



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_NRC 20-9 PAD

P_NRC 16-9

P_NRC 16-9

Plan: PLAN #1 1-6-10 RHS

Standard Planning Report

04 February, 2010



P_NRC 16-9
COLORADO NORTHERN ZONE - 83
SECTION 9 T1N R67W
1086 FSL 1501 FEL
LAT: 40° 3' 40.503 N
LONG: 104° 53' 30.041 W



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 16-9

+N/-S	+E/-W	Northing	Ground Level: Easting	5024.00 Latitude	Longitude	Slot
0.00	0.00	1265743.07	3170269.19	40° 3' 40.503 N	104° 53' 30.041 W	

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3212.00	3246.90	PARKMAN
4687.00	4751.34	SUSSEX
5157.00	5230.72	SHANNON
7327.00	7416.92	NIO A
7667.00	7756.92	CODELL
8117.00	8206.92	JSAND
8287.00	8376.92	DAKOTA

SECTION DETAILS

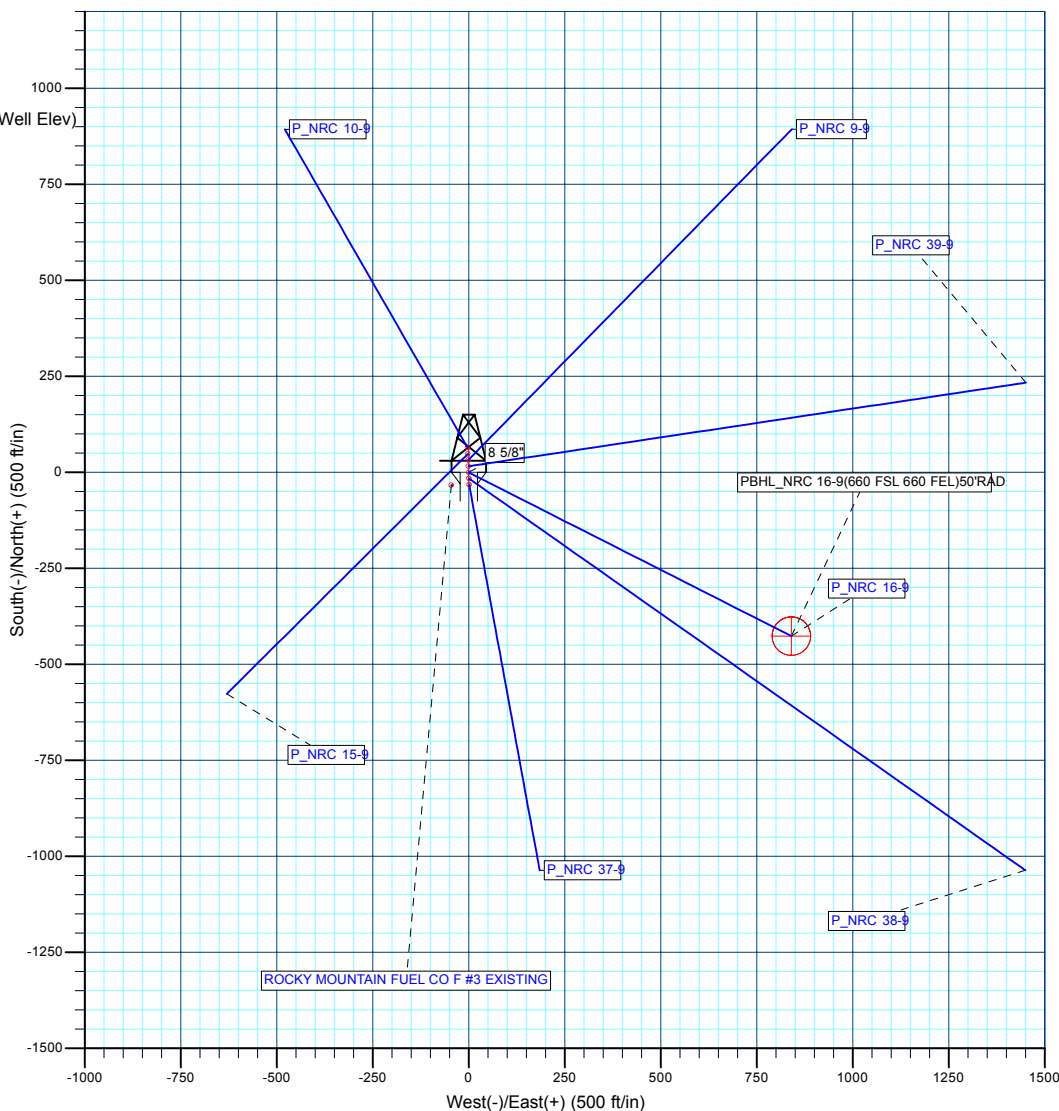
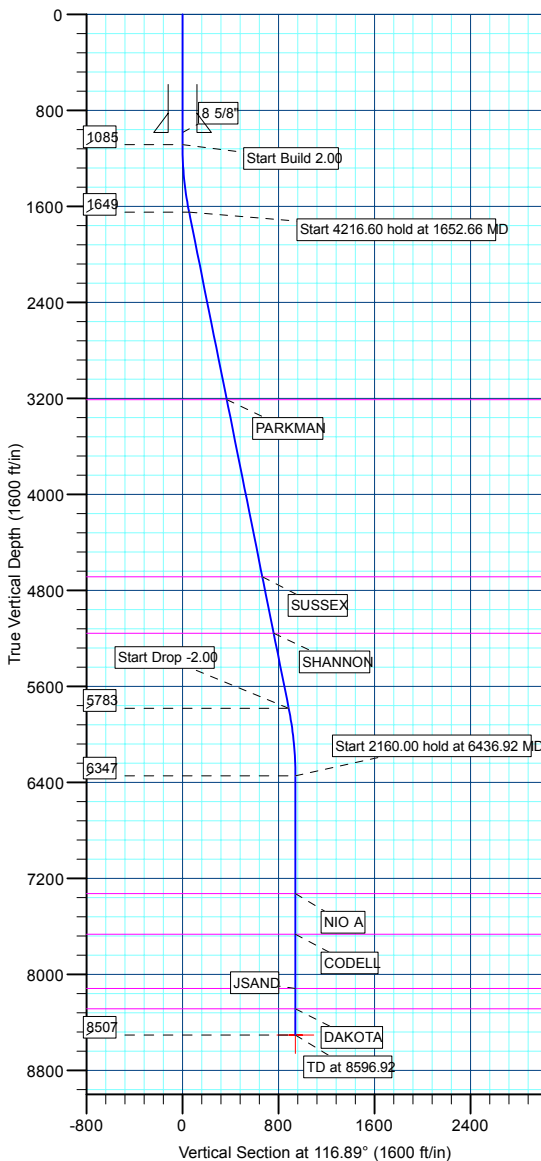
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1085.00	0.00	0.00	1085.00	0.00	0.00	0.00	0.00	0.00	
1652.66	11.35	116.89	1648.95	-25.36	49.99	2.00	116.89	56.06	
5869.26	11.35	116.89	5783.05	-400.82	790.29	0.00	0.00	886.12	
6436.92	0.00	0.00	6347.00	-426.18	840.28	2.00	180.00	942.18	
8596.92	0.00	0.00	8507.00	-426.18	840.28	0.00	0.00	942.18	PBHL_NRC 16-9(660 FSL 660 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	8507.00	-426.18	840.28	1265322.66	3171112.38	40° 3' 36.292 N	104° 53' 19.234 W	Circle (Radius: 50.00)

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_NRC 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NRC 16-9		
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 16-9					
Well Position	+N/-S	-16.04 ft	Northing:	1,265,743.07 ft	Latitude:	40° 3' 40.503 N
	+E/-W	0.84 ft	Easting:	3,170,269.19 ft	Longitude:	104° 53' 30.041 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	5,024.00 ft

Wellbore	P_NRC 16-9				
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	116.89

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	
1,652.66	11.35	116.89	1,648.95	-25.36	49.99	2.00	2.00	0.00	116.89	
5,869.26	11.35	116.89	5,783.05	-400.82	790.29	0.00	0.00	0.00	0.00	
6,436.92	0.00	0.00	6,347.00	-426.18	840.28	2.00	-2.00	0.00	180.00	
8,596.92	0.00	0.00	8,507.00	-426.18	840.28	0.00	0.00	0.00	0.00	PBHL_NRC 16-9(6)

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_NRC 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NRC 16-9		
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	116.89	1,100.00	-0.02	0.04	0.04	2.00	2.00	0.00
1,200.00	2.30	116.89	1,199.97	-1.04	2.06	2.31	2.00	2.00	0.00
1,300.00	4.30	116.89	1,299.80	-3.65	7.19	8.06	2.00	2.00	0.00
1,400.00	6.30	116.89	1,399.37	-7.83	15.43	17.30	2.00	2.00	0.00
1,500.00	8.30	116.89	1,498.55	-13.57	26.76	30.01	2.00	2.00	0.00
1,600.00	10.30	116.89	1,597.23	-20.88	41.17	46.17	2.00	2.00	0.00
Start 4216.60 hold at 1652.66 MD									
1,652.66	11.35	116.89	1,648.95	-25.36	49.99	56.06	2.00	2.00	0.00
1,700.00	11.35	116.89	1,695.37	-29.57	58.31	65.38	0.00	0.00	0.00
1,800.00	11.35	116.89	1,793.41	-38.48	75.86	85.06	0.00	0.00	0.00
1,900.00	11.35	116.89	1,891.45	-47.38	93.42	104.75	0.00	0.00	0.00
2,000.00	11.35	116.89	1,989.50	-56.29	110.98	124.43	0.00	0.00	0.00
2,100.00	11.35	116.89	2,087.54	-65.19	128.53	144.12	0.00	0.00	0.00
2,200.00	11.35	116.89	2,185.58	-74.09	146.09	163.80	0.00	0.00	0.00
2,300.00	11.35	116.89	2,283.63	-83.00	163.65	183.49	0.00	0.00	0.00
2,400.00	11.35	116.89	2,381.67	-91.90	181.20	203.18	0.00	0.00	0.00
2,500.00	11.35	116.89	2,479.71	-100.81	198.76	222.86	0.00	0.00	0.00
2,600.00	11.35	116.89	2,577.76	-109.71	216.32	242.55	0.00	0.00	0.00
2,700.00	11.35	116.89	2,675.80	-118.62	233.87	262.23	0.00	0.00	0.00
2,800.00	11.35	116.89	2,773.84	-127.52	251.43	281.92	0.00	0.00	0.00
2,900.00	11.35	116.89	2,871.88	-136.43	268.99	301.60	0.00	0.00	0.00
3,000.00	11.35	116.89	2,969.93	-145.33	286.54	321.29	0.00	0.00	0.00
3,100.00	11.35	116.89	3,067.97	-154.24	304.10	340.98	0.00	0.00	0.00
3,200.00	11.35	116.89	3,166.01	-163.14	321.66	360.66	0.00	0.00	0.00
PARKMAN									
3,246.90	11.35	116.89	3,212.00	-167.32	329.89	369.89	0.00	0.00	0.00
3,300.00	11.35	116.89	3,264.06	-172.04	339.21	380.35	0.00	0.00	0.00
3,400.00	11.35	116.89	3,362.10	-180.95	356.77	400.03	0.00	0.00	0.00
3,500.00	11.35	116.89	3,460.14	-189.85	374.32	419.72	0.00	0.00	0.00
3,600.00	11.35	116.89	3,558.19	-198.76	391.88	439.40	0.00	0.00	0.00
3,700.00	11.35	116.89	3,656.23	-207.66	409.44	459.09	0.00	0.00	0.00
3,800.00	11.35	116.89	3,754.27	-216.57	426.99	478.78	0.00	0.00	0.00
3,900.00	11.35	116.89	3,852.32	-225.47	444.55	498.46	0.00	0.00	0.00
4,000.00	11.35	116.89	3,950.36	-234.38	462.11	518.15	0.00	0.00	0.00
4,100.00	11.35	116.89	4,048.40	-243.28	479.66	537.83	0.00	0.00	0.00
4,200.00	11.35	116.89	4,146.45	-252.18	497.22	557.52	0.00	0.00	0.00
4,300.00	11.35	116.89	4,244.49	-261.09	514.78	577.20	0.00	0.00	0.00
4,400.00	11.35	116.89	4,342.53	-269.99	532.33	596.89	0.00	0.00	0.00
4,500.00	11.35	116.89	4,440.58	-278.90	549.89	616.57	0.00	0.00	0.00
4,600.00	11.35	116.89	4,538.62	-287.80	567.45	636.26	0.00	0.00	0.00
4,700.00	11.35	116.89	4,636.66	-296.71	585.00	655.95	0.00	0.00	0.00
SUSSEX									
4,751.34	11.35	116.89	4,687.00	-301.28	594.02	666.05	0.00	0.00	0.00
4,800.00	11.35	116.89	4,734.71	-305.61	602.56	675.63	0.00	0.00	0.00
4,900.00	11.35	116.89	4,832.75	-314.52	620.12	695.32	0.00	0.00	0.00
5,000.00	11.35	116.89	4,930.79	-323.42	637.67	715.00	0.00	0.00	0.00
5,100.00	11.35	116.89	5,028.84	-332.33	655.23	734.69	0.00	0.00	0.00
5,200.00	11.35	116.89	5,126.88	-341.23	672.79	754.37	0.00	0.00	0.00
SHANNON									
5,230.72	11.35	116.89	5,157.00	-343.97	678.18	760.42	0.00	0.00	0.00
5,300.00	11.35	116.89	5,224.92	-350.13	690.34	774.06	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_NRC 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NRC 16-9		
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)
5,400.00	11.35	116.89	5,322.97	-359.04	707.90	793.75	0.00	0.00	0.00
5,500.00	11.35	116.89	5,421.01	-367.94	725.46	813.43	0.00	0.00	0.00
5,600.00	11.35	116.89	5,519.05	-376.85	743.01	833.12	0.00	0.00	0.00
5,700.00	11.35	116.89	5,617.10	-385.75	760.57	852.80	0.00	0.00	0.00
5,800.00	11.35	116.89	5,715.14	-394.66	778.13	872.49	0.00	0.00	0.00
Start Drop -2.00									
5,869.26	11.35	116.89	5,783.05	-400.82	790.29	886.12	0.00	0.00	0.00
5,900.00	10.74	116.89	5,813.21	-403.49	795.54	892.01	2.00	-2.00	0.00
6,000.00	8.74	116.89	5,911.77	-411.14	810.62	908.93	2.00	-2.00	0.00
6,100.00	6.74	116.89	6,010.85	-417.23	822.63	922.39	2.00	-2.00	0.00
6,200.00	4.74	116.89	6,110.35	-421.75	831.55	932.39	2.00	-2.00	0.00
6,300.00	2.74	116.89	6,210.13	-424.70	837.36	938.91	2.00	-2.00	0.00
6,400.00	0.74	116.89	6,310.08	-426.07	840.07	941.94	2.00	-2.00	0.00
Start 2160.00 hold at 6436.92 MD									
6,436.92	0.00	0.00	6,347.00	-426.18	840.28	942.18	2.00	-2.00	-316.58
6,500.00	0.00	0.00	6,410.08	-426.18	840.28	942.18	0.00	0.00	0.00
6,600.00	0.00	0.00	6,510.08	-426.18	840.28	942.18	0.00	0.00	0.00
6,700.00	0.00	0.00	6,610.08	-426.18	840.28	942.18	0.00	0.00	0.00
6,800.00	0.00	0.00	6,710.08	-426.18	840.28	942.18	0.00	0.00	0.00
6,900.00	0.00	0.00	6,810.08	-426.18	840.28	942.18	0.00	0.00	0.00
7,000.00	0.00	0.00	6,910.08	-426.18	840.28	942.18	0.00	0.00	0.00
7,100.00	0.00	0.00	7,010.08	-426.18	840.28	942.18	0.00	0.00	0.00
7,200.00	0.00	0.00	7,110.08	-426.18	840.28	942.18	0.00	0.00	0.00
7,300.00	0.00	0.00	7,210.08	-426.18	840.28	942.18	0.00	0.00	0.00
7,400.00	0.00	0.00	7,310.08	-426.18	840.28	942.18	0.00	0.00	0.00
NIO A									
7,416.92	0.00	0.00	7,327.00	-426.18	840.28	942.18	0.00	0.00	0.00
7,500.00	0.00	0.00	7,410.08	-426.18	840.28	942.18	0.00	0.00	0.00
7,600.00	0.00	0.00	7,510.08	-426.18	840.28	942.18	0.00	0.00	0.00
7,700.00	0.00	0.00	7,610.08	-426.18	840.28	942.18	0.00	0.00	0.00
CODELL									
7,756.92	0.00	0.00	7,667.00	-426.18	840.28	942.18	0.00	0.00	0.00
7,800.00	0.00	0.00	7,710.08	-426.18	840.28	942.18	0.00	0.00	0.00
7,900.00	0.00	0.00	7,810.08	-426.18	840.28	942.18	0.00	0.00	0.00
8,000.00	0.00	0.00	7,910.08	-426.18	840.28	942.18	0.00	0.00	0.00
8,100.00	0.00	0.00	8,010.08	-426.18	840.28	942.18	0.00	0.00	0.00
8,200.00	0.00	0.00	8,110.08	-426.18	840.28	942.18	0.00	0.00	0.00
JSAND									
8,206.92	0.00	0.00	8,117.00	-426.18	840.28	942.18	0.00	0.00	0.00
8,300.00	0.00	0.00	8,210.08	-426.18	840.28	942.18	0.00	0.00	0.00
DAKOTA									
8,376.92	0.00	0.00	8,287.00	-426.18	840.28	942.18	0.00	0.00	0.00
8,400.00	0.00	0.00	8,310.08	-426.18	840.28	942.18	0.00	0.00	0.00
8,500.00	0.00	0.00	8,410.08	-426.18	840.28	942.18	0.00	0.00	0.00
PBHL_NRC 16-9(660 FSL 660 FEL)50'RAD									
8,596.92	0.00	0.00	8,507.00	-426.18	840.28	942.18	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_NRC 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NRC 16-9		
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 16-9(660 - plan hits target center - Circle (radius 50.00)	0.00	0.00	8,507.00	-426.18	840.28	1,265,322.66	3,171,112.38	40° 3' 36.292 N	104° 53' 19.234 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	(°)	(°)
	3,246.90	3,212.00	PARKMAN			
	4,751.34	4,687.00	SUSSEX			
	5,230.72	5,157.00	SHANNON			
	7,416.92	7,327.00	NIO A			
	7,756.92	7,667.00	CODELL			
	8,206.92	8,117.00	JSAND			
	8,376.92	8,287.00	DAKOTA		0.00	

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
	1,652.66	1,648.95	-25.36	49.99	Start 4216.60 hold at 1652.66 MD
	5,869.26	5,783.05	-400.82	790.29	Start Drop -2.00
	6,436.92	6,347.00	-426.18	840.28	Start 2160.00 hold at 6436.92 MD
	8,596.92	8,507.00	-426.18	840.28	TD at 8596.92



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_NRC 20-9 PAD
P_NRC 16-9**

**P_NRC 16-9
PLAN #1 1-6-10 RHS**

Anticollision Report

04 February, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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 2/4/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	8,596.92	PLAN #1 1-6-10 RHS (P_NRC 16-9)	MWD	MWD - Standard

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
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	64.17	59.55	13.893	CC
P_NRC 10-9 - P_NRC 10-9 - PLAN #1 1-6-10 RHS	1,100.00	1,099.71	64.22	59.54	13.716	ES
P_NRC 10-9 - P_NRC 10-9 - PLAN #1 1-6-10 RHS	1,200.00	1,197.59	67.38	62.29	13.250	SF
P_NRC 15-9 - P_NRC 15-9 - PLAN #1 1-6-10 RHS	1,223.39	1,224.75	47.82	42.68	9.308	CC, ES
P_NRC 15-9 - P_NRC 15-9 - PLAN #1 1-6-10 RHS	1,300.00	1,301.64	48.43	43.01	8.923	SF
P_NRC 37-9 - P_NRC 37-9 - PLAN #1 1-6-10 RHS	1,085.00	1,085.00	31.72	27.11	6.868	CC
P_NRC 37-9 - P_NRC 37-9 - PLAN #1 1-6-10 RHS	1,100.00	1,099.84	31.74	27.07	6.785	ES
P_NRC 37-9 - P_NRC 37-9 - PLAN #1 1-6-10 RHS	1,200.00	1,198.72	32.91	27.88	6.537	SF
P_NRC 38-9 - P_NRC 38-9 - PLAN #1 1-6-10 RHS	1,085.00	1,085.00	15.68	11.06	3.395	CC
P_NRC 38-9 - P_NRC 38-9 - PLAN #1 1-6-10 RHS	1,200.00	1,199.62	15.96	10.91	3.160	ES
P_NRC 38-9 - P_NRC 38-9 - PLAN #1 1-6-10 RHS	1,400.00	1,398.94	17.79	11.94	3.039	SF
P_NRC 39-9 - P_NRC 39-9 - PLAN #1 1-6-10 RHS	1,085.00	1,085.00	16.06	-27.35	0.370	Level 1, CC
P_NRC 39-9 - P_NRC 39-9 - PLAN #1 1-6-10 RHS	1,100.00	1,099.99	16.08	-27.70	0.367	Level 1, ES, SF
P_NRC 9-9 - P_NRC 9-9 - PLAN #1 1-6-10 RHS	1,085.00	1,085.00	32.08	27.46	6.945	CC
P_NRC 9-9 - P_NRC 9-9 - PLAN #1 1-6-10 RHS	1,100.00	1,099.89	32.12	27.44	6.861	ES
P_NRC 9-9 - P_NRC 9-9 - PLAN #1 1-6-10 RHS	1,200.00	1,199.06	34.78	29.69	6.840	SF
ROCKY MOUNTAIN FUEL CO F #3 EXISTING - ROCKY	1,085.00	1,066.00	56.17	51.58	12.230	CC
ROCKY MOUNTAIN FUEL CO F #3 EXISTING - ROCKY	1,100.00	1,081.00	56.19	51.53	12.065	ES
ROCKY MOUNTAIN FUEL CO F #3 EXISTING - ROCKY	1,300.00	1,280.80	60.25	54.77	10.986	SF

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	Vertical	Offset	Vertical	Semi Major Axis		Highside	Offset Wellbore Centre		Distance		Minimum	Separation	Warning	
Measured Depth (ft)	Depth (ft)	Measured Depth (ft)	Depth (ft)	Reference (ft)	Offset (ft)	Toolface (°)	+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Separation (ft)	Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-2.50	64.11	-2.80	64.17					
100.00	100.00	100.00	100.00	0.10	0.10	-2.50	64.11	-2.80	64.17	63.98	0.19	335.876		
200.00	200.00	200.00	200.00	0.32	0.32	-2.50	64.11	-2.80	64.17	63.53	0.64	100.174		
300.00	300.00	300.00	300.00	0.55	0.55	-2.50	64.11	-2.80	64.17	63.08	1.09	58.865		
400.00	400.00	400.00	400.00	0.77	0.77	-2.50	64.11	-2.80	64.17	62.63	1.54	41.678		
500.00	500.00	500.00	500.00	0.99	0.99	-2.50	64.11	-2.80	64.17	62.18	1.99	32.259		
600.00	600.00	600.00	600.00	1.22	1.22	-2.50	64.11	-2.80	64.17	61.73	2.44	26.313		
700.00	700.00	700.00	700.00	1.44	1.44	-2.50	64.11	-2.80	64.17	61.28	2.89	22.218		
800.00	800.00	800.00	800.00	1.67	1.67	-2.50	64.11	-2.80	64.17	60.83	3.34	19.225		

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 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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
900.00	900.00	900.00	900.00	1.89	1.89	-2.50	64.11	-2.80	64.17	60.38	3.79	16.943	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-2.50	64.11	-2.80	64.17	59.93	4.24	15.146	
1,085.00	1,085.00	1,085.00	1,085.00	2.31	2.31	-2.50	64.11	-2.80	64.17	59.55	4.62	13.893 CC	
1,100.00	1,100.00	1,099.71	1,099.71	2.34	2.34	-119.44	64.14	-2.82	64.22	59.54	4.68	13.716 ES	
1,200.00	1,199.97	1,197.59	1,197.56	2.53	2.56	-121.88	66.03	-3.90	67.38	62.29	5.09	13.250 SF	
1,300.00	1,299.80	1,294.75	1,294.56	2.73	2.78	-127.09	70.77	-6.62	75.86	70.37	5.49	13.811	
1,400.00	1,399.37	1,390.55	1,389.97	2.94	3.00	-133.25	78.23	-10.90	90.48	84.58	5.90	15.331	
1,500.00	1,498.55	1,484.42	1,483.13	3.18	3.23	-138.92	88.22	-16.64	111.73	105.42	6.31	17.715	
1,600.00	1,597.23	1,575.83	1,573.43	3.45	3.48	-143.51	100.49	-23.68	139.65	132.95	6.71	20.824	
1,652.66	1,648.95	1,622.81	1,619.66	3.60	3.61	-145.46	107.76	-27.85	156.97	150.06	6.91	22.704	
1,700.00	1,695.37	1,664.66	1,660.71	3.76	3.74	-147.12	114.80	-31.89	173.72	166.60	7.11	24.417	
1,800.00	1,793.41	1,757.44	1,751.63	4.09	4.04	-149.88	130.86	-41.11	210.01	202.45	7.56	27.789	
1,900.00	1,891.45	1,850.22	1,842.54	4.45	4.36	-151.84	146.92	-50.33	246.60	238.59	8.01	30.794	
2,000.00	1,989.50	1,943.01	1,933.46	4.82	4.69	-153.29	162.99	-59.55	283.37	274.90	8.47	33.467	
2,100.00	2,087.54	2,035.79	2,024.38	5.20	5.03	-154.40	179.05	-68.76	320.27	311.33	8.93	35.851	
2,200.00	2,185.58	2,128.58	2,115.29	5.59	5.38	-155.29	195.12	-77.98	357.25	347.84	9.41	37.984	
2,300.00	2,283.63	2,221.36	2,206.21	5.98	5.74	-156.01	211.18	-87.20	394.29	384.40	9.88	39.897	
2,400.00	2,381.67	2,314.14	2,297.12	6.39	6.10	-156.61	227.25	-96.42	431.37	421.01	10.36	41.620	
2,500.00	2,479.71	2,406.93	2,388.04	6.80	6.47	-157.11	243.31	-105.64	468.49	457.64	10.85	43.178	
2,600.00	2,577.76	2,499.71	2,478.96	7.21	6.84	-157.54	259.38	-114.86	505.63	494.30	11.34	44.592	
2,700.00	2,675.80	2,592.49	2,569.87	7.62	7.22	-157.91	275.44	-124.08	542.80	530.97	11.83	45.877	
2,800.00	2,773.84	2,685.28	2,660.79	8.04	7.60	-158.23	291.51	-133.30	579.98	567.66	12.33	47.052	
2,900.00	2,871.88	2,778.06	2,751.70	8.46	7.98	-158.51	307.57	-142.52	617.18	604.36	12.82	48.128	
3,000.00	2,969.93	2,870.85	2,842.62	8.89	8.36	-158.76	323.63	-151.74	654.39	641.07	13.32	49.117	
3,100.00	3,067.97	2,963.63	2,933.54	9.31	8.75	-158.99	339.70	-160.96	691.61	677.78	13.82	50.029	
3,200.00	3,166.01	3,056.41	3,024.45	9.74	9.13	-159.19	355.76	-170.18	728.83	714.51	14.33	50.872	
3,300.00	3,264.06	3,149.20	3,115.37	10.17	9.52	-159.37	371.83	-179.40	766.07	751.24	14.83	51.653	
3,400.00	3,362.10	3,241.98	3,206.29	10.59	9.91	-159.54	387.89	-188.61	803.31	787.97	15.34	52.378	
3,500.00	3,460.14	3,334.76	3,297.20	11.02	10.30	-159.69	403.96	-197.83	840.55	824.71	15.84	53.053	
3,600.00	3,558.19	3,427.55	3,388.12	11.46	10.69	-159.83	420.02	-207.05	877.80	861.45	16.35	53.683	
3,700.00	3,656.23	3,520.33	3,479.03	11.89	11.09	-159.95	436.09	-216.27	915.05	898.19	16.86	54.272	
3,800.00	3,754.27	3,613.11	3,569.95	12.32	11.48	-160.07	452.15	-225.49	952.31	934.94	17.37	54.824	
3,900.00	3,852.32	3,705.90	3,660.87	12.75	11.87	-160.18	468.22	-234.71	989.57	971.69	17.88	55.342	
4,000.00	3,950.36	3,798.68	3,751.78	13.19	12.27	-160.28	484.28	-243.93	1,026.83	1,008.44	18.39	55.829	
4,100.00	4,048.40	3,891.47	3,842.70	13.62	12.66	-160.37	500.34	-253.15	1,064.10	1,045.20	18.90	56.288	
4,200.00	4,146.45	3,984.25	3,933.61	14.06	13.06	-160.46	516.41	-262.37	1,101.37	1,081.95	19.42	56.720	
4,300.00	4,244.49	4,077.03	4,024.53	14.49	13.45	-160.54	532.47	-271.59	1,138.64	1,118.71	19.93	57.129	
4,400.00	4,342.53	4,169.82	4,115.45	14.93	13.85	-160.61	548.54	-280.81	1,175.91	1,155.46	20.45	57.515	
4,500.00	4,440.58	4,262.60	4,206.36	15.37	14.25	-160.69	564.60	-290.03	1,213.18	1,192.22	20.96	57.882	
4,600.00	4,538.62	4,355.38	4,297.28	15.80	14.64	-160.75	580.67	-299.25	1,250.46	1,228.98	21.47	58.229	
4,700.00	4,636.66	4,448.17	4,388.19	16.24	15.04	-160.82	596.73	-308.47	1,287.73	1,265.74	21.99	58.559	
4,800.00	4,734.71	4,540.95	4,479.11	16.68	15.44	-160.88	612.80	-317.68	1,325.01	1,302.50	22.51	58.873	
4,900.00	4,832.75	4,633.73	4,570.03	17.11	15.84	-160.93	628.86	-326.90	1,362.29	1,339.27	23.02	59.172	
5,000.00	4,930.79	4,726.52	4,660.94	17.55	16.24	-160.98	644.93	-336.12	1,399.57	1,376.03	23.54	59.457	
5,100.00	5,028.84	4,819.30	4,751.86	17.99	16.63	-161.04	660.99	-345.34	1,436.85	1,412.79	24.06	59.729	
5,200.00	5,126.88	4,912.09	4,842.78	18.43	17.03	-161.08	677.05	-354.56	1,474.13	1,449.56	24.57	59.989	
5,300.00	5,224.92	5,004.87	4,933.69	18.87	17.43	-161.13	693.12	-363.78	1,511.41	1,486.32	25.09	60.237	
5,400.00	5,322.97	5,097.65	5,024.61	19.31	17.83	-161.17	709.18	-373.00	1,548.70	1,523.09	25.61	60.475	
5,500.00	5,421.01	5,190.44	5,115.52	19.74	18.23	-161.21	725.25	-382.22	1,585.98	1,559.85	26.13	60.703	
5,600.00	5,519.05	5,283.22	5,206.44	20.18	18.63	-161.25	741.31	-391.44	1,623.27	1,596.62	26.65	60.921	
5,700.00	5,617.10	5,376.00	5,297.36	20.62	19.03	-161.29	757.38	-400.66	1,660.55	1,633.39	27.16	61.130	
5,800.00	5,715.14	5,468.79	5,388.27	21.06	19.43	-161.33	773.44	-409.88	1,697.84	1,670.15	27.68	61.331	

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 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,869.26	5,783.05	5,533.05	5,451.24	21.37	19.71	-161.35	784.57	-416.26	1,723.66	1,695.62	28.04	61.466	
5,900.00	5,813.21	5,561.63	5,479.25	21.48	19.83	-161.44	789.52	-419.10	1,734.98	1,706.73	28.24	61.430	
6,000.00	5,911.77	5,655.38	5,571.11	21.78	20.24	-161.67	805.75	-428.42	1,769.77	1,740.92	28.85	61.333	
6,100.00	6,010.85	5,750.22	5,664.04	22.04	20.65	-161.85	822.17	-437.84	1,801.44	1,772.00	29.43	61.203	
6,200.00	6,110.35	5,846.04	5,757.93	22.26	21.06	-161.96	838.76	-447.36	1,829.94	1,799.97	29.98	61.046	
6,300.00	6,210.13	6,060.78	5,969.46	22.44	21.75	-161.93	870.62	-465.64	1,853.00	1,822.30	30.70	60.359	
6,400.00	6,310.08	6,326.63	6,234.17	22.58	22.32	-161.89	891.01	-477.35	1,864.42	1,833.02	31.40	59.380	
6,436.92	6,347.00	6,425.95	6,333.46	22.62	22.46	-44.99	893.15	-478.58	1,865.53	1,833.90	31.63	58.986	
6,500.00	6,410.08	6,502.57	6,410.08	22.70	22.55	-44.99	893.22	-478.62	1,865.56	1,833.69	31.86	58.546	
6,600.00	6,510.08	6,602.57	6,510.08	22.82	22.69	-44.99	893.22	-478.62	1,865.56	1,833.33	32.23	57.888	
6,700.00	6,610.08	6,702.57	6,610.08	22.95	22.83	-44.99	893.22	-478.62	1,865.56	1,832.97	32.59	57.241	
6,800.00	6,710.08	6,802.57	6,710.08	23.08	22.97	-44.99	893.22	-478.62	1,865.56	1,832.60	32.96	56.605	
6,900.00	6,810.08	6,902.57	6,810.08	23.21	23.11	-44.99	893.22	-478.62	1,865.56	1,832.23	33.33	55.979	
7,000.00	6,910.08	7,002.57	6,910.08	23.34	23.25	-44.99	893.22	-478.62	1,865.56	1,831.86	33.70	55.363	
7,100.00	7,010.08	7,102.57	7,010.08	23.47	23.39	-44.99	893.22	-478.62	1,865.56	1,831.49	34.07	54.758	
7,200.00	7,110.08	7,202.57	7,110.08	23.60	23.53	-44.99	893.22	-478.62	1,865.56	1,831.12	34.44	54.164	
7,300.00	7,210.08	7,302.57	7,210.08	23.74	23.68	-44.99	893.22	-478.62	1,865.56	1,830.74	34.82	53.579	
7,400.00	7,310.08	7,402.57	7,310.08	23.88	23.83	-44.99	893.22	-478.62	1,865.56	1,830.36	35.20	53.004	
7,500.00	7,410.08	7,502.57	7,410.08	24.01	23.97	-44.99	893.22	-478.62	1,865.56	1,829.98	35.58	52.439	
7,600.00	7,510.08	7,602.57	7,510.08	24.15	24.12	-44.99	893.22	-478.62	1,865.56	1,829.60	35.96	51.883	
7,700.00	7,610.08	7,702.57	7,610.08	24.29	24.27	-44.99	893.22	-478.62	1,865.56	1,829.22	36.34	51.337	
7,800.00	7,710.08	7,802.57	7,710.08	24.43	24.42	-44.99	893.22	-478.62	1,865.56	1,828.84	36.72	50.800	
7,900.00	7,810.08	7,902.57	7,810.08	24.58	24.58	-44.99	893.22	-478.62	1,865.56	1,828.45	37.11	50.273	
8,000.00	7,910.08	8,002.57	7,910.08	24.72	24.73	-44.99	893.22	-478.62	1,865.56	1,828.06	37.50	49.754	
8,100.00	8,010.08	8,102.57	8,010.08	24.87	24.88	-44.99	893.22	-478.62	1,865.56	1,827.68	37.88	49.244	
8,200.00	8,110.08	8,202.57	8,110.08	25.01	25.04	-44.99	893.22	-478.62	1,865.56	1,827.29	38.27	48.743	
8,300.00	8,210.08	8,302.57	8,210.08	25.16	25.20	-44.99	893.22	-478.62	1,865.56	1,826.90	38.66	48.250	
8,400.00	8,310.08	8,402.57	8,310.08	25.31	25.35	-44.99	893.22	-478.62	1,865.56	1,826.50	39.06	47.765	
8,500.00	8,410.08	8,502.57	8,410.08	25.46	25.51	-44.99	893.22	-478.62	1,865.56	1,826.11	39.45	47.289	
8,596.92	8,507.00	8,599.49	8,507.00	25.61	25.67	-44.99	893.22	-478.62	1,865.56	1,825.73	39.83	46.835	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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
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	-2.67	48.08	-2.24	48.13				
100.00	100.00	100.00	100.00	0.10	0.10	-2.67	48.08	-2.24	48.13	47.94	0.19	251.913	
200.00	200.00	200.00	200.00	0.32	0.32	-2.67	48.08	-2.24	48.13	47.49	0.64	75.132	
300.00	300.00	300.00	300.00	0.55	0.55	-2.67	48.08	-2.24	48.13	47.04	1.09	44.150	
400.00	400.00	400.00	400.00	0.77	0.77	-2.67	48.08	-2.24	48.13	46.59	1.54	31.259	
500.00	500.00	500.00	500.00	0.99	0.99	-2.67	48.08	-2.24	48.13	46.14	1.99	24.195	
600.00	600.00	600.00	600.00	1.22	1.22	-2.67	48.08	-2.24	48.13	45.69	2.44	19.735	
700.00	700.00	700.00	700.00	1.44	1.44	-2.67	48.08	-2.24	48.13	45.24	2.89	16.664	
800.00	800.00	800.00	800.00	1.67	1.67	-2.67	48.08	-2.24	48.13	44.79	3.34	14.419	
900.00	900.00	900.00	900.00	1.89	1.89	-2.67	48.08	-2.24	48.13	44.34	3.79	12.708	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-2.67	48.08	-2.24	48.13	43.89	4.24	11.359	
1,085.00	1,085.00	1,085.00	1,085.00	2.31	2.31	-2.67	48.08	-2.24	48.13	43.51	4.62	10.420	
1,100.00	1,100.00	1,100.17	1,100.17	2.34	2.34	-119.64	48.05	-2.27	48.12	43.44	4.68	10.283	
1,200.00	1,199.97	1,201.19	1,201.16	2.53	2.52	-124.09	46.41	-3.91	47.85	42.80	5.05	9.480	
1,223.39	1,223.34	1,224.75	1,224.70	2.57	2.57	-126.12	45.67	-4.65	47.82	42.68	5.14	9.308 CC, ES	
1,300.00	1,299.80	1,301.64	1,301.44	2.73	2.71	-135.26	42.30	-8.04	48.43	43.01	5.43	8.923 SF	
1,400.00	1,399.37	1,401.06	1,400.42	2.94	2.92	-151.34	35.79	-14.58	52.95	47.14	5.82	9.106	
1,500.00	1,498.55	1,498.98	1,497.54	3.18	3.14	-167.77	27.01	-23.40	64.53	58.33	6.21	10.398	
1,600.00	1,597.23	1,594.99	1,592.30	3.45	3.39	179.20	16.13	-34.33	84.23	77.62	6.61	12.745	
1,652.66	1,648.95	1,645.06	1,641.53	3.60	3.54	174.00	9.68	-40.81	97.61	90.78	6.83	14.291	
1,700.00	1,695.37	1,690.15	1,685.84	3.76	3.68	170.41	3.83	-46.69	110.59	103.54	7.05	15.678	
1,800.00	1,793.41	1,785.38	1,779.45	4.09	3.98	165.04	-8.54	-59.11	138.96	131.41	7.55	18.407	
1,900.00	1,891.45	1,880.61	1,873.06	4.45	4.30	161.49	-20.91	-71.54	168.08	160.01	8.07	20.836	
2,000.00	1,989.50	1,975.85	1,966.66	4.82	4.63	158.99	-33.28	-83.96	197.61	189.01	8.60	22.976	
2,100.00	2,087.54	2,071.08	2,060.27	5.20	4.97	157.14	-45.64	-96.39	227.41	218.26	9.15	24.856	
2,200.00	2,185.58	2,166.31	2,153.87	5.59	5.32	155.72	-58.01	-108.81	257.37	247.66	9.71	26.512	
2,300.00	2,283.63	2,261.55	2,247.48	5.98	5.68	154.59	-70.38	-121.23	287.44	277.17	10.28	27.973	
2,400.00	2,381.67	2,356.78	2,341.09	6.39	6.04	153.68	-82.75	-133.66	317.60	306.75	10.85	29.268	
2,500.00	2,479.71	2,452.02	2,434.69	6.80	6.41	152.92	-95.12	-146.08	347.81	336.38	11.43	30.421	
2,600.00	2,577.76	2,547.25	2,528.30	7.21	6.78	152.29	-107.48	-158.51	378.08	366.06	12.02	31.452	
2,700.00	2,675.80	2,642.48	2,621.91	7.62	7.16	151.75	-119.85	-170.93	408.38	395.77	12.61	32.379	
2,800.00	2,773.84	2,737.72	2,715.51	8.04	7.54	151.28	-132.22	-183.36	438.71	425.50	13.21	33.215	
2,900.00	2,871.88	2,832.95	2,809.12	8.46	7.92	150.88	-144.59	-195.78	469.06	455.25	13.81	33.974	
3,000.00	2,969.93	2,928.18	2,902.73	8.89	8.30	150.52	-156.96	-208.20	499.43	485.02	14.41	34.663	
3,100.00	3,067.97	3,023.42	2,996.33	9.31	8.68	150.20	-169.32	-220.63	529.81	514.80	15.01	35.293	
3,200.00	3,166.01	3,118.65	3,089.94	9.74	9.07	149.92	-181.69	-233.05	560.21	544.59	15.62	35.859	
3,300.00	3,264.06	3,213.89	3,183.54	10.17	9.45	149.67	-194.06	-245.48	590.62	574.38	16.24	36.378	
3,400.00	3,362.10	3,309.12	3,277.15	10.59	9.84	149.44	-206.43	-257.90	621.04	604.19	16.85	36.856	
3,500.00	3,460.14	3,404.35	3,370.76	11.02	10.23	149.24	-218.80	-270.33	651.46	633.99	17.47	37.296	
3,600.00	3,558.19	3,499.59	3,464.36	11.46	10.62	149.05	-231.16	-282.75	681.90	663.81	18.09	37.703	
3,700.00	3,656.23	3,594.82	3,557.97	11.89	11.01	148.88	-243.53	-295.17	712.33	693.63	18.71	38.081	
3,800.00	3,754.27	3,690.05	3,651.58	12.32	11.41	148.72	-255.90	-307.60	742.78	723.45	19.33	38.431	
3,900.00	3,852.32	3,785.29	3,745.18	12.75	11.80	148.57	-268.27	-320.02	773.23	753.28	19.95	38.758	
4,000.00	3,950.36	3,880.52	3,838.79	13.19	12.19	148.44	-280.63	-332.45	803.68	783.11	20.57	39.063	
4,100.00	4,048.40	3,975.76	3,932.39	13.62	12.58	148.32	-293.00	-344.87	834.14	812.94	21.20	39.349	
4,200.00	4,146.45	4,070.99	4,026.00	14.06	12.98	148.20	-305.37	-357.30	864.60	842.78	21.82	39.616	
4,300.00	4,244.49	4,166.22	4,119.61	14.49	13.37	148.09	-317.74	-369.72	895.07	872.61	22.45	39.868	
4,400.00	4,342.53	4,261.46	4,213.21	14.93	13.77	147.99	-330.11	-382.14	925.53	902.45	23.08	40.104	
4,500.00	4,440.58	4,356.69	4,306.82	15.37	14.16	147.90	-342.47	-394.57	956.00	932.29	23.71	40.327	
4,600.00	4,538.62	4,451.92	4,400.43	15.80	14.56	147.81	-354.84	-406.99	986.47	962.14	24.34	40.537	
4,700.00	4,636.66	4,547.16	4,494.03	16.24	14.96	147.72	-367.21	-419.42	1,016.94	991.98	24.96	40.736	
4,800.00	4,734.71	4,642.39	4,587.64	16.68	15.35	147.65	-379.58	-431.84	1,047.42	1,021.83	25.59	40.924	

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 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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	4,832.75	4,737.63	4,681.24	17.11	15.75	147.57	-391.95	-444.27	1,077.90	1,051.67	26.22	41.102	
5,000.00	4,930.79	4,832.86	4,774.85	17.55	16.15	147.50	-404.31	-456.69	1,108.37	1,081.52	26.86	41.271	
5,100.00	5,028.84	4,928.09	4,868.46	17.99	16.54	147.44	-416.68	-469.11	1,138.85	1,111.37	27.49	41.432	
5,200.00	5,126.88	5,023.33	4,962.06	18.43	16.94	147.37	-429.05	-481.54	1,169.34	1,141.22	28.12	41.585	
5,300.00	5,224.92	5,118.56	5,055.67	18.87	17.34	147.31	-441.42	-493.96	1,199.82	1,171.07	28.75	41.731	
5,400.00	5,322.97	5,213.79	5,149.28	19.31	17.74	147.26	-453.79	-506.39	1,230.30	1,200.92	29.38	41.870	
5,500.00	5,421.01	5,309.03	5,242.88	19.74	18.13	147.20	-466.15	-518.81	1,260.78	1,230.77	30.02	42.003	
5,600.00	5,519.05	5,404.26	5,336.49	20.18	18.53	147.15	-478.52	-531.24	1,291.27	1,260.62	30.65	42.129	
5,700.00	5,617.10	5,499.50	5,430.09	20.62	18.93	147.10	-490.89	-543.66	1,321.76	1,290.47	31.28	42.251	
5,800.00	5,715.14	5,594.73	5,523.70	21.06	19.33	147.06	-503.26	-556.08	1,352.24	1,320.33	31.92	42.367	
5,869.26	5,783.05	5,660.69	5,588.54	21.37	19.61	147.02	-511.82	-564.69	1,373.36	1,341.00	32.36	42.444	
5,900.00	5,813.21	5,690.00	5,617.35	21.48	19.73	147.11	-515.63	-568.51	1,382.60	1,350.02	32.58	42.438	
6,000.00	5,911.77	5,785.90	5,711.60	21.78	20.13	147.32	-528.08	-581.02	1,410.83	1,377.58	33.24	42.441	
6,100.00	6,010.85	5,882.51	5,806.57	22.04	20.53	147.43	-540.63	-593.63	1,436.23	1,402.36	33.87	42.408	
6,200.00	6,110.35	6,035.69	5,957.72	22.26	20.97	147.35	-558.08	-611.16	1,457.15	1,422.65	34.50	42.235	
6,300.00	6,210.13	6,199.70	6,120.76	22.44	21.34	147.29	-570.43	-623.57	1,470.90	1,435.84	35.05	41.961	
6,400.00	6,310.08	6,365.90	6,286.74	22.58	21.61	147.26	-576.22	-629.38	1,477.28	1,441.78	35.50	41.614	
6,436.92	6,347.00	6,426.16	6,347.00	22.62	21.69	-95.84	-576.63	-629.80	1,477.76	1,442.11	35.65	41.457	
6,500.00	6,410.08	6,489.24	6,410.08	22.70	21.77	-95.84	-576.63	-629.80	1,477.76	1,441.92	35.84	41.232	
6,600.00	6,510.08	6,589.24	6,510.08	22.82	21.90	-95.84	-576.63	-629.80	1,477.76	1,441.62	36.14	40.895	
6,700.00	6,610.08	6,689.24	6,610.08	22.95	22.02	-95.84	-576.63	-629.80	1,477.76	1,441.32	36.43	40.560	
6,800.00	6,710.08	6,789.24	6,710.08	23.08	22.14	-95.84	-576.63	-629.80	1,477.76	1,441.02	36.73	40.227	
6,900.00	6,810.08	6,889.24	6,810.08	23.21	22.27	-95.84	-576.63	-629.80	1,477.76	1,440.72	37.04	39.897	
7,000.00	6,910.08	6,989.24	6,910.08	23.34	22.40	-95.84	-576.63	-629.80	1,477.76	1,440.41	37.35	39.569	
7,100.00	7,010.08	7,089.24	7,010.08	23.47	22.53	-95.84	-576.63	-629.80	1,477.76	1,440.10	37.66	39.243	
7,200.00	7,110.08	7,189.24	7,110.08	23.60	22.66	-95.84	-576.63	-629.80	1,477.76	1,439.79	37.97	38.920	
7,300.00	7,210.08	7,289.24	7,210.08	23.74	22.79	-95.84	-576.63	-629.80	1,477.76	1,439.47	38.28	38.600	
7,400.00	7,310.08	7,389.24	7,310.08	23.88	22.93	-95.84	-576.63	-629.80	1,477.76	1,439.15	38.60	38.281	
7,500.00	7,410.08	7,489.24	7,410.08	24.01	23.06	-95.84	-576.63	-629.80	1,477.76	1,438.83	38.92	37.966	
7,600.00	7,510.08	7,589.24	7,510.08	24.15	23.20	-95.84	-576.63	-629.80	1,477.76	1,438.51	39.25	37.653	
7,700.00	7,610.08	7,689.24	7,610.08	24.29	23.34	-95.84	-576.63	-629.80	1,477.76	1,438.18	39.57	37.344	
7,800.00	7,710.08	7,789.24	7,710.08	24.43	23.48	-95.84	-576.63	-629.80	1,477.76	1,437.86	39.90	37.036	
7,900.00	7,810.08	7,889.24	7,810.08	24.58	23.62	-95.84	-576.63	-629.80	1,477.76	1,437.53	40.23	36.732	
8,000.00	7,910.08	7,989.24	7,910.08	24.72	23.76	-95.84	-576.63	-629.80	1,477.76	1,437.19	40.56	36.431	
8,100.00	8,010.08	8,089.24	8,010.08	24.87	23.90	-95.84	-576.63	-629.80	1,477.76	1,436.86	40.90	36.133	
8,200.00	8,110.08	8,189.24	8,110.08	25.01	24.05	-95.84	-576.63	-629.80	1,477.76	1,436.52	41.24	35.837	
8,300.00	8,210.08	8,289.24	8,210.08	25.16	24.19	-95.84	-576.63	-629.80	1,477.76	1,436.18	41.57	35.545	
8,400.00	8,310.08	8,389.24	8,310.08	25.31	24.34	-95.84	-576.63	-629.80	1,477.76	1,435.84	41.92	35.255	
8,500.00	8,410.08	8,489.24	8,410.08	25.46	24.49	-95.84	-576.63	-629.80	1,477.76	1,435.50	42.26	34.969	
8,596.92	8,507.00	8,586.16	8,507.00	25.61	24.63	-95.84	-576.63	-629.80	1,477.76	1,435.16	42.59	34.694	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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
0.00	0.00	0.00	0.00	0.00	0.00	177.98	-31.70	1.12	31.72				
100.00	100.00	100.00	100.00	0.10	0.10	177.98	-31.70	1.12	31.72	31.53	0.19	166.052	
200.00	200.00	200.00	200.00	0.32	0.32	177.98	-31.70	1.12	31.72	31.08	0.64	49.524	
300.00	300.00	300.00	300.00	0.55	0.55	177.98	-31.70	1.12	31.72	30.63	1.09	29.102	
400.00	400.00	400.00	400.00	0.77	0.77	177.98	-31.70	1.12	31.72	30.18	1.54	20.605	
500.00	500.00	500.00	500.00	0.99	0.99	177.98	-31.70	1.12	31.72	29.74	1.99	15.949	
600.00	600.00	600.00	600.00	1.22	1.22	177.98	-31.70	1.12	31.72	29.29	2.44	13.009	
700.00	700.00	700.00	700.00	1.44	1.44	177.98	-31.70	1.12	31.72	28.84	2.89	10.984	
800.00	800.00	800.00	800.00	1.67	1.67	177.98	-31.70	1.12	31.72	28.39	3.34	9.505	
900.00	900.00	900.00	900.00	1.89	1.89	177.98	-31.70	1.12	31.72	27.94	3.79	8.377	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	177.98	-31.70	1.12	31.72	27.49	4.24	7.488	
1,085.00	1,085.00	1,085.00	1,085.00	2.31	2.31	177.98	-31.70	1.12	31.72	27.11	4.62	6.868 CC	
1,100.00	1,100.00	1,099.84	1,099.84	2.34	2.34	61.13	-31.74	1.13	31.74	27.07	4.68	6.785 ES	
1,200.00	1,199.97	1,198.72	1,198.69	2.53	2.51	63.97	-33.92	1.53	32.91	27.88	5.03	6.537 SF	
1,300.00	1,299.80	1,297.44	1,297.24	2.73	2.69	70.28	-39.45	2.54	36.19	30.78	5.41	6.691	
1,400.00	1,399.37	1,395.86	1,395.25	2.94	2.88	78.15	-48.28	4.15	42.20	36.39	5.81	7.262	
1,500.00	1,498.55	1,493.85	1,492.46	3.18	3.09	85.72	-60.36	6.36	51.40	45.15	6.25	8.223	
1,600.00	1,597.23	1,591.28	1,588.65	3.45	3.34	92.01	-75.60	9.14	63.98	57.23	6.75	9.485	
1,652.66	1,648.95	1,642.31	1,638.81	3.60	3.49	94.73	-84.86	10.84	71.95	64.92	7.03	10.230	
1,700.00	1,695.37	1,688.05	1,683.60	3.76	3.62	96.73	-93.91	12.49	79.86	72.55	7.30	10.932	
1,800.00	1,793.41	1,786.21	1,779.54	4.09	3.95	99.45	-114.37	16.23	97.51	89.59	7.92	12.313	
1,900.00	1,891.45	1,884.56	1,875.65	4.45	4.30	101.34	-134.87	19.98	115.32	106.75	8.57	13.453	
2,000.00	1,989.50	1,982.90	1,971.76	4.82	4.67	102.72	-155.38	23.72	133.22	123.96	9.25	14.396	
2,100.00	2,087.54	2,081.24	2,067.86	5.20	5.05	103.77	-175.88	27.47	151.17	141.21	9.96	15.180	
2,200.00	2,185.58	2,179.58	2,163.97	5.59	5.45	104.60	-196.39	31.22	169.17	158.48	10.68	15.835	
2,300.00	2,283.63	2,277.92	2,260.08	5.98	5.85	105.27	-216.89	34.97	187.19	175.77	11.42	16.388	
2,400.00	2,381.67	2,376.26	2,356.18	6.39	6.26	105.83	-237.40	38.71	205.23	193.06	12.17	16.858	
2,500.00	2,479.71	2,474.60	2,452.29	6.80	6.68	106.29	-257.90	42.46	223.29	210.36	12.94	17.261	
2,600.00	2,577.76	2,572.94	2,548.40	7.21	7.10	106.68	-278.41	46.21	241.36	227.66	13.71	17.610	
2,700.00	2,675.80	2,671.29	2,644.50	7.62	7.53	107.02	-298.91	49.96	259.44	244.96	14.48	17.914	
2,800.00	2,773.84	2,769.63	2,740.61	8.04	7.96	107.32	-319.42	53.71	277.53	262.26	15.27	18.180	
2,900.00	2,871.88	2,867.97	2,836.72	8.46	8.39	107.58	-339.92	57.45	295.62	279.57	16.05	18.415	
3,000.00	2,969.93	2,966.31	2,932.82	8.89	8.83	107.80	-360.43	61.20	313.72	296.88	16.84	18.624	
3,100.00	3,067.97	3,064.65	3,028.93	9.31	9.27	108.01	-380.93	64.95	331.83	314.19	17.64	18.811	
3,200.00	3,166.01	3,162.99	3,125.04	9.74	9.71	108.19	-401.44	68.70	349.93	331.49	18.44	18.979	
3,300.00	3,264.06	3,261.33	3,221.14	10.17	10.15	108.36	-421.94	72.44	368.04	348.80	19.24	19.130	
3,400.00	3,362.10	3,359.67	3,317.25	10.59	10.59	108.51	-442.45	76.19	386.16	366.11	20.04	19.268	
3,500.00	3,460.14	3,458.02	3,413.36	11.02	11.03	108.64	-462.95	79.94	404.27	383.42	20.85	19.393	
3,600.00	3,558.19	3,556.36	3,509.46	11.46	11.48	108.77	-483.46	83.69	422.39	400.74	21.65	19.508	
3,700.00	3,656.23	3,654.70	3,605.57	11.89	11.92	108.88	-503.96	87.44	440.51	418.05	22.46	19.613	
3,800.00	3,754.27	3,753.04	3,701.68	12.32	12.37	108.98	-524.47	91.18	458.63	435.36	23.27	19.710	
3,900.00	3,852.32	3,851.38	3,797.78	12.75	12.82	109.08	-544.97	94.93	476.75	452.67	24.08	19.799	
4,000.00	3,950.36	3,949.72	3,893.89	13.19	13.27	109.17	-565.48	98.68	494.87	469.98	24.89	19.883	
4,100.00	4,048.40	4,048.06	3,990.00	13.62	13.72	109.26	-585.98	102.43	513.00	487.29	25.70	19.960	
4,200.00	4,146.45	4,146.40	4,086.10	14.06	14.17	109.33	-606.49	106.17	531.12	504.60	26.52	20.028	
4,300.00	4,244.49	4,244.74	4,182.21	14.49	14.62	109.41	-626.99	109.92	549.25	521.91	27.34	20.091	
4,400.00	4,342.53	4,343.09	4,278.32	14.93	15.07	109.47	-647.50	113.67	567.37	539.21	28.16	20.149	
4,500.00	4,440.58	4,441.43	4,374.42	15.37	15.52	109.54	-668.00	117.42	585.50	556.52	28.98	20.203	
4,600.00	4,538.62	4,539.77	4,470.53	15.80	15.97	109.60	-688.51	121.17	603.63	573.83	29.80	20.254	
4,700.00	4,636.66	4,638.11	4,566.64	16.24	16.42	109.65	-709.01	124.91	621.76	591.13	30.63	20.302	
4,800.00	4,734.71	4,736.45	4,662.74	16.68	16.87	109.71	-729.52	128.66	639.89	608.44	31.45	20.347	
4,900.00	4,832.75	4,834.79	4,758.85	17.11	17.32	109.76	-750.02	132.41	658.02	625.74	32.27	20.389	

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 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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	4,930.79	4,933.13	4,854.96	17.55	17.78	109.81	-770.53	136.16	676.15	643.05	33.10	20.428	
5,100.00	5,028.84	5,031.47	4,951.06	17.99	18.23	109.85	-791.03	139.90	694.28	660.36	33.92	20.466	
5,200.00	5,126.88	5,129.82	5,047.17	18.43	18.68	109.89	-811.54	143.65	712.41	677.66	34.75	20.501	
5,300.00	5,224.92	5,228.16	5,143.28	18.87	19.14	109.94	-832.04	147.40	730.54	694.97	35.58	20.535	
5,400.00	5,322.97	5,326.50	5,239.38	19.31	19.59	109.97	-852.55	151.15	748.67	712.27	36.40	20.567	
5,500.00	5,421.01	5,424.84	5,335.49	19.74	20.04	110.01	-873.05	154.90	766.81	729.58	37.23	20.597	
5,600.00	5,519.05	5,523.18	5,431.60	20.18	20.50	110.05	-893.56	158.64	784.94	746.88	38.06	20.626	
5,700.00	5,617.10	5,621.52	5,527.70	20.62	20.95	110.08	-914.06	162.39	803.07	764.19	38.88	20.653	
5,800.00	5,715.14	5,719.86	5,623.81	21.06	21.41	110.11	-934.57	166.14	821.20	781.49	39.71	20.679	
5,869.26	5,783.05	5,787.98	5,690.38	21.37	21.72	110.13	-948.77	168.73	833.76	793.48	40.29	20.696	
5,900.00	5,813.21	5,818.21	5,719.93	21.48	21.86	110.24	-955.08	169.89	839.28	798.74	40.54	20.704	
6,000.00	5,911.77	5,919.64	5,819.06	21.78	22.31	110.41	-976.17	173.74	856.43	815.16	41.27	20.752	
6,100.00	6,010.85	6,037.25	5,934.63	22.04	22.72	110.44	-997.62	177.66	871.00	829.08	41.92	20.777	
6,200.00	6,110.35	6,155.85	6,051.97	22.26	23.03	110.42	-1,014.51	180.75	882.22	839.77	42.45	20.782	
6,300.00	6,210.13	6,275.22	6,170.69	22.44	23.29	110.36	-1,026.67	182.97	890.03	847.14	42.89	20.750	
6,400.00	6,310.08	6,395.12	6,290.34	22.58	23.49	110.26	-1,033.98	184.31	894.41	851.16	43.25	20.681	
6,436.92	6,347.00	6,439.47	6,334.67	22.62	23.55	-132.90	-1,035.44	184.57	895.15	851.79	43.36	20.647	
6,500.00	6,410.08	6,514.89	6,410.08	22.70	23.65	-132.95	-1,036.36	184.74	895.57	852.04	43.53	20.572	
6,600.00	6,510.08	6,614.89	6,510.08	22.82	23.76	-132.95	-1,036.36	184.74	895.57	851.78	43.79	20.452	
6,700.00	6,610.08	6,714.89	6,610.08	22.95	23.87	-132.95	-1,036.36	184.74	895.57	851.53	44.04	20.337	
6,800.00	6,710.08	6,814.89	6,710.08	23.08	23.98	-132.95	-1,036.36	184.74	895.57	851.28	44.29	20.222	
6,900.00	6,810.08	6,914.89	6,810.08	23.21	24.09	-132.95	-1,036.36	184.74	895.57	851.03	44.54	20.107	
7,000.00	6,910.08	7,014.89	6,910.08	23.34	24.20	-132.95	-1,036.36	184.74	895.57	850.77	44.80	19.992	
7,100.00	7,010.08	7,114.89	7,010.08	23.47	24.31	-132.95	-1,036.36	184.74	895.57	850.51	45.06	19.877	
7,200.00	7,110.08	7,214.89	7,110.08	23.60	24.42	-132.95	-1,036.36	184.74	895.57	850.25	45.32	19.761	
7,300.00	7,210.08	7,314.89	7,210.08	23.74	24.54	-132.95	-1,036.36	184.74	895.57	849.99	45.58	19.646	
7,400.00	7,310.08	7,414.89	7,310.08	23.88	24.66	-132.95	-1,036.36	184.74	895.57	849.72	45.85	19.531	
7,500.00	7,410.08	7,514.89	7,410.08	24.01	24.78	-132.95	-1,036.36	184.74	895.57	849.45	46.12	19.416	
7,600.00	7,510.08	7,614.89	7,510.08	24.15	24.90	-132.95	-1,036.36	184.74	895.57	849.17	46.40	19.302	
7,700.00	7,610.08	7,714.89	7,610.08	24.29	25.02	-132.95	-1,036.36	184.74	895.57	848.90	46.68	19.187	
7,800.00	7,710.08	7,814.89	7,710.08	24.43	25.14	-132.95	-1,036.36	184.74	895.57	848.62	46.95	19.073	
7,900.00	7,810.08	7,914.89	7,810.08	24.58	25.26	-132.95	-1,036.36	184.74	895.57	848.33	47.24	18.959	
8,000.00	7,910.08	8,014.89	7,910.08	24.72	25.39	-132.95	-1,036.36	184.74	895.57	848.05	47.52	18.846	
8,100.00	8,010.08	8,114.89	8,010.08	24.87	25.52	-132.95	-1,036.36	184.74	895.57	847.76	47.81	18.732	
8,200.00	8,110.08	8,214.89	8,110.08	25.01	25.65	-132.95	-1,036.36	184.74	895.57	847.47	48.10	18.620	
8,300.00	8,210.08	8,314.89	8,210.08	25.16	25.78	-132.95	-1,036.36	184.74	895.57	847.18	48.39	18.507	
8,400.00	8,310.08	8,414.89	8,310.08	25.31	25.91	-132.95	-1,036.36	184.74	895.57	846.89	48.68	18.395	
8,500.00	8,410.08	8,437.81	8,333.00	25.46	25.94	-132.95	-1,036.36	184.74	898.88	850.01	48.87	18.393	
8,596.92	8,507.00	8,437.81	8,333.00	25.61	25.94	-132.95	-1,036.36	184.74	912.32	863.30	49.02	18.612	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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 38-9 - P_NRC 38-9 - 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)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	177.95	-15.67	0.56	15.68				
100.00	100.00	100.00	100.00	0.10	0.10	177.95	-15.67	0.56	15.68	15.49	0.19	82.084	
200.00	200.00	200.00	200.00	0.32	0.32	177.95	-15.67	0.56	15.68	15.04	0.64	24.481	
300.00	300.00	300.00	300.00	0.55	0.55	177.95	-15.67	0.56	15.68	14.59	1.09	14.386	
400.00	400.00	400.00	400.00	0.77	0.77	177.95	-15.67	0.56	15.68	14.14	1.54	10.186	
500.00	500.00	500.00	500.00	0.99	0.99	177.95	-15.67	0.56	15.68	13.69	1.99	7.884	
600.00	600.00	600.00	600.00	1.22	1.22	177.95	-15.67	0.56	15.68	13.24	2.44	6.431	
700.00	700.00	700.00	700.00	1.44	1.44	177.95	-15.67	0.56	15.68	12.79	2.89	5.430	
800.00	800.00	800.00	800.00	1.67	1.67	177.95	-15.67	0.56	15.68	12.34	3.34	4.698	
900.00	900.00	900.00	900.00	1.89	1.89	177.95	-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	177.95	-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	177.95	-15.67	0.56	15.68	11.06	4.62	3.395 CC	
1,100.00	1,100.00	1,099.95	1,099.95	2.34	2.34	61.07	-15.69	0.59	15.69	11.01	4.68	3.352	
1,200.00	1,199.97	1,199.62	1,199.59	2.53	2.52	61.73	-16.99	2.43	15.96	10.91	5.05	3.160 ES	
1,300.00	1,299.80	1,299.29	1,299.09	2.73	2.72	63.29	-20.28	7.11	16.65	11.21	5.44	3.063	
1,400.00	1,399.37	1,398.94	1,398.32	2.94	2.93	65.54	-25.57	14.61	17.79	11.94	5.85	3.039 SF	
1,500.00	1,498.55	1,498.59	1,497.16	3.18	3.16	68.19	-32.83	24.93	19.39	13.08	6.31	3.073	
1,600.00	1,597.23	1,598.23	1,595.48	3.45	3.43	70.98	-42.07	38.05	21.49	14.65	6.83	3.144	
1,652.66	1,648.95	1,650.69	1,647.02	3.60	3.59	72.43	-47.72	46.08	22.79	15.64	7.14	3.190	
1,700.00	1,695.37	1,697.84	1,693.18	3.76	3.73	72.84	-53.27	53.95	24.19	16.76	7.43	3.255	
1,800.00	1,793.41	1,797.32	1,790.01	4.09	4.09	68.86	-66.39	72.60	28.31	20.26	8.06	3.514	
1,900.00	1,891.45	1,896.45	1,885.64	4.45	4.51	61.07	-81.39	93.90	34.51	25.85	8.65	3.988	
2,000.00	1,989.50	1,994.97	1,979.75	4.82	4.99	52.40	-98.18	117.74	43.54	34.35	9.18	4.741	
2,100.00	2,087.54	2,092.68	2,072.03	5.20	5.53	44.65	-116.65	143.98	55.92	46.26	9.66	5.787	
2,200.00	2,185.58	2,189.35	2,162.20	5.59	6.14	38.38	-136.70	172.46	71.85	61.72	10.12	7.097	
2,300.00	2,283.63	2,285.14	2,250.36	5.98	6.81	33.51	-158.28	203.10	91.27	80.69	10.58	8.624	
2,400.00	2,381.67	2,382.73	2,339.67	6.39	7.53	30.04	-180.91	235.24	112.27	101.20	11.08	10.136	
2,500.00	2,479.71	2,480.31	2,428.99	6.80	8.28	27.67	-203.54	267.38	133.55	121.95	11.60	11.515	
2,600.00	2,577.76	2,577.90	2,518.31	7.21	9.04	25.94	-226.16	299.52	154.98	142.84	12.14	12.770	
2,700.00	2,675.80	2,675.48	2,607.63	7.62	9.81	24.64	-248.79	331.67	176.51	163.82	12.69	13.910	
2,800.00	2,773.84	2,773.07	2,696.94	8.04	10.59	23.62	-271.42	363.81	198.12	184.86	13.25	14.948	
2,900.00	2,871.88	2,870.65	2,786.26	8.46	11.38	22.80	-294.05	395.95	219.77	205.94	13.83	15.895	
3,000.00	2,969.93	2,968.24	2,875.58	8.89	12.17	22.13	-316.68	428.09	241.45	227.05	14.40	16.762	
3,100.00	3,067.97	3,065.82	2,964.90	9.31	12.97	21.57	-339.31	460.23	263.16	248.17	14.99	17.556	
3,200.00	3,166.01	3,163.40	3,054.21	9.74	13.77	21.09	-361.94	492.37	284.90	269.32	15.58	18.287	
3,300.00	3,264.06	3,260.99	3,143.53	10.17	14.57	20.69	-384.57	524.51	306.64	290.47	16.17	18.960	
3,400.00	3,362.10	3,358.57	3,232.85	10.59	15.38	20.33	-407.20	556.65	328.41	311.64	16.77	19.582	
3,500.00	3,460.14	3,456.16	3,322.17	11.02	16.19	20.02	-429.83	588.79	350.18	332.81	17.37	20.159	
3,600.00	3,558.19	3,553.74	3,411.48	11.46	17.00	19.75	-452.46	620.94	371.96	353.98	17.97	20.694	
3,700.00	3,656.23	3,651.33	3,500.80	11.89	17.82	19.50	-475.09	653.08	393.75	375.17	18.58	21.193	
3,800.00	3,754.27	3,748.91	3,590.12	12.32	18.63	19.29	-497.72	685.22	415.54	396.35	19.19	21.657	
3,900.00	3,852.32	3,846.50	3,679.44	12.75	19.45	19.09	-520.35	717.36	437.34	417.54	19.80	22.092	
4,000.00	3,950.36	3,944.08	3,768.75	13.19	20.26	18.91	-542.98	749.50	459.14	438.73	20.41	22.498	
4,100.00	4,048.40	4,041.67	3,858.07	13.62	21.08	18.75	-565.61	781.64	480.95	459.93	21.02	22.880	
4,200.00	4,146.45	4,139.25	3,947.39	14.06	21.90	18.60	-588.24	813.78	502.76	481.12	21.63	23.239	
4,300.00	4,244.49	4,236.84	4,036.71	14.49	22.72	18.47	-610.87	845.92	524.57	502.32	22.25	23.576	
4,400.00	4,342.53	4,334.42	4,126.02	14.93	23.54	18.34	-633.50	878.06	546.39	523.52	22.87	23.895	
4,500.00	4,440.58	4,432.01	4,215.34	15.37	24.36	18.23	-656.13	910.20	568.21	544.72	23.48	24.195	
4,600.00	4,538.62	4,529.59	4,304.66	15.80	25.19	18.12	-678.76	942.35	590.03	565.92	24.10	24.480	
4,700.00	4,636.66	4,627.18	4,393.98	16.24	26.01	18.02	-701.39	974.49	611.85	587.13	24.72	24.749	
4,800.00	4,734.71	4,724.76	4,483.30	16.68	26.83	17.93	-724.02	1,006.63	633.67	608.33	25.34	25.005	
4,900.00	4,832.75	4,822.34	4,572.61	17.11	27.65	17.84	-746.65	1,038.77	655.50	629.53	25.96	25.247	

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 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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 38-9 - P_NRC 38-9 - 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	4,930.79	4,919.93	4,661.93	17.55	28.48	17.76	-769.27	1,070.91	677.32	650.74	26.58	25.478	
5,100.00	5,028.84	5,017.51	4,751.25	17.99	29.30	17.69	-791.90	1,103.05	699.15	671.94	27.21	25.697	
5,200.00	5,126.88	5,115.10	4,840.57	18.43	30.13	17.62	-814.53	1,135.19	720.98	693.15	27.83	25.907	
5,300.00	5,224.92	5,212.68	4,929.88	18.87	30.95	17.55	-837.16	1,167.33	742.81	714.36	28.45	26.106	
5,400.00	5,322.97	5,310.27	5,019.20	19.31	31.78	17.49	-859.79	1,199.47	764.64	735.56	29.08	26.297	
5,500.00	5,421.01	5,407.85	5,108.52	19.74	32.60	17.43	-882.42	1,231.62	786.47	756.77	29.70	26.479	
5,600.00	5,519.05	5,520.10	5,211.45	20.18	33.47	17.37	-908.20	1,268.22	807.96	777.59	30.37	26.607	
5,700.00	5,617.10	5,657.05	5,339.00	20.62	34.29	17.36	-936.87	1,308.95	825.70	794.62	31.08	26.564	
5,800.00	5,715.14	5,796.03	5,470.73	21.06	35.04	17.43	-962.35	1,345.14	838.76	806.96	31.80	26.377	
5,869.26	5,783.05	5,893.16	5,564.00	21.37	35.49	17.52	-977.96	1,367.31	845.00	812.71	32.29	26.172	
5,900.00	5,813.21	5,936.41	5,605.81	21.48	35.68	17.58	-984.32	1,376.35	847.19	814.72	32.47	26.091	
6,000.00	5,911.77	6,077.51	5,743.30	21.78	36.22	17.76	-1,002.54	1,402.23	853.31	820.31	33.00	25.858	
6,100.00	6,010.85	6,219.08	5,882.65	22.04	36.67	17.90	-1,016.89	1,422.60	857.89	824.45	33.44	25.652	
6,200.00	6,110.35	6,360.99	6,023.40	22.26	37.01	18.00	-1,027.27	1,437.34	860.93	827.13	33.80	25.474	
6,300.00	6,210.13	6,503.10	6,165.06	22.44	37.26	18.08	-1,033.63	1,446.38	862.40	828.33	34.06	25.318	
6,400.00	6,310.08	6,645.27	6,307.16	22.58	37.41	18.12	-1,035.94	1,449.66	862.29	828.05	34.24	25.184	
6,436.92	6,347.00	6,685.11	6,347.00	22.62	37.44	135.02	-1,035.95	1,449.68	862.08	827.81	34.27	25.155	
6,500.00	6,410.08	6,748.19	6,410.08	22.70	37.48	135.02	-1,035.95	1,449.68	862.08	827.61	34.47	25.010	
6,600.00	6,510.08	6,848.19	6,510.08	22.82	37.56	135.02	-1,035.95	1,449.68	862.08	827.29	34.79	24.782	
6,700.00	6,610.08	6,948.19	6,610.08	22.95	37.64	135.02	-1,035.95	1,449.68	862.08	826.98	35.10	24.557	
6,800.00	6,710.08	7,048.19	6,710.08	23.08	37.71	135.02	-1,035.95	1,449.68	862.08	826.65	35.43	24.334	
6,900.00	6,810.08	7,148.19	6,810.08	23.21	37.79	135.02	-1,035.95	1,449.68	862.08	826.33	35.75	24.114	
7,000.00	6,910.08	7,248.19	6,910.08	23.34	37.87	135.02	-1,035.95	1,449.68	862.08	826.00	36.08	23.895	
7,100.00	7,010.08	7,348.19	7,010.08	23.47	37.96	135.02	-1,035.95	1,449.68	862.08	825.67	36.41	23.679	
7,200.00	7,110.08	7,448.19	7,110.08	23.60	38.04	135.02	-1,035.95	1,449.68	862.08	825.34	36.74	23.465	
7,300.00	7,210.08	7,548.19	7,210.08	23.74	38.12	135.02	-1,035.95	1,449.68	862.08	825.01	37.07	23.253	
7,400.00	7,310.08	7,648.19	7,310.08	23.88	38.21	135.02	-1,035.95	1,449.68	862.08	824.67	37.41	23.043	
7,500.00	7,410.08	7,748.19	7,410.08	24.01	38.30	135.02	-1,035.95	1,449.68	862.08	824.33	37.75	22.836	
7,600.00	7,510.08	7,848.19	7,510.08	24.15	38.38	135.02	-1,035.95	1,449.68	862.08	823.99	38.09	22.632	
7,700.00	7,610.08	7,948.19	7,610.08	24.29	38.47	135.02	-1,035.95	1,449.68	862.08	823.64	38.44	22.429	
7,800.00	7,710.08	8,048.19	7,710.08	24.43	38.56	135.02	-1,035.95	1,449.68	862.08	823.30	38.78	22.229	
7,900.00	7,810.08	8,148.19	7,810.08	24.58	38.65	135.02	-1,035.95	1,449.68	862.08	822.95	39.13	22.032	
8,000.00	7,910.08	8,248.19	7,910.08	24.72	38.74	135.02	-1,035.95	1,449.68	862.08	822.60	39.48	21.836	
8,100.00	8,010.08	8,348.19	8,010.08	24.87	38.84	135.02	-1,035.95	1,449.68	862.08	822.25	39.83	21.643	
8,200.00	8,110.08	8,448.19	8,110.08	25.01	38.93	135.02	-1,035.95	1,449.68	862.08	821.90	40.18	21.453	
8,300.00	8,210.08	8,548.19	8,210.08	25.16	39.03	135.02	-1,035.95	1,449.68	862.08	821.54	40.54	21.265	
8,400.00	8,310.08	8,580.11	8,242.00	25.31	39.06	135.02	-1,035.95	1,449.68	864.76	823.98	40.78	21.204	
8,500.00	8,410.08	8,580.11	8,242.00	25.46	39.06	135.02	-1,035.95	1,449.68	878.31	837.34	40.97	21.436	
8,596.92	8,507.00	8,580.11	8,242.00	25.61	39.06	135.02	-1,035.95	1,449.68	901.89	860.73	41.16	21.912	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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
0.00	0.00	0.00	0.00	0.00	0.00	-3.00	16.04	-0.84	16.06				
100.00	100.00	100.00	100.00	0.10	1.70	-3.00	16.04	-0.84	16.06	14.26	1.80	8.944	
200.00	200.00	200.00	200.00	0.32	5.70	-3.00	16.04	-0.84	16.06	10.04	6.02	2.667	
300.00	300.00	300.00	300.00	0.55	9.70	-3.00	16.04	-0.84	16.06	5.81	10.25	1.567	
400.00	400.00	400.00	400.00	0.77	13.70	-3.00	16.04	-0.84	16.06	1.59	14.47	1.110	Level 2
500.00	500.00	500.00	500.00	0.99	17.70	-3.00	16.04	-0.84	16.06	-2.64	18.69	0.859	Level 1
600.00	600.00	600.00	600.00	1.22	21.70	-3.00	16.04	-0.84	16.06	-6.86	22.92	0.701	Level 1
700.00	700.00	700.00	700.00	1.44	25.70	-3.00	16.04	-0.84	16.06	-11.09	27.14	0.592	Level 1
800.00	800.00	800.00	800.00	1.67	29.70	-3.00	16.04	-0.84	16.06	-15.31	31.37	0.512	Level 1
900.00	900.00	900.00	900.00	1.89	33.70	-3.00	16.04	-0.84	16.06	-19.54	35.59	0.451	Level 1
1,000.00	1,000.00	1,000.00	1,000.00	2.12	37.70	-3.00	16.04	-0.84	16.06	-23.76	39.82	0.403	Level 1
1,085.00	1,085.00	1,085.00	1,085.00	2.31	41.10	-3.00	16.04	-0.84	16.06	-27.35	43.41	0.370	Level 1, CC
1,100.00	1,100.00	1,099.99	1,099.99	2.34	41.45	-119.87	16.04	-0.80	16.08	-27.70	43.79	0.367	Level 1, ES, SF
1,200.00	1,199.97	1,199.92	1,199.89	2.53	42.25	-118.90	16.38	1.44	17.43	-27.34	44.77	0.389	Level 1
1,300.00	1,299.80	1,299.77	1,299.57	2.73	43.42	-116.99	17.23	7.12	20.88	-25.23	46.11	0.453	Level 1
1,400.00	1,399.37	1,399.48	1,398.85	2.94	44.94	-114.95	18.60	16.21	26.44	-21.35	47.78	0.553	Level 1
1,500.00	1,498.55	1,498.98	1,497.54	3.18	46.78	-113.21	20.47	28.69	34.11	-15.67	49.78	0.685	Level 1
1,600.00	1,597.23	1,598.20	1,595.46	3.45	48.95	-111.83	22.84	44.50	43.88	-8.22	52.10	0.842	Level 1
1,652.66	1,648.95	1,650.32	1,646.66	3.60	50.25	-111.24	24.29	54.14	49.87	-3.61	53.48	0.932	Level 1
1,700.00	1,695.37	1,697.10	1,692.45	3.76	51.42	-110.50	25.70	63.58	55.60	0.83	54.77	1.015	Level 2
1,800.00	1,793.41	1,795.63	1,788.36	4.09	54.19	-107.32	29.05	85.88	68.45	10.66	57.80	1.184	Level 2
1,900.00	1,891.45	1,893.58	1,882.88	4.45	57.26	-102.94	32.86	111.26	82.65	21.56	61.08	1.353	Level 3
2,000.00	1,989.50	1,990.72	1,975.71	4.82	60.59	-98.10	37.11	139.57	98.64	34.09	64.56	1.528	
2,100.00	2,087.54	2,087.98	2,067.79	5.20	64.20	-93.40	41.76	170.55	116.59	48.43	68.16	1.710	
2,200.00	2,185.58	2,185.91	2,160.39	5.59	68.05	-89.82	46.48	202.05	135.30	63.40	71.90	1.882	
2,300.00	2,283.63	2,283.84	2,253.00	5.98	72.05	-87.11	51.21	233.55	154.40	78.67	75.72	2.039	
2,400.00	2,381.67	2,381.77	2,345.60	6.39	76.19	-85.00	55.94	265.05	173.75	94.13	79.63	2.182	
2,500.00	2,479.71	2,479.70	2,438.20	6.80	80.45	-83.31	60.67	296.55	193.29	109.68	83.60	2.312	
2,600.00	2,577.76	2,577.63	2,530.81	7.21	84.80	-81.94	65.39	328.05	212.96	125.31	87.65	2.430	
2,700.00	2,675.80	2,675.56	2,623.41	7.62	89.24	-80.79	70.12	359.55	232.73	140.98	91.75	2.537	
2,800.00	2,773.84	2,773.49	2,716.02	8.04	93.75	-79.83	74.85	391.05	252.57	156.67	95.90	2.634	
2,900.00	2,871.88	2,871.42	2,808.62	8.46	98.32	-79.00	79.58	422.55	272.47	172.37	100.10	2.722	
3,000.00	2,969.93	2,969.35	2,901.23	8.89	102.95	-78.29	84.30	454.05	292.42	188.09	104.34	2.803	
3,100.00	3,067.97	3,067.28	2,993.83	9.31	107.62	-77.67	89.03	485.55	312.41	203.80	108.61	2.876	
3,200.00	3,166.01	3,165.21	3,086.43	9.74	112.34	-77.12	93.76	517.05	332.43	219.51	112.92	2.944	
3,300.00	3,264.06	3,263.14	3,179.04	10.17	117.09	-76.64	98.48	548.55	352.47	235.22	117.25	3.006	
3,400.00	3,362.10	3,361.07	3,271.64	10.59	121.87	-76.20	103.21	580.05	372.54	250.93	121.61	3.063	
3,500.00	3,460.14	3,459.00	3,364.25	11.02	126.68	-75.82	107.94	611.55	392.62	266.63	125.99	3.116	
3,600.00	3,558.19	3,556.92	3,456.85	11.46	131.52	-75.47	112.67	643.05	412.72	282.33	130.39	3.165	
3,700.00	3,656.23	3,654.85	3,549.46	11.89	136.38	-75.15	117.39	674.55	432.84	298.02	134.81	3.211	
3,800.00	3,754.27	3,752.78	3,642.06	12.32	141.26	-74.86	122.12	706.05	452.96	313.71	139.25	3.253	
3,900.00	3,852.32	3,850.71	3,734.67	12.75	146.15	-74.59	126.85	737.55	473.10	329.39	143.70	3.292	
4,000.00	3,950.36	3,948.64	3,827.27	13.19	151.07	-74.35	131.58	769.05	493.24	345.07	148.17	3.329	
4,100.00	4,048.40	4,046.57	3,919.87	13.62	156.00	-74.13	136.30	800.55	513.39	360.74	152.65	3.363	
4,200.00	4,146.45	4,144.50	4,012.48	14.06	160.94	-73.92	141.03	832.05	533.55	376.41	157.14	3.395	
4,300.00	4,244.49	4,242.43	4,105.08	14.49	165.89	-73.73	145.76	863.55	553.72	392.07	161.64	3.426	
4,400.00	4,342.53	4,340.36	4,197.69	14.93	170.86	-73.55	150.48	895.05	573.89	407.73	166.16	3.454	
4,500.00	4,440.58	4,438.29	4,290.29	15.37	175.84	-73.38	155.21	926.55	594.06	423.39	170.68	3.481	
4,600.00	4,538.62	4,536.22	4,382.90	15.80	180.82	-73.22	159.94	958.05	614.24	439.04	175.21	3.506	
4,700.00	4,636.66	4,634.15	4,475.50	16.24	185.82	-73.08	164.67	989.55	634.43	454.69	179.74	3.530	
4,800.00	4,734.71	4,732.08	4,568.11	16.68	190.82	-72.94	169.39	1,021.05	654.62	470.33	184.29	3.552	
4,900.00	4,832.75	4,830.01	4,660.71	17.11	195.83	-72.81	174.12	1,052.55	674.81	485.97	188.84	3.573	

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 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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	4,930.79	4,927.94	4,753.31	17.55	200.85	-72.69	178.85	1,084.05	695.00	501.61	193.39	3.594	
5,100.00	5,028.84	5,025.87	4,845.92	17.99	205.87	-72.58	183.58	1,115.55	715.20	517.24	197.96	3.613	
5,200.00	5,126.88	5,123.80	4,938.52	18.43	210.90	-72.47	188.30	1,147.05	735.40	532.87	202.52	3.631	
5,300.00	5,224.92	5,221.73	5,031.13	18.87	215.93	-72.37	193.03	1,178.55	755.60	548.50	207.10	3.649	
5,400.00	5,322.97	5,319.65	5,123.73	19.31	220.97	-72.27	197.76	1,210.05	775.81	564.13	211.68	3.665	
5,500.00	5,421.01	5,417.58	5,216.34	19.74	226.02	-72.18	202.48	1,241.55	796.01	579.75	216.26	3.681	
5,600.00	5,519.05	5,515.51	5,308.94	20.18	231.06	-72.09	207.21	1,273.05	816.22	595.38	220.84	3.696	
5,700.00	5,617.10	5,620.56	5,408.32	20.62	236.46	-72.01	212.26	1,306.69	836.33	610.59	225.74	3.705	
5,800.00	5,715.14	5,749.00	5,531.09	21.06	242.83	-72.08	217.86	1,344.00	853.96	622.27	231.70	3.686	
5,869.26	5,783.05	5,838.78	5,617.85	21.37	247.10	-72.27	221.28	1,366.82	864.12	628.20	235.92	3.663	
5,900.00	5,813.21	5,878.78	5,656.73	21.48	248.95	-72.45	222.68	1,376.13	868.13	630.42	237.72	3.652	
6,000.00	5,911.77	6,009.48	5,784.61	21.78	254.76	-72.98	226.68	1,402.77	879.55	636.18	243.37	3.614	
6,100.00	6,010.85	6,140.92	5,914.32	22.04	260.23	-73.40	229.82	1,423.71	888.42	639.61	248.81	3.571	
6,200.00	6,110.35	6,272.89	6,045.39	22.26	265.39	-73.73	232.09	1,438.80	894.69	640.67	254.02	3.522	
6,300.00	6,210.13	6,405.20	6,177.37	22.44	270.23	-73.96	233.45	1,447.92	898.34	639.36	258.99	3.469	
6,400.00	6,310.08	6,537.66	6,309.78	22.58	274.31	-74.11	233.92	1,451.00	899.35	636.13	263.22	3.417	
6,436.92	6,347.00	6,574.88	6,347.00	22.62	274.73	42.77	233.92	1,451.00	899.28	635.72	263.56	3.412	
6,500.00	6,410.08	6,637.95	6,410.08	22.70	275.44	42.77	233.92	1,451.00	899.28	634.89	264.39	3.401	
6,600.00	6,510.08	6,737.95	6,510.08	22.82	276.61	42.77	233.92	1,451.00	899.28	633.52	265.76	3.384	
6,700.00	6,610.08	6,837.95	6,610.08	22.95	277.83	42.77	233.92	1,451.00	899.28	632.10	267.18	3.366	
6,800.00	6,710.08	6,937.95	6,710.08	23.08	279.10	42.77	233.92	1,451.00	899.28	630.62	268.67	3.347	
6,900.00	6,810.08	7,037.95	6,810.08	23.21	280.42	42.77	233.92	1,451.00	899.28	629.07	270.21	3.328	
7,000.00	6,910.08	7,137.95	6,910.08	23.34	281.80	42.77	233.92	1,451.00	899.28	627.47	271.81	3.309	
7,100.00	7,010.08	7,237.95	7,010.08	23.47	283.22	42.77	233.92	1,451.00	899.28	625.82	273.47	3.288	
7,200.00	7,110.08	7,337.95	7,110.08	23.60	284.69	42.77	233.92	1,451.00	899.28	624.10	275.18	3.268	
7,300.00	7,210.08	7,437.95	7,210.08	23.74	286.22	42.77	233.92	1,451.00	899.28	622.33	276.95	3.247	
7,400.00	7,310.08	7,537.95	7,310.08	23.88	287.78	42.77	233.92	1,451.00	899.28	620.51	278.77	3.226	
7,500.00	7,410.08	7,637.95	7,410.08	24.01	289.40	42.77	233.92	1,451.00	899.28	618.64	280.64	3.204	
7,600.00	7,510.08	7,737.95	7,510.08	24.15	291.06	42.77	233.92	1,451.00	899.28	616.71	282.57	3.183	
7,700.00	7,610.08	7,837.95	7,610.08	24.29	292.77	42.77	233.92	1,451.00	899.28	614.74	284.54	3.160	
7,800.00	7,710.08	7,937.95	7,710.08	24.43	294.52	42.77	233.92	1,451.00	899.28	612.71	286.57	3.138	
7,900.00	7,810.08	8,037.95	7,810.08	24.58	296.32	42.77	233.92	1,451.00	899.28	610.64	288.64	3.116	
8,000.00	7,910.08	8,137.95	7,910.08	24.72	298.16	42.77	233.92	1,451.00	899.28	608.52	290.76	3.093	
8,100.00	8,010.08	8,237.95	8,010.08	24.87	300.04	42.77	233.92	1,451.00	899.28	606.35	292.93	3.070	
8,200.00	8,110.08	8,337.95	8,110.08	25.01	301.96	42.77	233.92	1,451.00	899.28	604.14	295.14	3.047	
8,300.00	8,210.08	8,437.95	8,210.08	25.16	303.92	42.77	233.92	1,451.00	899.28	601.89	297.40	3.024	
8,400.00	8,310.08	8,463.88	8,236.00	25.31	304.44	42.77	233.92	1,451.00	902.33	604.23	298.10	3.027	
8,500.00	8,410.08	8,463.88	8,236.00	25.46	304.44	42.77	233.92	1,451.00	915.97	617.73	298.25	3.071	
8,596.92	8,507.00	8,463.88	8,236.00	25.61	304.44	42.77	233.92	1,451.00	939.23	640.83	298.40	3.148	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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
0.00	0.00	0.00	0.00	0.00	0.00	-2.50	32.05	-1.40	32.08				
100.00	100.00	100.00	100.00	0.10	0.10	-2.50	32.05	-1.40	32.08	31.89	0.19	167.905	
200.00	200.00	200.00	200.00	0.32	0.32	-2.50	32.05	-1.40	32.08	31.44	0.64	50.077	
300.00	300.00	300.00	300.00	0.55	0.55	-2.50	32.05	-1.40	32.08	30.99	1.09	29.427	
400.00	400.00	400.00	400.00	0.77	0.77	-2.50	32.05	-1.40	32.08	30.54	1.54	20.835	
500.00	500.00	500.00	500.00	0.99	0.99	-2.50	32.05	-1.40	32.08	30.09	1.99	16.127	
600.00	600.00	600.00	600.00	1.22	1.22	-2.50	32.05	-1.40	32.08	29.64	2.44	13.154	
700.00	700.00	700.00	700.00	1.44	1.44	-2.50	32.05	-1.40	32.08	29.19	2.89	11.107	
800.00	800.00	800.00	800.00	1.67	1.67	-2.50	32.05	-1.40	32.08	28.74	3.34	9.611	
900.00	900.00	900.00	900.00	1.89	1.89	-2.50	32.05	-1.40	32.08	28.29	3.79	8.470	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-2.50	32.05	-1.40	32.08	27.84	4.24	7.571	
1,085.00	1,085.00	1,085.00	1,085.00	2.31	2.31	-2.50	32.05	-1.40	32.08	27.46	4.62	6.945 CC	
1,100.00	1,100.00	1,099.89	1,099.89	2.34	2.34	-119.40	32.08	-1.37	32.12	27.44	4.68	6.861 ES	
1,200.00	1,199.97	1,199.06	1,199.03	2.53	2.56	-119.90	33.67	0.19	34.78	29.69	5.08	6.840 SF	
1,300.00	1,299.80	1,297.95	1,297.76	2.73	2.78	-120.87	37.70	4.13	41.51	36.02	5.50	7.552	
1,400.00	1,399.37	1,396.31	1,395.70	2.94	3.00	-121.87	44.13	10.42	52.32	46.40	5.92	8.831	
1,500.00	1,498.55	1,493.89	1,492.51	3.18	3.24	-122.67	52.87	18.97	67.17	60.80	6.38	10.535	
1,600.00	1,597.23	1,590.48	1,587.86	3.45	3.51	-123.23	63.85	29.70	86.01	79.15	6.86	12.535	
1,652.66	1,648.95	1,640.87	1,637.39	3.60	3.66	-123.43	70.48	36.19	97.51	90.38	7.14	13.664	
1,700.00	1,695.37	1,685.91	1,681.51	3.76	3.80	-123.58	76.94	42.51	108.56	101.16	7.40	14.674	
1,800.00	1,793.41	1,780.32	1,773.51	4.09	4.12	-123.01	92.08	57.31	133.36	125.37	7.99	16.697	
1,900.00	1,891.45	1,874.99	1,865.09	4.45	4.49	-121.80	109.23	74.09	159.98	151.37	8.62	18.562	
2,000.00	1,989.50	1,971.22	1,958.05	4.82	4.90	-120.78	127.02	91.50	187.00	177.72	9.29	20.136	
2,100.00	2,087.54	2,067.46	2,051.01	5.20	5.32	-120.02	144.82	108.90	214.07	204.09	9.98	21.459	
2,200.00	2,185.58	2,163.69	2,143.97	5.59	5.76	-119.44	162.62	126.31	241.15	230.47	10.68	22.577	
2,300.00	2,283.63	2,259.93	2,236.93	5.98	6.21	-118.97	180.41	143.72	268.26	256.86	11.40	23.529	
2,400.00	2,381.67	2,356.16	2,329.89	6.39	6.67	-118.58	198.21	161.12	295.38	283.25	12.13	24.346	
2,500.00	2,479.71	2,452.40	2,422.85	6.80	7.14	-118.26	216.01	178.53	322.51	309.64	12.87	25.053	
2,600.00	2,577.76	2,548.63	2,515.81	7.21	7.61	-118.00	233.80	195.94	349.65	336.03	13.62	25.668	
2,700.00	2,675.80	2,644.87	2,608.77	7.62	8.09	-117.77	251.60	213.35	376.80	362.42	14.38	26.207	
2,800.00	2,773.84	2,741.10	2,701.72	8.04	8.57	-117.57	269.40	230.75	403.95	388.81	15.14	26.683	
2,900.00	2,871.88	2,837.34	2,794.68	8.46	9.06	-117.39	287.19	248.16	431.10	415.20	15.91	27.105	
3,000.00	2,969.93	2,933.57	2,887.64	8.89	9.55	-117.24	304.99	265.57	458.26	441.58	16.68	27.481	
3,100.00	3,067.97	3,029.81	2,980.60	9.31	10.04	-117.10	322.79	282.97	485.42	467.97	17.45	27.818	
3,200.00	3,166.01	3,126.04	3,073.56	9.74	10.54	-116.98	340.59	300.38	512.58	494.35	18.23	28.122	
3,300.00	3,264.06	3,222.28	3,166.52	10.17	11.03	-116.87	358.38	317.79	539.74	520.74	19.01	28.397	
3,400.00	3,362.10	3,318.51	3,259.48	10.59	11.53	-116.77	376.18	335.20	566.91	547.12	19.79	28.647	
3,500.00	3,460.14	3,414.75	3,352.44	11.02	12.03	-116.68	393.98	352.60	594.08	573.50	20.57	28.875	
3,600.00	3,558.19	3,510.98	3,445.40	11.46	12.53	-116.60	411.77	370.01	621.25	599.88	21.36	29.083	
3,700.00	3,656.23	3,607.22	3,538.36	11.89	13.03	-116.52	429.57	387.42	648.42	626.27	22.15	29.274	
3,800.00	3,754.27	3,703.45	3,631.32	12.32	13.53	-116.45	447.37	404.82	675.59	652.65	22.94	29.450	
3,900.00	3,852.32	3,799.69	3,724.28	12.75	14.04	-116.39	465.16	422.23	702.76	679.03	23.73	29.613	
4,000.00	3,950.36	3,895.92	3,817.24	13.19	14.54	-116.33	482.96	439.64	729.93	705.40	24.52	29.764	
4,100.00	4,048.40	3,992.16	3,910.20	13.62	15.05	-116.27	500.76	457.04	757.10	731.78	25.32	29.904	
4,200.00	4,146.45	4,088.39	4,003.16	14.06	15.55	-116.22	518.55	474.45	784.27	758.16	26.11	30.034	
4,300.00	4,244.49	4,184.63	4,096.12	14.49	16.06	-116.18	536.35	491.86	811.45	784.54	26.91	30.156	
4,400.00	4,342.53	4,280.86	4,189.07	14.93	16.57	-116.13	554.15	509.27	838.62	810.92	27.71	30.269	
4,500.00	4,440.58	4,377.10	4,282.03	15.37	17.07	-116.09	571.94	526.67	865.80	837.29	28.50	30.375	
4,600.00	4,538.62	4,473.33	4,374.99	15.80	17.58	-116.05	589.74	544.08	892.97	863.67	29.30	30.475	
4,700.00	4,636.66	4,569.57	4,467.95	16.24	18.09	-116.01	607.54	561.49	920.15	890.05	30.10	30.569	
4,800.00	4,734.71	4,665.80	4,560.91	16.68	18.60	-115.98	625.33	578.89	947.32	916.42	30.90	30.658	
4,900.00	4,832.75	4,762.04	4,653.87	17.11	19.11	-115.95	643.13	596.30	974.50	942.80	31.70	30.741	

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 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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	4,930.79	4,858.27	4,746.83	17.55	19.62	-115.91	660.93	613.71	1,001.68	969.18	32.50	30.820	
5,100.00	5,028.84	4,954.51	4,839.79	17.99	20.13	-115.88	678.72	631.11	1,028.85	995.55	33.30	30.894	
5,200.00	5,126.88	5,050.74	4,932.75	18.43	20.64	-115.86	696.52	648.52	1,056.03	1,021.93	34.10	30.965	
5,300.00	5,224.92	5,146.98	5,025.71	18.87	21.15	-115.83	714.32	665.93	1,083.21	1,048.30	34.91	31.032	
5,400.00	5,322.97	5,243.21	5,118.67	19.31	21.66	-115.81	732.11	683.34	1,110.38	1,074.68	35.71	31.096	
5,500.00	5,421.01	5,339.45	5,211.63	19.74	22.17	-115.78	749.91	700.74	1,137.56	1,101.05	36.51	31.156	
5,600.00	5,519.05	5,435.68	5,304.59	20.18	22.68	-115.76	767.71	718.15	1,164.74	1,127.43	37.31	31.214	
5,700.00	5,617.10	5,531.92	5,397.55	20.62	23.19	-115.74	785.50	735.56	1,191.92	1,153.80	38.12	31.269	
5,800.00	5,715.14	5,628.15	5,490.51	21.06	23.70	-115.72	803.30	752.96	1,219.10	1,180.17	38.92	31.321	
5,869.26	5,783.05	5,694.81	5,554.89	21.37	24.06	-115.70	815.63	765.02	1,237.92	1,198.44	39.48	31.356	
5,900.00	5,813.21	5,724.41	5,583.48	21.48	24.21	-115.84	821.10	770.37	1,246.21	1,206.46	39.74	31.356	
6,000.00	5,911.77	5,857.78	5,712.90	21.78	24.79	-116.19	844.13	792.90	1,271.05	1,230.47	40.58	31.325	
6,100.00	6,010.85	6,001.73	5,854.08	22.04	25.28	-116.45	864.16	812.49	1,290.98	1,249.68	41.31	31.254	
6,200.00	6,110.35	6,148.01	5,998.80	22.26	25.68	-116.64	879.30	827.29	1,305.83	1,263.90	41.93	31.145	
6,300.00	6,210.13	6,295.97	6,146.09	22.44	26.00	-116.76	889.21	836.99	1,315.47	1,273.03	42.45	30.992	
6,400.00	6,310.08	6,444.89	6,294.87	22.58	26.22	-116.83	893.69	841.38	1,319.86	1,277.01	42.84	30.806	
6,436.92	6,347.00	6,497.03	6,347.00	22.62	26.28	0.06	893.96	841.64	1,320.14	1,277.18	42.97	30.726	
6,500.00	6,410.08	6,560.10	6,410.08	22.70	26.35	0.06	893.96	841.64	1,320.14	1,277.01	43.14	30.605	
6,600.00	6,510.08	6,660.10	6,510.08	22.82	26.47	0.06	893.96	841.64	1,320.14	1,276.73	43.41	30.411	
6,700.00	6,610.08	6,760.10	6,610.08	22.95	26.59	0.06	893.96	841.64	1,320.14	1,276.45	43.69	30.218	
6,800.00	6,710.08	6,860.10	6,710.08	23.08	26.70	0.06	893.96	841.64	1,320.14	1,276.17	43.97	30.025	
6,900.00	6,810.08	6,960.10	6,810.08	23.21	26.82	0.06	893.96	841.64	1,320.14	1,275.89	44.25	29.833	
7,000.00	6,910.08	7,060.10	6,910.08	23.34	26.94	0.06	893.96	841.64	1,320.14	1,275.60	44.54	29.641	
7,100.00	7,010.08	7,160.10	7,010.08	23.47	27.07	0.06	893.96	841.64	1,320.14	1,275.31	44.83	29.451	
7,200.00	7,110.08	7,260.10	7,110.08	23.60	27.19	0.06	893.96	841.64	1,320.14	1,275.02	45.12	29.260	
7,300.00	7,210.08	7,360.10	7,210.08	23.74	27.31	0.06	893.96	841.64	1,320.14	1,274.73	45.41	29.071	
7,400.00	7,310.08	7,460.10	7,310.08	23.88	27.44	0.06	893.96	841.64	1,320.14	1,274.43	45.71	28.883	
7,500.00	7,410.08	7,560.10	7,410.08	24.01	27.57	0.06	893.96	841.64	1,320.14	1,274.13	46.01	28.695	
7,600.00	7,510.08	7,660.10	7,510.08	24.15	27.69	0.06	893.96	841.64	1,320.14	1,273.83	46.31	28.508	
7,700.00	7,610.08	7,760.10	7,610.08	24.29	27.82	0.06	893.96	841.64	1,320.14	1,273.53	46.61	28.322	
7,800.00	7,710.08	7,860.10	7,710.08	24.43	27.95	0.06	893.96	841.64	1,320.14	1,273.22	46.92	28.138	
7,900.00	7,810.08	7,960.10	7,810.08	24.58	28.09	0.06	893.96	841.64	1,320.14	1,272.92	47.23	27.954	
8,000.00	7,910.08	8,060.10	7,910.08	24.72	28.22	0.06	893.96	841.64	1,320.14	1,272.60	47.54	27.771	
8,100.00	8,010.08	8,160.10	8,010.08	24.87	28.35	0.06	893.96	841.64	1,320.14	1,272.29	47.85	27.590	
8,200.00	8,110.08	8,260.10	8,110.08	25.01	28.49	0.06	893.96	841.64	1,320.14	1,271.98	48.16	27.409	
8,300.00	8,210.08	8,360.10	8,210.08	25.16	28.62	0.06	893.96	841.64	1,320.14	1,271.66	48.48	27.230	
8,400.00	8,310.08	8,460.10	8,310.08	25.31	28.76	0.06	893.96	841.64	1,320.14	1,271.34	48.80	27.052	
8,500.00	8,410.08	8,560.10	8,410.08	25.46	28.90	0.06	893.96	841.64	1,320.14	1,271.02	49.12	26.875	
8,596.92	8,507.00	8,657.03	8,507.00	25.61	29.04	0.06	893.96	841.64	1,320.14	1,270.71	49.43	26.705	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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						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	-126.17	-33.15	-45.34	59.30				
100.00	100.00	81.00	81.00	0.10	0.09	-126.17	-33.15	-45.34	56.17	55.99	0.19	301.037	
200.00	200.00	181.00	181.00	0.32	0.29	-126.17	-33.15	-45.34	56.17	55.56	0.61	91.375	
300.00	300.00	281.00	281.00	0.55	0.52	-126.17	-33.15	-45.34	56.17	55.11	1.06	52.780	
400.00	400.00	381.00	381.00	0.77	0.74	-126.17	-33.15	-45.34	56.17	54.66	1.51	37.106	
500.00	500.00	481.00	481.00	0.99	0.97	-126.17	-33.15	-45.34	56.17	54.21	1.96	28.610	
600.00	600.00	581.00	581.00	1.22	1.19	-126.17	-33.15	-45.34	56.17	53.76	2.41	23.280	
700.00	700.00	681.00	681.00	1.44	1.42	-126.17	-33.15	-45.34	56.17	53.31	2.86	19.624	
800.00	800.00	781.00	781.00	1.67	1.64	-126.17	-33.15	-45.34	56.17	52.86	3.31	16.960	
900.00	900.00	881.00	881.00	1.89	1.87	-126.17	-33.15	-45.34	56.17	52.41	3.76	14.933	
1,000.00	1,000.00	981.00	981.00	2.12	2.09	-126.17	-33.15	-45.34	56.17	51.96	4.21	13.339	
1,085.00	1,085.00	1,066.00	1,066.00	2.31	2.28	-126.17	-33.15	-45.34	56.17	51.58	4.59	12.230 CC	
1,100.00	1,100.00	1,081.00	1,081.00	2.34	2.32	116.97	-33.15	-45.34	56.19	51.53	4.66	12.065 ES	
1,200.00	1,199.97	1,180.97	1,180.97	2.53	2.54	118.97	-33.15	-45.34	57.25	52.19	5.07	11.298	
1,300.00	1,299.80	1,280.80	1,280.80	2.73	2.77	123.71	-33.15	-45.34	60.25	54.77	5.48	10.986 SF	
1,400.00	1,399.37	1,380.37	1,380.37	2.94	2.99	130.31	-33.15	-45.34	65.84	59.93	5.91	11.148	
1,500.00	1,498.55	1,479.55	1,479.55	3.18	3.21	137.61	-33.15	-45.34	74.72	68.39	6.33	11.806	
1,600.00	1,597.23	1,578.23	1,578.23	3.45	3.43	144.60	-33.15	-45.34	87.38	80.64	6.75	12.954	
1,652.66	1,648.95	1,629.95	1,629.95	3.60	3.55	147.92	-33.15	-45.34	95.66	88.69	6.96	13.740	
1,700.00	1,695.37	1,676.37	1,676.37	3.76	3.66	150.65	-33.15	-45.34	103.71	96.54	7.17	14.467	
1,800.00	1,793.41	1,774.41	1,774.41	4.09	3.88	155.19	-33.15	-45.34	121.32	113.72	7.61	15.948	
1,900.00	1,891.45	1,872.45	1,872.45	4.45	4.10	158.58	-33.15	-45.34	139.49	131.44	8.05	17.320	
2,000.00	1,989.50	1,970.50	1,970.50	4.82	4.32	161.18	-33.15	-45.34	158.02	149.52	8.50	18.583	
2,100.00	2,087.54	2,068.54	2,068.54	5.20	4.54	163.24	-33.15	-45.34	176.80	167.85	8.96	19.740	
2,200.00	2,185.58	2,166.58	2,166.58	5.59	4.76	164.90	-33.15	-45.34	195.76	186.35	9.41	20.799	
2,300.00	2,283.63	2,264.63	2,264.63	5.98	4.98	166.26	-33.15	-45.34	214.85	204.98	9.87	21.768	
2,400.00	2,381.67	2,362.67	2,362.67	6.39	5.20	167.41	-33.15	-45.34	234.04	223.71	10.33	22.656	
2,500.00	2,479.71	2,460.71	2,460.71	6.80	5.42	168.38	-33.15	-45.34	253.31	242.51	10.79	23.472	
2,600.00	2,577.76	2,558.76	2,558.76	7.21	5.64	169.21	-33.15	-45.34	272.63	261.37	11.26	24.222	
2,700.00	2,675.80	2,656.80	2,656.80	7.62	5.86	169.93	-33.15	-45.34	292.00	280.28	11.72	24.915	
2,800.00	2,773.84	2,754.84	2,754.84	8.04	6.08	170.56	-33.15	-45.34	311.42	299.23	12.19	25.555	
2,900.00	2,871.88	2,852.88	2,852.88	8.46	6.30	171.12	-33.15	-45.34	330.86	318.21	12.65	26.148	
3,000.00	2,969.93	2,950.93	2,950.93	8.89	6.52	171.62	-33.15	-45.34	350.33	337.21	13.12	26.698	
3,100.00	3,067.97	3,048.97	3,048.97	9.31	6.74	172.06	-33.15	-45.34	369.83	356.23	13.59	27.211	
3,200.00	3,166.01	3,147.01	3,147.01	9.74	6.96	172.46	-33.15	-45.34	389.34	375.28	14.06	27.689	
3,300.00	3,264.06	3,245.06	3,245.06	10.17	7.18	172.83	-33.15	-45.34	408.87	394.34	14.53	28.136	
3,400.00	3,362.10	3,343.10	3,343.10	10.59	7.40	173.15	-33.15	-45.34	428.41	413.41	15.00	28.555	
3,500.00	3,460.14	3,441.14	3,441.14	11.02	7.62	173.45	-33.15	-45.34	447.97	432.49	15.48	28.948	
3,600.00	3,558.19	3,539.19	3,539.19	11.46	7.84	173.73	-33.15	-45.34	467.54	451.59	15.95	29.317	
3,700.00	3,656.23	3,637.23	3,637.23	11.89	8.06	173.98	-33.15	-45.34	487.11	470.69	16.42	29.664	
3,800.00	3,754.27	3,735.27	3,735.27	12.32	8.28	174.22	-33.15	-45.34	506.70	489.81	16.89	29.992	
3,900.00	3,852.32	3,833.32	3,833.32	12.75	8.50	174.43	-33.15	-45.34	526.29	508.92	17.37	30.302	
4,000.00	3,950.36	3,931.36	3,931.36	13.19	8.72	174.63	-33.15	-45.34	545.89	528.05	17.84	30.594	
4,100.00	4,048.40	4,029.40	4,029.40	13.62	8.94	174.82	-33.15	-45.34	565.50	547.18	18.32	30.872	
4,200.00	4,146.45	4,127.45	4,127.45	14.06	9.16	174.99	-33.15	-45.34	585.11	566.32	18.79	31.135	
4,300.00	4,244.49	4,225.49	4,225.49	14.49	9.39	175.16	-33.15	-45.34	604.72	585.46	19.27	31.385	
4,400.00	4,342.53	4,323.53	4,323.53	14.93	9.61	175.31	-33.15	-45.34	624.34	604.60	19.74	31.622	
4,500.00	4,440.58	4,421.58	4,421.58	15.37	9.83	175.45	-33.15	-45.34	643.97	623.75	20.22	31.848	
4,600.00	4,538.62	4,519.62	4,519.62	15.80	10.05	175.59	-33.15	-45.34	663.60	642.90	20.70	32.064	
4,700.00	4,636.66	4,617.66	4,617.66	16.24	10.27	175.71	-33.15	-45.34	683.23	662.06	21.17	32.270	
4,800.00	4,734.71	4,715.71	4,715.71	16.68	10.49	175.83	-33.15	-45.34	702.86	681.21	21.65	32.466	
4,900.00	4,832.75	4,813.75	4,813.75	17.11	10.71	175.95	-33.15	-45.34	722.50	700.37	22.13	32.654	

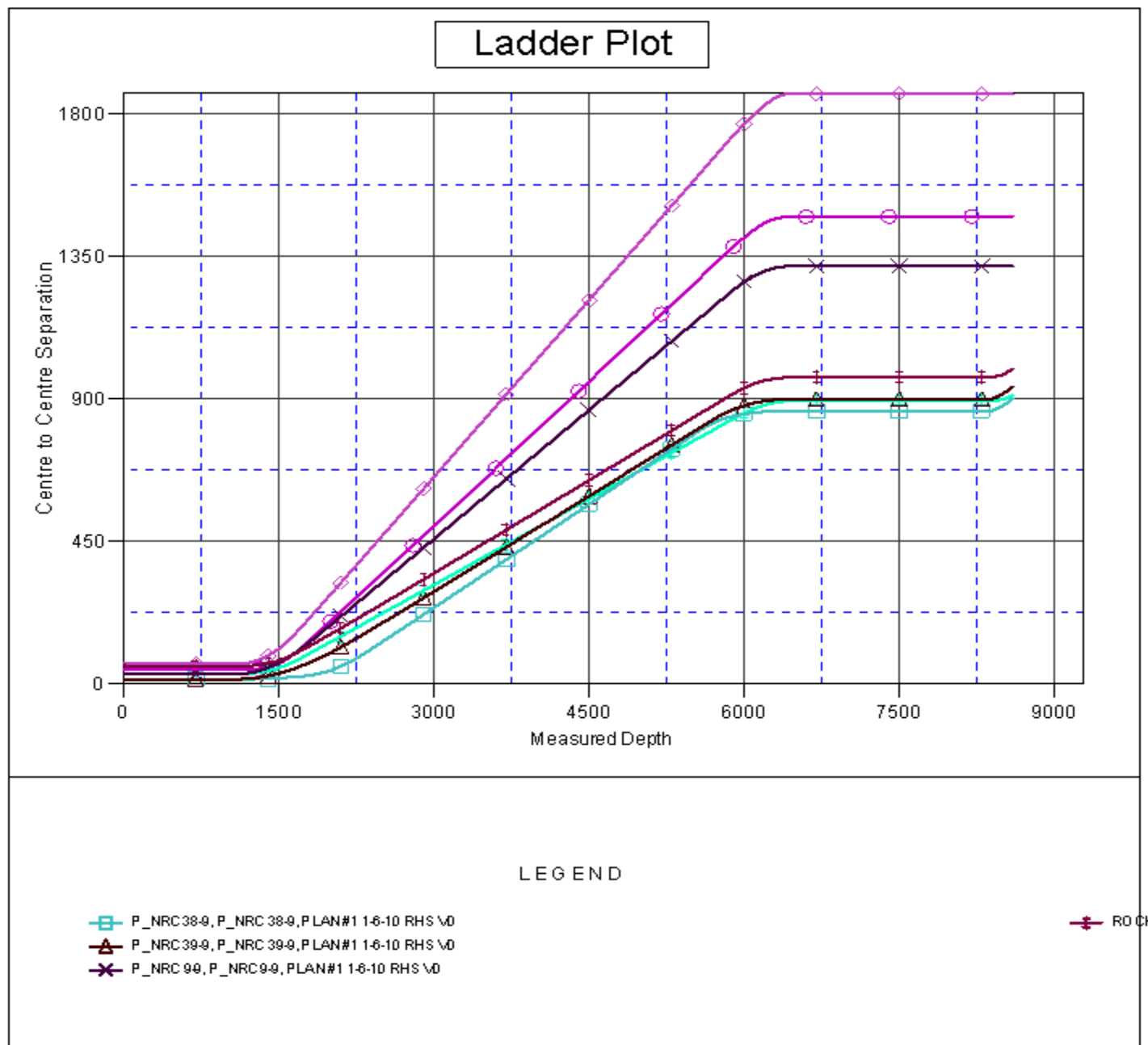
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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	4,930.79	4,911.79	4,911.79	17.55	10.93	176.05	-33.15	-45.34	742.14	719.54	22.60	32.834	
5,100.00	5,028.84	5,009.84	5,009.84	17.99	11.15	176.16	-33.15	-45.34	761.78	738.70	23.08	33.006	
5,200.00	5,126.88	5,107.88	5,107.88	18.43	11.37	176.25	-33.15	-45.34	781.42	757.87	23.56	33.171	
5,300.00	5,224.92	5,205.92	5,205.92	18.87	11.59	176.34	-33.15	-45.34	801.07	777.04	24.03	33.329	
5,400.00	5,322.97	5,303.97	5,303.97	19.31	11.81	176.43	-33.15	-45.34	820.72	796.21	24.51	33.481	
5,500.00	5,421.01	5,402.01	5,402.01	19.74	12.03	176.52	-33.15	-45.34	840.37	815.38	24.99	33.628	
5,600.00	5,519.05	5,500.05	5,500.05	20.18	12.25	176.60	-33.15	-45.34	860.02	834.55	25.47	33.768	
5,700.00	5,617.10	5,598.10	5,598.10	20.62	12.47	176.67	-33.15	-45.34	879.67	853.73	25.95	33.903	
5,800.00	5,715.14	5,696.14	5,696.14	21.06	12.69	176.74	-33.15	-45.34	899.33	872.90	26.42	34.034	
5,869.26	5,783.05	5,764.05	5,764.05	21.37	12.84	176.79	-33.15	-45.34	912.94	886.19	26.76	34.121	
5,900.00	5,813.21	5,794.21	5,794.21	21.48	12.91	176.82	-33.15	-45.34	918.82	891.90	26.93	34.125	
6,000.00	5,911.77	5,892.77	5,892.77	21.78	13.13	176.90	-33.15	-45.34	935.71	908.28	27.43	34.111	
6,100.00	6,010.85	5,991.85	5,991.85	22.04	13.36	176.95	-33.15	-45.34	949.16	921.26	27.90	34.021	
6,200.00	6,110.35	6,091.35	6,091.35	22.26	13.58	177.00	-33.15	-45.34	959.14	930.81	28.33	33.858	
6,300.00	6,210.13	6,191.13	6,191.13	22.44	13.80	177.02	-33.15	-45.34	965.65	936.94	28.72	33.628	
6,400.00	6,310.08	6,291.08	6,291.08	22.58	14.03	177.04	-33.15	-45.34	968.68	939.62	29.06	33.332	
6,436.92	6,347.00	6,328.00	6,328.00	22.62	14.11	-66.07	-33.15	-45.34	968.92	939.74	29.18	33.203	
6,500.00	6,410.08	6,391.08	6,391.08	22.70	14.25	-66.07	-33.15	-45.34	968.92	939.48	29.44	32.914	
6,600.00	6,510.08	6,491.08	6,491.08	22.82	14.48	-66.07	-33.15	-45.34	968.92	939.08	29.84	32.470	
6,700.00	6,610.08	6,591.08	6,591.08	22.95	14.70	-66.07	-33.15	-45.34	968.92	938.68	30.24	32.037	
6,800.00	6,710.08	6,691.08	6,691.08	23.08	14.93	-66.07	-33.15	-45.34	968.92	938.27	30.65	31.614	
6,900.00	6,810.08	6,791.08	6,791.08	23.21	15.15	-66.07	-33.15	-45.34	968.92	937.86	31.05	31.201	
7,000.00	6,910.08	6,891.08	6,891.08	23.34	15.38	-66.07	-33.15	-45.34	968.92	937.46	31.46	30.797	
7,100.00	7,010.08	6,991.08	6,991.08	23.47	15.60	-66.07	-33.15	-45.34	968.92	937.05	31.87	30.403	
7,200.00	7,110.08	7,091.08	7,091.08	23.60	15.83	-66.07	-33.15	-45.34	968.92	936.64	32.28	30.017	
7,300.00	7,210.08	7,191.08	7,191.08	23.74	16.05	-66.07	-33.15	-45.34	968.92	936.23	32.69	29.641	
7,400.00	7,310.08	7,291.08	7,291.08	23.88	16.28	-66.07	-33.15	-45.34	968.92	935.82	33.10	29.273	
7,500.00	7,410.08	7,391.08	7,391.08	24.01	16.50	-66.07	-33.15	-45.34	968.92	935.41	33.51	28.913	
7,600.00	7,510.08	7,491.08	7,491.08	24.15	16.73	-66.07	-33.15	-45.34	968.92	934.99	33.92	28.561	
7,700.00	7,610.08	7,591.08	7,591.08	24.29	16.95	-66.07	-33.15	-45.34	968.92	934.58	34.34	28.217	
7,800.00	7,710.08	7,691.08	7,691.08	24.43	17.17	-66.07	-33.15	-45.34	968.92	934.17	34.75	27.880	
7,900.00	7,810.08	7,791.08	7,791.08	24.58	17.40	-66.07	-33.15	-45.34	968.92	933.75	35.17	27.551	
8,000.00	7,910.08	7,891.08	7,891.08	24.72	17.62	-66.07	-33.15	-45.34	968.92	933.33	35.58	27.228	
8,100.00	8,010.08	7,991.08	7,991.08	24.87	17.85	-66.07	-33.15	-45.34	968.92	932.92	36.00	26.913	
8,200.00	8,110.08	8,091.08	8,091.08	25.01	18.07	-66.07	-33.15	-45.34	968.92	932.50	36.42	26.604	
8,300.00	8,210.08	8,191.08	8,191.08	25.16	18.30	-66.07	-33.15	-45.34	968.92	932.08	36.84	26.302	
8,351.64	8,261.71	8,242.71	8,242.71	25.24	18.41	-66.07	-33.15	-45.34	968.92	931.86	37.05	26.149	
8,400.00	8,310.08	8,260.00	8,260.00	25.31	18.45	-66.07	-33.15	-45.34	969.42	932.23	37.19	26.069	
8,500.00	8,410.08	8,260.00	8,260.00	25.46	18.45	-66.07	-33.15	-45.34	977.75	940.36	37.38	26.155	
8,596.92	8,507.00	8,260.00	8,260.00	25.61	18.45	-66.07	-33.15	-45.34	995.38	957.81	37.57	26.493	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-6-10 RHS	Offset TVD Reference:	Offset Datum

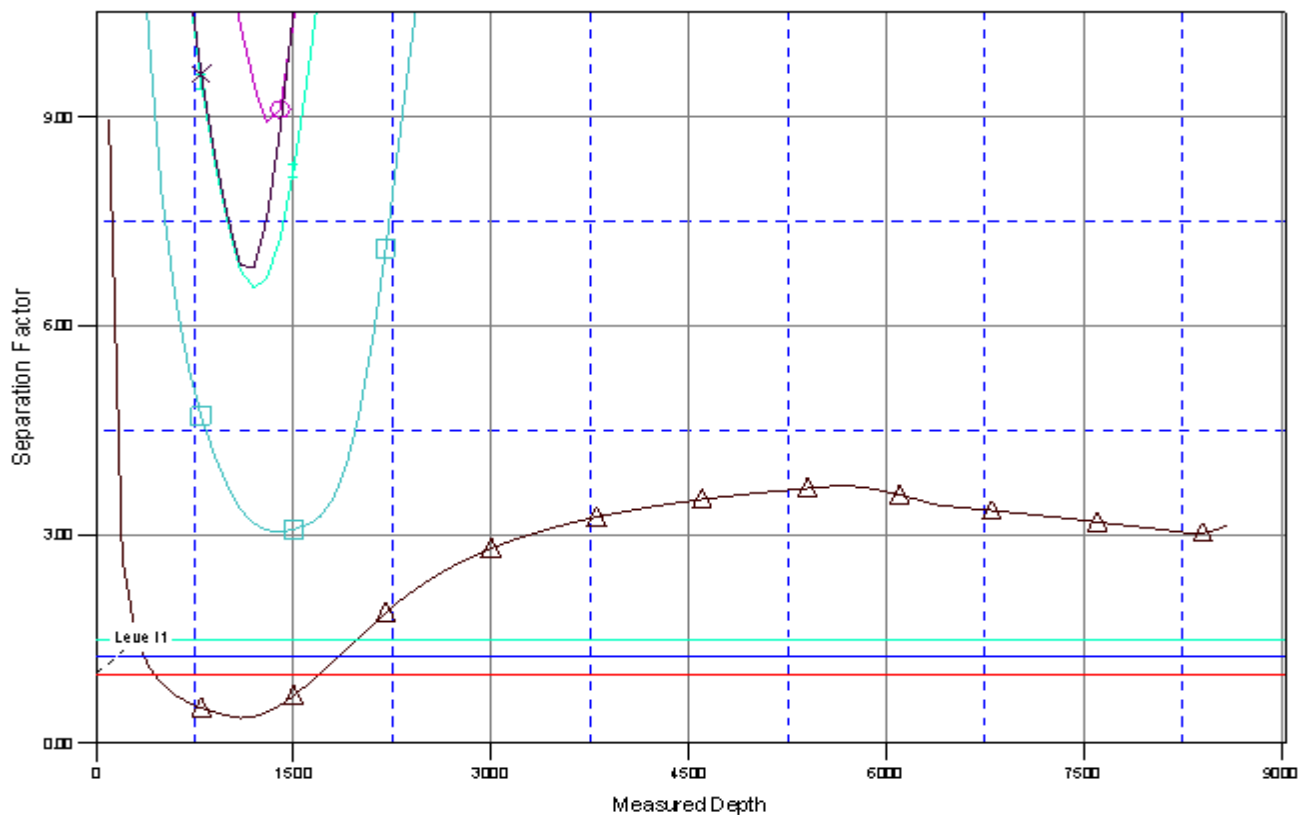
Reference Depths are relative to WELL @ 5039.00ft (Original Well Elev) Coordinates are relative to: P_NRC 16-9
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.39°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NRC 16-9
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 16-9	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NRC 16-9	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 16-9
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_NRC 38-9, P_NRC 38-9, PLAN#1 1-6-10 RHS V0
- ▲ P_NRC 39-9, P_NRC 39-9, PLAN#1 1-6-10 RHS V0
- ✕ P_NRC 9-9, P_NRC 9-9, PLAN#1 1-6-10 RHS V0

✕ ROCK