.20	4,192.73	23.25	14.26	-169.46	-240.72	504.95	525.72	503.67	22.05	23.843	
4,400.00	4,186.05	4,344.79	4,288.40	24.09	14.69	-169.58	-249.41	522.08	547.53	524.86	22.67	24.151	
4,500.00	4,277.58	4,442.37	4,384.08	24.94	15.11	-169.70	-258.09	539.21	569.35	546.06	23.29	24.441	
4,600.00	4,369.10	4,539.96	4,479.75	25.78	15.54	-169.80	-266.78	556.35	591.17	567.25	23.92	24.715	
4,700.00	4,460.63	4,637.54	4,575.43	26.62	15.97	-169.90	-275.47	573.48	612.99	588.45	24.54	24.975	
4,800.00	4,552.16	4,735.13	4,671.10	27.47	16.39	-169.99	-284.16	590.61	634.82	609.65	25.17	25.221	
4,900.00	4,643.69	4,832.71	4,766.78	28.31	16.82	-170.08	-292.85	607.74	656.64	630.84	25.80	25.454	

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 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 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	4,735.22	4,930.30	4,862.45	29.15	17.25	-170.16	-301.54	624.88	678.47	652.04	26.42	25.676	
5,100.00	4,826.75	5,027.88	4,958.13	30.00	17.67	-170.23	-310.23	642.01	700.30	673.24	27.05	25.887	
5,200.00	4,918.27	5,125.47	5,053.80	30.84	18.10	-170.30	-318.92	659.14	722.12	694.44	27.68	26.088	
5,300.00	5,009.80	5,223.05	5,149.48	31.69	18.53	-170.37	-327.61	676.27	743.95	715.64	28.31	26.280	
5,400.00	5,101.33	5,320.64	5,245.16	32.54	18.96	-170.43	-336.30	693.41	765.78	736.85	28.94	26.462	
5,467.41	5,163.03	5,386.42	5,309.65	33.11	19.25	-170.47	-342.16	704.96	780.50	751.14	29.36	26.581	
5,500.00	5,192.93	5,418.26	5,340.87	33.35	19.39	-170.51	-344.99	710.55	787.44	757.83	29.60	26.599	
5,600.00	5,285.58	5,516.42	5,437.11	33.97	19.82	-170.60	-353.73	727.78	806.48	776.18	30.31	26.609	
5,700.00	5,379.48	5,615.19	5,533.94	34.54	20.25	-170.63	-362.53	745.12	822.14	791.16	30.98	26.538	
5,800.00	5,474.53	5,714.42	5,631.24	35.06	20.69	-170.61	-371.36	762.54	834.39	802.77	31.62	26.391	
5,900.00	5,570.60	5,814.02	5,728.88	35.53	21.12	-170.55	-380.23	780.03	843.21	811.00	32.22	26.174	
6,000.00	5,667.58	5,900.00	5,813.21	35.94	21.48	-170.46	-387.82	794.98	848.87	816.15	32.72	25.940	
6,100.00	5,765.35	5,981.89	5,893.87	36.31	21.73	-170.37	-394.20	807.56	853.27	820.14	33.13	25.752	
6,200.00	5,863.80	6,059.70	5,970.87	36.62	21.93	-170.31	-399.29	817.60	856.83	823.36	33.47	25.600	
6,300.00	5,962.80	6,137.48	6,048.10	36.88	22.12	-170.25	-403.44	825.78	859.53	825.79	33.74	25.474	
6,400.00	6,062.22	6,215.25	6,125.54	37.09	22.28	-170.20	-406.63	832.08	861.37	827.42	33.95	25.372	
6,500.00	6,161.96	6,300.00	6,210.13	37.25	22.44	-170.17	-409.03	836.80	862.40	828.29	34.11	25.286	
6,507.99	6,169.94	6,300.00	6,210.13	37.26	22.44	-170.17	-409.03	836.80	862.41	828.30	34.10	25.289	
6,600.00	6,261.89	6,370.74	6,280.83	37.37	22.54	-170.14	-410.16	839.04	862.49	828.32	34.17	25.242	
6,655.11	6,317.00	6,413.60	6,323.67	37.41	22.59	-44.98	-410.47	839.64	862.20	828.01	34.19	25.219	
6,700.00	6,361.89	6,451.81	6,361.89	37.45	22.64	-44.98	-410.51	839.72	862.08	827.76	34.32	25.121	
6,800.00	6,461.89	6,551.81	6,461.89	37.52	22.76	-44.98	-410.51	839.72	862.08	827.45	34.63	24.892	
6,900.00	6,561.89	6,651.81	6,561.89	37.60	22.89	-44.98	-410.51	839.72	862.08	827.13	34.95	24.666	
7,000.00	6,661.89	6,751.81	6,661.89	37.68	23.02	-44.98	-410.51	839.72	862.08	826.81	35.27	24.442	
7,100.00	6,761.89	6,851.81	6,761.89	37.76	23.15	-44.98	-410.51	839.72	862.08	826.49	35.59	24.220	
7,200.00	6,861.89	6,951.81	6,861.89	37.84	23.28	-44.98	-410.51	839.72	862.08	826.16	35.92	24.000	
7,300.00	6,961.89	7,051.81	6,961.89	37.92	23.41	-44.98	-410.51	839.72	862.08	825.83	36.25	23.783	
7,400.00	7,061.89	7,151.81	7,061.89	38.00	23.54	-44.98	-410.51	839.72	862.08	825.50	36.58	23.567	
7,500.00	7,161.89	7,251.81	7,161.89	38.08	23.67	-44.98	-410.51	839.72	862.08	825.17	36.91	23.355	
7,600.00	7,261.89	7,351.81	7,261.89	38.17	23.81	-44.98	-410.51	839.72	862.08	824.83	37.25	23.144	
7,700.00	7,361.89	7,451.81	7,361.89	38.25	23.95	-44.98	-410.51	839.72	862.08	824.49	37.59	22.936	
7,800.00	7,461.89	7,551.81	7,461.89	38.34	24.09	-44.98	-410.51	839.72	862.08	824.15	37.93	22.730	
7,900.00	7,561.89	7,651.81	7,561.89	38.43	24.23	-44.98	-410.51	839.72	862.08	823.81	38.27	22.527	
8,000.00	7,661.89	7,751.81	7,661.89	38.52	24.37	-44.98	-410.51	839.72	862.08	823.47	38.61	22.325	
8,100.00	7,761.89	7,851.81	7,761.89	38.61	24.51	-44.98	-410.51	839.72	862.08	823.12	38.96	22.127	
8,200.00	7,861.89	7,951.81	7,861.89	38.70	24.65	-44.98	-410.51	839.72	862.08	822.77	39.31	21.930	
8,300.00	7,961.89	8,051.81	7,961.89	38.79	24.80	-44.98	-410.51	839.72	862.08	822.42	39.66	21.736	
8,400.00	8,061.89	8,151.81	8,061.89	38.89	24.94	-44.98	-410.51	839.72	862.08	822.07	40.01	21.544	
8,500.00	8,161.89	8,251.81	8,161.89	38.98	25.09	-44.98	-410.51	839.72	862.08	821.71	40.37	21.355	
8,580.11	8,242.00	8,331.92	8,242.00	39.06	25.21	-44.98	-410.51	839.72	862.08	821.43	40.65	21.205	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NRC 20-9 PAD - P_NRC 37-9 - P_NRC 37-9 - PLAN #1 1-6-10 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	178.00	-16.03	0.56	16.04				
100.00	100.00	100.00	100.00	0.10	0.10	178.00	-16.03	0.56	16.04	15.85	0.19	83.968	
200.00	200.00	200.00	200.00	0.32	0.32	178.00	-16.03	0.56	16.04	15.40	0.64	25.043	
300.00	300.00	300.00	300.00	0.55	0.55	178.00	-16.03	0.56	16.04	14.95	1.09	14.716	
400.00	400.00	400.00	400.00	0.77	0.77	178.00	-16.03	0.56	16.04	14.50	1.54	10.419	
500.00	500.00	500.00	500.00	0.99	0.99	178.00	-16.03	0.56	16.04	14.05	1.99	8.065	
600.00	600.00	600.00	600.00	1.22	1.22	178.00	-16.03	0.56	16.04	13.60	2.44	6.578	
700.00	700.00	700.00	700.00	1.44	1.44	178.00	-16.03	0.56	16.04	13.15	2.89	5.554	
800.00	800.00	800.00	800.00	1.67	1.67	178.00	-16.03	0.56	16.04	12.70	3.34	4.806	
900.00	900.00	900.00	900.00	1.89	1.89	178.00	-16.03	0.56	16.04	12.25	3.79	4.236	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	178.00	-16.03	0.56	16.04	11.81	4.24	3.786	
1,085.00	1,085.00	1,085.00	1,085.00	2.31	2.31	178.00	-16.03	0.56	16.04	11.42	4.62	3.473 CC	
1,100.00	1,100.00	1,099.92	1,099.92	2.34	2.34	52.94	-16.07	0.57	16.06	11.38	4.68	3.432 ES	
1,200.00	1,199.97	1,199.34	1,199.31	2.52	2.51	57.89	-18.28	0.97	16.99	11.95	5.03	3.376 SF	
1,300.00	1,299.80	1,298.65	1,298.45	2.72	2.69	68.10	-23.87	1.99	19.81	14.41	5.40	3.666	
1,400.00	1,399.37	1,397.73	1,397.11	2.93	2.88	79.08	-32.81	3.63	25.25	19.45	5.81	4.350	
1,500.00	1,498.55	1,496.50	1,495.08	3.16	3.10	87.91	-45.05	5.86	33.65	27.40	6.25	5.385	
1,600.00	1,597.23	1,594.85	1,592.16	3.43	3.35	94.15	-60.54	8.70	44.98	38.23	6.75	6.664	
1,700.00	1,695.29	1,692.69	1,688.14	3.74	3.64	98.38	-79.20	12.10	59.13	51.80	7.33	8.071	
1,800.00	1,792.60	1,791.22	1,784.43	4.10	3.97	102.30	-99.74	15.86	75.16	67.18	7.99	9.410	
1,900.00	1,889.05	1,889.47	1,880.45	4.53	4.32	106.81	-120.22	19.60	92.42	83.69	8.72	10.592	
2,000.00	1,984.52	1,987.27	1,976.03	5.01	4.68	111.46	-140.62	23.33	111.34	101.81	9.53	11.689	
2,100.00	2,078.90	2,084.49	2,071.05	5.57	5.06	115.99	-160.89	27.04	132.33	121.96	10.37	12.760	
2,200.00	2,172.06	2,181.03	2,165.39	6.21	5.45	120.26	-181.02	30.71	155.70	144.46	11.24	13.849	
2,272.71	2,238.97	2,250.72	2,233.50	6.72	5.74	123.16	-195.55	33.37	174.35	162.46	11.89	14.666	
2,300.00	2,263.95	2,276.80	2,258.98	6.92	5.85	124.29	-200.99	34.36	181.65	169.51	12.14	14.968	
2,400.00	2,355.48	2,372.34	2,352.35	7.66	6.25	127.76	-220.91	38.01	208.88	195.84	13.05	16.012	
2,500.00	2,447.01	2,467.88	2,445.72	8.43	6.65	130.43	-240.83	41.65	236.67	222.71	13.96	16.956	
2,600.00	2,538.54	2,563.42	2,539.09	9.21	7.06	132.54	-260.75	45.29	264.83	249.96	14.87	17.807	
2,700.00	2,630.07	2,658.96	2,632.45	10.00	7.48	134.25	-280.67	48.93	293.27	277.47	15.79	18.571	
2,800.00	2,721.60	2,754.50	2,725.82	10.81	7.89	135.66	-300.59	52.57	321.90	305.19	16.71	19.260	
2,900.00	2,813.12	2,850.03	2,819.19	11.61	8.31	136.83	-320.51	56.21	350.68	333.04	17.64	19.882	
3,000.00	2,904.65	2,945.57	2,912.56	12.43	8.74	137.83	-340.43	59.85	379.58	361.01	18.57	20.445	
3,100.00	2,996.18	3,041.11	3,005.93	13.25	9.16	138.69	-360.35	63.49	408.57	389.07	19.50	20.956	
3,200.00	3,087.71	3,136.65	3,099.30	14.07	9.59	139.43	-380.27	67.13	437.63	417.20	20.43	21.423	
3,300.00	3,179.24	3,232.19	3,192.66	14.90	10.02	140.09	-400.19	70.77	466.75	445.39	21.36	21.849	
3,400.00	3,270.77	3,327.73	3,286.03	15.72	10.45	140.66	-420.12	74.42	495.92	473.62	22.30	22.241	
3,500.00	3,362.29	3,423.27	3,379.40	16.55	10.88	141.17	-440.04	78.06	525.13	501.90	23.23	22.602	
3,600.00	3,453.82	3,518.81	3,472.77	17.39	11.31	141.63	-459.96	81.70	554.38	530.21	24.17	22.935	
3,700.00	3,545.35	3,614.35	3,566.14	18.22	11.74	142.04	-479.88	85.34	583.65	558.54	25.11	23.244	
3,800.00	3,636.88	3,709.89	3,659.50	19.06	12.18	142.41	-499.80	88.98	612.95	586.90	26.05	23.530	
3,900.00	3,728.41	3,805.42	3,752.87	19.89	12.61	142.75	-519.72	92.62	642.27	615.28	26.99	23.797	
4,000.00	3,819.93	3,900.96	3,846.24	20.73	13.05	143.06	-539.64	96.26	671.61	643.68	27.93	24.046	
4,100.00	3,911.46	3,996.50	3,939.61	21.57	13.48	143.35	-559.56	99.90	700.97	672.10	28.87	24.280	
4,200.00	4,002.99	4,092.04	4,032.98	22.41	13.92	143.61	-579.48	103.54	730.34	700.53	29.81	24.499	
4,300.00	4,094.52	4,187.58	4,126.34	23.25	14.35	143.85	-599.40	107.18	759.72	728.97	30.75	24.704	
4,400.00	4,186.05	4,283.12	4,219.71	24.09	14.79	144.07	-619.32	110.83	789.12	757.42	31.69	24.898	
4,500.00	4,277.58	4,378.66	4,313.08	24.94	15.23	144.28	-639.24	114.47	818.52	785.89	32.63	25.081	
4,600.00	4,369.10	4,474.20	4,406.45	25.78	15.67	144.47	-659.16	118.11	847.93	814.36	33.58	25.254	
4,700.00	4,460.63	4,569.74	4,499.82	26.62	16.11	144.65	-679.08	121.75	877.36	842.84	34.52	25.418	
4,800.00	4,552.16	4,665.28	4,593.19	27.47	16.55	144.81	-699.01	125.39	906.78	871.33	35.46	25.573	
4,900.00	4,643.69	4,760.81	4,686.55	28.31	16.98	144.97	-718.93	129.03	936.22	899.82	36.40	25.721	

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 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NRC 20-9 PAD - P_NRC 37-9 - P_NRC 37-9 - PLAN #1 1-6-10 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
5,000.00	4,735.22	4,856.35	4,779.92	29.15	17.42	145.12	-738.85	132.67	965.66	928.32	37.34	25.862	
5,100.00	4,826.75	4,951.89	4,873.29	30.00	17.86	145.26	-758.77	136.31	995.11	956.83	38.28	25.996	
5,200.00	4,918.27	5,047.43	4,966.66	30.84	18.30	145.39	-778.69	139.95	1,024.56	985.34	39.22	26.123	
5,300.00	5,009.80	5,142.97	5,060.03	31.69	18.74	145.51	-798.61	143.59	1,054.02	1,013.86	40.16	26.246	
5,400.00	5,101.33	5,238.51	5,153.39	32.54	19.18	145.63	-818.53	147.23	1,083.48	1,042.38	41.10	26.362	
5,467.41	5,163.03	5,302.91	5,216.33	33.11	19.48	145.70	-831.96	149.69	1,103.34	1,061.61	41.73	26.438	
5,500.00	5,192.93	5,334.10	5,246.81	33.35	19.63	145.85	-838.46	150.88	1,112.80	1,070.77	42.03	26.476	
5,600.00	5,285.58	5,430.33	5,340.85	33.97	20.07	146.18	-858.53	154.54	1,139.98	1,097.08	42.90	26.575	
5,700.00	5,379.48	5,527.29	5,435.61	34.54	20.52	146.38	-878.74	158.24	1,164.35	1,120.59	43.77	26.604	
5,800.00	5,474.53	5,624.87	5,530.98	35.06	20.97	146.45	-899.09	161.96	1,185.91	1,141.27	44.64	26.566	
5,900.00	5,570.60	5,722.96	5,626.83	35.53	21.42	146.41	-919.54	165.70	1,204.63	1,159.11	45.51	26.467	
6,000.00	5,667.58	5,821.42	5,723.06	35.94	21.88	146.24	-940.07	169.45	1,220.52	1,174.13	46.39	26.311	
6,100.00	5,765.35	5,918.57	5,818.01	36.31	22.31	145.97	-960.28	173.14	1,233.60	1,186.37	47.23	26.118	
6,200.00	5,863.80	6,009.58	5,907.35	36.62	22.64	145.72	-977.32	176.26	1,244.32	1,196.40	47.92	25.964	
6,300.00	5,962.80	6,100.00	5,996.62	36.88	22.89	145.49	-991.48	178.85	1,252.86	1,204.39	48.47	25.849	
6,400.00	6,062.22	6,192.92	6,088.77	37.09	23.12	145.29	-1,003.14	180.98	1,259.18	1,210.26	48.93	25.737	
6,500.00	6,161.96	6,285.10	6,180.53	37.25	23.31	145.11	-1,011.79	182.56	1,263.28	1,213.99	49.29	25.632	
6,600.00	6,261.89	6,377.51	6,272.75	37.37	23.47	144.96	-1,017.54	183.61	1,265.12	1,215.57	49.55	25.531	
6,655.11	6,317.00	6,428.52	6,323.72	37.41	23.54	-89.96	-1,019.47	183.96	1,265.17	1,215.51	49.66	25.475	
6,700.00	6,361.89	6,470.09	6,365.28	37.45	23.59	-90.00	-1,020.37	184.13	1,264.99	1,215.21	49.78	25.411	
6,761.82	6,423.71	6,528.52	6,423.71	37.49	23.66	-90.02	-1,020.69	184.18	1,264.93	1,215.01	49.92	25.339	
6,800.00	6,461.89	6,566.70	6,461.89	37.52	23.71	-90.02	-1,020.69	184.18	1,264.93	1,214.93	50.00	25.296	
6,900.00	6,561.89	6,666.70	6,561.89	37.60	23.82	-90.02	-1,020.69	184.18	1,264.93	1,214.72	50.22	25.190	
7,000.00	6,661.89	6,766.70	6,661.89	37.68	23.93	-90.02	-1,020.69	184.18	1,264.93	1,214.51	50.43	25.085	
7,100.00	6,761.89	6,866.70	6,761.89	37.76	24.03	-90.02	-1,020.69	184.18	1,264.93	1,214.29	50.64	24.979	
7,200.00	6,861.89	6,966.70	6,861.89	37.84	24.14	-90.02	-1,020.69	184.18	1,264.93	1,214.08	50.86	24.873	
7,300.00	6,961.89	7,066.70	6,961.89	37.92	24.26	-90.02	-1,020.69	184.18	1,264.93	1,213.86	51.08	24.766	
7,400.00	7,061.89	7,166.70	7,061.89	38.00	24.37	-90.02	-1,020.69	184.18	1,264.93	1,213.63	51.30	24.659	
7,500.00	7,161.89	7,266.70	7,161.89	38.08	24.48	-90.02	-1,020.69	184.18	1,264.93	1,213.41	51.52	24.551	
7,600.00	7,261.89	7,366.70	7,261.89	38.17	24.60	-90.02	-1,020.69	184.18	1,264.93	1,213.18	51.75	24.442	
7,700.00	7,361.89	7,466.70	7,361.89	38.25	24.72	-90.02	-1,020.69	184.18	1,264.93	1,212.95	51.98	24.334	
7,800.00	7,461.89	7,566.70	7,461.89	38.34	24.84	-90.02	-1,020.69	184.18	1,264.93	1,212.72	52.22	24.225	
7,900.00	7,561.89	7,666.70	7,561.89	38.43	24.96	-90.02	-1,020.69	184.18	1,264.93	1,212.48	52.45	24.115	
8,000.00	7,661.89	7,766.70	7,661.89	38.52	25.08	-90.02	-1,020.69	184.18	1,264.93	1,212.24	52.69	24.005	
8,100.00	7,761.89	7,866.70	7,761.89	38.61	25.20	-90.02	-1,020.69	184.18	1,264.93	1,212.00	52.94	23.896	
8,200.00	7,861.89	7,966.70	7,861.89	38.70	25.33	-90.02	-1,020.69	184.18	1,264.93	1,211.75	53.18	23.785	
8,300.00	7,961.89	8,066.70	7,961.89	38.79	25.46	-90.02	-1,020.69	184.18	1,264.93	1,211.50	53.43	23.675	
8,400.00	8,061.89	8,166.70	8,061.89	38.89	25.58	-90.02	-1,020.69	184.18	1,264.93	1,211.25	53.68	23.565	
8,500.00	8,161.89	8,266.70	8,161.89	38.98	25.71	-90.02	-1,020.69	184.18	1,264.93	1,211.00	53.93	23.454	
8,580.11	8,242.00	8,346.81	8,242.00	39.06	25.82	-90.02	-1,020.69	184.18	1,264.93	1,210.80	54.14	23.365	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NRC 20-9 PAD - P_NRC 39-9 - P_NRC 39-9 - PLAN #1 1-6-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance								Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	-2.53	31.71	-1.40	31.74				
100.00	100.00	100.00	100.00	0.10	1.70	-2.53	31.71	-1.40	31.74	29.94	1.80	17.677	
200.00	200.00	200.00	200.00	0.32	5.70	-2.53	31.71	-1.40	31.74	25.72	6.02	5.272	
300.00	300.00	300.00	300.00	0.55	9.70	-2.53	31.71	-1.40	31.74	21.49	10.25	3.098	
400.00	400.00	400.00	400.00	0.77	13.70	-2.53	31.71	-1.40	31.74	17.27	14.47	2.194	
500.00	500.00	500.00	500.00	0.99	17.70	-2.53	31.71	-1.40	31.74	13.05	18.69	1.698	
600.00	600.00	600.00	600.00	1.22	21.70	-2.53	31.71	-1.40	31.74	8.82	22.92	1.385 Level 3	
700.00	700.00	700.00	700.00	1.44	25.70	-2.53	31.71	-1.40	31.74	4.60	27.14	1.169 Level 2	
800.00	800.00	800.00	800.00	1.67	29.70	-2.53	31.71	-1.40	31.74	0.37	31.37	1.012 Level 2	
900.00	900.00	900.00	900.00	1.89	33.70	-2.53	31.71	-1.40	31.74	-3.85	35.59	0.892 Level 1	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	37.70	-2.53	31.71	-1.40	31.74	-8.08	39.82	0.797 Level 1	
1,085.00	1,085.00	1,085.00	1,085.00	2.31	41.10	-2.53	31.71	-1.40	31.74	-11.67	43.41	0.731 Level 1, CC	
1,100.00	1,100.00	1,099.98	1,099.98	2.34	41.45	-127.66	31.71	-1.36	31.77	-12.02	43.79	0.726 Level 1, ES, SF	
1,200.00	1,199.97	1,199.84	1,199.81	2.52	42.25	-126.85	32.05	0.88	33.39	-11.37	44.76	0.746 Level 1	
1,300.00	1,299.80	1,299.58	1,299.38	2.72	43.42	-125.11	32.90	6.54	37.55	-8.54	46.08	0.815 Level 1	
1,400.00	1,399.37	1,399.11	1,398.48	2.93	44.93	-122.98	34.26	15.61	44.26	-3.47	47.73	0.927 Level 1	
1,500.00	1,498.55	1,498.33	1,496.90	3.16	46.77	-120.91	36.13	28.04	53.54	3.86	49.68	1.078 Level 2	
1,600.00	1,597.23	1,597.14	1,594.41	3.43	48.92	-119.09	38.48	43.75	65.40	13.46	51.94	1.259 Level 3	
1,700.00	1,695.29	1,695.45	1,690.84	3.74	51.38	-117.57	41.32	62.68	79.81	25.32	54.48	1.465 Level 3	
1,800.00	1,792.60	1,793.17	1,785.98	4.10	54.12	-116.30	44.63	84.72	96.73	39.42	57.31	1.688	
1,900.00	1,889.05	1,890.24	1,879.67	4.53	57.15	-115.25	48.39	109.78	116.12	55.72	60.40	1.923	
2,000.00	1,984.52	1,986.56	1,971.75	5.01	60.45	-114.36	52.59	137.74	137.95	74.20	63.75	2.164	
2,100.00	2,078.90	2,082.89	2,062.97	5.57	64.01	-113.72	57.18	168.35	162.03	94.68	67.35	2.406	
2,200.00	2,172.06	2,179.53	2,154.36	6.21	67.79	-113.98	61.85	199.44	187.61	116.47	71.14	2.637	
2,272.71	2,238.97	2,249.50	2,220.52	6.72	70.64	-114.61	65.23	221.94	207.11	133.15	73.97	2.800	
2,300.00	2,263.95	2,275.71	2,245.30	6.92	71.72	-115.03	66.49	230.38	214.59	139.49	75.10	2.857	
2,400.00	2,355.48	2,371.73	2,336.11	7.66	75.76	-116.33	71.13	261.26	242.05	162.65	79.39	3.049	
2,500.00	2,447.01	2,467.76	2,426.91	8.43	79.92	-117.37	75.76	292.15	269.60	185.76	83.84	3.216	
2,600.00	2,538.54	2,563.78	2,517.72	9.21	84.18	-118.21	80.40	323.04	297.22	208.80	88.42	3.361	
2,700.00	2,630.07	2,659.81	2,608.52	10.00	88.52	-118.91	85.03	353.93	324.89	231.79	93.11	3.489	
2,800.00	2,721.60	2,755.84	2,699.33	10.81	92.93	-119.50	89.67	384.81	352.60	254.71	97.89	3.602	
2,900.00	2,813.12	2,851.86	2,790.13	11.61	97.41	-120.01	94.30	415.70	380.34	277.59	102.74	3.702	
3,000.00	2,904.65	2,947.89	2,880.93	12.43	101.93	-120.44	98.94	446.59	408.10	300.43	107.67	3.790	
3,100.00	2,996.18	3,043.92	2,971.74	13.25	106.50	-120.82	103.57	477.48	435.88	323.22	112.66	3.869	
3,200.00	3,087.71	3,139.94	3,062.54	14.07	111.12	-121.16	108.21	508.37	463.67	345.98	117.69	3.940	
3,300.00	3,179.24	3,235.97	3,153.35	14.90	115.77	-121.45	112.85	539.25	491.48	368.71	122.77	4.003	
3,400.00	3,270.77	3,332.00	3,244.15	15.72	120.45	-121.72	117.48	570.14	519.30	391.40	127.90	4.060	
3,500.00	3,362.29	3,428.02	3,334.96	16.55	125.16	-121.96	122.12	601.03	547.13	414.08	133.05	4.112	
3,600.00	3,453.82	3,524.05	3,425.76	17.39	129.89	-122.17	126.75	631.92	574.96	436.73	138.24	4.159	
3,700.00	3,545.35	3,620.07	3,516.57	18.22	134.65	-122.37	131.39	662.81	602.81	459.35	143.45	4.202	
3,800.00	3,636.88	3,716.10	3,607.37	19.06	139.43	-122.55	136.02	693.69	630.66	481.97	148.69	4.241	
3,900.00	3,728.41	3,812.13	3,698.18	19.89	144.22	-122.71	140.66	724.58	658.51	504.56	153.95	4.277	
4,000.00	3,819.93	3,908.15	3,788.98	20.73	149.03	-122.86	145.29	755.47	686.37	527.14	159.23	4.311	
4,100.00	3,911.46	4,004.18	3,879.79	21.57	153.86	-123.00	149.93	786.36	714.23	549.70	164.53	4.341	
4,200.00	4,002.99	4,100.21	3,970.59	22.41	158.70	-123.13	154.56	817.24	742.10	572.25	169.84	4.369	
4,300.00	4,094.52	4,196.23	4,061.40	23.25	163.55	-123.24	159.20	848.13	769.97	594.79	175.17	4.395	
4,400.00	4,186.05	4,292.26	4,152.20	24.09	168.42	-123.35	163.83	879.02	797.84	617.32	180.52	4.420	
4,500.00	4,277.58	4,388.28	4,243.01	24.94	173.29	-123.46	168.47	909.91	825.71	639.84	185.87	4.442	
4,600.00	4,369.10	4,484.31	4,333.81	25.78	178.18	-123.55	173.11	940.80	853.59	662.35	191.24	4.463	
4,700.00	4,460.63	4,580.34	4,424.61	26.62	183.07	-123.64	177.74	971.68	881.47	684.85	196.61	4.483	
4,800.00	4,552.16	4,676.36	4,515.42	27.47	187.97	-123.73	182.38	1,002.57	909.35	707.35	202.00	4.502	
4,900.00	4,643.69	4,772.39	4,606.22	28.31	192.88	-123.81	187.01	1,033.46	937.23	729.84	207.40	4.519	

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 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NRC 20-9 PAD - P_NRC 39-9 - P_NRC 39-9 - PLAN #1 1-6-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.00	4,735.22	4,868.42	4,697.03	29.15	197.80	-123.88	191.65	1,064.35	965.12	752.32	212.80	4.535	
5,100.00	4,826.75	4,964.44	4,787.83	30.00	202.72	-123.95	196.28	1,095.24	993.00	774.79	218.21	4.551	
5,200.00	4,918.27	5,060.47	4,878.64	30.84	207.65	-124.02	200.92	1,126.12	1,020.89	797.26	223.63	4.565	
5,300.00	5,009.80	5,156.49	4,969.49	31.69	212.58	-124.08	205.55	1,157.01	1,048.78	819.73	229.05	4.579	
5,400.00	5,101.33	5,252.52	5,060.25	32.54	217.52	-124.14	210.19	1,187.90	1,076.67	842.19	234.48	4.592	
5,467.41	5,163.03	5,317.25	5,121.46	33.11	220.85	-124.18	213.31	1,208.72	1,095.47	857.33	238.14	4.600	
5,500.00	5,192.93	5,348.58	5,151.08	33.35	222.46	-124.35	214.83	1,218.80	1,104.46	864.15	240.31	4.596	
5,600.00	5,285.58	5,445.04	5,242.29	33.97	227.43	-124.73	219.48	1,249.82	1,130.78	883.89	246.89	4.580	
5,700.00	5,379.48	5,541.92	5,333.91	34.54	232.43	-124.92	224.16	1,280.99	1,155.19	901.73	253.46	4.558	
5,800.00	5,474.53	5,641.82	5,428.53	35.06	237.53	-124.97	228.91	1,312.68	1,177.63	917.56	260.07	4.528	
5,900.00	5,570.60	5,745.12	5,527.36	35.53	242.65	-124.98	233.37	1,342.39	1,197.75	931.16	266.60	4.493	
6,000.00	5,667.58	5,849.27	5,628.03	35.94	247.58	-125.00	237.33	1,368.76	1,215.47	942.62	272.85	4.455	
6,100.00	5,765.35	5,954.18	5,730.36	36.31	252.33	-125.01	240.76	1,391.64	1,230.75	951.95	278.81	4.414	
6,200.00	5,863.80	6,059.75	5,834.10	36.62	256.89	-125.03	243.66	1,410.91	1,243.55	959.11	284.45	4.372	
6,300.00	5,962.80	6,165.86	5,939.04	36.88	261.24	-125.04	245.99	1,426.46	1,253.85	964.10	289.75	4.327	
6,400.00	6,062.22	6,272.40	6,044.91	37.09	265.37	-125.06	247.75	1,438.19	1,261.62	966.90	294.71	4.281	
6,500.00	6,161.96	6,379.25	6,151.46	37.25	269.30	-125.07	248.93	1,446.04	1,266.84	967.52	299.32	4.232	
6,600.00	6,261.89	6,486.28	6,258.41	37.37	273.01	-125.08	249.52	1,449.96	1,269.50	965.94	303.56	4.182	
6,655.11	6,317.00	6,544.88	6,317.00	37.41	274.40	0.06	249.59	1,450.44	1,269.87	964.69	305.18	4.161	
6,700.00	6,361.89	6,589.76	6,361.89	37.45	274.90	0.06	249.59	1,450.44	1,269.87	964.17	305.70	4.154	
6,800.00	6,461.89	6,689.76	6,461.89	37.52	276.04	0.06	249.59	1,450.44	1,269.87	962.95	306.92	4.137	
6,900.00	6,561.89	6,789.76	6,561.89	37.60	277.23	0.06	249.59	1,450.44	1,269.87	961.68	308.19	4.120	
7,000.00	6,661.89	6,889.76	6,661.89	37.68	278.48	0.06	249.59	1,450.44	1,269.87	960.36	309.51	4.103	
7,100.00	6,761.89	6,989.76	6,761.89	37.76	279.78	0.06	249.59	1,450.44	1,269.87	958.99	310.88	4.085	
7,200.00	6,861.89	7,089.76	6,861.89	37.84	281.13	0.06	249.59	1,450.44	1,269.87	957.56	312.31	4.066	
7,300.00	6,961.89	7,189.76	6,961.89	37.92	282.53	0.06	249.59	1,450.44	1,269.87	956.08	313.79	4.047	
7,400.00	7,061.89	7,289.76	7,061.89	38.00	283.97	0.06	249.59	1,450.44	1,269.87	954.55	315.32	4.027	
7,500.00	7,161.89	7,389.76	7,161.89	38.08	285.47	0.06	249.59	1,450.44	1,269.87	952.97	316.90	4.007	
7,600.00	7,261.89	7,489.76	7,261.89	38.17	287.02	0.06	249.59	1,450.44	1,269.87	951.34	318.53	3.987	
7,700.00	7,361.89	7,589.76	7,361.89	38.25	288.61	0.06	249.59	1,450.44	1,269.87	949.66	320.21	3.966	
7,800.00	7,461.89	7,689.76	7,461.89	38.34	290.25	0.06	249.59	1,450.44	1,269.87	947.93	321.94	3.944	
7,900.00	7,561.89	7,789.76	7,561.89	38.43	291.94	0.06	249.59	1,450.44	1,269.87	946.16	323.71	3.923	
8,000.00	7,661.89	7,889.76	7,661.89	38.52	293.67	0.06	249.59	1,450.44	1,269.87	944.34	325.53	3.901	
8,100.00	7,761.89	7,989.76	7,761.89	38.61	295.44	0.06	249.59	1,450.44	1,269.87	942.47	327.40	3.879	
8,200.00	7,861.89	8,089.76	7,861.89	38.70	297.26	0.06	249.59	1,450.44	1,269.87	940.56	329.31	3.856	
8,300.00	7,961.89	8,189.76	7,961.89	38.79	299.12	0.06	249.59	1,450.44	1,269.87	938.60	331.27	3.833	
8,400.00	8,061.89	8,289.76	8,061.89	38.89	301.03	0.06	249.59	1,450.44	1,269.87	936.60	333.27	3.810	
8,500.00	8,161.89	8,389.76	8,161.89	38.98	302.97	0.06	249.59	1,450.44	1,269.87	934.56	335.31	3.787	
8,551.25	8,213.13	8,441.01	8,213.13	39.03	303.98	0.06	249.59	1,450.44	1,269.87	933.50	336.37	3.775	
8,580.11	8,242.00	8,463.88	8,236.00	39.06	304.44	0.06	249.59	1,450.44	1,269.88	933.03	336.85	3.770	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NRC 20-9 PAD - P_NRC 9-9 - P_NRC 9-9 - PLAN #1 1-6-10 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	-2.35	47.72	-1.96	47.76				
100.00	100.00	100.00	100.00	0.10	0.10	-2.35	47.72	-1.96	47.76	47.57	0.19	249.988	
200.00	200.00	200.00	200.00	0.32	0.32	-2.35	47.72	-1.96	47.76	47.12	0.64	74.558	
300.00	300.00	300.00	300.00	0.55	0.55	-2.35	47.72	-1.96	47.76	46.67	1.09	43.812	
400.00	400.00	400.00	400.00	0.77	0.77	-2.35	47.72	-1.96	47.76	46.22	1.54	31.020	
500.00	500.00	500.00	500.00	0.99	0.99	-2.35	47.72	-1.96	47.76	45.77	1.99	24.010	
600.00	600.00	600.00	600.00	1.22	1.22	-2.35	47.72	-1.96	47.76	45.32	2.44	19.584	
700.00	700.00	700.00	700.00	1.44	1.44	-2.35	47.72	-1.96	47.76	44.87	2.89	16.536	
800.00	800.00	800.00	800.00	1.67	1.67	-2.35	47.72	-1.96	47.76	44.42	3.34	14.309	
900.00	900.00	900.00	900.00	1.89	1.89	-2.35	47.72	-1.96	47.76	43.97	3.79	12.611	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-2.35	47.72	-1.96	47.76	43.52	4.24	11.273	
1,085.00	1,085.00	1,085.00	1,085.00	2.31	2.31	-2.35	47.72	-1.96	47.76	43.14	4.62	10.340 CC	
1,100.00	1,100.00	1,099.83	1,099.83	2.34	2.34	-127.50	47.75	-1.93	47.81	43.13	4.68	10.212 ES	
1,200.00	1,199.97	1,198.62	1,198.59	2.52	2.56	-127.64	49.33	-0.38	50.73	45.65	5.08	9.988 SF	
1,300.00	1,299.80	1,297.08	1,296.88	2.72	2.78	-127.93	53.33	3.53	58.13	52.64	5.49	10.595	
1,400.00	1,399.37	1,394.90	1,394.29	2.93	3.00	-128.23	59.69	9.75	69.97	64.07	5.91	11.847	
1,500.00	1,498.55	1,491.80	1,490.43	3.16	3.24	-128.47	68.33	18.20	86.22	79.88	6.35	13.584	
1,600.00	1,597.23	1,587.52	1,584.95	3.43	3.50	-128.61	79.15	28.78	106.81	100.00	6.82	15.665	
1,700.00	1,695.29	1,681.81	1,677.50	3.74	3.78	-128.64	92.00	41.35	131.66	124.33	7.33	17.965	
1,800.00	1,792.60	1,774.43	1,767.79	4.10	4.10	-128.58	106.74	55.77	160.66	152.77	7.89	20.371	
1,900.00	1,889.05	1,866.51	1,856.90	4.53	4.46	-128.49	123.33	72.00	193.60	185.10	8.50	22.775	
2,000.00	1,984.52	1,959.96	1,947.17	5.01	4.85	-128.82	140.61	88.90	229.03	219.86	9.17	24.964	
2,100.00	2,078.90	2,052.49	2,036.55	5.57	5.25	-129.48	157.73	105.64	266.58	256.69	9.89	26.948	
2,200.00	2,172.06	2,143.99	2,124.94	6.21	5.67	-130.33	174.65	122.19	306.32	295.67	10.65	28.757	
2,272.71	2,238.97	2,209.80	2,188.51	6.72	5.97	-131.00	186.82	134.09	336.62	325.39	11.23	29.982	
2,300.00	2,263.95	2,234.39	2,212.26	6.92	6.09	-131.44	191.36	138.54	348.23	336.77	11.46	30.385	
2,400.00	2,355.48	2,324.47	2,299.27	7.66	6.52	-132.81	208.02	154.83	390.90	378.57	12.33	31.709	
2,500.00	2,447.01	2,414.56	2,386.29	8.43	6.95	-133.92	224.68	171.13	433.72	420.50	13.21	32.827	
2,600.00	2,538.54	2,504.64	2,473.31	9.21	7.39	-134.83	241.34	187.42	476.64	462.53	14.11	33.778	
2,700.00	2,630.07	2,594.72	2,560.32	10.00	7.84	-135.59	258.00	203.72	519.65	504.63	15.02	34.594	
2,800.00	2,721.60	2,684.80	2,647.34	10.81	8.29	-136.23	274.66	220.01	562.72	546.78	15.94	35.300	
2,900.00	2,813.12	2,774.88	2,734.35	11.61	8.74	-136.79	291.32	236.30	605.84	588.97	16.87	35.915	
3,000.00	2,904.65	2,864.97	2,821.37	12.43	9.20	-137.27	307.98	252.60	649.00	631.20	17.80	36.456	
3,100.00	2,996.18	2,955.05	2,908.39	13.25	9.66	-137.69	324.63	268.89	692.19	673.45	18.74	36.934	
3,200.00	3,087.71	3,045.13	2,995.40	14.07	10.12	-138.06	341.29	285.19	735.41	715.72	19.68	37.360	
3,300.00	3,179.24	3,135.21	3,082.42	14.90	10.58	-138.39	357.95	301.48	778.65	758.02	20.63	37.740	
3,400.00	3,270.77	3,225.29	3,169.43	15.72	11.05	-138.68	374.61	317.77	821.91	800.33	21.58	38.081	
3,500.00	3,362.29	3,315.37	3,256.45	16.55	11.51	-138.95	391.27	334.07	865.19	842.65	22.54	38.390	
3,600.00	3,453.82	3,405.46	3,343.46	17.39	11.98	-139.19	407.93	350.36	908.48	884.98	23.49	38.670	
3,700.00	3,545.35	3,495.54	3,430.48	18.22	12.45	-139.40	424.59	366.66	951.78	927.33	24.45	38.924	
3,800.00	3,636.88	3,585.62	3,517.50	19.06	12.92	-139.60	441.25	382.95	995.09	969.68	25.41	39.157	
3,900.00	3,728.41	3,675.70	3,604.51	19.89	13.39	-139.79	457.91	399.24	1,038.41	1,012.04	26.38	39.370	
4,000.00	3,819.93	3,765.78	3,691.53	20.73	13.86	-139.95	474.56	415.54	1,081.74	1,054.40	27.34	39.567	
4,100.00	3,911.46	3,855.87	3,778.54	21.57	14.33	-140.11	491.22	431.83	1,125.08	1,096.77	28.31	39.748	
4,200.00	4,002.99	3,945.95	3,865.56	22.41	14.80	-140.25	507.88	448.13	1,168.42	1,139.15	29.27	39.916	
4,300.00	4,094.52	4,036.03	3,952.57	23.25	15.28	-140.39	524.54	464.42	1,211.77	1,181.53	30.24	40.071	
4,400.00	4,186.05	4,126.11	4,039.59	24.09	15.75	-140.51	541.20	480.71	1,255.12	1,223.91	31.21	40.216	
4,500.00	4,277.58	4,216.19	4,126.61	24.94	16.23	-140.63	557.86	497.01	1,298.48	1,266.30	32.18	40.351	
4,600.00	4,369.10	4,306.28	4,213.62	25.78	16.70	-140.73	574.52	513.30	1,341.84	1,308.69	33.15	40.477	
4,700.00	4,460.63	4,396.36	4,300.64	26.62	17.18	-140.84	591.18	529.60	1,385.20	1,351.08	34.12	40.595	
4,800.00	4,552.16	4,486.44	4,387.65	27.47	17.65	-140.93	607.84	545.89	1,428.57	1,393.47	35.09	40.706	
4,900.00	4,643.69	4,576.52	4,474.67	28.31	18.13	-141.02	624.49	562.18	1,471.94	1,435.87	36.07	40.810	

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 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NRC 20-9 PAD - P_NRC 9-9 - P_NRC 9-9 - PLAN #1 1-6-10 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
5,000.00	4,735.22	4,666.60	4,561.68	29.15	18.60	-141.11	641.15	578.48	1,515.31	1,478.27	37.04	40.908	
5,100.00	4,826.75	4,756.69	4,648.70	30.00	19.08	-141.19	657.81	594.77	1,558.69	1,520.67	38.02	41.001	
5,200.00	4,918.27	4,846.77	4,735.72	30.84	19.56	-141.26	674.47	611.07	1,602.07	1,563.08	38.99	41.088	
5,300.00	5,009.80	4,936.85	4,822.73	31.69	20.03	-141.33	691.13	627.36	1,645.45	1,605.48	39.97	41.171	
5,400.00	5,101.33	5,026.93	4,909.75	32.54	20.51	-141.40	707.79	643.65	1,688.83	1,647.89	40.94	41.249	
5,467.41	5,163.03	5,087.65	4,968.40	33.11	20.83	-141.45	719.02	654.64	1,718.08	1,676.48	41.60	41.300	
5,500.00	5,192.93	5,117.08	4,996.83	33.35	20.99	-141.65	724.46	659.96	1,732.09	1,690.15	41.94	41.301	
5,600.00	5,285.58	5,208.13	5,084.78	33.97	21.47	-142.21	741.30	676.43	1,773.42	1,730.50	42.92	41.321	
5,700.00	5,379.48	5,300.26	5,173.77	34.54	21.96	-142.65	758.34	693.09	1,812.23	1,768.34	43.88	41.297	
5,800.00	5,474.53	5,393.36	5,263.70	35.06	22.46	-142.98	775.55	709.93	1,848.47	1,803.64	44.83	41.236	
5,900.00	5,570.60	5,487.31	5,354.46	35.53	22.95	-143.20	792.93	726.93	1,882.12	1,836.37	45.75	41.143	
6,000.00	5,667.58	5,582.00	5,445.92	35.94	23.46	-143.33	810.44	744.06	1,913.15	1,866.51	46.64	41.023	
6,100.00	5,765.35	5,677.31	5,537.99	36.31	23.96	-143.36	828.06	761.30	1,941.55	1,894.06	47.50	40.879	
6,200.00	5,863.80	5,787.69	5,644.71	36.62	24.52	-143.26	848.22	781.01	1,967.21	1,918.84	48.37	40.670	
6,300.00	5,962.80	5,930.08	5,783.63	36.88	25.05	-143.05	870.49	802.80	1,988.53	1,939.35	49.19	40.429	
6,400.00	6,062.22	6,075.50	5,926.92	37.09	25.49	-142.88	888.12	820.04	2,004.88	1,955.02	49.86	40.207	
6,500.00	6,161.96	6,223.22	6,073.58	37.25	25.86	-142.75	900.69	832.33	2,016.15	1,965.75	50.40	40.002	
6,600.00	6,261.89	6,372.45	6,222.46	37.37	26.13	-142.67	907.88	839.36	2,022.24	1,971.45	50.79	39.818	
6,655.11	6,317.00	6,455.04	6,305.01	37.41	26.23	-17.49	909.47	840.92	2,023.36	1,972.42	50.94	39.724	
6,700.00	6,361.89	6,511.91	6,361.89	37.45	26.30	-17.49	909.63	841.08	2,023.43	1,972.38	51.05	39.637	
6,800.00	6,461.89	6,611.91	6,461.89	37.52	26.41	-17.49	909.63	841.08	2,023.43	1,972.15	51.28	39.460	
6,900.00	6,561.89	6,711.91	6,561.89	37.60	26.53	-17.49	909.63	841.08	2,023.43	1,971.92	51.51	39.282	
7,000.00	6,661.89	6,811.91	6,661.89	37.68	26.65	-17.49	909.63	841.08	2,023.43	1,971.68	51.75	39.103	
7,100.00	6,761.89	6,911.91	6,761.89	37.76	26.77	-17.49	909.63	841.08	2,023.43	1,971.45	51.98	38.924	
7,200.00	6,861.89	7,011.91	6,861.89	37.84	26.89	-17.49	909.63	841.08	2,023.43	1,971.21	52.22	38.745	
7,300.00	6,961.89	7,111.91	6,961.89	37.92	27.01	-17.49	909.63	841.08	2,023.43	1,970.96	52.47	38.565	
7,400.00	7,061.89	7,211.91	7,061.89	38.00	27.13	-17.49	909.63	841.08	2,023.43	1,970.72	52.71	38.385	
7,500.00	7,161.89	7,311.91	7,161.89	38.08	27.25	-17.49	909.63	841.08	2,023.43	1,970.47	52.96	38.205	
7,600.00	7,261.89	7,411.91	7,261.89	38.17	27.38	-17.49	909.63	841.08	2,023.43	1,970.22	53.21	38.025	
7,700.00	7,361.89	7,511.91	7,361.89	38.25	27.50	-17.49	909.63	841.08	2,023.43	1,969.96	53.47	37.844	
7,800.00	7,461.89	7,611.91	7,461.89	38.34	27.63	-17.49	909.63	841.08	2,023.43	1,969.71	53.72	37.663	
7,900.00	7,561.89	7,711.91	7,561.89	38.43	27.76	-17.49	909.63	841.08	2,023.43	1,969.45	53.98	37.482	
8,000.00	7,661.89	7,811.91	7,661.89	38.52	27.89	-17.49	909.63	841.08	2,023.43	1,969.19	54.24	37.302	
8,100.00	7,761.89	7,911.91	7,761.89	38.61	28.02	-17.49	909.63	841.08	2,023.43	1,968.92	54.51	37.121	
8,200.00	7,861.89	8,011.91	7,861.89	38.70	28.15	-17.49	909.63	841.08	2,023.43	1,968.65	54.78	36.941	
8,300.00	7,961.89	8,111.91	7,961.89	38.79	28.29	-17.49	909.63	841.08	2,023.43	1,968.39	55.04	36.760	
8,400.00	8,061.89	8,211.91	8,061.89	38.89	28.42	-17.49	909.63	841.08	2,023.43	1,968.12	55.31	36.580	
8,500.00	8,161.89	8,311.91	8,161.89	38.98	28.56	-17.49	909.63	841.08	2,023.43	1,967.84	55.59	36.400	
8,580.11	8,242.00	8,392.03	8,242.00	39.06	28.67	-17.49	909.63	841.08	2,023.43	1,967.62	55.81	36.256	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NRC 20-9 PAD - ROCKY MOUNTAIN FUEL CO F #3 EXISTING - ROCKY MOUNTAIN FUEL C												Offset Site Error:	0.00 ft
Survey Program: 0-MWMD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-110.85	-17.48	-45.90	52.67				
100.00	100.00	81.00	81.00	0.10	0.09	-110.85	-17.48	-45.90	49.12	48.93	0.19	263.245	
200.00	200.00	181.00	181.00	0.32	0.29	-110.85	-17.48	-45.90	49.12	48.51	0.61	79.904	
300.00	300.00	281.00	281.00	0.55	0.52	-110.85	-17.48	-45.90	49.12	48.06	1.06	46.154	
400.00	400.00	381.00	381.00	0.77	0.74	-110.85	-17.48	-45.90	49.12	47.61	1.51	32.448	
500.00	500.00	481.00	481.00	0.99	0.97	-110.85	-17.48	-45.90	49.12	47.16	1.96	25.019	
600.00	600.00	581.00	581.00	1.22	1.19	-110.85	-17.48	-45.90	49.12	46.71	2.41	20.358	
700.00	700.00	681.00	681.00	1.44	1.42	-110.85	-17.48	-45.90	49.12	46.26	2.86	17.160	
800.00	800.00	781.00	781.00	1.67	1.64	-110.85	-17.48	-45.90	49.12	45.81	3.31	14.831	
900.00	900.00	881.00	881.00	1.89	1.87	-110.85	-17.48	-45.90	49.12	45.36	3.76	13.059	
1,000.00	1,000.00	981.00	981.00	2.12	2.09	-110.85	-17.48	-45.90	49.12	44.91	4.21	11.665	
1,085.00	1,085.00	1,066.00	1,066.00	2.31	2.28	-110.85	-17.48	-45.90	49.12	44.53	4.59	10.694 CC	
1,100.00	1,100.00	1,081.00	1,081.00	2.34	2.32	124.04	-17.48	-45.90	49.14	44.48	4.66	10.552 ES	
1,200.00	1,199.97	1,180.97	1,180.97	2.52	2.54	126.16	-17.48	-45.90	50.45	45.38	5.06	9.964	
1,300.00	1,299.80	1,280.80	1,280.80	2.72	2.77	131.03	-17.48	-45.90	54.04	48.57	5.47	9.873 SF	
1,400.00	1,399.37	1,380.37	1,380.37	2.93	2.99	137.54	-17.48	-45.90	60.52	54.63	5.89	10.280	
1,500.00	1,498.55	1,479.55	1,479.55	3.16	3.21	144.40	-17.48	-45.90	70.44	64.14	6.30	11.182	
1,600.00	1,597.23	1,578.23	1,578.23	3.43	3.43	150.66	-17.48	-45.90	84.15	77.44	6.71	12.548	
1,700.00	1,695.29	1,676.29	1,676.29	3.74	3.66	155.91	-17.48	-45.90	101.73	94.63	7.11	14.315	
1,800.00	1,792.60	1,773.60	1,773.60	4.10	3.87	160.12	-17.48	-45.90	123.16	115.66	7.50	16.417	
1,900.00	1,889.05	1,870.05	1,870.05	4.53	4.09	163.43	-17.48	-45.90	148.32	140.43	7.89	18.794	
2,000.00	1,984.52	1,965.52	1,965.52	5.01	4.31	166.03	-17.48	-45.90	177.10	168.82	8.28	21.397	
2,100.00	2,078.90	2,059.90	2,059.90	5.57	4.52	168.06	-17.48	-45.90	209.40	200.74	8.66	24.184	
2,200.00	2,172.06	2,153.06	2,153.06	6.21	4.73	169.68	-17.48	-45.90	245.13	236.10	9.04	27.126	
2,272.71	2,238.97	2,219.97	2,219.97	6.72	4.88	170.65	-17.48	-45.90	273.22	263.91	9.31	29.345	
2,300.00	2,263.95	2,244.95	2,244.95	6.92	4.93	171.01	-17.48	-45.90	284.10	274.65	9.44	30.089	
2,400.00	2,355.48	2,336.48	2,336.48	7.66	5.14	172.12	-17.48	-45.90	324.01	314.08	9.93	32.634	
2,500.00	2,447.01	2,428.01	2,428.01	8.43	5.34	172.99	-17.48	-45.90	364.01	353.59	10.42	34.921	
2,600.00	2,538.54	2,519.54	2,519.54	9.21	5.55	173.68	-17.48	-45.90	404.06	393.14	10.93	36.982	
2,700.00	2,630.07	2,611.07	2,611.07	10.00	5.76	174.26	-17.48	-45.90	444.16	432.72	11.43	38.847	
2,800.00	2,721.60	2,702.60	2,702.60	10.81	5.96	174.73	-17.48	-45.90	484.28	472.34	11.95	40.540	
2,900.00	2,813.12	2,794.12	2,794.12	11.61	6.17	175.14	-17.48	-45.90	524.43	511.97	12.46	42.081	
3,000.00	2,904.65	2,885.65	2,885.65	12.43	6.37	175.48	-17.48	-45.90	564.60	551.62	12.98	43.489	
3,100.00	2,996.18	2,977.18	2,977.18	13.25	6.58	175.78	-17.48	-45.90	604.78	591.28	13.51	44.780	
3,200.00	3,087.71	3,068.71	3,068.71	14.07	6.79	176.05	-17.48	-45.90	644.98	630.95	14.03	45.966	
3,300.00	3,179.24	3,160.24	3,160.24	14.90	6.99	176.28	-17.48	-45.90	685.19	670.63	14.56	47.060	
3,400.00	3,270.77	3,251.77	3,251.77	15.72	7.20	176.48	-17.48	-45.90	725.40	710.31	15.09	48.071	
3,500.00	3,362.29	3,343.29	3,343.29	16.55	7.40	176.67	-17.48	-45.90	765.62	750.00	15.62	49.009	
3,600.00	3,453.82	3,434.82	3,434.82	17.39	7.61	176.84	-17.48	-45.90	805.85	789.69	16.16	49.880	
3,700.00	3,545.35	3,526.35	3,526.35	18.22	7.81	176.99	-17.48	-45.90	846.08	829.39	16.69	50.692	
3,800.00	3,636.88	3,617.88	3,617.88	19.06	8.02	177.12	-17.48	-45.90	886.32	869.09	17.23	51.449	
3,900.00	3,728.41	3,709.41	3,709.41	19.89	8.23	177.25	-17.48	-45.90	926.56	908.79	17.76	52.158	
4,000.00	3,819.93	3,800.93	3,800.93	20.73	8.43	177.36	-17.48	-45.90	966.80	948.50	18.30	52.822	
4,100.00	3,911.46	3,892.46	3,892.46	21.57	8.64	177.47	-17.48	-45.90	1,007.05	988.21	18.84	53.445	
4,200.00	4,002.99	3,983.99	3,983.99	22.41	8.84	177.57	-17.48	-45.90	1,047.30	1,027.92	19.38	54.032	
4,300.00	4,094.52	4,075.52	4,075.52	23.25	9.05	177.66	-17.48	-45.90	1,087.55	1,067.63	19.92	54.585	
4,400.00	4,186.05	4,167.05	4,167.05	24.09	9.25	177.74	-17.48	-45.90	1,127.80	1,107.34	20.47	55.107	
4,500.00	4,277.58	4,258.58	4,258.58	24.94	9.46	177.82	-17.48	-45.90	1,168.06	1,147.05	21.01	55.600	
4,600.00	4,369.10	4,350.10	4,350.10	25.78	9.67	177.89	-17.48	-45.90	1,208.32	1,186.77	21.55	56.067	
4,700.00	4,460.63	4,441.63	4,441.63	26.62	9.87	177.96	-17.48	-45.90	1,248.58	1,226.48	22.09	56.510	
4,800.00	4,552.16	4,533.16	4,533.16	27.47	10.08	178.02	-17.48	-45.90	1,288.84	1,266.20	22.64	56.930	
4,900.00	4,643.69	4,624.69	4,624.69	28.31	10.28	178.08	-17.48	-45.90	1,329.10	1,305.92	23.18	57.330	

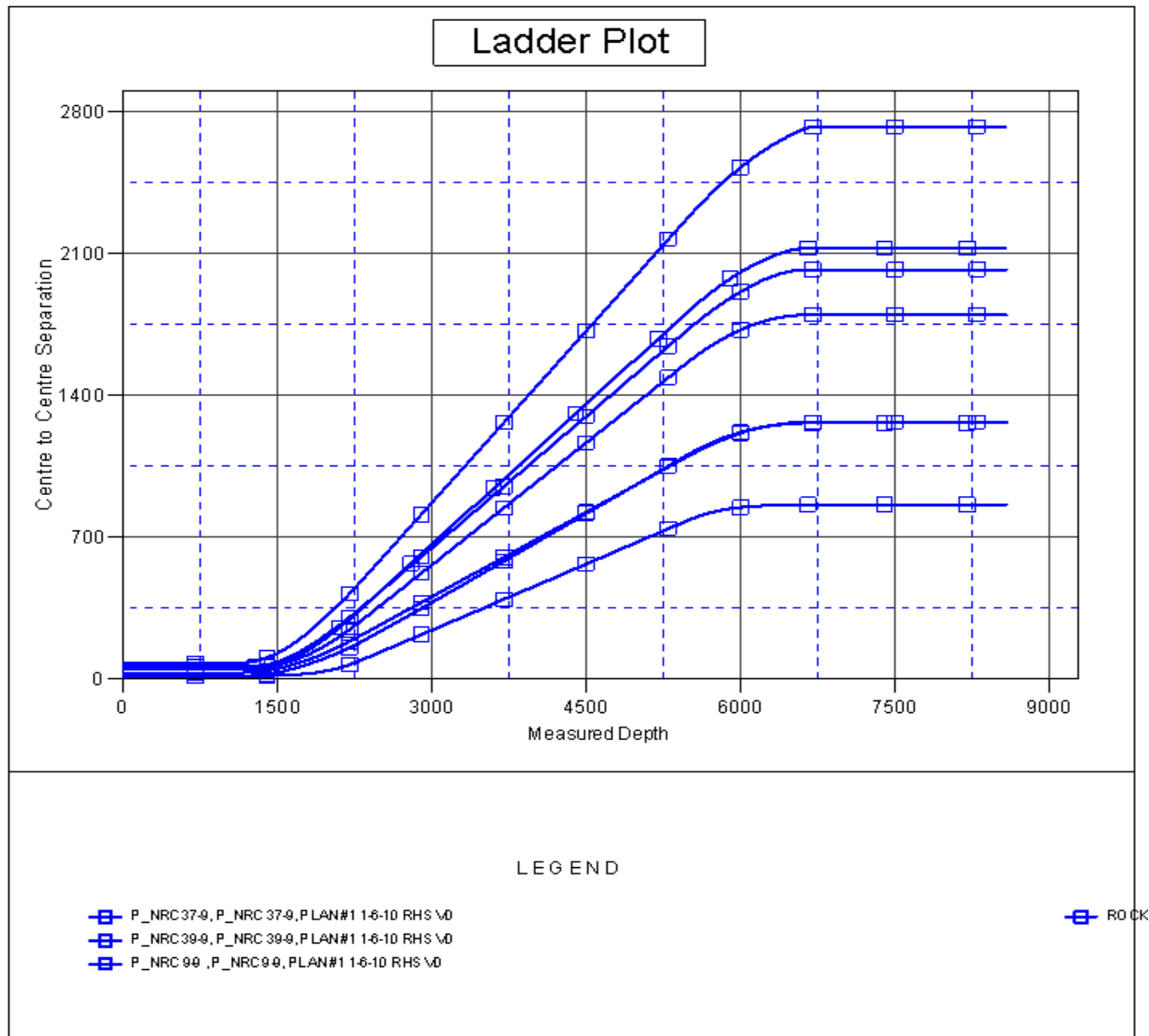
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NRC 20-9 PAD - ROCKY MOUNTAIN FUEL CO F #3 EXISTING - ROCKY MOUNTAIN FUEL C												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	4,735.22	4,716.22	4,716.22	29.15	10.49	178.14	-17.48	-45.90	1,369.36	1,345.63	23.73	57.710	
5,100.00	4,826.75	4,807.75	4,807.75	30.00	10.69	178.19	-17.48	-45.90	1,409.63	1,385.35	24.27	58.072	
5,200.00	4,918.27	4,899.27	4,899.27	30.84	10.90	178.24	-17.48	-45.90	1,449.89	1,425.07	24.82	58.417	
5,300.00	5,009.80	4,990.80	4,990.80	31.69	11.11	178.29	-17.48	-45.90	1,490.16	1,464.79	25.37	58.747	
5,400.00	5,101.33	5,082.33	5,082.33	32.54	11.31	178.33	-17.48	-45.90	1,530.42	1,504.51	25.91	59.063	
5,467.41	5,163.03	5,144.03	5,144.03	33.11	11.45	178.36	-17.48	-45.90	1,557.57	1,531.29	26.28	59.267	
5,500.00	5,192.93	5,173.93	5,173.93	33.35	11.52	178.38	-17.48	-45.90	1,570.52	1,544.01	26.51	59.235	
5,600.00	5,285.58	5,266.58	5,266.58	33.97	11.73	178.44	-17.48	-45.90	1,608.13	1,580.94	27.19	59.147	
5,700.00	5,379.48	5,360.48	5,360.48	34.54	11.94	178.50	-17.48	-45.90	1,642.49	1,614.66	27.83	59.027	
5,800.00	5,474.53	5,455.53	5,455.53	35.06	12.15	178.54	-17.48	-45.90	1,673.55	1,645.13	28.42	58.880	
5,900.00	5,570.60	5,551.60	5,551.60	35.53	12.37	178.58	-17.48	-45.90	1,701.28	1,672.30	28.98	58.710	
6,000.00	5,667.58	5,648.58	5,648.58	35.94	12.58	178.61	-17.48	-45.90	1,725.63	1,696.14	29.49	58.520	
6,100.00	5,765.35	5,746.35	5,746.35	36.31	12.80	178.64	-17.48	-45.90	1,746.59	1,716.64	29.95	58.310	
6,200.00	5,863.80	5,844.80	5,844.80	36.62	13.02	178.66	-17.48	-45.90	1,764.13	1,733.76	30.37	58.085	
6,300.00	5,962.80	5,943.80	5,943.80	36.88	13.25	178.68	-17.48	-45.90	1,778.22	1,747.47	30.74	57.844	
6,400.00	6,062.22	6,043.22	6,043.22	37.09	13.47	178.69	-17.48	-45.90	1,788.84	1,757.78	31.06	57.589	
6,500.00	6,161.96	6,142.96	6,142.96	37.25	13.69	178.70	-17.48	-45.90	1,795.99	1,764.66	31.33	57.321	
6,600.00	6,261.89	6,242.89	6,242.89	37.37	13.92	178.70	-17.48	-45.90	1,799.66	1,768.11	31.55	57.040	
6,655.11	6,317.00	6,298.00	6,298.00	37.41	14.04	-56.15	-17.48	-45.90	1,800.19	1,768.54	31.65	56.874	
6,700.00	6,361.89	6,342.89	6,342.89	37.45	14.14	-56.15	-17.48	-45.90	1,800.19	1,768.37	31.82	56.575	
6,800.00	6,461.89	6,442.89	6,442.89	37.52	14.37	-56.15	-17.48	-45.90	1,800.19	1,768.00	32.19	55.921	
6,900.00	6,561.89	6,542.89	6,542.89	37.60	14.59	-56.15	-17.48	-45.90	1,800.19	1,767.63	32.57	55.280	
7,000.00	6,661.89	6,642.89	6,642.89	37.68	14.82	-56.15	-17.48	-45.90	1,800.19	1,767.25	32.94	54.650	
7,100.00	6,761.89	6,742.89	6,742.89	37.76	15.04	-56.15	-17.48	-45.90	1,800.19	1,766.88	33.32	54.032	
7,200.00	6,861.89	6,842.89	6,842.89	37.84	15.27	-56.15	-17.48	-45.90	1,800.19	1,766.50	33.70	53.426	
7,300.00	6,961.89	6,942.89	6,942.89	37.92	15.49	-56.15	-17.48	-45.90	1,800.19	1,766.12	34.07	52.831	
7,400.00	7,061.89	7,042.89	7,042.89	38.00	15.72	-56.15	-17.48	-45.90	1,800.19	1,765.74	34.46	52.247	
7,500.00	7,161.89	7,142.89	7,142.89	38.08	15.94	-56.15	-17.48	-45.90	1,800.19	1,765.35	34.84	51.673	
7,600.00	7,261.89	7,242.89	7,242.89	38.17	16.17	-56.15	-17.48	-45.90	1,800.19	1,764.97	35.22	51.110	
7,700.00	7,361.89	7,342.89	7,342.89	38.25	16.39	-56.15	-17.48	-45.90	1,800.19	1,764.59	35.61	50.558	
7,800.00	7,461.89	7,442.89	7,442.89	38.34	16.62	-56.15	-17.48	-45.90	1,800.19	1,764.20	35.99	50.015	
7,900.00	7,561.89	7,542.89	7,542.89	38.43	16.84	-56.15	-17.48	-45.90	1,800.19	1,763.81	36.38	49.482	
8,000.00	7,661.89	7,642.89	7,642.89	38.52	17.07	-56.15	-17.48	-45.90	1,800.19	1,763.42	36.77	48.959	
8,100.00	7,761.89	7,742.89	7,742.89	38.61	17.29	-56.15	-17.48	-45.90	1,800.19	1,763.03	37.16	48.445	
8,200.00	7,861.89	7,842.89	7,842.89	38.70	17.52	-56.15	-17.48	-45.90	1,800.19	1,762.64	37.55	47.940	
8,300.00	7,961.89	7,942.89	7,942.89	38.79	17.74	-56.15	-17.48	-45.90	1,800.19	1,762.25	37.94	47.445	
8,400.00	8,061.89	8,042.89	8,042.89	38.89	17.97	-56.15	-17.48	-45.90	1,800.19	1,761.86	38.34	46.958	
8,500.00	8,161.89	8,142.89	8,142.89	38.98	18.19	-56.15	-17.48	-45.90	1,800.19	1,761.46	38.73	46.480	
8,580.11	8,242.00	8,223.00	8,223.00	39.06	18.37	-56.15	-17.48	-45.90	1,800.19	1,761.14	39.05	46.102	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

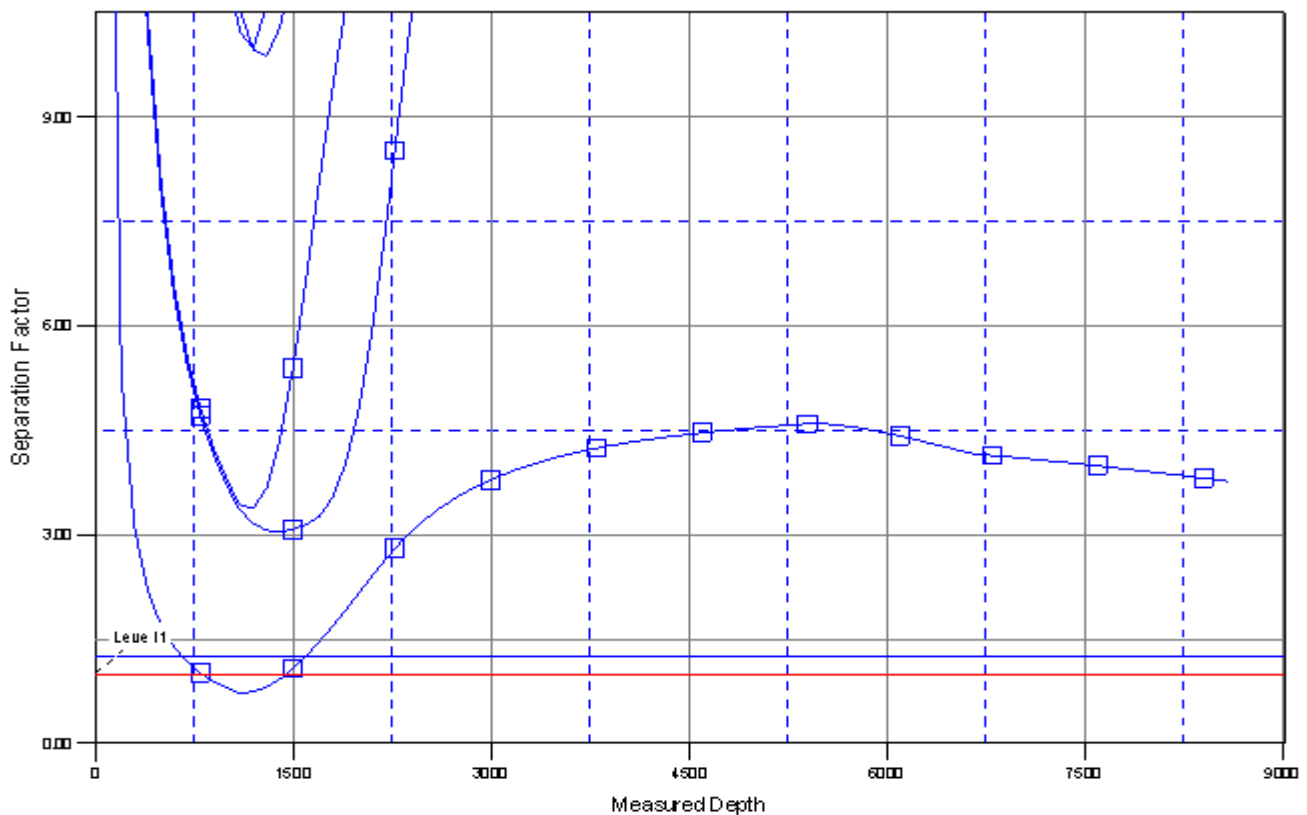
Reference Depths are relative to WELL @ 5039.00ft (Original Well Elev) Coordinates are relative to: P_NRC 38-9
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.39°






Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 38-9
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 5039.00ft (Original Well Elev)
Reference Site:	WELD_NRC 20-9 PAD	MD Reference:	WELL @ 5039.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NRC 38-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 38-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5039.00ft (Original Well Elev) Coordinates are relative to: P_NRC 38-9
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: 0.39°

Separation Factor Plot



LEGEND

-  P_NRC37-9, P_NRC 37-9, PLAN#1 1-6-10 RHS \0
-  P_NRC39-9, P_NRC 39-9, PLAN#1 1-6-10 RHS \0
-  P_NRC99, P_NRC99, PLAN#1 1-6-10 RHS \0

 ROCK