



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_FREDERICK STATE 2 PAD
FREDERICK STATE 2-36**

P_FREDERICK STATE 2-36

Plan: PLAN #1 11-20-09 RHS

Standard Planning Report

20 November, 2009



FREDERICK STATE 2-36
COLORADO NORTHERN ZONE - 83
SECTION 36 T2N R68W
1438' FNL 2516' FEL
LAT: 40° 5' 53.916 N
LONG: 104° 57' 4.464 W



Azimuths to True North
Magnetic North: 9.11°
Magnetic Field
Strength: 53135.1snT
Dip Angle: 66.84°
Date: 11/20/2009
Model: IGRF200510

WELL DETAILS: FREDERICK STATE 2-36

+N/-S	+E/-W	Northing	Easting	Ground Level:	Latitude	Longitude	Slot
0.00	0.00	1279133.78	3153514.48	5014.00	40° 5' 53.916 N	104° 57' 4.464 W	

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4649.00	4711.10	SUSSEX TOP
5053.00	5122.62	SHANNON TOP
7375.00	7462.44	NIO A TOP
7675.00	7762.44	CODELL TOP
8115.00	8202.44	JSAND TO

SECTION DETAILS

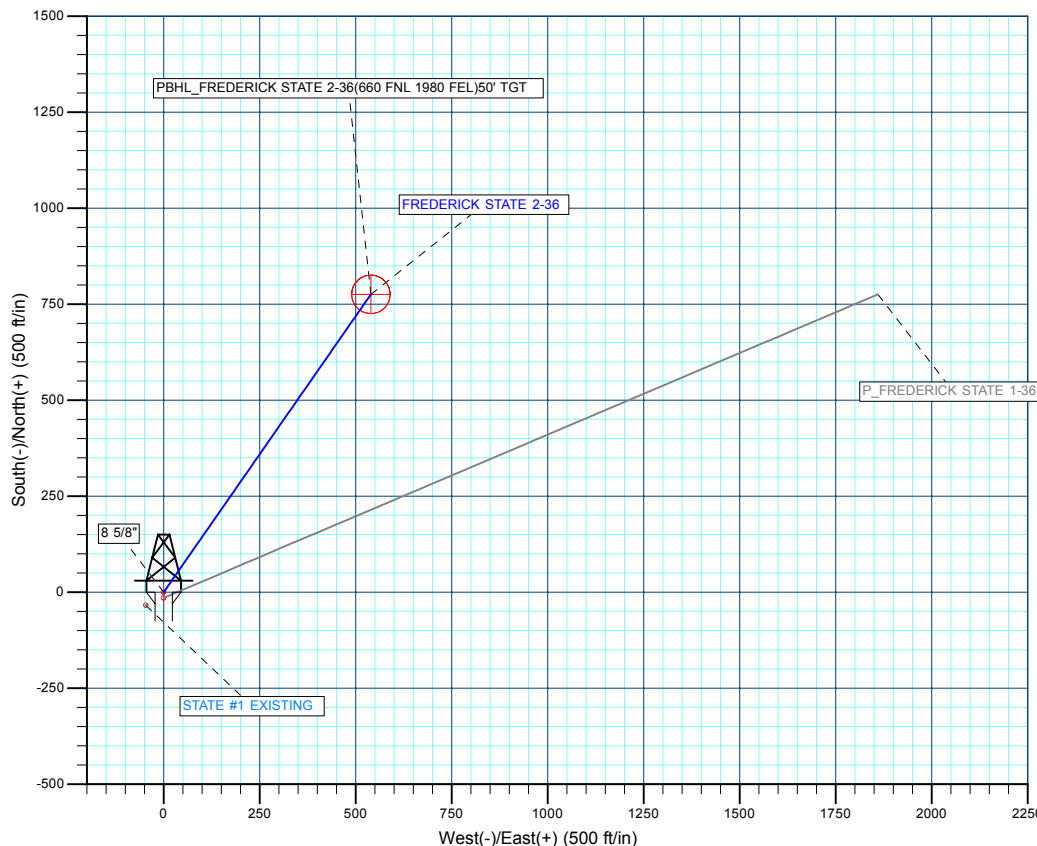
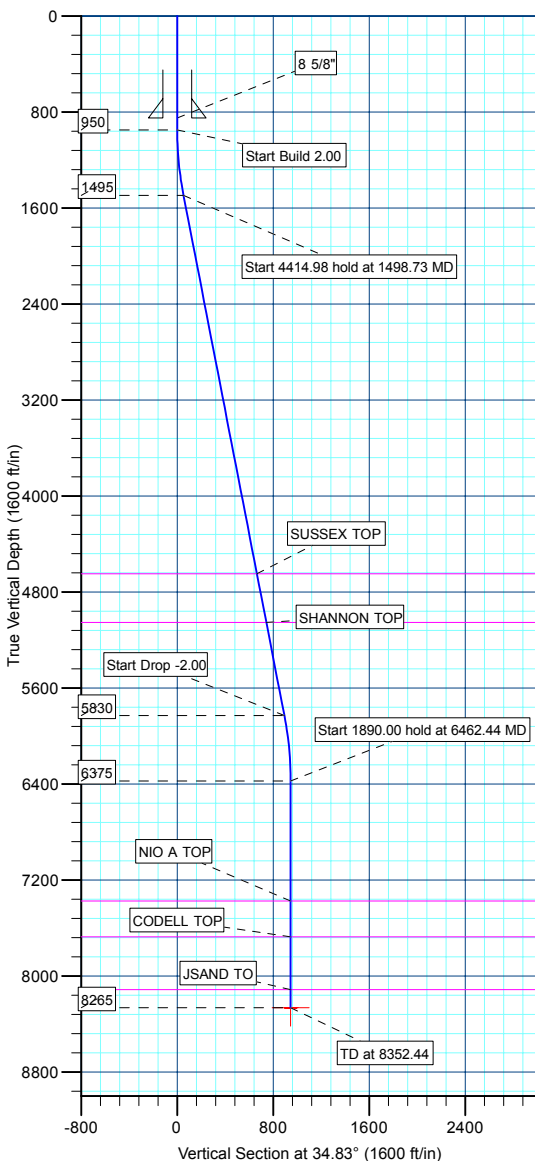
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	
1498.73	10.97	34.83	1495.38	43.01	29.92	2.00	34.83	52.39	
5913.71	10.97	34.83	5829.62	732.93	509.98	0.00	0.00	892.89	
6462.44	0.00	0.00	6375.00	775.93	539.90	2.00	180.00	945.29	
8352.44	0.00	0.00	8265.00	775.93	539.90	0.00	0.00	945.29	PBHL_FREDERICK STATE 2-36(660 FNL 1980 FEL)50' TGT

CASING DETAILS

TVD	MD	Name	Size
850.00	850.00	8 5/8"	8.62



KB ELEV: WELL @ 5029.00ft (Original Well Elev)
GRD ELEV: 5014.00



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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	8265.00	775.93	539.90	1279913.04	3154049.57	40° 6' 1.584 N	104° 56' 57.516 W	Circle (Radius: 50.00)

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well FREDERICK STATE 2-36
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 5029.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 5029.00ft (Original Well Elev)
Site:	WELD_FREDERICK STATE 2 PAD	North Reference:	True
Well:	FREDERICK STATE 2-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_FREDERICK STATE 2-36		
Design:	PLAN #1 11-20-09 RHS		

Project	COLORADO NOTHERN 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_FREDERICK STATE 2 PAD, SECTION 36 T2N R68W			
Site Position:		Northing:	1,279,119.22 ft	Latitude:	40° 5' 53.772 N
From:	Lat/Long	Easting:	3,153,514.57 ft	Longitude:	104° 57' 4.464 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	0.35 °

Well	FREDERICK STATE 2-36					
Well Position	+N/-S	14.56 ft	Northing:	1,279,133.78 ft	Latitude:	40° 5' 53.916 N
	+E/-W	0.00 ft	Easting:	3,153,514.48 ft	Longitude:	104° 57' 4.464 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	5,014.00 ft

Wellbore	P_FREDERICK STATE 2-36				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/20/2009	9.11	66.84	53,135

Design	PLAN #1 11-20-09 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	34.83

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	
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,498.73	10.97	34.83	1,495.38	43.01	29.92	2.00	2.00	0.00	34.83	
5,913.71	10.97	34.83	5,829.62	732.93	509.98	0.00	0.00	0.00	0.00	
6,462.44	0.00	0.00	6,375.00	775.93	539.90	2.00	-2.00	0.00	180.00	
8,352.44	0.00	0.00	8,265.00	775.93	539.90	0.00	0.00	0.00	0.00	PBHL_FREDERICK

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well FREDERICK STATE 2-36
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 5029.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 5029.00ft (Original Well Elev)
Site:	WELD_FREDERICK STATE 2 PAD	North Reference:	True
Well:	FREDERICK STATE 2-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_FREDERICK STATE 2-36		
Design:	PLAN #1 11-20-09 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									
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	1.00	34.83	1,000.00	0.36	0.25	0.44	2.00	2.00	0.00
1,100.00	3.00	34.83	1,099.93	3.22	2.24	3.93	2.00	2.00	0.00
1,200.00	5.00	34.83	1,199.68	8.95	6.23	10.90	2.00	2.00	0.00
1,300.00	7.00	34.83	1,299.13	17.53	12.20	21.35	2.00	2.00	0.00
1,400.00	9.00	34.83	1,398.15	28.95	20.14	35.27	2.00	2.00	0.00
Start 4414.98 hold at 1498.73 MD									
1,498.73	10.97	34.83	1,495.38	43.01	29.92	52.39	2.00	2.00	0.00
1,500.00	10.97	34.83	1,496.63	43.20	30.06	52.63	0.00	0.00	0.00
1,600.00	10.97	34.83	1,594.80	58.83	40.94	71.67	0.00	0.00	0.00
1,700.00	10.97	34.83	1,692.97	74.46	51.81	90.71	0.00	0.00	0.00
1,800.00	10.97	34.83	1,791.14	90.08	62.68	109.75	0.00	0.00	0.00
1,900.00	10.97	34.83	1,889.31	105.71	73.56	128.78	0.00	0.00	0.00
2,000.00	10.97	34.83	1,987.48	121.34	84.43	147.82	0.00	0.00	0.00
2,100.00	10.97	34.83	2,085.65	136.97	95.30	166.86	0.00	0.00	0.00
2,200.00	10.97	34.83	2,183.83	152.59	106.17	185.90	0.00	0.00	0.00
2,300.00	10.97	34.83	2,282.00	168.22	117.05	204.93	0.00	0.00	0.00
2,400.00	10.97	34.83	2,380.17	183.85	127.92	223.97	0.00	0.00	0.00
2,500.00	10.97	34.83	2,478.34	199.47	138.79	243.01	0.00	0.00	0.00
2,600.00	10.97	34.83	2,576.51	215.10	149.67	262.05	0.00	0.00	0.00
2,700.00	10.97	34.83	2,674.68	230.73	160.54	281.08	0.00	0.00	0.00
2,800.00	10.97	34.83	2,772.85	246.35	171.41	300.12	0.00	0.00	0.00
2,900.00	10.97	34.83	2,871.02	261.98	182.29	319.16	0.00	0.00	0.00
3,000.00	10.97	34.83	2,969.19	277.61	193.16	338.20	0.00	0.00	0.00
3,100.00	10.97	34.83	3,067.37	293.23	204.03	357.23	0.00	0.00	0.00
3,200.00	10.97	34.83	3,165.54	308.86	214.91	376.27	0.00	0.00	0.00
3,300.00	10.97	34.83	3,263.71	324.49	225.78	395.31	0.00	0.00	0.00
3,400.00	10.97	34.83	3,361.88	340.11	236.65	414.35	0.00	0.00	0.00
3,500.00	10.97	34.83	3,460.05	355.74	247.53	433.38	0.00	0.00	0.00
3,600.00	10.97	34.83	3,558.22	371.37	258.40	452.42	0.00	0.00	0.00
3,700.00	10.97	34.83	3,656.39	386.99	269.27	471.46	0.00	0.00	0.00
3,800.00	10.97	34.83	3,754.56	402.62	280.15	490.50	0.00	0.00	0.00
3,900.00	10.97	34.83	3,852.74	418.25	291.02	509.53	0.00	0.00	0.00
4,000.00	10.97	34.83	3,950.91	433.87	301.89	528.57	0.00	0.00	0.00
4,100.00	10.97	34.83	4,049.08	449.50	312.77	547.61	0.00	0.00	0.00
4,200.00	10.97	34.83	4,147.25	465.13	323.64	566.65	0.00	0.00	0.00
4,300.00	10.97	34.83	4,245.42	480.75	334.51	585.68	0.00	0.00	0.00
4,400.00	10.97	34.83	4,343.59	496.38	345.39	604.72	0.00	0.00	0.00
4,500.00	10.97	34.83	4,441.76	512.01	356.26	623.76	0.00	0.00	0.00
4,600.00	10.97	34.83	4,539.93	527.64	367.13	642.80	0.00	0.00	0.00
4,700.00	10.97	34.83	4,638.10	543.26	378.01	661.83	0.00	0.00	0.00
SUSSEX TOP									
4,711.10	10.97	34.83	4,649.00	545.00	379.21	663.95	0.00	0.00	0.00
4,800.00	10.97	34.83	4,736.28	558.89	388.88	680.87	0.00	0.00	0.00
4,900.00	10.97	34.83	4,834.45	574.52	399.75	699.91	0.00	0.00	0.00
5,000.00	10.97	34.83	4,932.62	590.14	410.63	718.95	0.00	0.00	0.00
5,100.00	10.97	34.83	5,030.79	605.77	421.50	737.98	0.00	0.00	0.00
SHANNON TOP									
5,122.62	10.97	34.83	5,053.00	609.30	423.96	742.29	0.00	0.00	0.00
5,200.00	10.97	34.83	5,128.96	621.40	432.37	757.02	0.00	0.00	0.00
5,300.00	10.97	34.83	5,227.13	637.02	443.25	776.06	0.00	0.00	0.00
5,400.00	10.97	34.83	5,325.30	652.65	454.12	795.10	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well FREDERICK STATE 2-36
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 5029.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 5029.00ft (Original Well Elev)
Site:	WELD_FREDERICK STATE 2 PAD	North Reference:	True
Well:	FREDERICK STATE 2-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_FREDERICK STATE 2-36		
Design:	PLAN #1 11-20-09 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)
5,500.00	10.97	34.83	5,423.47	668.28	464.99	814.13	0.00	0.00	0.00
5,600.00	10.97	34.83	5,521.64	683.90	475.87	833.17	0.00	0.00	0.00
5,700.00	10.97	34.83	5,619.82	699.53	486.74	852.21	0.00	0.00	0.00
5,800.00	10.97	34.83	5,717.99	715.16	497.61	871.24	0.00	0.00	0.00
5,900.00	10.97	34.83	5,816.16	730.78	508.49	890.28	0.00	0.00	0.00
Start Drop -2.00									
5,913.71	10.97	34.83	5,829.62	732.93	509.98	892.89	0.00	0.00	0.00
6,000.00	9.25	34.83	5,914.56	745.36	518.63	908.04	2.00	-2.00	0.00
6,100.00	7.25	34.83	6,013.52	757.14	526.82	922.39	2.00	-2.00	0.00
6,200.00	5.25	34.83	6,112.93	766.07	533.04	933.27	2.00	-2.00	0.00
6,300.00	3.25	34.83	6,212.65	772.15	537.27	940.68	2.00	-2.00	0.00
6,400.00	1.25	34.83	6,312.56	775.37	539.51	944.60	2.00	-2.00	0.00
Start 1890.00 hold at 6462.44 MD									
6,462.44	0.00	0.00	6,375.00	775.93	539.90	945.29	2.00	-2.00	0.00
6,500.00	0.00	0.00	6,412.56	775.93	539.90	945.29	0.00	0.00	0.00
6,600.00	0.00	0.00	6,512.56	775.93	539.90	945.29	0.00	0.00	0.00
6,700.00	0.00	0.00	6,612.56	775.93	539.90	945.29	0.00	0.00	0.00
6,800.00	0.00	0.00	6,712.56	775.93	539.90	945.29	0.00	0.00	0.00
6,900.00	0.00	0.00	6,812.56	775.93	539.90	945.29	0.00	0.00	0.00
7,000.00	0.00	0.00	6,912.56	775.93	539.90	945.29	0.00	0.00	0.00
7,100.00	0.00	0.00	7,012.56	775.93	539.90	945.29	0.00	0.00	0.00
7,200.00	0.00	0.00	7,112.56	775.93	539.90	945.29	0.00	0.00	0.00
7,300.00	0.00	0.00	7,212.56	775.93	539.90	945.29	0.00	0.00	0.00
7,400.00	0.00	0.00	7,312.56	775.93	539.90	945.29	0.00	0.00	0.00
NIO A TOP									
7,462.44	0.00	0.00	7,375.00	775.93	539.90	945.29	0.00	0.00	0.00
7,500.00	0.00	0.00	7,412.56	775.93	539.90	945.29	0.00	0.00	0.00
7,600.00	0.00	0.00	7,512.56	775.93	539.90	945.29	0.00	0.00	0.00
7,700.00	0.00	0.00	7,612.56	775.93	539.90	945.29	0.00	0.00	0.00
CODELL TOP									
7,762.44	0.00	0.00	7,675.00	775.93	539.90	945.29	0.00	0.00	0.00
7,800.00	0.00	0.00	7,712.56	775.93	539.90	945.29	0.00	0.00	0.00
7,900.00	0.00	0.00	7,812.56	775.93	539.90	945.29	0.00	0.00	0.00
8,000.00	0.00	0.00	7,912.56	775.93	539.90	945.29	0.00	0.00	0.00
8,100.00	0.00	0.00	8,012.56	775.93	539.90	945.29	0.00	0.00	0.00
8,200.00	0.00	0.00	8,112.56	775.93	539.90	945.29	0.00	0.00	0.00
JSAND TO									
8,202.44	0.00	0.00	8,115.00	775.93	539.90	945.29	0.00	0.00	0.00
8,300.00	0.00	0.00	8,212.56	775.93	539.90	945.29	0.00	0.00	0.00
PBHL_FREDERICK STATE 2-36(660 FNL 1980 FEL)50' TGT									
8,352.44	0.00	0.00	8,265.00	775.93	539.90	945.29	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL_FREDERICK S	0.00	0.00	8,265.00	775.93	539.90	1,279,913.04	3,154,049.57	40° 6' 1.584 N	104° 56' 57.516 W
- plan hits target center									
- Circle (radius 50.00)									

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well FREDERICK STATE 2-36
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 5029.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 5029.00ft (Original Well Elev)
Site:	WELD_FREDERICK STATE 2 PAD	North Reference:	True
Well:	FREDERICK STATE 2-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_FREDERICK STATE 2-36		
Design:	PLAN #1 11-20-09 RHS		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
850.00	850.00	8 5/8"	8.62	11.00	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,711.10	4,649.00	SUSSEX TOP				
5,122.62	5,053.00	SHANNON TOP				
7,462.44	7,375.00	NIO A TOP				
7,762.44	7,675.00	CODELL TOP				
8,202.44	8,115.00	JSAND TO				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
950.00	950.00	0.00	0.00	Start Build 2.00	
1,498.73	1,495.38	43.01	29.92	Start 4414.98 hold at 1498.73 MD	
5,913.71	5,829.62	732.93	509.98	Start Drop -2.00	
6,462.44	6,375.00	775.93	539.90	Start 1890.00 hold at 6462.44 MD	
8,352.44	8,265.00	775.93	539.90	TD at 8352.44	



US ROCKIES REGION PLANNING

**COLORADO NOTHERN ZONE - 83
WELD_FREDERICK STATE 2 PAD
FREDERICK STATE 2-36**

**P_FREDERICK STATE 2-36
PLAN #1 11-20-09 RHS**

Anticollision Report

23 November, 2009



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well FREDERICK STATE 2-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 5029.00ft (Original Well Elev)
Reference Site:	WELD_FREDERICK STATE 2 PAD	MD Reference:	WELL @ 5029.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	FREDERICK STATE 2-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FREDERICK STATE 2-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-20-09 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 11-20-09 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	11/20/2009		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	8,352.44	PLAN #1 11-20-09 RHS (P_FREDERICK STATE 2-36)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
WELD_FREDERICK STATE 2 PAD						
P_FREDERICK STATE 1-36 - P_FREDERICK STATE 1-36	950.00	950.00	14.56	10.55	3.629	CC
P_FREDERICK STATE 1-36 - P_FREDERICK STATE 1-36	1,000.00	1,000.10	14.75	10.52	3.485	ES, SF
STATE #1 EXISTING - STATE #1 EXISTING - STATE #1 EXISTING	950.00	929.00	57.26	20.09	1.541	CC
STATE #1 EXISTING - STATE #1 EXISTING - STATE #1 EXISTING	1,100.00	1,078.93	60.99	17.54	1.404	Level 3, ES, SF

Offset Design												
WELD_FREDERICK STATE 2 PAD - P_FREDERICK STATE 1-36 - P_FREDERICK STATE 1-36 - PLAN #1 11-20-09 RHS												
Survey Program: 0-MWD												
Reference												
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
0.00	0.00	0.00	0.00	0.00	0.00	180.00	-14.56	0.00	14.56			
100.00	100.00	100.00	100.00	0.10	0.10	180.00	-14.56	0.00	14.56	14.37	0.19	76.202
200.00	200.00	200.00	200.00	0.32	0.32	180.00	-14.56	0.00	14.56	13.92	0.64	22.727
300.00	300.00	300.00	300.00	0.55	0.55	180.00	-14.56	0.00	14.56	13.47	1.09	13.355
400.00	400.00	400.00	400.00	0.77	0.77	180.00	-14.56	0.00	14.56	13.02	1.54	9.456
500.00	500.00	500.00	500.00	0.99	0.99	180.00	-14.56	0.00	14.56	12.57	1.99	7.319
600.00	600.00	600.00	600.00	1.22	1.22	180.00	-14.56	0.00	14.56	12.12	2.44	5.970
700.00	700.00	700.00	700.00	1.44	1.44	180.00	-14.56	0.00	14.56	11.67	2.89	5.041
800.00	800.00	800.00	800.00	1.67	1.67	180.00	-14.56	0.00	14.56	11.22	3.34	4.362
900.00	900.00	900.00	900.00	1.89	1.89	180.00	-14.56	0.00	14.56	10.77	3.79	3.844
950.00	950.00	950.00	950.00	2.01	2.01	180.00	-14.56	0.00	14.56	10.55	4.01	3.629 CC
1,000.00	1,000.00	1,000.10	1,000.10	2.12	2.11	144.57	-14.39	0.40	14.75	10.52	4.23	3.485 ES, SF
1,100.00	1,099.93	1,100.27	1,100.20	2.34	2.33	140.29	-13.02	3.63	16.30	11.64	4.66	3.497
1,200.00	1,199.68	1,200.35	1,200.03	2.56	2.55	133.85	-10.28	10.06	19.61	14.51	5.10	3.844
1,300.00	1,299.13	1,300.30	1,299.42	2.80	2.78	127.50	-6.19	19.69	24.88	19.31	5.57	4.468
1,400.00	1,398.15	1,400.04	1,398.20	3.06	3.04	122.33	-0.76	32.47	32.17	26.09	6.08	5.295
1,498.73	1,495.38	1,498.29	1,494.95	3.34	3.33	118.47	5.90	48.14	41.34	34.71	6.63	6.231
1,500.00	1,496.63	1,499.55	1,496.18	3.35	3.33	118.43	5.99	48.36	41.47	34.83	6.64	6.244
1,600.00	1,594.80	1,598.77	1,593.24	3.67	3.67	113.96	14.05	67.32	52.00	44.71	7.29	7.138
1,700.00	1,692.97	1,697.56	1,689.10	4.00	4.05	107.97	23.37	89.26	63.46	55.47	7.99	7.943
1,800.00	1,791.14	1,795.68	1,783.45	4.35	4.49	101.43	33.91	114.05	76.51	67.77	8.73	8.760
1,900.00	1,889.31	1,892.91	1,875.98	4.72	4.99	94.95	45.59	141.53	91.72	82.23	9.50	9.659
2,000.00	1,987.48	1,989.05	1,966.42	5.09	5.54	88.89	58.33	171.53	109.54	99.29	10.26	10.681

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 FREDERICK STATE 2-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 5029.00ft (Original Well Elev)
Reference Site:	WELD_FREDERICK STATE 2 PAD	MD Reference:	WELL @ 5029.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	FREDERICK STATE 2-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FREDERICK STATE 2-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-20-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_FREDERICK STATE 2 PAD - P_FREDERICK STATE 1-36 - P_FREDERICK STATE 1-36 - PLA												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
2,100.00	2,085.65	2,083.89	2,054.52	5.46	6.15	83.45	72.07	203.84	130.24	119.24	11.00	11.839	
2,200.00	2,183.83	2,177.27	2,140.08	5.85	6.82	78.66	86.70	238.26	153.96	142.23	11.73	13.129	
2,300.00	2,282.00	2,269.03	2,222.92	6.23	7.53	74.51	102.12	274.57	180.75	168.32	12.43	14.541	
2,400.00	2,380.17	2,363.63	2,307.55	6.62	8.32	70.98	118.66	313.49	209.66	196.52	13.14	15.955	
2,500.00	2,478.34	2,458.65	2,392.54	7.02	9.12	68.29	135.28	352.59	239.14	225.29	13.86	17.259	
2,600.00	2,576.51	2,553.67	2,477.53	7.41	9.94	66.19	151.89	391.69	269.01	254.43	14.58	18.456	
2,700.00	2,674.68	2,648.69	2,562.52	7.81	10.77	64.50	168.51	430.78	299.13	283.83	15.30	19.550	
2,800.00	2,772.85	2,743.71	2,647.52	8.21	11.60	63.13	185.13	469.88	329.46	313.43	16.03	20.551	
2,900.00	2,871.02	2,838.73	2,732.51	8.61	12.45	61.98	201.74	508.98	359.92	343.16	16.77	21.467	
3,000.00	2,969.19	2,933.75	2,817.50	9.02	13.29	61.01	218.36	548.08	390.50	373.00	17.51	22.308	
3,100.00	3,067.37	3,028.77	2,902.49	9.42	14.15	60.19	234.97	587.18	421.16	402.92	18.25	23.080	
3,200.00	3,165.54	3,123.79	2,987.49	9.83	15.00	59.47	251.59	626.28	451.90	432.90	18.99	23.791	
3,300.00	3,263.71	3,218.81	3,072.48	10.24	15.86	58.85	268.21	665.38	482.68	462.94	19.74	24.447	
3,400.00	3,361.88	3,313.83	3,157.47	10.64	16.72	58.30	284.82	704.48	513.52	493.02	20.50	25.054	
3,500.00	3,460.05	3,408.84	3,242.47	11.05	17.58	57.81	301.44	743.58	544.39	523.14	21.25	25.617	
3,600.00	3,558.22	3,503.86	3,327.46	11.46	18.45	57.38	318.05	782.68	575.29	553.29	22.01	26.141	
3,700.00	3,656.39	3,598.88	3,412.45	11.87	19.31	56.99	334.67	821.78	606.22	583.46	22.77	26.628	
3,800.00	3,754.56	3,693.90	3,497.44	12.28	20.18	56.64	351.29	860.88	637.18	613.65	23.53	27.084	
3,900.00	3,852.74	3,788.92	3,582.44	12.69	21.05	56.32	367.90	899.98	668.15	643.86	24.29	27.509	
4,000.00	3,950.91	3,883.94	3,667.43	13.10	21.92	56.02	384.52	939.08	699.14	674.09	25.05	27.908	
4,100.00	4,049.08	3,978.96	3,752.42	13.51	22.79	55.76	401.13	978.18	730.15	704.33	25.82	28.283	
4,200.00	4,147.25	4,073.98	3,837.41	13.93	23.66	55.51	417.75	1,017.28	761.17	734.58	26.58	28.635	
4,300.00	4,245.42	4,169.00	3,922.41	14.34	24.53	55.29	434.36	1,056.38	792.20	764.85	27.35	28.967	
4,400.00	4,343.59	4,264.02	4,007.40	14.75	25.40	55.08	450.98	1,095.48	823.24	795.12	28.12	29.280	
4,500.00	4,441.76	4,359.04	4,092.39	15.16	26.28	54.88	467.60	1,134.58	854.29	825.40	28.88	29.576	
4,600.00	4,539.93	4,454.05	4,177.39	15.58	27.15	54.70	484.21	1,173.68	885.35	855.69	29.65	29.856	
4,700.00	4,638.10	4,549.07	4,262.38	15.99	28.03	54.53	500.83	1,212.78	916.41	885.99	30.42	30.121	
4,800.00	4,736.28	4,644.09	4,347.37	16.40	28.90	54.38	517.44	1,251.88	947.48	916.29	31.19	30.373	
4,900.00	4,834.45	4,739.11	4,432.36	16.82	29.77	54.23	534.06	1,290.97	978.56	946.60	31.97	30.612	
5,000.00	4,932.62	4,834.13	4,517.36	17.23	30.65	54.09	550.68	1,330.07	1,009.64	976.91	32.74	30.840	
5,100.00	5,030.79	4,929.15	4,602.35	17.64	31.53	53.96	567.29	1,369.17	1,040.73	1,007.22	33.51	31.057	
5,200.00	5,128.96	5,024.17	4,687.34	18.06	32.40	53.84	583.91	1,408.27	1,071.83	1,037.54	34.28	31.263	
5,300.00	5,227.13	5,119.19	4,772.33	18.47	33.28	53.73	600.52	1,447.37	1,102.92	1,067.87	35.06	31.460	
5,400.00	5,325.30	5,214.21	4,857.33	18.89	34.16	53.62	617.14	1,486.47	1,134.03	1,098.19	35.83	31.649	
5,500.00	5,423.47	5,309.23	4,942.32	19.30	35.03	53.51	633.76	1,525.57	1,165.13	1,128.52	36.61	31.829	
5,600.00	5,521.64	5,404.25	5,027.31	19.72	35.91	53.42	650.37	1,564.67	1,196.24	1,158.86	37.38	32.001	
5,700.00	5,619.82	5,533.85	5,143.82	20.13	36.97	53.31	672.57	1,616.90	1,226.61	1,188.33	38.27	32.047	
5,800.00	5,717.99	5,694.87	5,291.80	20.55	38.04	53.34	697.38	1,675.28	1,252.53	1,213.26	39.27	31.894	
5,900.00	5,816.16	5,859.92	5,446.93	20.96	38.98	53.52	719.39	1,727.08	1,273.35	1,233.06	40.29	31.603	
5,913.71	5,829.62	5,882.81	5,468.69	21.02	39.10	53.56	722.16	1,733.61	1,275.79	1,235.36	40.43	31.552	
6,000.00	5,914.56	6,027.93	5,607.91	21.32	39.79	54.02	738.17	1,771.27	1,289.65	1,248.39	41.26	31.258	
6,100.00	6,013.52	6,198.07	5,773.51	21.60	40.47	54.45	753.40	1,807.10	1,302.58	1,260.53	42.05	30.974	
6,200.00	6,112.93	6,369.86	5,942.76	21.84	40.99	54.78	764.84	1,834.03	1,312.07	1,269.37	42.70	30.725	
6,300.00	6,212.65	6,542.80	6,114.61	22.04	41.37	55.01	772.34	1,851.67	1,318.05	1,274.84	43.21	30.506	
6,400.00	6,312.56	6,716.36	6,287.92	22.19	41.60	55.14	775.77	1,859.74	1,320.46	1,276.90	43.56	30.314	
6,462.44	6,375.00	6,803.44	6,375.00	22.27	41.67	90.00	776.00	1,860.28	1,320.38	1,276.70	43.68	30.227	
6,500.00	6,412.56	6,841.00	6,412.56	22.32	41.69	90.00	776.00	1,860.28	1,320.38	1,276.60	43.78	30.161	
6,600.00	6,512.56	6,941.00	6,512.56	22.46	41.77	90.00	776.00	1,860.28	1,320.38	1,276.34	44.04	29.980	
6,700.00	6,612.56	7,041.00	6,612.56	22.59	41.84	90.00	776.00	1,860.28	1,320.38	1,276.07	44.31	29.799	
6,800.00	6,712.56	7,141.00	6,712.56	22.73	41.92	90.00	776.00	1,860.28	1,320.38	1,275.80	44.58	29.618	
6,900.00	6,812.56	7,241.00	6,812.56	22.87	41.99	90.00	776.00	1,860.28	1,320.38	1,275.53	44.85	29.438	
7,000.00	6,912.56	7,341.00	6,912.56	23.01	42.07	90.00	776.00	1,860.28	1,320.38	1,275.25	45.13	29.257	

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 FREDERICK STATE 2-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 5029.00ft (Original Well Elev)
Reference Site:	WELD_FREDERICK STATE 2 PAD	MD Reference:	WELL @ 5029.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	FREDERICK STATE 2-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FREDERICK STATE 2-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-20-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_FREDERICK STATE 2 PAD - P_FREDERICK STATE 1-36 - P_FREDERICK STATE 1-36 - PLA												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,100.00	7,012.56	7,441.00	7,012.56	23.16	42.15	90.00	776.00	1,860.28	1,320.38	1,274.97	45.41	29.078	
7,200.00	7,112.56	7,541.00	7,112.56	23.30	42.23	90.00	776.00	1,860.28	1,320.38	1,274.69	45.69	28.898	
7,300.00	7,212.56	7,641.00	7,212.56	23.45	42.31	90.00	776.00	1,860.28	1,320.38	1,274.41	45.97	28.720	
7,400.00	7,312.56	7,741.00	7,312.56	23.59	42.39	90.00	776.00	1,860.28	1,320.38	1,274.12	46.26	28.542	
7,500.00	7,412.56	7,841.00	7,412.56	23.74	42.47	90.00	776.00	1,860.28	1,320.38	1,273.83	46.55	28.364	
7,600.00	7,512.56	7,941.00	7,512.56	23.89	42.56	90.00	776.00	1,860.28	1,320.38	1,273.54	46.84	28.187	
7,700.00	7,612.56	8,041.00	7,612.56	24.04	42.64	90.00	776.00	1,860.28	1,320.38	1,273.24	47.14	28.011	
7,800.00	7,712.56	8,141.00	7,712.56	24.19	42.73	90.00	776.00	1,860.28	1,320.38	1,272.95	47.43	27.836	
7,900.00	7,812.56	8,241.00	7,812.56	24.35	42.82	90.00	776.00	1,860.28	1,320.38	1,272.65	47.73	27.662	
8,000.00	7,912.56	8,341.00	7,912.56	24.50	42.90	90.00	776.00	1,860.28	1,320.38	1,272.35	48.03	27.488	
8,100.00	8,012.56	8,441.00	8,012.56	24.65	42.99	90.00	776.00	1,860.28	1,320.38	1,272.04	48.34	27.315	
8,200.00	8,112.56	8,541.00	8,112.56	24.81	43.08	90.00	776.00	1,860.28	1,320.38	1,271.74	48.64	27.144	
8,300.00	8,212.56	8,641.00	8,212.56	24.97	43.17	90.00	776.00	1,860.28	1,320.38	1,271.43	48.95	26.973	
8,313.33	8,225.89	8,654.33	8,225.89	24.99	43.19	90.00	776.00	1,860.28	1,320.38	1,271.39	48.99	26.950	
8,352.44	8,265.00	8,664.44	8,236.00	25.05	43.20	90.00	776.00	1,860.28	1,320.70	1,271.63	49.07	26.913	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well FREDERICK STATE 2-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 5029.00ft (Original Well Elev)
Reference Site:	WELD_FREDERICK STATE 2 PAD	MD Reference:	WELL @ 5029.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	FREDERICK STATE 2-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FREDERICK STATE 2-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-20-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design		WELD_FREDERICK STATE 2 PAD - STATE #1 EXISTING - STATE #1 EXISTING - STATE #1 EXISTING										Offset Site Error: 0.00 ft		
Survey Program: 0-UNKNOWN												Offset Well Error: 0.00 ft		
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-126.28	-33.88	-46.16	60.99					
100.00	100.00	79.00	79.00	0.10	1.58	-126.28	-33.88	-46.16	57.26	55.58	1.68	34.173		
200.00	200.00	179.00	179.00	0.32	5.16	-126.28	-33.88	-46.16	57.26	51.78	5.48	10.448		
300.00	300.00	279.00	279.00	0.55	9.16	-126.28	-33.88	-46.16	57.26	47.55	9.71	5.900		
400.00	400.00	379.00	379.00	0.77	13.16	-126.28	-33.88	-46.16	57.26	43.33	13.93	4.111		
500.00	500.00	479.00	479.00	0.99	17.16	-126.28	-33.88	-46.16	57.26	39.10	18.15	3.154		
600.00	600.00	579.00	579.00	1.22	21.16	-126.28	-33.88	-46.16	57.26	34.88	22.38	2.559		
700.00	700.00	679.00	679.00	1.44	25.16	-126.28	-33.88	-46.16	57.26	30.66	26.60	2.152		
800.00	800.00	779.00	779.00	1.67	29.16	-126.28	-33.88	-46.16	57.26	26.43	30.83	1.857		
900.00	900.00	879.00	879.00	1.89	33.16	-126.28	-33.88	-46.16	57.26	22.21	35.05	1.633		
950.00	950.00	929.00	929.00	2.01	35.16	-126.28	-33.88	-46.16	57.26	20.09	37.17	1.541 CC		
1,000.00	1,000.00	979.00	979.00	2.12	37.16	-161.25	-33.88	-46.16	57.67	18.40	39.27	1.468 Level 3		
1,100.00	1,099.93	1,078.93	1,078.93	2.34	41.16	-162.28	-33.88	-46.16	60.99	17.54	43.45	1.404 Level 3, ES, SF		
1,200.00	1,199.68	1,178.68	1,178.68	2.56	45.15	-164.04	-33.88	-46.16	67.67	20.11	47.55	1.423 Level 3		
1,300.00	1,299.13	1,278.13	1,278.13	2.80	49.13	-166.11	-33.88	-46.16	77.77	26.21	51.56	1.508		
1,400.00	1,398.15	1,377.15	1,377.15	3.06	53.09	-168.15	-33.88	-46.16	91.35	35.88	55.47	1.647		
1,498.73	1,495.38	1,474.38	1,474.38	3.34	56.98	-169.95	-33.88	-46.16	108.17	48.97	59.20	1.827		
1,500.00	1,496.63	1,475.63	1,475.63	3.35	57.03	-169.97	-33.88	-46.16	108.41	49.16	59.25	1.830		
1,600.00	1,594.80	1,573.80	1,573.80	3.67	60.95	-171.47	-33.88	-46.16	127.21	63.87	63.33	2.009		
1,700.00	1,692.97	1,671.97	1,671.97	4.00	64.88	-172.57	-33.88	-46.16	146.07	78.64	67.42	2.166		
1,800.00	1,791.14	1,770.14	1,770.14	4.35	68.81	-173.43	-33.88	-46.16	164.97	93.45	71.52	2.307		
1,900.00	1,889.31	1,868.31	1,868.31	4.72	72.73	-174.11	-33.88	-46.16	183.90	108.28	75.61	2.432		
2,000.00	1,987.48	1,966.48	1,966.48	5.09	76.66	-174.66	-33.88	-46.16	202.85	123.13	79.71	2.545		
2,100.00	2,085.65	2,064.65	2,064.65	5.46	80.59	-175.12	-33.88	-46.16	221.81	138.00	83.81	2.646		
2,200.00	2,183.83	2,162.83	2,162.83	5.85	84.51	-175.50	-33.88	-46.16	240.79	152.87	87.92	2.739		
2,300.00	2,282.00	2,261.00	2,261.00	6.23	88.44	-175.83	-33.88	-46.16	259.77	167.75	92.02	2.823		
2,400.00	2,380.17	2,359.17	2,359.17	6.62	92.37	-176.12	-33.88	-46.16	278.76	182.63	96.13	2.900		
2,500.00	2,478.34	2,457.34	2,457.34	7.02	96.29	-176.36	-33.88	-46.16	297.76	197.52	100.24	2.971		
2,600.00	2,576.51	2,555.51	2,555.51	7.41	100.22	-176.58	-33.88	-46.16	316.76	212.42	104.35	3.036		
2,700.00	2,674.68	2,653.68	2,653.68	7.81	104.15	-176.78	-33.88	-46.16	335.77	227.32	108.45	3.096		
2,800.00	2,772.85	2,751.85	2,751.85	8.21	108.07	-176.95	-33.88	-46.16	354.78	242.22	112.56	3.152		
2,900.00	2,871.02	2,850.02	2,850.02	8.61	112.00	-177.10	-33.88	-46.16	373.79	257.12	116.68	3.204		
3,000.00	2,969.19	2,948.19	2,948.19	9.02	115.93	-177.24	-33.88	-46.16	392.81	272.02	120.79	3.252		
3,100.00	3,067.37	3,046.37	3,046.37	9.42	119.85	-177.37	-33.88	-46.16	411.83	286.93	124.90	3.297		
3,200.00	3,165.54	3,144.54	3,144.54	9.83	123.78	-177.49	-33.88	-46.16	430.85	301.84	129.01	3.340		
3,300.00	3,263.71	3,242.71	3,242.71	10.24	127.71	-177.59	-33.88	-46.16	449.87	316.74	133.12	3.379		
3,400.00	3,361.88	3,340.88	3,340.88	10.64	131.64	-177.69	-33.88	-46.16	468.89	331.65	137.23	3.417		
3,500.00	3,460.05	3,439.05	3,439.05	11.05	135.56	-177.78	-33.88	-46.16	487.91	346.56	141.35	3.452		
3,600.00	3,558.22	3,537.22	3,537.22	11.46	139.49	-177.87	-33.88	-46.16	506.94	361.47	145.46	3.485		
3,700.00	3,656.39	3,635.39	3,635.39	11.87	143.42	-177.94	-33.88	-46.16	525.96	376.39	149.57	3.516		
3,800.00	3,754.56	3,733.56	3,733.56	12.28	147.34	-178.01	-33.88	-46.16	544.99	391.30	153.69	3.546		
3,900.00	3,852.74	3,831.74	3,831.74	12.69	151.27	-178.08	-33.88	-46.16	564.01	406.21	157.80	3.574		
4,000.00	3,950.91	3,929.91	3,929.91	13.10	155.20	-178.14	-33.88	-46.16	583.04	421.13	161.92	3.601		
4,100.00	4,049.08	4,028.08	4,028.08	13.51	159.12	-178.20	-33.88	-46.16	602.07	436.04	166.03	3.626		
4,200.00	4,147.25	4,126.25	4,126.25	13.93	163.05	-178.26	-33.88	-46.16	621.10	450.95	170.14	3.650		
4,300.00	4,245.42	4,224.42	4,224.42	14.34	166.98	-178.31	-33.88	-46.16	640.13	465.87	174.26	3.673		
4,400.00	4,343.59	4,322.59	4,322.59	14.75	170.90	-178.36	-33.88	-46.16	659.16	480.78	178.37	3.695		
4,500.00	4,441.76	4,420.76	4,420.76	15.16	174.83	-178.40	-33.88	-46.16	678.19	495.70	182.49	3.716		
4,600.00	4,539.93	4,518.93	4,518.93	15.58	178.76	-178.45	-33.88	-46.16	697.22	510.61	186.60	3.736		
4,700.00	4,638.10	4,617.10	4,617.10	15.99	182.68	-178.49	-33.88	-46.16	716.25	525.53	190.72	3.756		
4,800.00	4,736.28	4,715.28	4,715.28	16.40	186.61	-178.53	-33.88	-46.16	735.28	540.45	194.83	3.774		
4,900.00	4,834.45	4,813.45	4,813.45	16.82	190.54	-178.57	-33.88	-46.16	754.31	555.36	198.95	3.791		

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 FREDERICK STATE 2-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 5029.00ft (Original Well Elev)
Reference Site:	WELD_FREDERICK STATE 2 PAD	MD Reference:	WELL @ 5029.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	FREDERICK STATE 2-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FREDERICK STATE 2-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-20-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_FREDERICK STATE 2 PAD - STATE #1 EXISTING - STATE #1 EXISTING - STATE #1 EXISTII													Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,000.00	4,932.62	4,911.62	4,911.62	17.23	194.46	-178.60	-33.88	-46.16	773.34	570.28	203.07	3.808		
5,100.00	5,030.79	5,009.79	5,009.79	17.64	198.39	-178.63	-33.88	-46.16	792.38	585.19	207.18	3.825		
5,200.00	5,128.96	5,107.96	5,107.96	18.06	202.32	-178.67	-33.88	-46.16	811.41	600.11	211.30	3.840		
5,300.00	5,227.13	5,206.13	5,206.13	18.47	206.25	-178.70	-33.88	-46.16	830.44	615.03	215.41	3.855		
5,400.00	5,325.30	5,304.30	5,304.30	18.89	210.17	-178.73	-33.88	-46.16	849.47	629.95	219.53	3.870		
5,500.00	5,423.47	5,402.47	5,402.47	19.30	214.10	-178.75	-33.88	-46.16	868.51	644.86	223.64	3.883		
5,600.00	5,521.64	5,500.64	5,500.64	19.72	218.03	-178.78	-33.88	-46.16	887.54	659.78	227.76	3.897		
5,700.00	5,619.82	5,598.82	5,598.82	20.13	221.95	-178.81	-33.88	-46.16	906.57	674.70	231.88	3.910		
5,800.00	5,717.99	5,696.99	5,696.99	20.55	225.88	-178.83	-33.88	-46.16	925.61	689.61	235.99	3.922		
5,900.00	5,816.16	5,795.16	5,795.16	20.96	229.81	-178.85	-33.88	-46.16	944.64	704.53	240.11	3.934		
5,913.71	5,829.62	5,808.62	5,808.62	21.02	230.34	-178.86	-33.88	-46.16	947.25	706.58	240.67	3.936		
6,000.00	5,914.56	5,893.56	5,893.56	21.32	233.74	-178.88	-33.88	-46.16	962.40	716.98	245.42	3.921		
6,100.00	6,013.52	5,992.52	5,992.52	21.60	237.70	-178.90	-33.88	-46.16	976.74	726.04	250.70	3.896		
6,200.00	6,112.93	6,091.93	6,091.93	21.84	241.68	-178.92	-33.88	-46.16	987.62	731.89	255.73	3.862		
6,300.00	6,212.65	6,191.65	6,191.65	22.04	245.67	-178.93	-33.88	-46.16	995.03	734.56	260.47	3.820		
6,400.00	6,312.56	6,291.56	6,291.56	22.19	249.66	-178.94	-33.88	-46.16	998.95	734.04	264.91	3.771		
6,462.44	6,375.00	6,354.00	6,354.00	22.27	252.16	-144.11	-33.88	-46.16	999.63	732.12	267.52	3.737		
6,500.00	6,412.56	6,391.56	6,391.56	22.32	253.66	-144.11	-33.88	-46.16	999.63	730.55	269.09	3.715		
6,600.00	6,512.56	6,491.56	6,491.56	22.46	257.66	-144.11	-33.88	-46.16	999.63	726.35	273.28	3.658		
6,700.00	6,612.56	6,591.56	6,591.56	22.59	261.66	-144.11	-33.88	-46.16	999.63	722.15	277.48	3.603		
6,800.00	6,712.56	6,691.56	6,691.56	22.73	265.66	-144.11	-33.88	-46.16	999.63	717.95	281.68	3.549		
6,900.00	6,812.56	6,791.56	6,791.56	22.87	269.66	-144.11	-33.88	-46.16	999.63	713.75	285.88	3.497		
7,000.00	6,912.56	6,891.56	6,891.56	23.01	273.66	-144.11	-33.88	-46.16	999.63	709.55	290.08	3.446		
7,100.00	7,012.56	6,991.56	6,991.56	23.16	277.66	-144.11	-33.88	-46.16	999.63	705.35	294.28	3.397		
7,200.00	7,112.56	7,091.56	7,091.56	23.30	281.66	-144.11	-33.88	-46.16	999.63	701.15	298.49	3.349		
7,300.00	7,212.56	7,191.56	7,191.56	23.45	285.66	-144.11	-33.88	-46.16	999.63	696.95	302.69	3.303		
7,400.00	7,312.56	7,291.56	7,291.56	23.59	289.66	-144.11	-33.88	-46.16	999.63	692.74	306.89	3.257		
7,500.00	7,412.56	7,391.56	7,391.56	23.74	293.66	-144.11	-33.88	-46.16	999.63	688.54	311.09	3.213		
7,600.00	7,512.56	7,491.56	7,491.56	23.89	297.66	-144.11	-33.88	-46.16	999.63	684.34	315.30	3.170		
7,700.00	7,612.56	7,591.56	7,591.56	24.04	301.66	-144.11	-33.88	-46.16	999.63	680.13	319.50	3.129		
7,800.00	7,712.56	7,691.56	7,691.56	24.19	305.66	-144.11	-33.88	-46.16	999.63	675.93	323.71	3.088		
7,900.00	7,812.56	7,791.56	7,791.56	24.35	309.66	-144.11	-33.88	-46.16	999.63	671.72	327.91	3.048		
8,000.00	7,912.56	7,891.56	7,891.56	24.50	313.66	-144.11	-33.88	-46.16	999.63	667.51	332.12	3.010		
8,100.00	8,012.56	7,991.56	7,991.56	24.65	317.66	-144.11	-33.88	-46.16	999.63	663.31	336.32	2.972		
8,200.00	8,112.56	8,091.56	8,091.56	24.81	321.66	-144.11	-33.88	-46.16	999.63	659.10	340.53	2.936		
8,300.00	8,212.56	8,191.56	8,191.56	24.97	325.66	-144.11	-33.88	-46.16	999.63	654.89	344.74	2.900		
8,352.44	8,265.00	8,244.00	8,244.00	25.05	327.76	-144.11	-33.88	-46.16	999.63	652.69	346.94	2.881		

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well FREDERICK STATE 2-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 5029.00ft (Original Well Elev)
Reference Site:	WELD_FREDERICK STATE 2 PAD	MD Reference:	WELL @ 5029.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	FREDERICK STATE 2-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FREDERICK STATE 2-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-20-09 RHS	Offset TVD Reference:	Offset Datum

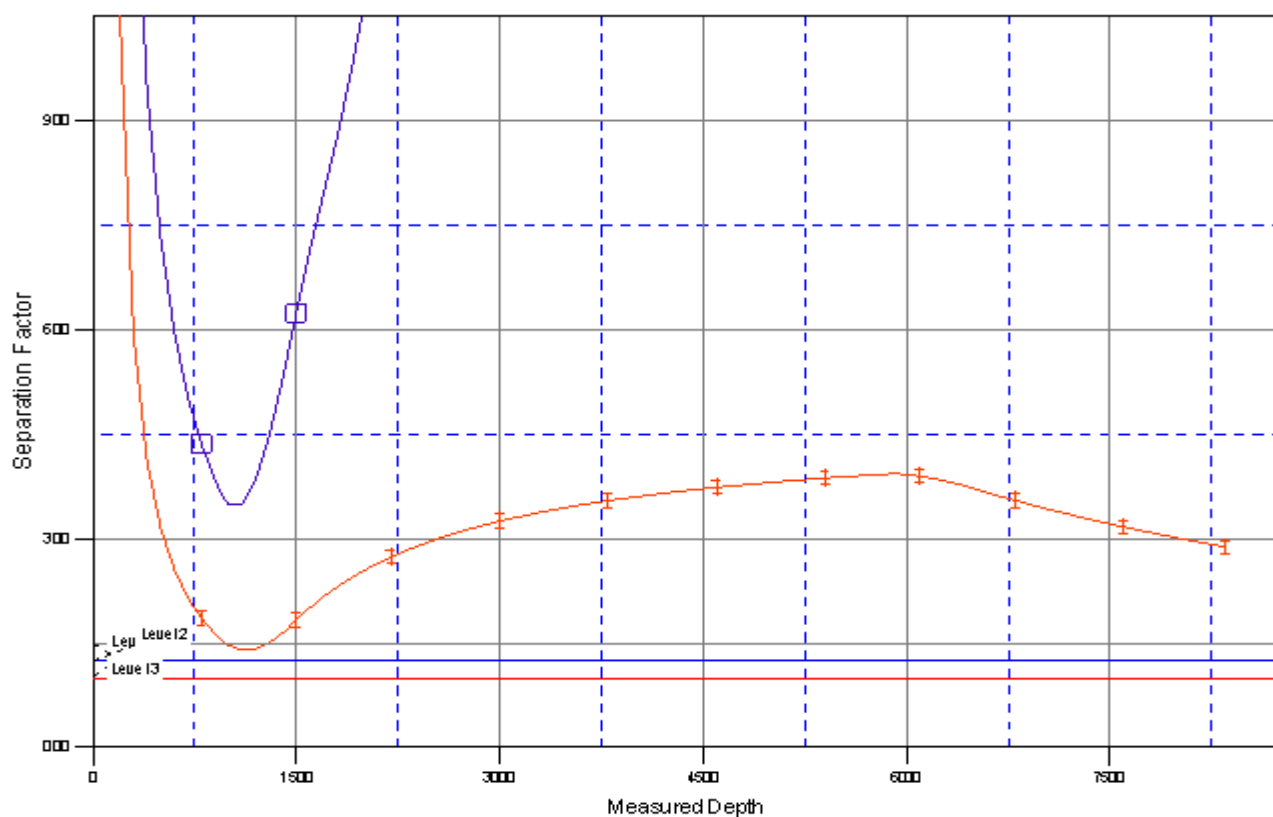
Reference Depths are relative to WELL @ 5029.00ft (Original Well Elev) Coordinates are relative to: FREDERICK STATE 2-36
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.35°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well FREDERICK STATE 2-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 5029.00ft (Original Well Elev)
Reference Site:	WELD_FREDERICK STATE 2 PAD	MD Reference:	WELL @ 5029.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	FREDERICK STATE 2-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FREDERICK STATE 2-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-20-09 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5029.00ft (Original Well Elev) Coordinates are relative to: FREDERICK STATE 2-36
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: 0.35°

Separation Factor Plot



LEGEND

-36, PLAN #1 11-20-09 RHS V0  STATE #1 EXISTING, STATE #1 EXISTING, STATE #1 EXISTING V0