



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_ELLIOT 5-17 PAD

P_ELLIOT 22-17

P_ELLIOT 22-17

Plan: PLAN #1 1-13-10 RHS

Standard Planning Report

13 January, 2010



P ELLIOT 22-17
COLORADO NORTHERN ZONE - 83
SECTION 17 T3N R67W
1895 FNL 726 FWL
LAT: 40° 13' 40.620 N
LONG: 104° 55' 14.372 W



Azimuths to True North
Magnetic North: 9.12°

Magnetic Field
Strength: 53173.5nT
Dip Angle: 66.93°
Date: 1/13/2010
Model: IGRF2010

WELL DETAILS: P_ELLIOT 22-17

+N/-S	+E/-W	Northing	Easting	Ground Level:	Latitude	Longitude	Slot
0.00	0.00	1326412.60	3161760.80	4813.00	40° 13' 40.620 N	104° 55' 14.372 W	

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3500.00	3542.85	PARKMAN
3930.00	3980.39	SUSSEX
4490.00	4550.20	SHANNON
6857.00	6934.94	NIO A
7125.00	7202.94	CODELL
7541.00	7618.94	JSAND

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	
1232.46	10.65	144.68	1229.40	-40.26	28.53	2.00	144.68	49.34	
5402.48	10.65	144.68	5327.60	-668.99	474.08	0.00	0.00	819.94	
5934.94	0.00	0.00	5857.00	-709.25	502.61	2.00	180.00	869.28	
7767.94	0.00	0.00	7690.00	-709.25	502.61	0.00	0.00	869.28	PBHL_ELLIOT 22-17(2600 FNL 1230 FWL)50°TGT RAD

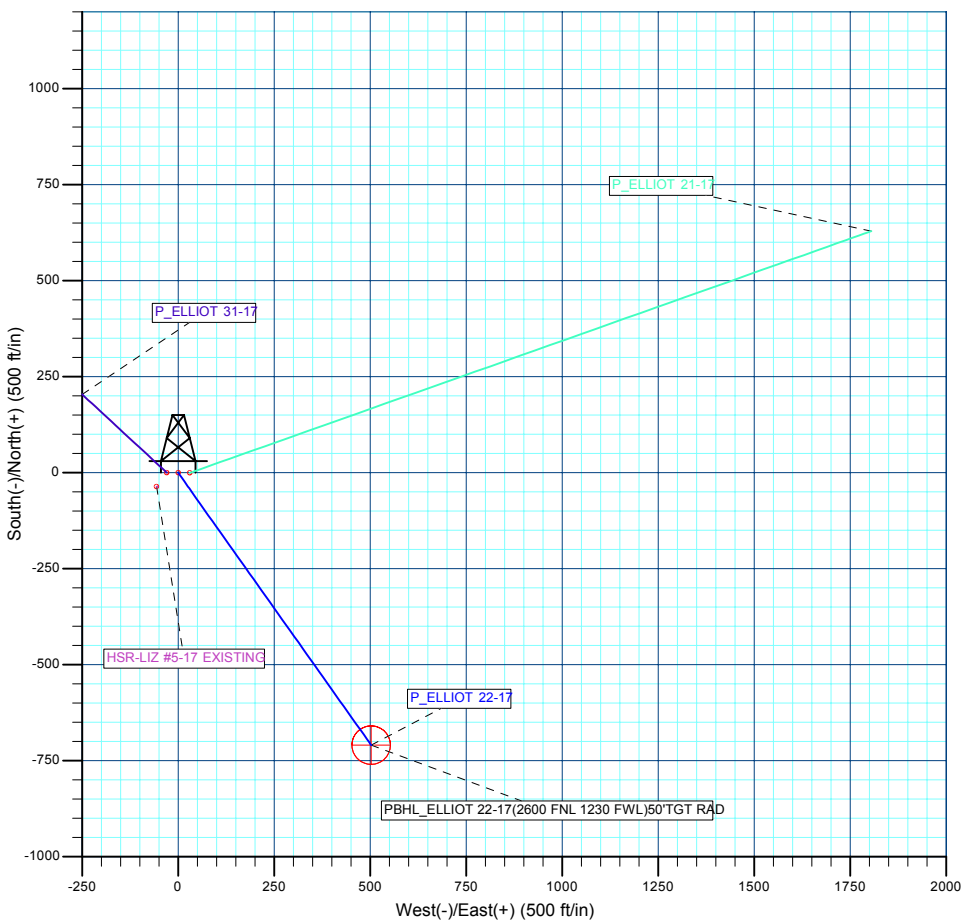
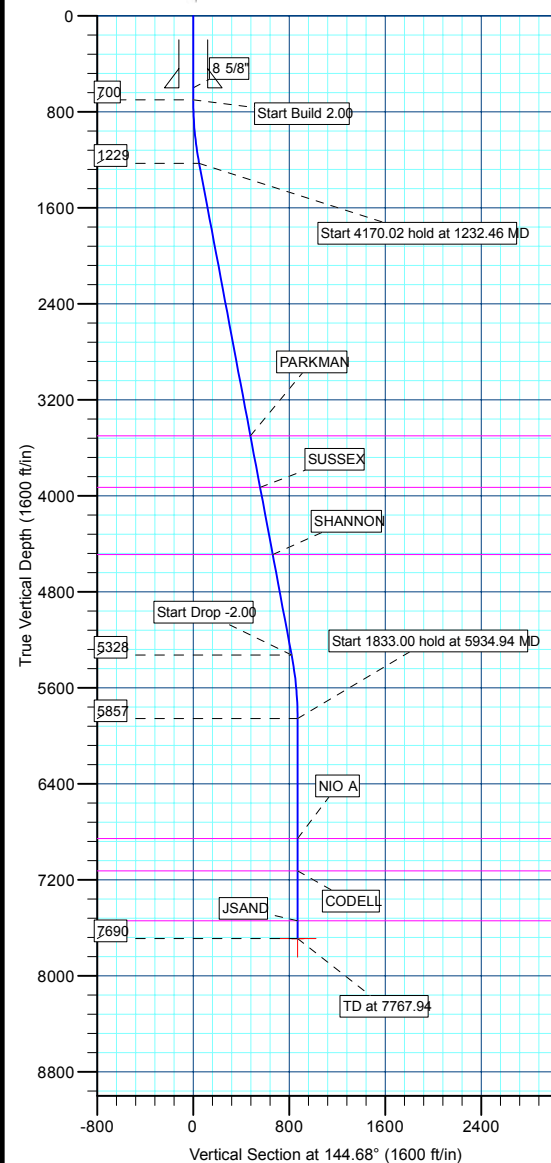
CASING DETAILS

TVD	MD	Name	Size
600.00	600.00	8 5/8"	8.62



KB ELEV:WELL @ 4828.00ft (Original Well Elev)

GRD ELEV: 4813.00



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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	7690.00	-709.25	502.61	1325706.66	3162268.03	40° 13' 33.611 N	104° 55' 7.892 W	Circle (Radius: 50.00)

Plan: PLAN #1 1-13-10 RHS (P_ELLIOT 22-17/P_ELLIOT 22-17)

Created By: Robert H. Scott

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_ELLIOT 22-17
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4828.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4828.00ft (Original Well Elev)
Site:	WELD_ELLIOT 5-17 PAD	North Reference:	True
Well:	P_ELLIOT 22-17	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_ELLIOT 22-17		
Design:	PLAN #1 1-13-10 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_ELLIOT 5-17 PAD, SECTION 17 T3N R67W											
Site Position:						Northing:			1,326,412.45ft			Latitude:			40° 13' 40.616 N		
From:			Lat/Long			Easting:			3,161,790.96ft			Longitude:			104° 55' 13.984 W		
Position Uncertainty:			0.00 ft			Slot Radius:			in			Grid Convergence:			0.37 °		

Well	P_ELLIOT 22-17,					
Well Position	+N/-S	0.35 ft	Northing:	1,326,412.60 ft	Latitude:	40° 13' 40.620 N
	+E/-W	-30.16 ft	Easting:	3,161,760.80 ft	Longitude:	104° 55' 14.372 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,813.00 ft

Wellbore	P_ELLIOT 22-17				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/13/2010	9.12	66.93	53,173

Design	PLAN #1 1-13-10 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	144.68

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	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,232.46	10.65	144.68	1,229.40	-40.26	28.53	2.00	2.00	0.00	144.68	
5,402.48	10.65	144.68	5,327.60	-668.99	474.08	0.00	0.00	0.00	0.00	
5,934.94	0.00	0.00	5,857.00	-709.25	502.61	2.00	-2.00	0.00	180.00	
7,767.94	0.00	0.00	7,690.00	-709.25	502.61	0.00	0.00	0.00	0.00	PBHL_ELLIOT 22-1

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_ELLIOT 22-17
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4828.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4828.00ft (Original Well Elev)
Site:	WELD_ELLIOT 5-17 PAD	North Reference:	True
Well:	P_ELLIOT 22-17	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_ELLIOT 22-17		
Design:	PLAN #1 1-13-10 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									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	2.00	144.68	799.98	-1.42	1.01	1.75	2.00	2.00	0.00
900.00	4.00	144.68	899.84	-5.69	4.03	6.98	2.00	2.00	0.00
1,000.00	6.00	144.68	999.45	-12.80	9.07	15.69	2.00	2.00	0.00
1,100.00	8.00	144.68	1,098.70	-22.75	16.12	27.88	2.00	2.00	0.00
1,200.00	10.00	144.68	1,197.47	-35.51	25.16	43.52	2.00	2.00	0.00
Start 4170.02 hold at 1232.46 MD									
1,232.46	10.65	144.68	1,229.40	-40.26	28.53	49.34	2.00	2.00	0.00
1,300.00	10.65	144.68	1,295.78	-50.44	35.74	61.82	0.00	0.00	0.00
1,400.00	10.65	144.68	1,394.05	-65.52	46.43	80.30	0.00	0.00	0.00
1,500.00	10.65	144.68	1,492.33	-80.60	57.11	98.78	0.00	0.00	0.00
1,600.00	10.65	144.68	1,590.61	-95.67	67.80	117.26	0.00	0.00	0.00
1,700.00	10.65	144.68	1,688.89	-110.75	78.48	135.74	0.00	0.00	0.00
1,800.00	10.65	144.68	1,787.16	-125.83	89.17	154.22	0.00	0.00	0.00
1,900.00	10.65	144.68	1,885.44	-140.90	99.85	172.70	0.00	0.00	0.00
2,000.00	10.65	144.68	1,983.72	-155.98	110.54	191.18	0.00	0.00	0.00
2,100.00	10.65	144.68	2,082.00	-171.06	121.22	209.66	0.00	0.00	0.00
2,200.00	10.65	144.68	2,180.28	-186.14	131.91	228.14	0.00	0.00	0.00
2,300.00	10.65	144.68	2,278.55	-201.21	142.59	246.62	0.00	0.00	0.00
2,400.00	10.65	144.68	2,376.83	-216.29	153.28	265.10	0.00	0.00	0.00
2,500.00	10.65	144.68	2,475.11	-231.37	163.96	283.57	0.00	0.00	0.00
2,600.00	10.65	144.68	2,573.39	-246.45	174.64	302.05	0.00	0.00	0.00
2,700.00	10.65	144.68	2,671.66	-261.52	185.33	320.53	0.00	0.00	0.00
2,800.00	10.65	144.68	2,769.94	-276.60	196.01	339.01	0.00	0.00	0.00
2,900.00	10.65	144.68	2,868.22	-291.68	206.70	357.49	0.00	0.00	0.00
3,000.00	10.65	144.68	2,966.50	-306.76	217.38	375.97	0.00	0.00	0.00
3,100.00	10.65	144.68	3,064.78	-321.83	228.07	394.45	0.00	0.00	0.00
3,200.00	10.65	144.68	3,163.05	-336.91	238.75	412.93	0.00	0.00	0.00
3,300.00	10.65	144.68	3,261.33	-351.99	249.44	431.41	0.00	0.00	0.00
3,400.00	10.65	144.68	3,359.61	-367.07	260.12	449.89	0.00	0.00	0.00
3,500.00	10.65	144.68	3,457.89	-382.14	270.81	468.37	0.00	0.00	0.00
PARKMAN									
3,542.85	10.65	144.68	3,500.00	-388.60	275.38	476.29	0.00	0.00	0.00
3,600.00	10.65	144.68	3,556.16	-397.22	281.49	486.85	0.00	0.00	0.00
3,700.00	10.65	144.68	3,654.44	-412.30	292.17	505.33	0.00	0.00	0.00
3,800.00	10.65	144.68	3,752.72	-427.38	302.86	523.81	0.00	0.00	0.00
3,900.00	10.65	144.68	3,851.00	-442.45	313.54	542.29	0.00	0.00	0.00
SUSSEX									
3,980.39	10.65	144.68	3,930.00	-454.57	322.13	557.14	0.00	0.00	0.00
4,000.00	10.65	144.68	3,949.27	-457.53	324.23	560.77	0.00	0.00	0.00
4,100.00	10.65	144.68	4,047.55	-472.61	334.91	579.25	0.00	0.00	0.00
4,200.00	10.65	144.68	4,145.83	-487.69	345.60	597.73	0.00	0.00	0.00
4,300.00	10.65	144.68	4,244.11	-502.76	356.28	616.20	0.00	0.00	0.00
4,400.00	10.65	144.68	4,342.39	-517.84	366.97	634.68	0.00	0.00	0.00
4,500.00	10.65	144.68	4,440.66	-532.92	377.65	653.16	0.00	0.00	0.00
SHANNON									
4,550.20	10.65	144.68	4,490.00	-540.49	383.02	662.44	0.00	0.00	0.00
4,600.00	10.65	144.68	4,538.94	-548.00	388.34	671.64	0.00	0.00	0.00
4,700.00	10.65	144.68	4,637.22	-563.07	399.02	690.12	0.00	0.00	0.00
4,800.00	10.65	144.68	4,735.50	-578.15	409.71	708.60	0.00	0.00	0.00
4,900.00	10.65	144.68	4,833.77	-593.23	420.39	727.08	0.00	0.00	0.00
5,000.00	10.65	144.68	4,932.05	-608.31	431.07	745.56	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_ELLIOT 22-17
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4828.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4828.00ft (Original Well Elev)
Site:	WELD_ELLIOT 5-17 PAD	North Reference:	True
Well:	P_ELLIOT 22-17	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_ELLIOT 22-17		
Design:	PLAN #1 1-13-10 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)
5,100.00	10.65	144.68	5,030.33	-623.38	441.76	764.04	0.00	0.00	0.00
5,200.00	10.65	144.68	5,128.61	-638.46	452.44	782.52	0.00	0.00	0.00
5,300.00	10.65	144.68	5,226.89	-653.54	463.13	801.00	0.00	0.00	0.00
5,400.00	10.65	144.68	5,325.16	-668.62	473.81	819.48	0.00	0.00	0.00
Start Drop -2.00									
5,402.48	10.65	144.68	5,327.60	-668.99	474.08	819.94	0.00	0.00	0.00
5,500.00	8.70	144.68	5,423.73	-682.36	483.55	836.32	2.00	-2.00	0.00
5,600.00	6.70	144.68	5,522.82	-693.29	491.30	849.72	2.00	-2.00	0.00
5,700.00	4.70	144.68	5,622.32	-701.39	497.04	859.65	2.00	-2.00	0.00
5,800.00	2.70	144.68	5,722.11	-706.65	500.77	866.10	2.00	-2.00	0.00
5,900.00	0.70	144.68	5,822.06	-709.07	502.48	869.06	2.00	-2.00	0.00
Start 1833.00 hold at 5934.94 MD									
5,934.94	0.00	0.00	5,857.00	-709.25	502.61	869.28	2.00	-2.00	0.00
6,000.00	0.00	0.00	5,922.06	-709.25	502.61	869.28	0.00	0.00	0.00
6,100.00	0.00	0.00	6,022.06	-709.25	502.61	869.28	0.00	0.00	0.00
6,200.00	0.00	0.00	6,122.06	-709.25	502.61	869.28	0.00	0.00	0.00
6,300.00	0.00	0.00	6,222.06	-709.25	502.61	869.28	0.00	0.00	0.00
6,400.00	0.00	0.00	6,322.06	-709.25	502.61	869.28	0.00	0.00	0.00
6,500.00	0.00	0.00	6,422.06	-709.25	502.61	869.28	0.00	0.00	0.00
6,600.00	0.00	0.00	6,522.06	-709.25	502.61	869.28	0.00	0.00	0.00
6,700.00	0.00	0.00	6,622.06	-709.25	502.61	869.28	0.00	0.00	0.00
6,800.00	0.00	0.00	6,722.06	-709.25	502.61	869.28	0.00	0.00	0.00
6,900.00	0.00	0.00	6,822.06	-709.25	502.61	869.28	0.00	0.00	0.00
NIO A									
6,934.94	0.00	0.00	6,857.00	-709.25	502.61	869.28	0.00	0.00	0.00
7,000.00	0.00	0.00	6,922.06	-709.25	502.61	869.28	0.00	0.00	0.00
7,100.00	0.00	0.00	7,022.06	-709.25	502.61	869.28	0.00	0.00	0.00
7,200.00	0.00	0.00	7,122.06	-709.25	502.61	869.28	0.00	0.00	0.00
CODELL									
7,202.94	0.00	0.00	7,125.00	-709.25	502.61	869.28	0.00	0.00	0.00
7,300.00	0.00	0.00	7,222.06	-709.25	502.61	869.28	0.00	0.00	0.00
7,400.00	0.00	0.00	7,322.06	-709.25	502.61	869.28	0.00	0.00	0.00
7,500.00	0.00	0.00	7,422.06	-709.25	502.61	869.28	0.00	0.00	0.00
7,600.00	0.00	0.00	7,522.06	-709.25	502.61	869.28	0.00	0.00	0.00
JSAND									
7,618.94	0.00	0.00	7,541.00	-709.25	502.61	869.28	0.00	0.00	0.00
7,700.00	0.00	0.00	7,622.06	-709.25	502.61	869.28	0.00	0.00	0.00
PBHL_ELLIOT 22-17(2600 FNL 1230 FWL)50'TGT RAD									
7,767.94	0.00	0.00	7,690.00	-709.25	502.61	869.28	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_ELLIOT 22-17(0.00	0.00	7,690.00	-709.25	502.61	1,325,706.66	3,162,268.03	40° 13' 33.611 N	104° 55' 7.892 W
- plan hits target center									
- Circle (radius 50.00)									

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_ELLIOT 22-17
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4828.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4828.00ft (Original Well Elev)
Site:	WELD_ELLIOT 5-17 PAD	North Reference:	True
Well:	P_ELLIOT 22-17	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_ELLIOT 22-17		
Design:	PLAN #1 1-13-10 RHS		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
600.00	600.00	8 5/8"	8.62	11.00	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,542.85	3,500.00	PARKMAN				
3,980.39	3,930.00	SUSSEX				
4,550.20	4,490.00	SHANNON				
6,934.94	6,857.00	NIO A				
7,202.94	7,125.00	CODELL				
7,618.94	7,541.00	JSAND				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
700.00	700.00	0.00	0.00	Start Build 2.00	
1,232.46	1,229.40	-40.26	28.53	Start 4170.02 hold at 1232.46 MD	
5,402.48	5,327.60	-668.99	474.08	Start Drop -2.00	
5,934.94	5,857.00	-709.25	502.61	Start 1833.00 hold at 5934.94 MD	
7,767.94	7,690.00	-709.25	502.61	TD at 7767.94	



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_ELLIOT 5-17 PAD
P_ELLIOT 22-17**

**P_ELLIOT 22-17
PLAN #1 1-13-10 RHS**

Anticollision Report

13 January, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_ELLIOT 22-17
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4828.00ft (Original Well Elev)
Reference Site:	WELD_ELLIOT 5-17 PAD	MD Reference:	WELL @ 4828.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ELLIOT 22-17	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ELLIOT 22-17	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 1-13-10 RHS		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	0.00 to 20,000.00ft	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	1/13/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	7,767.94	PLAN #1 1-13-10 RHS (P_ELLIOT 22-17)	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_ELLIOT 5-17 PAD						
HSR-LIZ #5-17 EXISTING - HSR-LIZ #5-17 EXISTING -	700.00	684.00	66.91	40.10	2.496	CC
HSR-LIZ #5-17 EXISTING - HSR-LIZ #5-17 EXISTING -	1,000.00	983.45	69.34	29.98	1.762	ES
HSR-LIZ #5-17 EXISTING - HSR-LIZ #5-17 EXISTING -	1,100.00	1,082.70	73.53	30.01	1.690	SF
P_ELLIOT 21-17 - P_ELLIOT 21-17 - PLAN #1 1-13-10 F	700.00	700.00	30.16	27.27	10.441	CC, ES
P_ELLIOT 21-17 - P_ELLIOT 21-17 - PLAN #1 1-13-10 F	900.00	897.70	33.51	29.81	9.075	SF
P_ELLIOT 31-17 - P_ELLIOT 31-17 - PLAN #1 1-13-10 F	700.00	700.00	29.88	26.99	10.345	CC, ES
P_ELLIOT 31-17 - P_ELLIOT 31-17 - PLAN #1 1-13-10 F	800.00	799.11	32.29	28.99	9.772	SF

Offset Design												
WELD_ELLIOT 5-17 PAD - HSR-LIZ #5-17 EXISTING - HSR-LIZ #5-17 EXISTING - HSR-LIZ #5-17 EXI												
Survey Program: 0-UNKNOWN												
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	-122.99	-36.43	-56.12	68.80			
100.00	100.00	84.00	84.00	0.10	1.68	-122.99	-36.43	-56.12	66.91	65.13	1.78	37.683
200.00	200.00	184.00	184.00	0.32	5.36	-122.99	-36.43	-56.12	66.91	61.23	5.68	11.779
300.00	300.00	284.00	284.00	0.55	9.36	-122.99	-36.43	-56.12	66.91	57.00	9.91	6.755
400.00	400.00	384.00	384.00	0.77	13.36	-122.99	-36.43	-56.12	66.91	52.78	14.13	4.735
500.00	500.00	484.00	484.00	0.99	17.36	-122.99	-36.43	-56.12	66.91	48.55	18.35	3.645
600.00	600.00	584.00	584.00	1.22	21.36	-122.99	-36.43	-56.12	66.91	44.33	22.58	2.963
700.00	700.00	684.00	684.00	1.44	25.36	-122.99	-36.43	-56.12	66.91	40.10	26.80	2.496 CC
800.00	799.98	783.98	783.98	1.64	29.36	93.83	-36.43	-56.12	67.00	36.00	31.00	2.161
900.00	899.84	883.84	883.84	1.83	33.35	98.24	-36.43	-56.12	67.55	32.37	35.18	1.920
1,000.00	999.45	983.45	983.45	2.04	37.34	105.32	-36.43	-56.12	69.34	29.98	39.37	1.762 ES
1,100.00	1,098.70	1,082.70	1,082.70	2.28	41.31	114.39	-36.43	-56.12	73.53	30.01	43.52	1.690 SF
1,200.00	1,197.47	1,181.47	1,181.47	2.56	45.26	124.27	-36.43	-56.12	81.29	33.71	47.58	1.709
1,232.46	1,229.40	1,213.40	1,213.40	2.66	46.54	127.43	-36.43	-56.12	84.74	35.87	48.86	1.734
1,300.00	1,295.78	1,279.78	1,279.78	2.88	49.19	133.50	-36.43	-56.12	92.93	41.34	51.59	1.801
1,400.00	1,394.05	1,378.05	1,378.05	3.23	53.12	140.67	-36.43	-56.12	106.60	50.97	55.63	1.916
1,500.00	1,492.33	1,476.33	1,476.33	3.59	57.05	146.17	-36.43	-56.12	121.54	61.86	59.68	2.037
1,600.00	1,590.61	1,574.61	1,574.61	3.97	60.98	150.45	-36.43	-56.12	137.35	73.61	63.74	2.155
1,700.00	1,688.89	1,672.89	1,672.89	4.35	64.92	153.84	-36.43	-56.12	153.76	85.95	67.81	2.268
1,800.00	1,787.16	1,771.16	1,771.16	4.74	68.85	156.57	-36.43	-56.12	170.59	98.71	71.89	2.373
1,900.00	1,885.44	1,869.44	1,869.44	5.14	72.78	158.81	-36.43	-56.12	187.73	111.76	75.97	2.471

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_ELLIOT 22-17
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4828.00ft (Original Well Elev)
Reference Site:	WELD_ELLIOT 5-17 PAD	MD Reference:	WELL @ 4828.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ELLIOT 22-17	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ELLIOT 22-17	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 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	
2,000.00	1,983.72	1,967.72	1,967.72	5.54	76.71	160.67	-36.43	-56.12	205.11	125.05	80.06	2.562	
2,100.00	2,082.00	2,066.00	2,066.00	5.94	80.64	162.24	-36.43	-56.12	222.66	138.51	84.15	2.646	
2,200.00	2,180.28	2,164.28	2,164.28	6.35	84.57	163.58	-36.43	-56.12	240.35	152.10	88.25	2.724	
2,300.00	2,278.55	2,262.55	2,262.55	6.76	88.50	164.74	-36.43	-56.12	258.15	165.80	92.35	2.795	
2,400.00	2,376.83	2,360.83	2,360.83	7.17	92.43	165.75	-36.43	-56.12	276.04	179.59	96.45	2.862	
2,500.00	2,475.11	2,459.11	2,459.11	7.58	96.36	166.63	-36.43	-56.12	294.00	193.45	100.55	2.924	
2,600.00	2,573.39	2,557.39	2,557.39	8.00	100.30	167.42	-36.43	-56.12	312.03	207.37	104.66	2.981	
2,700.00	2,671.66	2,655.66	2,655.66	8.41	104.23	168.12	-36.43	-56.12	330.10	221.33	108.77	3.035	
2,800.00	2,769.94	2,753.94	2,753.94	8.83	108.16	168.74	-36.43	-56.12	348.22	235.34	112.88	3.085	
2,900.00	2,868.22	2,852.22	2,852.22	9.24	112.09	169.31	-36.43	-56.12	366.37	249.38	116.99	3.132	
3,000.00	2,966.50	2,950.50	2,950.50	9.66	116.02	169.82	-36.43	-56.12	384.56	263.45	121.10	3.175	
3,100.00	3,064.78	3,048.78	3,048.78	10.08	119.95	170.28	-36.43	-56.12	402.77	277.55	125.21	3.217	
3,200.00	3,163.05	3,147.05	3,147.05	10.49	123.88	170.71	-36.43	-56.12	421.00	291.67	129.33	3.255	
3,300.00	3,261.33	3,245.33	3,245.33	10.91	127.81	171.09	-36.43	-56.12	439.26	305.81	133.44	3.292	
3,400.00	3,359.61	3,343.61	3,343.61	11.33	131.74	171.45	-36.43	-56.12	457.53	319.97	137.56	3.326	
3,500.00	3,457.89	3,441.89	3,441.89	11.75	135.68	171.78	-36.43	-56.12	475.82	334.14	141.67	3.359	
3,600.00	3,556.16	3,540.16	3,540.16	12.17	139.61	172.09	-36.43	-56.12	494.12	348.33	145.79	3.389	
3,700.00	3,654.44	3,638.44	3,638.44	12.59	143.54	172.37	-36.43	-56.12	512.44	362.53	149.91	3.418	
3,800.00	3,752.72	3,736.72	3,736.72	13.01	147.47	172.64	-36.43	-56.12	530.76	376.74	154.02	3.446	
3,900.00	3,851.00	3,835.00	3,835.00	13.43	151.40	172.89	-36.43	-56.12	549.10	390.96	158.14	3.472	
4,000.00	3,949.27	3,933.27	3,933.27	13.85	155.33	173.12	-36.43	-56.12	567.45	405.19	162.26	3.497	
4,100.00	4,047.55	4,031.55	4,031.55	14.27	159.26	173.33	-36.43	-56.12	585.80	419.42	166.38	3.521	
4,200.00	4,145.83	4,129.83	4,129.83	14.70	163.19	173.54	-36.43	-56.12	604.16	433.67	170.50	3.544	
4,300.00	4,244.11	4,228.11	4,228.11	15.12	167.12	173.73	-36.43	-56.12	622.53	447.92	174.61	3.565	
4,400.00	4,342.39	4,326.39	4,326.39	15.54	171.06	173.91	-36.43	-56.12	640.91	462.18	178.73	3.586	
4,500.00	4,440.66	4,424.66	4,424.66	15.96	174.99	174.08	-36.43	-56.12	659.29	476.44	182.85	3.606	
4,600.00	4,538.94	4,522.94	4,522.94	16.38	178.92	174.24	-36.43	-56.12	677.68	490.70	186.97	3.624	
4,700.00	4,637.22	4,621.22	4,621.22	16.80	182.85	174.39	-36.43	-56.12	696.07	504.98	191.09	3.643	
4,800.00	4,735.50	4,719.50	4,719.50	17.23	186.78	174.54	-36.43	-56.12	714.46	519.25	195.21	3.660	
4,900.00	4,833.77	4,817.77	4,817.77	17.65	190.71	174.67	-36.43	-56.12	732.86	533.53	199.33	3.677	
5,000.00	4,932.05	4,916.05	4,916.05	18.07	194.64	174.81	-36.43	-56.12	751.27	547.82	203.45	3.693	
5,100.00	5,030.33	5,014.33	5,014.33	18.49	198.57	174.93	-36.43	-56.12	769.68	562.10	207.57	3.708	
5,200.00	5,128.61	5,112.61	5,112.61	18.91	202.50	175.05	-36.43	-56.12	788.09	576.40	211.69	3.723	
5,300.00	5,226.89	5,210.89	5,210.89	19.34	206.44	175.16	-36.43	-56.12	806.50	590.69	215.81	3.737	
5,402.48	5,327.60	5,311.60	5,311.60	19.77	210.46	175.27	-36.43	-56.12	825.38	605.34	220.04	3.751	
5,500.00	5,423.73	5,407.73	5,407.73	20.11	214.31	175.39	-36.43	-56.12	841.71	616.52	225.19	3.738	
5,600.00	5,522.82	5,506.82	5,506.82	20.36	218.27	175.49	-36.43	-56.12	855.06	624.76	230.31	3.713	
5,700.00	5,622.32	5,606.32	5,606.32	20.57	222.25	175.55	-36.43	-56.12	864.96	629.78	235.19	3.678	
5,800.00	5,722.11	5,706.11	5,706.11	20.74	226.24	175.60	-36.43	-56.12	871.40	631.59	239.81	3.634	
5,900.00	5,822.06	5,806.06	5,806.06	20.88	230.24	175.61	-36.43	-56.12	874.35	630.20	244.15	3.581	
5,934.94	5,857.00	5,841.00	5,841.00	20.92	231.64	-39.71	-36.43	-56.12	874.56	628.96	245.60	3.561	
6,000.00	5,922.06	5,906.06	5,906.06	21.00	234.24	-39.71	-36.43	-56.12	874.56	626.24	248.32	3.522	
6,100.00	6,022.06	6,006.06	6,006.06	21.12	238.24	-39.71	-36.43	-56.12	874.56	622.07	252.49	3.464	
6,200.00	6,122.06	6,106.06	6,106.06	21.23	242.24	-39.71	-36.43	-56.12	874.56	617.91	256.66	3.408	
6,300.00	6,222.06	6,206.06	6,206.06	21.35	246.24	-39.71	-36.43	-56.12	874.56	613.73	260.83	3.353	
6,400.00	6,322.06	6,306.06	6,306.06	21.47	250.24	-39.71	-36.43	-56.12	874.56	609.56	265.00	3.300	
6,500.00	6,422.06	6,406.06	6,406.06	21.59	254.24	-39.71	-36.43	-56.12	874.56	605.39	269.18	3.249	
6,600.00	6,522.06	6,506.06	6,506.06	21.71	258.24	-39.71	-36.43	-56.12	874.56	601.21	273.35	3.199	
6,700.00	6,622.06	6,606.06	6,606.06	21.84	262.24	-39.71	-36.43	-56.12	874.56	597.04	277.53	3.151	
6,800.00	6,722.06	6,706.06	6,706.06	21.96	266.24	-39.71	-36.43	-56.12	874.56	592.86	281.70	3.105	
6,900.00	6,822.06	6,806.06	6,806.06	22.09	270.24	-39.71	-36.43	-56.12	874.56	588.68	285.88	3.059	
7,000.00	6,922.06	6,906.06	6,906.06	22.22	274.24	-39.71	-36.43	-56.12	874.56	584.50	290.06	3.015	

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_ELLIOT 22-17
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4828.00ft (Original Well Elev)
Reference Site:	WELD_ELLIOT 5-17 PAD	MD Reference:	WELL @ 4828.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ELLIOT 22-17	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ELLIOT 22-17	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_ELLIOT 5-17 PAD - HSR-LIZ #5-17 EXISTING - HSR-LIZ #5-17 EXISTING - HSR-LIZ #5-17 EX													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		
7,100.00	7,022.06	7,006.06	7,006.06	22.35	278.24	-39.71	-36.43	-56.12	874.56	580.32	294.24	2.972		
7,200.00	7,122.06	7,106.06	7,106.06	22.48	282.24	-39.71	-36.43	-56.12	874.56	576.14	298.43	2.931		
7,300.00	7,222.06	7,206.06	7,206.06	22.61	286.24	-39.71	-36.43	-56.12	874.56	571.95	302.61	2.890		
7,349.45	7,271.51	7,255.51	7,255.51	22.68	288.22	-39.71	-36.43	-56.12	874.56	569.88	304.68	2.870		
7,400.00	7,322.06	7,272.00	7,272.00	22.75	288.88	-39.71	-36.43	-56.12	875.23	569.79	305.43	2.866		
7,500.00	7,422.06	7,272.00	7,272.00	22.88	288.88	-39.71	-36.43	-56.12	884.78	579.16	305.62	2.895		
7,600.00	7,522.06	7,272.00	7,272.00	23.02	288.88	-39.71	-36.43	-56.12	905.34	599.54	305.80	2.961		
7,700.00	7,622.06	7,272.00	7,272.00	23.16	288.88	-39.71	-36.43	-56.12	936.19	630.20	305.99	3.060		
7,767.94	7,690.00	7,272.00	7,272.00	23.25	288.88	-39.71	-36.43	-56.12	962.53	656.41	306.12	3.144		

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_ELLIOT 22-17
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4828.00ft (Original Well Elev)
Reference Site:	WELD_ELLIOT 5-17 PAD	MD Reference:	WELL @ 4828.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ELLIOT 22-17	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ELLIOT 22-17	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_ELLIOT 5-17 PAD - P_ELLIOT 21-17 - P_ELLIOT 21-17 - PLAN #1 1-13-10 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	90.67	-0.35	30.16	30.16				
100.00	100.00	100.00	100.00	0.10	0.10	90.67	-0.35	30.16	30.16	29.97	0.19	157.851	
200.00	200.00	200.00	200.00	0.32	0.32	90.67	-0.35	30.16	30.16	29.52	0.64	47.078	
300.00	300.00	300.00	300.00	0.55	0.55	90.67	-0.35	30.16	30.16	29.07	1.09	27.665	
400.00	400.00	400.00	400.00	0.77	0.77	90.67	-0.35	30.16	30.16	28.62	1.54	19.587	
500.00	500.00	500.00	500.00	0.99	0.99	90.67	-0.35	30.16	30.16	28.17	1.99	15.161	
600.00	600.00	600.00	600.00	1.22	1.22	90.67	-0.35	30.16	30.16	27.72	2.44	12.366	
700.00	700.00	700.00	700.00	1.44	1.44	90.67	-0.35	30.16	30.16	27.27	2.89	10.441 CC, ES	
800.00	799.98	798.98	798.96	1.64	1.66	-57.70	0.22	31.77	30.82	27.52	3.30	9.339	
900.00	899.84	897.70	897.54	1.83	1.87	-67.65	1.93	36.58	33.51	29.81	3.69	9.075 SF	
1,000.00	999.45	995.90	995.38	2.04	2.10	-80.45	4.75	44.55	39.79	35.68	4.11	9.674	
1,100.00	1,098.70	1,093.35	1,092.11	2.28	2.34	-92.13	8.66	55.57	50.85	46.28	4.57	11.119	
1,200.00	1,197.47	1,189.80	1,187.41	2.56	2.62	-100.92	13.61	69.52	66.94	61.86	5.08	13.169	
1,232.46	1,229.40	1,220.85	1,217.98	2.66	2.72	-103.16	15.43	74.66	73.21	67.95	5.26	13.914	
1,300.00	1,295.78	1,285.12	1,281.06	2.88	2.93	-106.82	19.55	86.28	87.57	81.93	5.65	15.508	
1,400.00	1,394.05	1,379.46	1,373.11	3.23	3.29	-109.60	26.46	105.74	111.43	105.17	6.25	17.822	
1,500.00	1,492.33	1,472.64	1,463.31	3.59	3.69	-110.59	34.27	127.76	137.94	131.04	6.89	20.007	
1,600.00	1,590.61	1,564.50	1,551.44	3.97	4.13	-110.59	42.92	152.16	166.91	159.34	7.57	22.054	
1,700.00	1,688.89	1,654.87	1,637.29	4.35	4.63	-110.05	52.35	178.75	198.29	190.02	8.27	23.980	
1,800.00	1,787.16	1,743.62	1,720.69	4.74	5.17	-109.22	62.49	207.34	232.05	223.06	8.99	25.809	
1,900.00	1,885.44	1,830.63	1,801.50	5.14	5.76	-108.24	73.27	237.71	268.18	258.45	9.73	27.565	
2,000.00	1,983.72	1,915.78	1,879.61	5.54	6.38	-107.20	84.60	269.67	306.66	296.19	10.48	29.273	
2,100.00	2,082.00	2,006.14	1,961.80	5.94	7.08	-106.16	97.15	305.05	346.67	335.40	11.26	30.778	
2,200.00	2,180.28	2,097.61	2,044.99	6.35	7.81	-105.32	109.86	340.90	386.78	374.71	12.06	32.063	
2,300.00	2,278.55	2,189.08	2,128.18	6.76	8.55	-104.64	122.58	376.74	426.94	414.07	12.87	33.175	
2,400.00	2,376.83	2,280.55	2,211.37	7.17	9.30	-104.07	135.29	412.59	467.15	453.47	13.68	34.147	
2,500.00	2,475.11	2,372.02	2,294.56	7.58	10.06	-103.60	148.00	448.43	507.39	492.90	14.50	35.002	
2,600.00	2,573.39	2,463.49	2,377.75	8.00	10.82	-103.19	160.72	484.27	547.66	532.34	15.31	35.760	
2,700.00	2,671.66	2,554.96	2,460.94	8.41	11.58	-102.84	173.43	520.12	587.94	571.81	16.14	36.435	
2,800.00	2,769.94	2,646.44	2,544.13	8.83	12.35	-102.54	186.15	555.96	628.24	611.28	16.96	37.039	
2,900.00	2,868.22	2,737.91	2,627.32	9.24	13.12	-102.27	198.86	591.81	668.56	650.77	17.79	37.584	
3,000.00	2,966.50	2,829.38	2,710.51	9.66	13.89	-102.03	211.57	627.65	708.88	690.27	18.62	38.077	
3,100.00	3,064.78	2,920.85	2,793.70	10.08	14.67	-101.82	224.29	663.50	749.22	729.77	19.45	38.524	
3,200.00	3,163.05	3,012.32	2,876.89	10.49	15.44	-101.63	237.00	699.34	789.56	769.28	20.28	38.933	
3,300.00	3,261.33	3,103.79	2,960.08	10.91	16.22	-101.45	249.71	735.18	829.91	808.80	21.11	39.307	
3,400.00	3,359.61	3,195.26	3,043.27	11.33	17.00	-101.30	262.43	771.03	870.26	848.32	21.95	39.651	
3,500.00	3,457.89	3,286.74	3,126.46	11.75	17.78	-101.16	275.14	806.87	910.62	887.84	22.78	39.967	
3,600.00	3,556.16	3,378.21	3,209.65	12.17	18.56	-101.02	287.85	842.72	950.99	927.37	23.62	40.260	
3,700.00	3,654.44	3,469.68	3,292.84	12.59	19.34	-100.91	300.57	878.56	991.36	966.90	24.46	40.532	
3,800.00	3,752.72	3,561.15	3,376.03	13.01	20.12	-100.79	313.28	914.41	1,031.73	1,006.43	25.30	40.784	
3,900.00	3,851.00	3,652.62	3,459.22	13.43	20.90	-100.69	325.99	950.25	1,072.10	1,045.96	26.14	41.019	
4,000.00	3,949.27	3,744.09	3,542.41	13.85	21.69	-100.60	338.71	986.10	1,112.48	1,085.50	26.98	41.239	
4,100.00	4,047.55	3,835.56	3,625.60	14.27	22.47	-100.51	351.42	1,021.94	1,152.86	1,125.04	27.82	41.445	
4,200.00	4,145.83	3,927.03	3,708.79	14.70	23.25	-100.43	364.13	1,057.78	1,193.24	1,164.58	28.66	41.638	
4,300.00	4,244.11	4,018.51	3,791.98	15.12	24.04	-100.35	376.85	1,093.63	1,233.62	1,204.12	29.50	41.819	
4,400.00	4,342.39	4,109.98	3,875.17	15.54	24.82	-100.28	389.56	1,129.47	1,274.01	1,243.66	30.34	41.990	
4,500.00	4,440.66	4,201.45	3,958.36	15.96	25.61	-100.21	402.28	1,165.32	1,314.39	1,283.21	31.18	42.151	
4,600.00	4,538.94	4,292.92	4,041.55	16.38	26.39	-100.15	414.99	1,201.16	1,354.78	1,322.75	32.03	42.303	
4,700.00	4,637.22	4,384.39	4,124.74	16.80	27.18	-100.09	427.70	1,237.01	1,395.17	1,362.30	32.87	42.447	
4,800.00	4,735.50	4,475.86	4,207.93	17.23	27.97	-100.03	440.42	1,272.85	1,435.56	1,401.85	33.71	42.583	
4,900.00	4,833.77	4,567.33	4,291.12	17.65	28.75	-99.98	453.13	1,308.70	1,475.95	1,441.39	34.56	42.712	
5,000.00	4,932.05	4,658.80	4,374.31	18.07	29.54	-99.93	465.84	1,344.54	1,516.34	1,480.94	35.40	42.835	

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_ELLIOT 22-17
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4828.00ft (Original Well Elev)
Reference Site:	WELD_ELLIOT 5-17 PAD	MD Reference:	WELL @ 4828.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ELLIOT 22-17	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ELLIOT 22-17	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_ELLIOT 5-17 PAD - P_ELLIOT 21-17 - P_ELLIOT 21-17 - PLAN #1 1-13-10 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
5,100.00	5,030.33	4,750.28	4,457.49	18.49	30.32	-99.88	478.56	1,380.38	1,556.74	1,520.49	36.24	42.952	
5,200.00	5,128.61	4,841.75	4,540.68	18.91	31.11	-99.84	491.27	1,416.23	1,597.13	1,560.04	37.09	43.063	
5,300.00	5,226.89	4,933.22	4,623.87	19.34	31.90	-99.79	503.98	1,452.07	1,637.53	1,599.59	37.93	43.169	
5,402.48	5,327.60	5,026.96	4,709.13	19.77	32.70	-99.75	517.01	1,488.81	1,678.92	1,640.13	38.80	43.273	
5,500.00	5,423.73	5,116.24	4,790.32	20.11	33.47	-100.49	529.42	1,523.79	1,718.05	1,678.25	39.80	43.167	
5,600.00	5,522.82	5,207.88	4,873.67	20.36	34.26	-101.12	542.16	1,559.70	1,757.62	1,716.90	40.71	43.169	
5,700.00	5,622.32	5,412.03	5,062.13	20.57	35.64	-101.29	568.35	1,633.55	1,793.80	1,751.96	41.83	42.879	
5,800.00	5,722.11	5,629.91	5,268.88	20.74	36.79	-101.29	591.28	1,698.20	1,823.16	1,780.39	42.77	42.628	
5,900.00	5,822.06	5,857.07	5,489.33	20.88	37.72	-101.15	609.53	1,749.64	1,845.21	1,801.69	43.52	42.399	
5,934.94	5,857.00	5,938.25	5,569.06	20.92	37.99	43.62	614.62	1,764.00	1,851.12	1,807.38	43.74	42.322	
6,000.00	5,922.06	6,091.46	5,720.58	21.00	38.41	43.93	622.17	1,785.28	1,859.71	1,815.68	44.03	42.233	
6,100.00	6,022.06	6,330.58	5,958.87	21.12	38.82	44.19	628.51	1,803.17	1,866.84	1,822.40	44.43	42.015	
6,200.00	6,122.06	6,493.79	6,122.06	21.23	38.96	44.22	629.20	1,805.10	1,867.60	1,822.87	44.72	41.761	
6,300.00	6,222.06	6,593.79	6,222.06	21.35	39.03	44.22	629.20	1,805.10	1,867.60	1,822.64	44.96	41.542	
6,400.00	6,322.06	6,693.79	6,322.06	21.47	39.11	44.22	629.20	1,805.10	1,867.60	1,822.40	45.19	41.323	
6,500.00	6,422.06	6,793.79	6,422.06	21.59	39.18	44.22	629.20	1,805.10	1,867.60	1,822.16	45.44	41.103	
6,600.00	6,522.06	6,893.79	6,522.06	21.71	39.26	44.22	629.20	1,805.10	1,867.60	1,821.91	45.68	40.883	
6,700.00	6,622.06	6,993.79	6,622.06	21.84	39.34	44.22	629.20	1,805.10	1,867.60	1,821.67	45.93	40.662	
6,800.00	6,722.06	7,093.79	6,722.06	21.96	39.42	44.22	629.20	1,805.10	1,867.60	1,821.42	46.18	40.441	
6,900.00	6,822.06	7,193.79	6,822.06	22.09	39.50	44.22	629.20	1,805.10	1,867.60	1,821.16	46.43	40.220	
7,000.00	6,922.06	7,293.79	6,922.06	22.22	39.59	44.22	629.20	1,805.10	1,867.60	1,820.90	46.69	39.999	
7,100.00	7,022.06	7,393.79	7,022.06	22.35	39.67	44.22	629.20	1,805.10	1,867.60	1,820.64	46.95	39.777	
7,200.00	7,122.06	7,493.79	7,122.06	22.48	39.76	44.22	629.20	1,805.10	1,867.60	1,820.38	47.21	39.556	
7,300.00	7,222.06	7,593.79	7,222.06	22.61	39.84	44.22	629.20	1,805.10	1,867.60	1,820.12	47.48	39.335	
7,400.00	7,322.06	7,693.79	7,322.06	22.75	39.93	44.22	629.20	1,805.10	1,867.60	1,819.85	47.75	39.114	
7,500.00	7,422.06	7,793.79	7,422.06	22.88	40.02	44.22	629.20	1,805.10	1,867.60	1,819.58	48.02	38.893	
7,600.00	7,522.06	7,893.79	7,522.06	23.02	40.11	44.22	629.20	1,805.10	1,867.60	1,819.30	48.29	38.672	
7,700.00	7,622.06	7,993.79	7,622.06	23.16	40.20	44.22	629.20	1,805.10	1,867.60	1,819.03	48.57	38.452	
7,767.94	7,690.00	8,061.73	7,690.00	23.25	40.26	44.22	629.20	1,805.10	1,867.60	1,818.84	48.76	38.303	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_ELLIOT 22-17
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4828.00ft (Original Well Elev)
Reference Site:	WELD_ELLIOT 5-17 PAD	MD Reference:	WELL @ 4828.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ELLIOT 22-17	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ELLIOT 22-17	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_ELLIOT 5-17 PAD - P_ELLIOT 31-17 - P_ELLIOT 31-17 - PLAN #1 1-13-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWMD												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	-89.30	0.36	-29.88	29.88				
100.00	100.00	100.00	100.00	0.10	0.10	-89.30	0.36	-29.88	29.88	29.69	0.19	156.390	
200.00	200.00	200.00	200.00	0.32	0.32	-89.30	0.36	-29.88	29.88	29.24	0.64	46.643	
300.00	300.00	300.00	300.00	0.55	0.55	-89.30	0.36	-29.88	29.88	28.79	1.09	27.409	
400.00	400.00	400.00	400.00	0.77	0.77	-89.30	0.36	-29.88	29.88	28.34	1.54	19.406	
500.00	500.00	500.00	500.00	0.99	0.99	-89.30	0.36	-29.88	29.88	27.89	1.99	15.021	
600.00	600.00	600.00	600.00	1.22	1.22	-89.30	0.36	-29.88	29.88	27.44	2.44	12.252	
700.00	700.00	700.00	700.00	1.44	1.44	-89.30	0.36	-29.88	29.88	26.99	2.89	10.345 CC, ES	
800.00	799.98	799.11	799.09	1.64	1.66	130.51	1.53	-31.13	32.29	28.99	3.30	9.772 SF	
900.00	899.84	897.52	897.36	1.83	1.88	140.45	4.99	-34.87	40.42	36.73	3.70	10.935	
1,000.00	999.45	994.54	994.02	2.04	2.11	149.99	10.64	-40.98	55.54	51.44	4.09	13.568	
1,100.00	1,098.70	1,089.52	1,088.32	2.28	2.35	156.82	18.32	-49.28	77.92	73.43	4.49	17.356	
1,200.00	1,197.47	1,184.91	1,182.79	2.56	2.62	161.35	27.32	-59.01	106.06	101.17	4.89	21.689	
1,232.46	1,229.40	1,215.74	1,213.32	2.66	2.70	162.45	30.24	-62.16	115.99	110.96	5.02	23.102	
1,300.00	1,295.78	1,279.77	1,276.73	2.88	2.89	164.37	36.29	-68.70	137.09	131.78	5.31	25.802	
1,400.00	1,394.05	1,374.58	1,370.61	3.23	3.18	166.33	45.25	-78.39	168.52	162.76	5.75	29.287	
1,500.00	1,492.33	1,469.38	1,464.49	3.59	3.47	167.68	54.21	-88.07	200.06	193.86	6.20	32.258	
1,600.00	1,590.61	1,564.19	1,558.37	3.97	3.77	168.66	63.17	-97.75	231.68	225.03	6.66	34.811	
1,700.00	1,688.89	1,658.99	1,652.26	4.35	4.07	169.40	72.13	-107.44	263.35	256.24	7.11	37.021	
1,800.00	1,787.16	1,753.80	1,746.14	4.74	4.37	169.98	81.09	-117.12	295.05	287.47	7.58	38.950	
1,900.00	1,885.44	1,848.60	1,840.02	5.14	4.68	170.45	90.05	-126.80	326.77	318.73	8.04	40.644	
2,000.00	1,983.72	1,943.41	1,933.91	5.54	4.99	170.84	99.01	-136.49	358.50	349.99	8.51	42.143	
2,100.00	2,082.00	2,038.22	2,027.79	5.94	5.30	171.17	107.97	-146.17	390.25	381.27	8.98	43.477	
2,200.00	2,180.28	2,133.02	2,121.67	6.35	5.62	171.44	116.93	-155.85	422.01	412.56	9.45	44.671	
2,300.00	2,278.55	2,227.83	2,215.55	6.76	5.93	171.68	125.89	-165.54	453.77	443.85	9.92	45.745	
2,400.00	2,376.83	2,322.63	2,309.44	7.17	6.25	171.88	134.85	-175.22	485.54	475.15	10.39	46.716	
2,500.00	2,475.11	2,417.44	2,403.32	7.58	6.57	172.07	143.81	-184.90	517.32	506.45	10.87	47.598	
2,600.00	2,573.39	2,512.24	2,497.20	8.00	6.88	172.23	152.77	-194.59	549.10	537.75	11.34	48.403	
2,700.00	2,671.66	2,607.05	2,591.08	8.41	7.20	172.37	161.73	-204.27	580.88	569.06	11.82	49.139	
2,800.00	2,769.94	2,701.85	2,684.97	8.83	7.52	172.49	170.69	-213.95	612.67	600.37	12.30	49.815	
2,900.00	2,868.22	2,796.66	2,778.85	9.24	7.84	172.61	179.65	-223.64	644.46	631.68	12.78	50.439	
3,000.00	2,966.50	2,891.46	2,872.73	9.66	8.16	172.71	188.61	-233.32	676.25	662.99	13.26	51.015	
3,100.00	3,064.78	2,986.27	2,966.62	10.08	8.48	172.81	197.57	-243.00	708.04	694.31	13.74	51.548	
3,200.00	3,163.05	3,081.07	3,060.50	10.49	8.80	172.90	206.53	-252.69	739.84	725.62	14.22	52.045	
3,300.00	3,261.33	3,175.88	3,154.38	10.91	9.12	172.98	215.49	-262.37	771.63	756.94	14.70	52.507	
3,400.00	3,359.61	3,270.68	3,248.26	11.33	9.44	173.05	224.45	-272.05	803.43	788.25	15.18	52.939	
3,500.00	3,457.89	3,365.49	3,342.15	11.75	9.77	173.12	233.41	-281.74	835.23	819.57	15.66	53.343	
3,600.00	3,556.16	3,460.29	3,436.03	12.17	10.09	173.18	242.37	-291.42	867.03	850.89	16.14	53.722	
3,700.00	3,654.44	3,555.10	3,529.91	12.59	10.41	173.24	251.33	-301.10	898.83	882.21	16.62	54.078	
3,800.00	3,752.72	3,649.90	3,623.80	13.01	10.73	173.29	260.29	-310.79	930.63	913.53	17.10	54.414	
3,900.00	3,851.00	3,744.71	3,717.68	13.43	11.06	173.34	269.25	-320.47	962.43	944.85	17.59	54.730	
4,000.00	3,949.27	3,839.51	3,811.56	13.85	11.38	173.39	278.21	-330.15	994.23	976.17	18.07	55.028	
4,100.00	4,047.55	3,934.32	3,905.44	14.27	11.70	173.43	287.17	-339.84	1,026.04	1,007.49	18.55	55.311	
4,200.00	4,145.83	4,029.12	3,999.33	14.70	12.02	173.48	296.13	-349.52	1,057.84	1,038.81	19.03	55.579	
4,300.00	4,244.11	4,123.93	4,093.21	15.12	12.35	173.52	305.09	-359.20	1,089.64	1,070.13	19.52	55.833	
4,400.00	4,342.39	4,218.73	4,187.09	15.54	12.67	173.55	314.05	-368.89	1,121.45	1,101.45	20.00	56.074	
4,500.00	4,440.66	4,313.54	4,280.97	15.96	12.99	173.59	323.01	-378.57	1,153.25	1,132.77	20.48	56.303	
4,600.00	4,538.94	4,408.35	4,374.86	16.38	13.32	173.62	331.97	-388.25	1,185.06	1,164.09	20.97	56.522	
4,700.00	4,637.22	4,503.15	4,468.74	16.80	13.64	173.65	340.93	-397.94	1,216.86	1,195.41	21.45	56.730	
4,800.00	4,735.50	4,597.96	4,562.62	17.23	13.97	173.68	349.89	-407.62	1,248.67	1,226.73	21.93	56.929	
4,900.00	4,833.77	4,692.76	4,656.51	17.65	14.29	173.71	358.85	-417.30	1,280.47	1,258.06	22.42	57.118	
5,000.00	4,932.05	4,787.57	4,750.39	18.07	14.61	173.74	367.81	-426.99	1,312.28	1,289.38	22.90	57.300	

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_ELLIOT 22-17
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4828.00ft (Original Well Elev)
Reference Site:	WELD_ELLIOT 5-17 PAD	MD Reference:	WELL @ 4828.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ELLIOT 22-17	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ELLIOT 22-17	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_ELLIOT 5-17 PAD - P_ELLIOT 31-17 - P_ELLIOT 31-17 - PLAN #1 1-13-10 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
5,100.00	5,030.33	4,882.37	4,844.27	18.49	14.94	173.76	376.77	-436.67	1,344.09	1,320.70	23.39	57.474	
5,200.00	5,128.61	4,977.18	4,938.15	18.91	15.26	173.79	385.74	-446.35	1,375.89	1,352.02	23.87	57.640	
5,300.00	5,226.89	5,071.98	5,032.04	19.34	15.58	173.81	394.70	-456.04	1,407.70	1,383.35	24.35	57.800	
5,402.48	5,327.60	5,169.14	5,128.25	19.77	15.92	173.83	403.88	-465.96	1,440.30	1,415.45	24.85	57.957	
5,500.00	5,423.73	5,262.10	5,220.31	20.11	16.23	173.91	412.66	-475.45	1,469.75	1,444.33	25.41	57.832	
5,600.00	5,522.82	5,358.41	5,315.67	20.36	16.56	173.97	421.77	-485.29	1,496.66	1,470.72	25.94	57.703	
5,700.00	5,622.32	5,455.59	5,411.91	20.57	16.90	174.01	430.95	-495.22	1,520.21	1,493.78	26.43	57.525	
5,800.00	5,722.11	5,553.52	5,508.89	20.74	17.23	174.02	440.21	-505.22	1,540.38	1,513.50	26.88	57.303	
5,900.00	5,822.06	5,652.10	5,606.51	20.88	17.57	174.01	449.52	-515.29	1,557.13	1,529.83	27.30	57.040	
5,934.94	5,857.00	5,686.67	5,640.74	20.92	17.69	-41.32	452.79	-518.82	1,562.18	1,534.74	27.44	56.928	
6,000.00	5,922.06	5,751.10	5,704.54	21.00	17.91	-41.35	458.88	-525.40	1,571.19	1,543.47	27.72	56.688	
6,100.00	6,022.06	5,850.12	5,802.61	21.12	18.25	-41.40	468.24	-535.51	1,585.03	1,556.90	28.13	56.354	
6,200.00	6,122.06	5,949.15	5,900.67	21.23	18.59	-41.45	477.60	-545.63	1,598.88	1,570.34	28.54	56.027	
6,300.00	6,222.06	6,048.18	5,998.73	21.35	18.92	-41.50	486.96	-555.74	1,612.72	1,583.77	28.95	55.706	
6,400.00	6,322.06	6,147.20	6,096.80	21.47	19.26	-41.55	496.32	-565.86	1,626.57	1,597.21	29.37	55.392	
6,500.00	6,422.06	6,246.23	6,194.86	21.59	19.60	-41.60	505.67	-575.97	1,640.42	1,610.64	29.78	55.083	
6,600.00	6,522.06	6,345.26	6,292.92	21.71	19.94	-41.65	515.03	-586.09	1,654.27	1,624.08	30.20	54.782	
6,700.00	6,622.06	6,444.28	6,390.99	21.84	20.28	-41.69	524.39	-596.20	1,668.12	1,637.51	30.62	54.486	
6,800.00	6,722.06	6,543.30	6,489.11	21.96	20.68	-41.75	533.69	-606.31	1,681.87	1,650.79	31.08	54.117	
6,900.00	6,822.06	6,642.32	6,587.13	22.09	21.19	-41.81	543.05	-616.42	1,695.62	1,664.52	31.69	53.706	
7,000.00	6,922.06	6,741.34	6,685.15	22.22	21.44	-41.82	551.18	-625.16	1,691.31	1,659.15	32.16	52.583	
7,100.00	7,022.06	6,840.36	6,784.17	22.35	21.59	-41.82	551.18	-625.16	1,691.31	1,658.77	32.54	51.972	
7,200.00	7,122.06	6,939.38	6,883.19	22.48	21.75	-41.82	551.18	-625.16	1,691.31	1,658.38	32.93	51.366	
7,300.00	7,222.06	7,038.40	6,982.21	22.61	21.91	-41.82	551.18	-625.16	1,691.31	1,658.00	33.31	50.772	
7,400.00	7,322.06	7,137.42	7,081.23	22.75	22.07	-41.82	551.18	-625.16	1,691.31	1,657.61	33.70	50.188	
7,500.00	7,422.06	7,236.44	7,180.25	22.88	22.23	-41.82	551.18	-625.16	1,691.31	1,657.22	34.09	49.616	
7,600.00	7,522.06	7,335.46	7,279.27	23.02	22.39	-41.82	551.18	-625.16	1,691.31	1,656.83	34.48	49.055	
7,700.00	7,622.06	7,434.48	7,378.29	23.16	22.55	-41.82	551.18	-625.16	1,691.31	1,656.44	34.87	48.504	
7,767.94	7,690.00	7,445.40	7,389.00	23.25	22.66	-41.82	551.18	-625.16	1,691.31	1,656.17	35.14	48.135	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_ELLIOT 22-17
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4828.00ft (Original Well Elev)
Reference Site:	WELD_ELLIOT 5-17 PAD	MD Reference:	WELL @ 4828.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ELLIOT 22-17	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ELLIOT 22-17	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

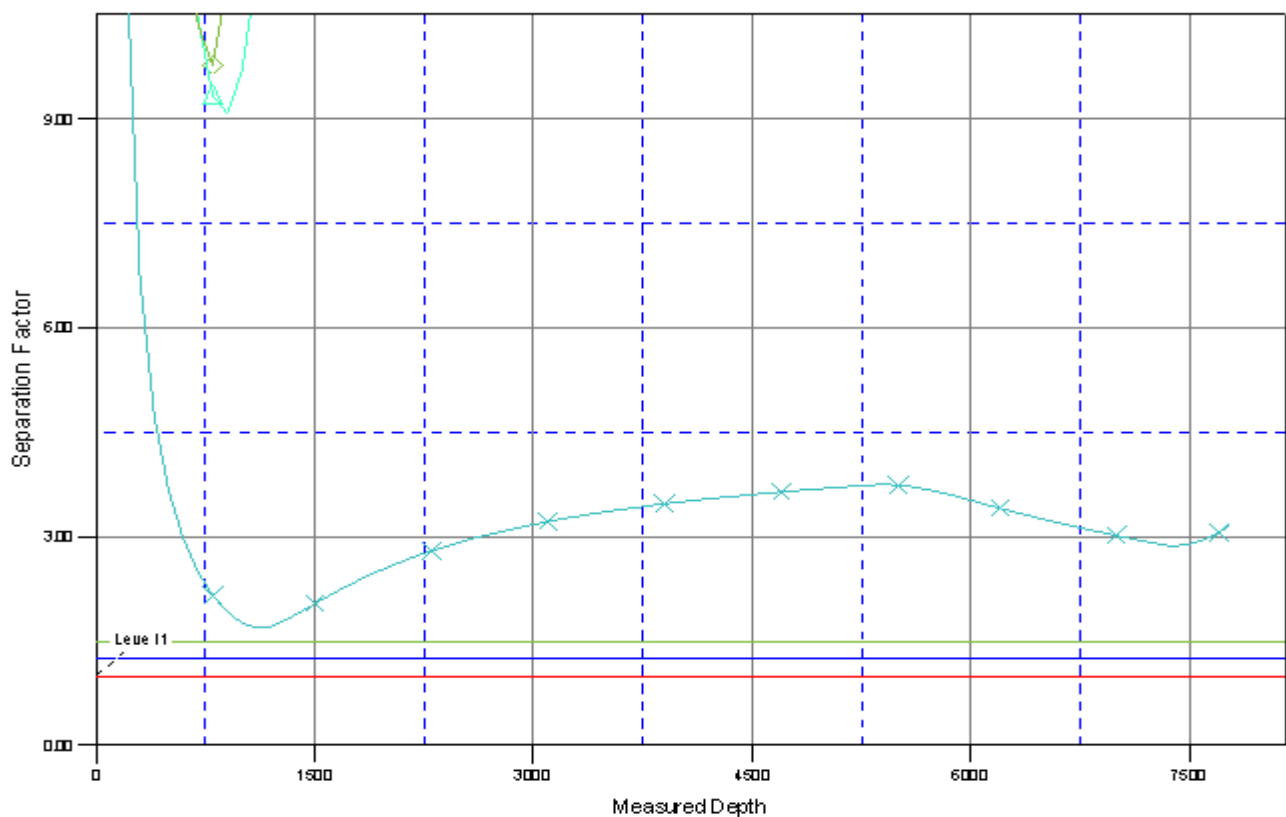
Reference Depths are relative to WELL @ 4828.00ft (Original Well Elev) Coordinates are relative to: P_ELLIOT 22-17
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.37°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_ELLIOT 22-17
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4828.00ft (Original Well Elev)
Reference Site:	WELD_ELLIOT 5-17 PAD	MD Reference:	WELL @ 4828.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ELLIOT 22-17	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ELLIOT 22-17	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-13-10 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4828.00ft (Original Well Elev) Coordinates are relative to: P_ELLIOT 22-17
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: 0.37°

Separation Factor Plot



LEGEND

5-17 EXISTING, HSR-LE #5-17 EXISTING W/O  P_ELLIOT 21-17, P_ELLIOT 21-17, PLAN #1 1-13-10 RHS W/O  P_ELLIOT 31-17, P_ELLIOT 31-17, PLAN #1 1-13-10 RHS W/O