



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_FREDERICK STATE 2 PAD
P_FREDERICK STATE 1-36**

P_FREDERICK STATE 1-36

Plan: PLAN #1 11-20-09 RHS

Standard Planning Report

23 November, 2009



P. FREDERICK STATE 1-36
 COLORADO NORTHERN ZONE - 83
 SECTION 36 T2N R68W
 1454' FNL 2516' FEL
 LAT: 40° 5' 53.772 N
 LONG: 104° 57' 4.464 W



Azimuths to True North
 Magnetic North: 9.11°
 Magnetic Field
 Strength: 53135.0snT
 Dip Angle: 66.84°
 Date: 11/20/2009
 Model: IGRF200510

WELL DETAILS: P_FREDERICK STATE 1-36

+N/-S	+E/-W	Northing	Easting	Ground Level:	Latitude	Longitude	Slot
0.00	0.00	1279119.22	3153514.57	5014.00	40° 5' 53.772 N	104° 57' 4.464 W	

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4620.00	4948.88	SUSSEX TOP
5024.00	5400.54	SHANNON TOP
7346.00	7774.44	NIO A TOP
7646.00	8074.44	CODELL TOP
8086.00	8514.44	JSAND TOP

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	
2277.91	26.56	66.98	2230.87	118.23	278.21	2.00	66.98	302.29	
5446.53	26.56	66.98	5065.13	672.32	1582.07	0.00	0.00	1719.00	
6774.44	0.00	0.00	6346.00	790.55	1860.28	2.00	180.00	2021.29	
8664.44	0.00	0.00	8236.00	790.55	1860.28	0.00	0.00	2021.29	PBHL_FREDERICK STATE 1-36(660 FNL 660 FEL)50' TGT

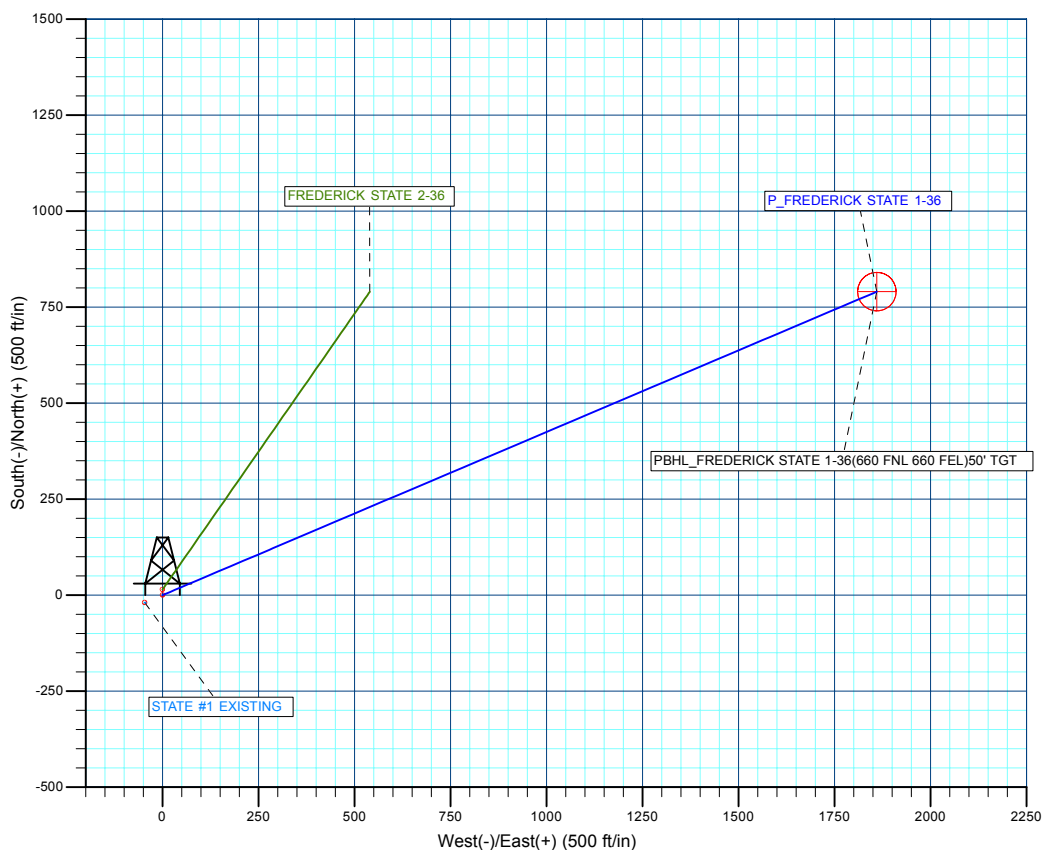
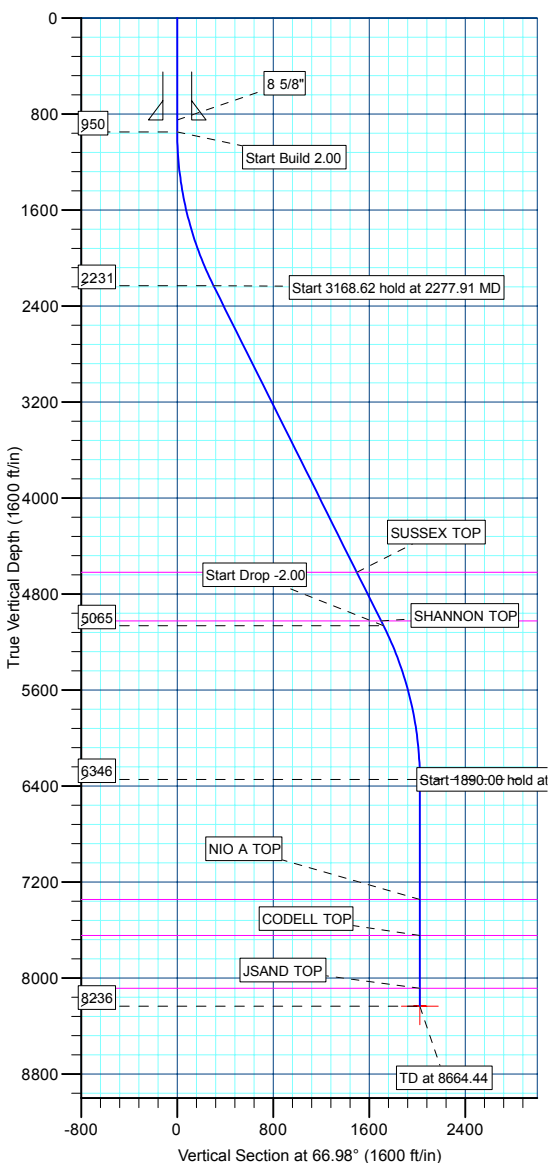
CASING DETAILS

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	8236.00	790.55	1860.28	1279921.27	3155369.92	40° 6' 1.584 N	104° 56' 40.524 W	Circle (Radius: 50.00)

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_FREDERICK STATE 1-36
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:	P_FREDERICK STATE 1-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_FREDERICK STATE 1-36		
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	P_FREDERICK STATE 1-36					
Well Position	+N/-S	0.00 ft	Northing:	1,279,119.22 ft	Latitude:	40° 5' 53.772 N
	+E/-W	0.00 ft	Easting:	3,153,514.57 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 1-36				
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	66.98

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	
2,277.91	26.56	66.98	2,230.87	118.23	278.21	2.00	2.00	0.00	66.98	
5,446.53	26.56	66.98	5,065.13	672.32	1,582.07	0.00	0.00	0.00	0.00	
6,774.44	0.00	0.00	6,346.00	790.55	1,860.28	2.00	-2.00	0.00	180.00	
8,664.44	0.00	0.00	8,236.00	790.55	1,860.28	0.00	0.00	0.00	0.00	PBHL_FREDERICK

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_FREDERICK STATE 1-36
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:	P_FREDERICK STATE 1-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_FREDERICK STATE 1-36		
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	66.98	1,000.00	0.17	0.40	0.44	2.00	2.00	0.00
1,100.00	3.00	66.98	1,099.93	1.54	3.61	3.93	2.00	2.00	0.00
1,200.00	5.00	66.98	1,199.68	4.26	10.03	10.90	2.00	2.00	0.00
1,300.00	7.00	66.98	1,299.13	8.35	19.65	21.35	2.00	2.00	0.00
1,400.00	9.00	66.98	1,398.15	13.79	32.46	35.27	2.00	2.00	0.00
1,500.00	11.00	66.98	1,496.63	20.59	48.44	52.63	2.00	2.00	0.00
1,600.00	13.00	66.98	1,594.44	28.72	67.58	73.42	2.00	2.00	0.00
1,700.00	15.00	66.98	1,691.46	38.18	89.84	97.62	2.00	2.00	0.00
1,800.00	17.00	66.98	1,787.58	48.96	115.21	125.18	2.00	2.00	0.00
1,900.00	19.00	66.98	1,882.68	61.04	143.65	156.08	2.00	2.00	0.00
2,000.00	21.00	66.98	1,976.65	74.42	175.12	190.28	2.00	2.00	0.00
2,100.00	23.00	66.98	2,069.36	89.07	209.60	227.74	2.00	2.00	0.00
2,200.00	25.00	66.98	2,160.71	104.98	247.03	268.41	2.00	2.00	0.00
Start 3168.62 hold at 2277.91 MD									
2,277.91	26.56	66.98	2,230.87	118.23	278.21	302.29	2.00	2.00	0.00
2,300.00	26.56	66.98	2,250.63	122.09	287.30	312.17	0.00	0.00	0.00
2,400.00	26.56	66.98	2,340.07	139.58	328.45	356.88	0.00	0.00	0.00
2,500.00	26.56	66.98	2,429.52	157.07	369.60	401.59	0.00	0.00	0.00
2,600.00	26.56	66.98	2,518.97	174.55	410.75	446.30	0.00	0.00	0.00
2,700.00	26.56	66.98	2,608.42	192.04	451.90	491.01	0.00	0.00	0.00
2,800.00	26.56	66.98	2,697.87	209.53	493.05	535.72	0.00	0.00	0.00
2,900.00	26.56	66.98	2,787.31	227.01	534.20	580.43	0.00	0.00	0.00
3,000.00	26.56	66.98	2,876.76	244.50	575.34	625.14	0.00	0.00	0.00
3,100.00	26.56	66.98	2,966.21	261.99	616.49	669.85	0.00	0.00	0.00
3,200.00	26.56	66.98	3,055.66	279.48	657.64	714.56	0.00	0.00	0.00
3,300.00	26.56	66.98	3,145.11	296.96	698.79	759.27	0.00	0.00	0.00
3,400.00	26.56	66.98	3,234.55	314.45	739.94	803.98	0.00	0.00	0.00
3,500.00	26.56	66.98	3,324.00	331.94	781.09	848.70	0.00	0.00	0.00
3,600.00	26.56	66.98	3,413.45	349.42	822.24	893.41	0.00	0.00	0.00
3,700.00	26.56	66.98	3,502.90	366.91	863.39	938.12	0.00	0.00	0.00
3,800.00	26.56	66.98	3,592.35	384.40	904.54	982.83	0.00	0.00	0.00
3,900.00	26.56	66.98	3,681.79	401.88	945.69	1,027.54	0.00	0.00	0.00
4,000.00	26.56	66.98	3,771.24	419.37	986.84	1,072.25	0.00	0.00	0.00
4,100.00	26.56	66.98	3,860.69	436.86	1,027.99	1,116.96	0.00	0.00	0.00
4,200.00	26.56	66.98	3,950.14	454.34	1,069.13	1,161.67	0.00	0.00	0.00
4,300.00	26.56	66.98	4,039.59	471.83	1,110.28	1,206.38	0.00	0.00	0.00
4,400.00	26.56	66.98	4,129.03	489.32	1,151.43	1,251.09	0.00	0.00	0.00
4,500.00	26.56	66.98	4,218.48	506.81	1,192.58	1,295.80	0.00	0.00	0.00
4,600.00	26.56	66.98	4,307.93	524.29	1,233.73	1,340.51	0.00	0.00	0.00
4,700.00	26.56	66.98	4,397.38	541.78	1,274.88	1,385.22	0.00	0.00	0.00
4,800.00	26.56	66.98	4,486.83	559.27	1,316.03	1,429.93	0.00	0.00	0.00
4,900.00	26.56	66.98	4,576.27	576.75	1,357.18	1,474.65	0.00	0.00	0.00
SUSSEX TOP									
4,948.88	26.56	66.98	4,620.00	585.30	1,377.29	1,496.50	0.00	0.00	0.00
5,000.00	26.56	66.98	4,665.72	594.24	1,398.33	1,519.36	0.00	0.00	0.00
5,100.00	26.56	66.98	4,755.17	611.73	1,439.48	1,564.07	0.00	0.00	0.00
5,200.00	26.56	66.98	4,844.62	629.21	1,480.63	1,608.78	0.00	0.00	0.00
5,300.00	26.56	66.98	4,934.07	646.70	1,521.78	1,653.49	0.00	0.00	0.00
5,400.00	26.56	66.98	5,023.51	664.19	1,562.92	1,698.20	0.00	0.00	0.00
SHANNON TOP									
5,400.54	26.56	66.98	5,024.00	664.28	1,563.15	1,698.44	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_FREDERICK STATE 1-36
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:	P_FREDERICK STATE 1-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_FREDERICK STATE 1-36		
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 Drop -2.00									
5,446.53	26.56	66.98	5,065.13	672.32	1,582.07	1,719.00	0.00	0.00	0.00
5,500.00	25.49	66.98	5,113.18	681.50	1,603.66	1,742.46	2.00	-2.00	0.00
5,600.00	23.49	66.98	5,204.18	697.71	1,641.81	1,783.91	2.00	-2.00	0.00
5,700.00	21.49	66.98	5,296.57	712.67	1,677.01	1,822.16	2.00	-2.00	0.00
5,800.00	19.49	66.98	5,390.24	726.36	1,709.22	1,857.16	2.00	-2.00	0.00
5,900.00	17.49	66.98	5,485.08	738.76	1,738.41	1,888.87	2.00	-2.00	0.00
6,000.00	15.49	66.98	5,580.96	749.86	1,764.53	1,917.25	2.00	-2.00	0.00
6,100.00	13.49	66.98	5,677.77	759.65	1,787.55	1,942.27	2.00	-2.00	0.00
6,200.00	11.49	66.98	5,775.40	768.10	1,807.45	1,963.89	2.00	-2.00	0.00
6,300.00	9.49	66.98	5,873.73	775.22	1,824.21	1,982.10	2.00	-2.00	0.00
6,400.00	7.49	66.98	5,972.63	781.00	1,837.79	1,996.86	2.00	-2.00	0.00
6,500.00	5.49	66.98	6,071.98	785.42	1,848.19	2,008.16	2.00	-2.00	0.00
6,600.00	3.49	66.98	6,171.67	788.48	1,855.39	2,015.98	2.00	-2.00	0.00
6,700.00	1.49	66.98	6,271.57	790.18	1,859.39	2,020.33	2.00	-2.00	0.00
Start 1890.00 hold at 6774.44 MD									
6,774.44	0.00	0.00	6,346.00	790.55	1,860.28	2,021.29	2.00	-2.00	0.00
6,800.00	0.00	0.00	6,371.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
6,900.00	0.00	0.00	6,471.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
7,000.00	0.00	0.00	6,571.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
7,100.00	0.00	0.00	6,671.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
7,200.00	0.00	0.00	6,771.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
7,300.00	0.00	0.00	6,871.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
7,400.00	0.00	0.00	6,971.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
7,500.00	0.00	0.00	7,071.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
7,600.00	0.00	0.00	7,171.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
7,700.00	0.00	0.00	7,271.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
NIO A TOP									
7,774.44	0.00	0.00	7,346.00	790.55	1,860.28	2,021.29	0.00	0.00	0.00
7,800.00	0.00	0.00	7,371.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
7,900.00	0.00	0.00	7,471.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
8,000.00	0.00	0.00	7,571.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
CODELL TOP									
8,074.44	0.00	0.00	7,646.00	790.55	1,860.28	2,021.29	0.00	0.00	0.00
8,100.00	0.00	0.00	7,671.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
8,200.00	0.00	0.00	7,771.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
8,300.00	0.00	0.00	7,871.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
8,400.00	0.00	0.00	7,971.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
8,500.00	0.00	0.00	8,071.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
JSAND TOP									
8,514.44	0.00	0.00	8,086.00	790.55	1,860.28	2,021.29	0.00	0.00	0.00
8,600.00	0.00	0.00	8,171.56	790.55	1,860.28	2,021.29	0.00	0.00	0.00
TD at 8664.44 - PBHL_FREDERICK STATE 1-36(660 FNL 660 FEL)50' TGT									
8,664.44	0.00	0.00	8,236.00	790.55	1,860.28	2,021.29	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_FREDERICK STATE 1-36
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:	P_FREDERICK STATE 1-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_FREDERICK STATE 1-36		
Design:	PLAN #1 11-20-09 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_FREDERICK S	0.00	0.00	8,236.00	790.55	1,860.28	1,279,921.27	3,155,369.92	40° 6' 1.584 N	104° 56' 40.524 W
- plan hits target center									
- Circle (radius 50.00)									

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

Formations						
	Measured Depth	Vertical Depth			Dip	Dip Direction
	(ft)	(ft)	Name	Lithology	(°)	(°)
	4,948.88	4,620.00	SUSSEX TOP			
	5,400.54	5,024.00	SHANNON TOP			
	7,774.44	7,346.00	NIO A TOP			
	8,074.44	7,646.00	CODELL TOP			
	8,514.44	8,086.00	JSAND TOP			

Plan Annotations					
	Measured Depth	Vertical Depth	Local Coordinates		
	(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	Comment
	950.00	950.00	0.00	0.00	Start Build 2.00
	2,277.91	2,230.87	118.23	278.21	Start 3168.62 hold at 2277.91 MD
	5,446.53	5,065.13	672.32	1,582.07	Start Drop -2.00
	6,774.44	6,346.00	790.55	1,860.28	Start 1890.00 hold at 6774.44 MD
	8,664.44	8,236.00	790.55	1,860.28	TD at 8664.44



US ROCKIES REGION PLANNING

**COLORADO NOTHERN ZONE - 83
WELD_FREDERICK STATE 2 PAD
P_FREDERICK STATE 1-36**

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

Anticollision Report

23 November, 2009



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_FREDERICK STATE 1-36
Project:	COLORADO NORTHERN 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:	P_FREDERICK STATE 1-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FREDERICK STATE 1-36	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	11/23/2009		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	8,664.44	PLAN #1 11-20-09 RHS (P_FREDERICK STATE 1-36)	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						
FREDERICK STATE 2-36 - P_FREDERICK STATE 2-36	950.00	950.00	14.56	10.55	3.629	CC
FREDERICK STATE 2-36 - P_FREDERICK STATE 2-36	1,000.00	999.79	14.75	10.51	3.485	ES, SF
STATE #1 EXISTING - STATE #1 EXISTING - STATE #1 EXISTING	950.00	929.00	50.04	12.87	1.346	Level 3, CC
STATE #1 EXISTING - STATE #1 EXISTING - STATE #1 EXISTING	1,100.00	1,078.93	53.97	10.54	1.243	Level 2, ES, SF

Offset Design												
WELD_FREDERICK STATE 2 PAD - FREDERICK STATE 2-36 - P_FREDERICK STATE 2-36 - PLAN #1 11-20-09 RHS												
Survey Program: 0-MWD												
Reference		Offset		Semi Major Axis		Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.56	0.00	14.56			
100.00	100.00	100.00	100.00	0.10	0.10	0.00	14.56	0.00	14.56	14.37	0.19	76.202
200.00	200.00	200.00	200.00	0.32	0.32	0.00	14.56	0.00	14.56	13.92	0.64	22.727
300.00	300.00	300.00	300.00	0.55	0.55	0.00	14.56	0.00	14.56	13.47	1.09	13.355
400.00	400.00	400.00	400.00	0.77	0.77	0.00	14.56	0.00	14.56	13.02	1.54	9.456
500.00	500.00	500.00	500.00	0.99	0.99	0.00	14.56	0.00	14.56	12.57	1.99	7.319
600.00	600.00	600.00	600.00	1.22	1.22	0.00	14.56	0.00	14.56	12.12	2.44	5.970
700.00	700.00	700.00	700.00	1.44	1.44	0.00	14.56	0.00	14.56	11.67	2.89	5.041
800.00	800.00	800.00	800.00	1.67	1.67	0.00	14.56	0.00	14.56	11.22	3.34	4.362
900.00	900.00	900.00	900.00	1.89	1.89	0.00	14.56	0.00	14.56	10.77	3.79	3.844
950.00	950.00	950.00	950.00	2.01	2.01	0.00	14.56	0.00	14.56	10.55	4.01	3.629 CC
1,000.00	1,000.00	999.79	999.79	2.11	2.12	-67.57	14.91	0.25	14.75	10.51	4.23	3.485 ES, SF
1,100.00	1,099.93	1,099.35	1,099.28	2.33	2.34	-71.79	17.75	2.22	16.29	11.63	4.66	3.494
1,200.00	1,199.68	1,198.82	1,198.51	2.55	2.56	-78.13	23.42	6.17	19.58	14.47	5.11	3.835
1,300.00	1,299.13	1,298.15	1,297.30	2.78	2.80	-84.35	31.90	12.07	24.81	19.23	5.57	4.450
1,400.00	1,398.15	1,397.30	1,395.49	3.04	3.05	-89.37	43.16	19.90	32.05	25.97	6.08	5.268
1,500.00	1,496.63	1,496.21	1,492.90	3.34	3.34	-93.10	57.17	29.65	41.30	34.65	6.65	6.209
1,600.00	1,594.44	1,595.56	1,590.44	3.67	3.65	-97.43	72.70	40.45	51.82	44.54	7.29	7.112
1,700.00	1,691.46	1,694.71	1,687.78	4.06	3.98	-103.32	88.19	51.23	63.29	55.31	7.98	7.932
1,800.00	1,787.58	1,793.52	1,784.78	4.51	4.33	-109.78	103.63	61.98	76.36	67.65	8.71	8.771
1,900.00	1,882.68	1,891.86	1,881.32	5.02	4.69	-116.19	119.00	72.67	91.64	82.20	9.44	9.703
2,000.00	1,976.65	1,989.62	1,977.29	5.60	5.05	-122.18	134.27	83.30	109.61	99.44	10.17	10.775
2,100.00	2,069.36	2,086.67	2,072.57	6.26	5.41	-127.57	149.44	93.85	130.58	119.70	10.88	12.003

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_FREDERICK STATE 1-36
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:	P_FREDERICK STATE 1-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FREDERICK STATE 1-36	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 - FREDERICK STATE 2-36 - P_FREDERICK STATE 2-36 - PLAN ;												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,200.00	2,160.71	2,182.91	2,167.05	6.98	5.78	-132.30	164.48	104.32	154.75	143.19	11.56	13.386	
2,277.91	2,230.87	2,257.24	2,240.02	7.60	6.07	-135.54	176.10	112.40	175.86	163.78	12.08	14.563	
2,300.00	2,250.63	2,278.23	2,260.63	7.78	6.15	-136.46	179.38	114.68	182.15	169.92	12.23	14.896	
2,400.00	2,340.07	2,373.25	2,353.91	8.62	6.52	-139.96	194.22	125.01	211.10	198.18	12.92	16.334	
2,500.00	2,429.52	2,468.27	2,447.19	9.47	6.89	-142.62	209.07	135.34	240.61	226.98	13.63	17.651	
2,600.00	2,518.97	2,563.29	2,540.47	10.34	7.27	-144.70	223.92	145.68	270.49	256.14	14.35	18.850	
2,700.00	2,608.42	2,658.31	2,633.75	11.22	7.65	-146.36	238.77	156.01	300.63	285.55	15.08	19.940	
2,800.00	2,697.87	2,753.33	2,727.03	12.10	8.03	-147.72	253.62	166.34	330.96	315.15	15.81	20.932	
2,900.00	2,787.31	2,848.35	2,820.31	12.99	8.41	-148.86	268.47	176.67	361.43	344.88	16.55	21.835	
3,000.00	2,876.76	2,943.36	2,913.60	13.89	8.79	-149.82	283.31	187.00	392.01	374.71	17.30	22.660	
3,100.00	2,966.21	3,038.38	3,006.88	14.79	9.17	-150.64	298.16	197.33	422.68	404.63	18.05	23.416	
3,200.00	3,055.66	3,133.40	3,100.16	15.69	9.56	-151.35	313.01	207.67	453.41	434.61	18.81	24.109	
3,300.00	3,145.11	3,228.42	3,193.44	16.59	9.94	-151.97	327.86	218.00	484.20	464.64	19.57	24.747	
3,400.00	3,234.55	3,323.44	3,286.72	17.50	10.33	-152.51	342.71	228.33	515.04	494.71	20.33	25.336	
3,500.00	3,324.00	3,418.46	3,380.00	18.41	10.72	-153.00	357.56	238.66	545.91	524.82	21.09	25.881	
3,600.00	3,413.45	3,513.48	3,473.28	19.32	11.11	-153.43	372.41	248.99	576.82	554.96	21.86	26.386	
3,700.00	3,502.90	3,608.50	3,566.56	20.24	11.50	-153.82	387.25	259.32	607.75	585.12	22.63	26.856	
3,800.00	3,592.35	3,703.52	3,659.85	21.15	11.89	-154.17	402.10	269.66	638.70	615.30	23.40	27.294	
3,900.00	3,681.79	3,798.54	3,753.13	22.06	12.27	-154.49	416.95	279.99	669.68	645.51	24.17	27.702	
4,000.00	3,771.24	3,893.56	3,846.41	22.98	12.67	-154.78	431.80	290.32	700.67	675.72	24.95	28.085	
4,100.00	3,860.69	3,988.57	3,939.69	23.90	13.06	-155.04	446.65	300.65	731.68	705.95	25.72	28.443	
4,200.00	3,950.14	4,083.59	4,032.97	24.82	13.45	-155.29	461.50	310.98	762.70	736.20	26.50	28.780	
4,300.00	4,039.59	4,178.61	4,126.25	25.73	13.84	-155.51	476.34	321.32	793.73	766.45	27.28	29.096	
4,400.00	4,129.03	4,273.63	4,219.53	26.65	14.23	-155.72	491.19	331.65	824.77	796.71	28.06	29.395	
4,500.00	4,218.48	4,368.65	4,312.82	27.57	14.62	-155.92	506.04	341.98	855.82	826.98	28.84	29.677	
4,600.00	4,307.93	4,463.67	4,406.10	28.49	15.01	-156.10	520.89	352.31	886.88	857.26	29.62	29.943	
4,700.00	4,397.38	4,558.69	4,499.38	29.41	15.41	-156.26	535.74	362.64	917.94	887.54	30.40	30.195	
4,800.00	4,486.83	4,653.71	4,592.66	30.34	15.80	-156.42	550.59	372.97	949.02	917.83	31.18	30.434	
4,900.00	4,576.27	4,748.73	4,685.94	31.26	16.19	-156.57	565.44	383.31	980.09	948.13	31.97	30.661	
5,000.00	4,665.72	4,843.75	4,779.22	32.18	16.58	-156.70	580.28	393.64	1,011.18	978.43	32.75	30.877	
5,100.00	4,755.17	4,938.77	4,872.50	33.10	16.98	-156.83	595.13	403.97	1,042.27	1,008.73	33.53	31.082	
5,200.00	4,844.62	5,033.79	4,965.79	34.02	17.37	-156.95	609.98	414.30	1,073.36	1,039.04	34.32	31.278	
5,300.00	4,934.07	5,128.80	5,059.07	34.95	17.76	-157.07	624.83	424.63	1,104.46	1,069.36	35.10	31.464	
5,400.00	5,023.51	5,223.82	5,152.35	35.87	18.16	-157.18	639.68	434.96	1,135.56	1,099.67	35.89	31.642	
5,446.53	5,065.13	5,268.03	5,195.75	36.30	18.34	-157.23	646.59	439.77	1,150.03	1,113.78	36.25	31.722	
5,500.00	5,113.18	5,318.99	5,245.77	36.74	18.55	-157.40	654.55	445.31	1,166.23	1,129.52	36.71	31.771	
5,600.00	5,204.18	5,415.00	5,340.03	37.43	18.95	-157.65	669.55	455.75	1,194.14	1,156.62	37.53	31.821	
5,700.00	5,296.57	5,511.87	5,435.13	38.07	19.35	-157.81	684.69	466.28	1,218.95	1,180.61	38.34	31.794	
5,800.00	5,390.24	5,609.47	5,530.94	38.66	19.76	-157.88	699.94	476.90	1,240.61	1,201.47	39.14	31.697	
5,900.00	5,485.08	5,707.68	5,627.35	39.19	20.16	-157.86	715.29	487.57	1,259.12	1,219.19	39.93	31.536	
6,000.00	5,580.96	5,806.38	5,724.25	39.67	20.57	-157.77	730.71	498.31	1,274.45	1,233.75	40.70	31.315	
6,100.00	5,677.77	5,905.46	5,821.52	40.10	20.98	-157.59	746.20	509.08	1,286.60	1,245.15	41.45	31.037	
6,200.00	5,775.40	5,985.79	5,900.54	40.48	21.27	-157.44	758.02	517.31	1,296.24	1,254.20	42.04	30.831	
6,300.00	5,873.73	6,064.54	5,978.38	40.80	21.50	-157.32	767.84	524.14	1,304.29	1,261.77	42.52	30.675	
6,400.00	5,972.63	6,143.42	6,056.63	41.07	21.70	-157.21	775.92	529.77	1,310.73	1,267.82	42.91	30.548	
6,500.00	6,071.98	6,222.40	6,135.23	41.29	21.88	-157.12	782.24	534.16	1,315.56	1,272.34	43.21	30.444	
6,600.00	6,171.67	6,300.00	6,212.65	41.47	22.04	-157.06	786.71	537.27	1,318.76	1,275.33	43.43	30.363	
6,700.00	6,271.57	6,380.57	6,293.14	41.59	22.16	-157.01	789.53	539.23	1,320.33	1,276.77	43.57	30.305	
6,774.44	6,346.00	6,439.49	6,352.04	41.65	22.24	-90.01	790.42	539.85	1,320.45	1,276.83	43.62	30.274	
6,800.00	6,371.56	6,462.44	6,375.00	41.66	22.27	-90.00	790.49	539.90	1,320.38	1,276.71	43.68	30.230	
6,834.52	6,406.08	6,493.52	6,406.08	41.69	22.31	-90.00	790.49	539.90	1,320.38	1,276.62	43.76	30.173	
6,900.00	6,471.56	6,559.00	6,471.56	41.74	22.40	-90.00	790.49	539.90	1,320.38	1,276.45	43.93	30.054	

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_FREDERICK STATE 1-36
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:	P_FREDERICK STATE 1-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FREDERICK STATE 1-36	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 - FREDERICK STATE 2-36 - P_FREDERICK STATE 2-36 - PLAN ;													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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
7,000.00	6,571.56	6,659.00	6,571.56	41.81	22.54	-90.00	790.49	539.90	1,320.38	1,276.18	44.20	29.873		
7,100.00	6,671.56	6,759.00	6,671.56	41.89	22.68	-90.00	790.49	539.90	1,320.38	1,275.91	44.47	29.692		
7,200.00	6,771.56	6,859.00	6,771.56	41.96	22.81	-90.00	790.49	539.90	1,320.38	1,275.64	44.74	29.512		
7,300.00	6,871.56	6,959.00	6,871.56	42.04	22.96	-90.00	790.49	539.90	1,320.38	1,275.36	45.02	29.331		
7,400.00	6,971.56	7,059.00	6,971.56	42.12	23.10	-90.00	790.49	539.90	1,320.38	1,275.09	45.29	29.151		
7,500.00	7,071.56	7,159.00	7,071.56	42.20	23.24	-90.00	790.49	539.90	1,320.38	1,274.81	45.57	28.972		
7,600.00	7,171.56	7,259.00	7,171.56	42.28	23.39	-90.00	790.49	539.90	1,320.38	1,274.52	45.86	28.793		
7,700.00	7,271.56	7,359.00	7,271.56	42.36	23.53	-90.00	790.49	539.90	1,320.38	1,274.24	46.14	28.615		
7,800.00	7,371.56	7,459.00	7,371.56	42.44	23.68	-90.00	790.49	539.90	1,320.38	1,273.95	46.43	28.437		
7,900.00	7,471.56	7,559.00	7,471.56	42.52	23.83	-90.00	790.49	539.90	1,320.38	1,273.66	46.72	28.260		
8,000.00	7,571.56	7,659.00	7,571.56	42.61	23.98	-90.00	790.49	539.90	1,320.38	1,273.36	47.02	28.084		
8,100.00	7,671.56	7,759.00	7,671.56	42.69	24.13	-90.00	790.49	539.90	1,320.38	1,273.07	47.31	27.908		
8,200.00	7,771.56	7,859.00	7,771.56	42.78	24.28	-90.00	790.49	539.90	1,320.38	1,272.77	47.61	27.733		
8,300.00	7,871.56	7,959.00	7,871.56	42.87	24.44	-90.00	790.49	539.90	1,320.38	1,272.47	47.91	27.559		
8,400.00	7,971.56	8,059.00	7,971.56	42.96	24.59	-90.00	790.49	539.90	1,320.38	1,272.17	48.21	27.386		
8,500.00	8,071.56	8,159.00	8,071.56	43.05	24.75	-90.00	790.49	539.90	1,320.38	1,271.86	48.52	27.214		
8,600.00	8,171.56	8,259.00	8,171.56	43.14	24.90	-90.00	790.49	539.90	1,320.38	1,271.55	48.83	27.043		
8,664.44	8,236.00	8,323.44	8,236.00	43.20	25.00	-90.00	790.49	539.90	1,320.38	1,271.36	49.02	26.933		

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_FREDERICK STATE 1-36
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:	P_FREDERICK STATE 1-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FREDERICK STATE 1-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-20-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design												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	-112.72	-19.32	-46.16	54.27				
100.00	100.00	79.00	79.00	0.10	1.58	-112.72	-19.32	-46.16	50.04	48.36	1.68	29.865	
200.00	200.00	179.00	179.00	0.32	5.16	-112.72	-19.32	-46.16	50.04	44.56	5.48	9.131	
300.00	300.00	279.00	279.00	0.55	9.16	-112.72	-19.32	-46.16	50.04	40.34	9.71	5.156	
400.00	400.00	379.00	379.00	0.77	13.16	-112.72	-19.32	-46.16	50.04	36.11	13.93	3.592	
500.00	500.00	479.00	479.00	0.99	17.16	-112.72	-19.32	-46.16	50.04	31.89	18.15	2.756	
600.00	600.00	579.00	579.00	1.22	21.16	-112.72	-19.32	-46.16	50.04	27.66	22.38	2.236	
700.00	700.00	679.00	679.00	1.44	25.16	-112.72	-19.32	-46.16	50.04	23.44	26.60	1.881	
800.00	800.00	779.00	779.00	1.67	29.16	-112.72	-19.32	-46.16	50.04	19.21	30.83	1.623	
900.00	900.00	879.00	879.00	1.89	33.16	-112.72	-19.32	-46.16	50.04	14.99	35.05	1.428 Level 3	
950.00	950.00	929.00	929.00	2.01	35.16	-112.72	-19.32	-46.16	50.04	12.87	37.17	1.346 Level 3, CC	
1,000.00	1,000.00	979.00	979.00	2.11	37.16	-179.69	-19.32	-46.16	50.48	11.21	39.27	1.285 Level 3	
1,100.00	1,099.93	1,078.93	1,078.93	2.33	41.16	-179.71	-19.32	-46.16	53.97	10.54	43.43	1.243 Level 2, ES, SF	
1,200.00	1,199.68	1,178.68	1,178.68	2.55	45.15	-179.75	-19.32	-46.16	60.94	13.42	47.52	1.283 Level 3	
1,300.00	1,299.13	1,278.13	1,278.13	2.78	49.13	-179.78	-19.32	-46.16	71.39	19.88	51.52	1.386 Level 3	
1,400.00	1,398.15	1,377.15	1,377.15	3.04	53.09	-179.82	-19.32	-46.16	85.31	29.90	55.41	1.540	
1,500.00	1,496.63	1,475.63	1,475.63	3.34	57.03	-179.85	-19.32	-46.16	102.67	43.50	59.17	1.735	
1,600.00	1,594.44	1,573.44	1,573.44	3.67	60.94	-179.87	-19.32	-46.16	123.46	60.67	62.80	1.966	
1,700.00	1,691.46	1,670.46	1,670.46	4.06	64.82	-179.89	-19.32	-46.16	147.66	81.39	66.26	2.228	
1,800.00	1,787.58	1,766.58	1,766.58	4.51	68.66	-179.91	-19.32	-46.16	175.22	105.66	69.56	2.519	
1,900.00	1,882.68	1,861.68	1,861.68	5.02	72.47	-179.92	-19.32	-46.16	206.12	133.46	72.66	2.837	
2,000.00	1,976.65	1,955.65	1,955.65	5.60	76.23	-179.93	-19.32	-46.16	240.32	164.76	75.56	3.180	
2,100.00	2,069.36	2,048.36	2,048.36	6.26	79.93	-179.94	-19.32	-46.16	277.78	199.53	78.25	3.550	
2,200.00	2,160.71	2,139.71	2,139.71	6.98	83.59	-179.95	-19.32	-46.16	318.45	237.74	80.70	3.946	
2,277.91	2,230.87	2,209.87	2,209.87	7.60	86.39	-179.95	-19.32	-46.16	352.33	269.88	82.45	4.273	
2,300.00	2,250.63	2,229.63	2,229.63	7.78	87.19	-179.95	-19.32	-46.16	362.21	278.98	83.23	4.352	
2,400.00	2,340.07	2,319.07	2,319.07	8.62	90.76	-179.96	-19.32	-46.16	406.92	320.16	86.76	4.690	
2,500.00	2,429.52	2,408.52	2,408.52	9.47	94.34	-179.96	-19.32	-46.16	451.63	361.33	90.30	5.001	
2,600.00	2,518.97	2,497.97	2,497.97	10.34	97.92	-179.97	-19.32	-46.16	496.34	402.49	93.84	5.289	
2,700.00	2,608.42	2,587.42	2,587.42	11.22	101.50	-179.97	-19.32	-46.16	541.05	443.66	97.39	5.555	
2,800.00	2,697.87	2,676.87	2,676.87	12.10	105.07	-179.97	-19.32	-46.16	585.76	484.81	100.95	5.803	
2,900.00	2,787.31	2,766.31	2,766.31	12.99	108.65	-179.97	-19.32	-46.16	630.47	525.97	104.50	6.033	
3,000.00	2,876.76	2,855.76	2,855.76	13.89	112.23	-179.97	-19.32	-46.16	675.18	567.12	108.07	6.248	
3,100.00	2,966.21	2,945.21	2,945.21	14.79	115.81	-179.98	-19.32	-46.16	719.89	608.26	111.63	6.449	
3,200.00	3,055.66	3,034.66	3,034.66	15.69	119.39	-179.98	-19.32	-46.16	764.60	649.41	115.19	6.638	
3,300.00	3,145.11	3,124.11	3,124.11	16.59	122.96	-179.98	-19.32	-46.16	809.31	690.55	118.76	6.815	
3,400.00	3,234.55	3,213.55	3,213.55	17.50	126.54	-179.98	-19.32	-46.16	854.02	731.69	122.33	6.981	
3,500.00	3,324.00	3,303.00	3,303.00	18.41	130.12	-179.98	-19.32	-46.16	898.74	772.83	125.90	7.138	
3,600.00	3,413.45	3,392.45	3,392.45	19.32	133.70	-179.98	-19.32	-46.16	943.45	813.97	129.48	7.287	
3,700.00	3,502.90	3,481.90	3,481.90	20.24	137.28	-179.98	-19.32	-46.16	988.16	855.11	133.05	7.427	
3,800.00	3,592.35	3,571.35	3,571.35	21.15	140.85	-179.98	-19.32	-46.16	1,032.87	896.24	136.62	7.560	
3,900.00	3,681.79	3,660.79	3,660.79	22.06	144.43	-179.98	-19.32	-46.16	1,077.58	937.38	140.20	7.686	
4,000.00	3,771.24	3,750.24	3,750.24	22.98	148.01	-179.98	-19.32	-46.16	1,122.29	978.51	143.78	7.806	
4,100.00	3,860.69	3,839.69	3,839.69	23.90	151.59	-179.99	-19.32	-46.16	1,167.00	1,019.65	147.35	7.920	
4,200.00	3,950.14	3,929.14	3,929.14	24.82	155.17	-179.99	-19.32	-46.16	1,211.71	1,060.78	150.93	8.028	
4,300.00	4,039.59	4,018.59	4,018.59	25.73	158.74	-179.99	-19.32	-46.16	1,256.42	1,101.91	154.51	8.132	
4,400.00	4,129.03	4,108.03	4,108.03	26.65	162.32	-179.99	-19.32	-46.16	1,301.13	1,143.04	158.09	8.230	
4,500.00	4,218.48	4,197.48	4,197.48	27.57	165.90	-179.99	-19.32	-46.16	1,345.84	1,184.17	161.67	8.325	
4,600.00	4,307.93	4,286.93	4,286.93	28.49	169.48	-179.99	-19.32	-46.16	1,390.55	1,225.30	165.25	8.415	
4,700.00	4,397.38	4,376.38	4,376.38	29.41	173.06	-179.99	-19.32	-46.16	1,435.26	1,266.43	168.83	8.501	
4,800.00	4,486.83	4,465.83	4,465.83	30.34	176.63	-179.99	-19.32	-46.16	1,479.97	1,307.56	172.41	8.584	
4,900.00	4,576.27	4,555.27	4,555.27	31.26	180.21	-179.99	-19.32	-46.16	1,524.68	1,348.69	176.00	8.663	

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_FREDERICK STATE 1-36
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:	P_FREDERICK STATE 1-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FREDERICK STATE 1-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-20-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design												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	4,665.72	4,644.72	4,644.72	32.18	183.79	-179.99	-19.32	-46.16	1,569.40	1,389.82	179.58	8.739	
5,100.00	4,755.17	4,734.17	4,734.17	33.10	187.37	-179.99	-19.32	-46.16	1,614.11	1,430.94	183.16	8.812	
5,200.00	4,844.62	4,823.62	4,823.62	34.02	190.94	-179.99	-19.32	-46.16	1,658.82	1,472.07	186.74	8.883	
5,300.00	4,934.07	4,913.07	4,913.07	34.95	194.52	-179.99	-19.32	-46.16	1,703.53	1,513.20	190.33	8.950	
5,400.00	5,023.51	5,002.51	5,002.51	35.87	198.10	-179.99	-19.32	-46.16	1,748.24	1,554.33	193.91	9.016	
5,446.53	5,065.13	5,044.13	5,044.13	36.30	199.77	-179.99	-19.32	-46.16	1,769.04	1,573.46	195.58	9.045	
5,500.00	5,113.18	5,092.18	5,092.18	36.74	201.69	-179.99	-19.32	-46.16	1,792.50	1,593.41	199.09	9.003	
5,600.00	5,204.18	5,183.18	5,183.18	37.43	205.33	-179.99	-19.32	-46.16	1,833.95	1,628.34	205.61	8.919	
5,700.00	5,296.57	5,275.57	5,275.57	38.07	209.02	-179.99	-19.32	-46.16	1,872.20	1,660.09	212.11	8.826	
5,800.00	5,390.24	5,369.24	5,369.24	38.66	212.77	-179.99	-19.32	-46.16	1,907.20	1,688.72	218.48	8.729	
5,900.00	5,485.08	5,464.08	5,464.08	39.19	216.56	-179.99	-19.32	-46.16	1,938.91	1,714.21	224.70	8.629	
6,000.00	5,580.96	5,559.96	5,559.96	39.67	220.40	-179.99	-19.32	-46.16	1,967.29	1,736.54	230.75	8.526	
6,100.00	5,677.77	5,656.77	5,656.77	40.10	224.27	-179.99	-19.32	-46.16	1,992.31	1,755.70	236.61	8.420	
6,200.00	5,775.40	5,754.40	5,754.40	40.48	228.18	-179.99	-19.32	-46.16	2,013.93	1,771.67	242.26	8.313	
6,300.00	5,873.73	5,852.73	5,852.73	40.80	232.11	-179.99	-19.32	-46.16	2,032.14	1,784.45	247.68	8.205	
6,400.00	5,972.63	5,951.63	5,951.63	41.07	236.07	-179.99	-19.32	-46.16	2,046.90	1,794.04	252.85	8.095	
6,500.00	6,071.98	6,050.98	6,050.98	41.29	240.04	-179.99	-19.32	-46.16	2,058.20	1,800.45	257.75	7.985	
6,600.00	6,171.67	6,150.67	6,150.67	41.47	244.03	-179.99	-19.32	-46.16	2,066.02	1,803.66	262.36	7.875	
6,700.00	6,271.57	6,250.57	6,250.57	41.59	248.02	-179.99	-19.32	-46.16	2,070.36	1,803.71	266.65	7.764	
6,774.44	6,346.00	6,325.00	6,325.00	41.65	251.00	-113.02	-19.32	-46.16	2,071.33	1,801.69	269.64	7.682	
6,800.00	6,371.56	6,350.56	6,350.56	41.66	252.02	-113.02	-19.32	-46.16	2,071.33	1,800.63	270.70	7.652	
6,900.00	6,471.56	6,450.56	6,450.56	41.74	256.02	-113.02	-19.32	-46.16	2,071.33	1,796.49	274.85	7.536	
7,000.00	6,571.56	6,550.56	6,550.56	41.81	260.02	-113.02	-19.32	-46.16	2,071.33	1,792.34	278.99	7.424	
7,100.00	6,671.56	6,650.56	6,650.56	41.89	264.02	-113.02	-19.32	-46.16	2,071.33	1,788.19	283.14	7.315	
7,200.00	6,771.56	6,750.56	6,750.56	41.96	268.02	-113.02	-19.32	-46.16	2,071.33	1,784.04	287.30	7.210	
7,300.00	6,871.56	6,850.56	6,850.56	42.04	272.02	-113.02	-19.32	-46.16	2,071.33	1,779.88	291.45	7.107	
7,400.00	6,971.56	6,950.56	6,950.56	42.12	276.02	-113.02	-19.32	-46.16	2,071.33	1,775.73	295.60	7.007	
7,500.00	7,071.56	7,050.56	7,050.56	42.20	280.02	-113.02	-19.32	-46.16	2,071.33	1,771.57	299.76	6.910	
7,600.00	7,171.56	7,150.56	7,150.56	42.28	284.02	-113.02	-19.32	-46.16	2,071.33	1,767.42	303.91	6.816	
7,700.00	7,271.56	7,250.56	7,250.56	42.36	288.02	-113.02	-19.32	-46.16	2,071.33	1,763.26	308.07	6.724	
7,800.00	7,371.56	7,350.56	7,350.56	42.44	292.02	-113.02	-19.32	-46.16	2,071.33	1,759.10	312.23	6.634	
7,900.00	7,471.56	7,450.56	7,450.56	42.52	296.02	-113.02	-19.32	-46.16	2,071.33	1,754.94	316.39	6.547	
8,000.00	7,571.56	7,550.56	7,550.56	42.61	300.02	-113.02	-19.32	-46.16	2,071.33	1,750.78	320.55	6.462	
8,100.00	7,671.56	7,650.56	7,650.56	42.69	304.02	-113.02	-19.32	-46.16	2,071.33	1,746.62	324.72	6.379	
8,200.00	7,771.56	7,750.56	7,750.56	42.78	308.02	-113.02	-19.32	-46.16	2,071.33	1,742.45	328.88	6.298	
8,300.00	7,871.56	7,850.56	7,850.56	42.87	312.02	-113.02	-19.32	-46.16	2,071.33	1,738.29	333.05	6.219	
8,400.00	7,971.56	7,950.56	7,950.56	42.96	316.02	-113.02	-19.32	-46.16	2,071.33	1,734.12	337.21	6.143	
8,500.00	8,071.56	8,050.56	8,050.56	43.05	320.02	-113.02	-19.32	-46.16	2,071.33	1,729.95	341.38	6.068	
8,600.00	8,171.56	8,150.56	8,150.56	43.14	324.02	-113.02	-19.32	-46.16	2,071.33	1,725.78	345.55	5.994	
8,664.44	8,236.00	8,215.00	8,215.00	43.20	326.60	-113.02	-19.32	-46.16	2,071.33	1,723.10	348.23	5.948	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_FREDERICK STATE 1-36
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:	P_FREDERICK STATE 1-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FREDERICK STATE 1-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-20-09 RHS	Offset TVD Reference:	Offset Datum

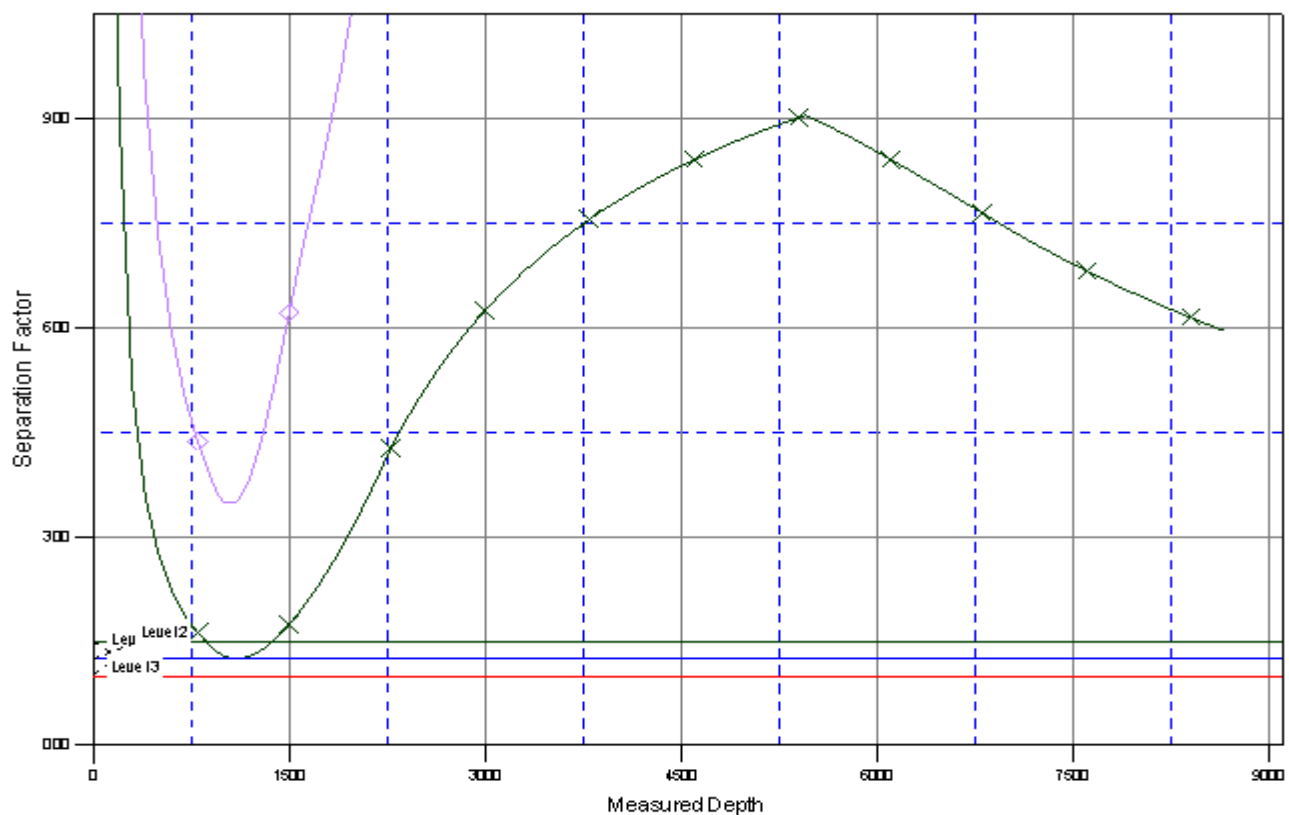
Reference Depths are relative to WELL @ 5029.00ft (Original Well Elev) Coordinates are relative to: P_FREDERICK STATE 1-36
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.35°




Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_FREDERICK STATE 1-36
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:	P_FREDERICK STATE 1-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_FREDERICK STATE 1-36	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: P_FREDERICK STATE 1-36
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

2-36, PLAN#1 11-20-09 RHS \0  STATE#1 EXISTING, STATE#1 EXISTING, STATE#1 EXISTING \0