



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_COTTONWOOD 15-33 PAD

P_COTTONWOOD 36-33

P_COTTONWOOD 36-33

Plan: PLAN #1 2-18-10 RHS

Standard Planning Report

18 February, 2010

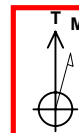




Project: COLORADO NORTHERN ZONE - 83
 Site: WELD_COTTONWOOD 15-33 PAD
 Well: P_COTTONWOOD 36-33
 Wellbore: P_COTTONWOOD 36-33
 Section: SECTION 33 T2N R66W
 SHL: 705 FSL 1865 FEL
 Design: PLAN #1 2-18-10 RHS
 Latitude: 40° 5' 21.469 N
 Longitude: 104° 46' 45.700 W
 GL: 4982.00
 KB: WELL @ 4997.00ft (Original Well Elev)



Weatherford®



Azimuths to True North
 Magnetic North: 9.02°
 Magnetic Field
 Strength: 53104.1snT
 Dip Angle: 66.84°
 Date: 2/18/2010
 Model: IGRF2010

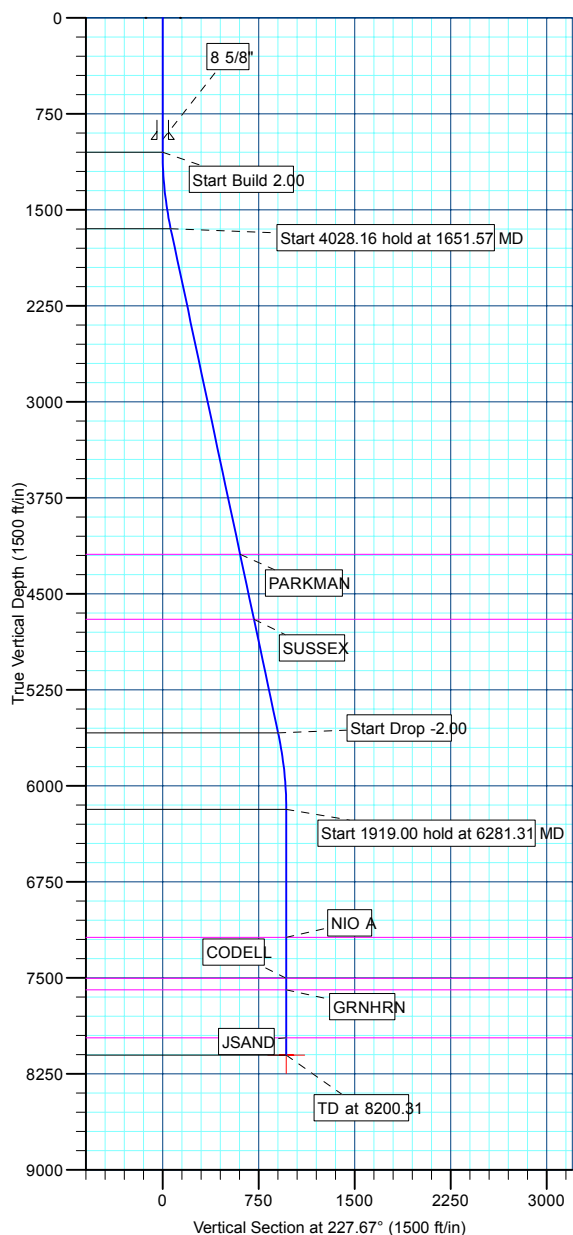
FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4192.00	4253.57	PARKMAN
4698.00	4770.93	SUSSEX
7184.00	7281.31	NIO A
7504.00	7601.31	CODELL
7594.00	7691.31	GRNHRN
7968.00	8065.31	JSAND

CASING DETAILS			
TVD	MD	Name	Size
950.00	950.00	8 5/8"	8.62

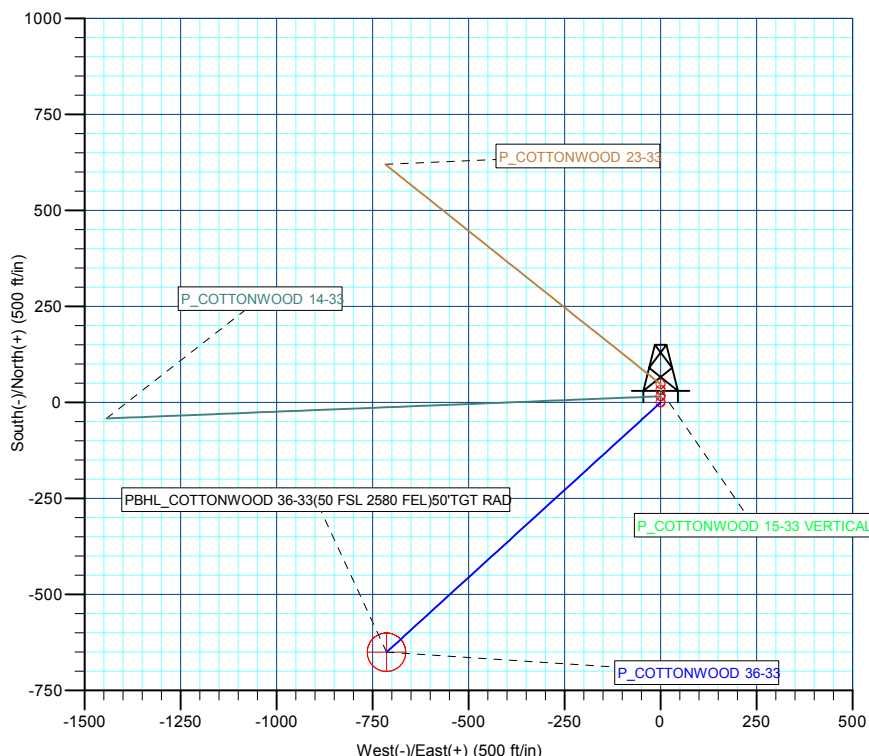
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1050.00	0.00	0.00	1050.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
1651.57	12.03	227.67	1647.16	-42.38	-46.52	2.00	227.67	62.93	Start 4028.16 hold at 1651.57 MD
5679.74	12.03	227.67	5586.84	-607.84	-667.24	0.00	0.00	902.59	Start Drop -2.00
6281.31	0.00	0.00	6184.00	-650.22	-713.76	2.00	180.00	965.52	Start 1919.00 hold at 6281.31 MD
8200.31	0.00	0.00	8103.00	-650.22	-713.76	0.00	0.00	965.52	TD at 8200.31

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
PBHL	8103.00	-650.22	-713.76	40° 5' 15.043 N	104° 46' 54.883 W	Circle (Radius: 50.00)

WELL DETAILS: P_COTTONWOOD 36-33						
+N/-S	+E/-W	Northing	Ground Level: Easting	4982.00 Latitude	Longitude	Slot
0.00	0.00	1276194.82	3201623.03	40° 5' 21.469 N	104° 46' 45.700 W	



LEGEND	
P_COTTONWOOD 14-33, P_COTTONWOOD 14-33, PLAN #1 2-18-10 RHS V0	
P_COTTONWOOD 15-33 VERTICAL, P_COTTONWOOD 15-33 VERTICAL, PLAN #1 2-18-10 RHS V0	
P_COTTONWOOD 23-33, P_COTTONWOOD 23-33, PLAN #1 2-18-10 RHS V0	
PLAN #1 2-18-10 RHS	



Plan: PLAN #1 2-18-10 RHS (P_COTTONWOOD 36-33 / P_COTTONWOOD 36-33)

Created By: Robert H. Scott Date: 11:44, February 18 2010

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_COTTONWOOD 36-33
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4997.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4997.00ft (Original Well Elev)
Site:	WELD_COTTONWOOD 15-33 PAD	North Reference:	True
Well:	P_COTTONWOOD 36-33	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_COTTONWOOD 36-33		
Design:	PLAN #1 2-18-10 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_COTTONWOOD 15-33 PAD, SECTION 33 T2N R66W											
Site Position:						Northing:			1,276,210.85 ft			Latitude:			40° 5' 21.628 N		
From:			Lat/Long			Easting:			3,201,622.90 ft			Longitude:			104° 46' 45.700 W		
Position Uncertainty:			0.00 ft			Slot Radius:			in			Grid Convergence:			0.47 °		

Well	P_COTTONWOOD 36-33,					
Well Position	+N/-S	-16.03 ft	Northing:	1,276,194.82 ft	Latitude:	40° 5' 21.469 N
	+E/-W	0.00 ft	Easting:	3,201,623.03 ft	Longitude:	104° 46' 45.700 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,982.00 ft

Wellbore	P_COTTONWOOD 36-33				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/18/2010	9.02	66.84	53,104

Design	PLAN #1 2-18-10 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	227.67

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,050.00	0.00	0.00	1,050.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,651.57	12.03	227.67	1,647.16	-42.38	-46.52	2.00	2.00	0.00	227.67	
5,679.74	12.03	227.67	5,586.84	-607.84	-667.24	0.00	0.00	0.00	0.00	
6,281.31	0.00	0.00	6,184.00	-650.22	-713.76	2.00	-2.00	0.00	180.00	
8,200.31	0.00	0.00	8,103.00	-650.22	-713.76	0.00	0.00	0.00	0.00	PBHL_COTTONW

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_COTTONWOOD 36-33
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4997.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4997.00ft (Original Well Elev)
Site:	WELD_COTTONWOOD 15-33 PAD	North Reference:	True
Well:	P_COTTONWOOD 36-33	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_COTTONWOOD 36-33		
Design:	PLAN #1 2-18-10 RHS		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Start Build 2.00									
1,050.00	0.00	0.00	1,050.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	1.00	227.67	1,100.00	-0.29	-0.32	0.44	2.00	2.00	0.00
1,200.00	3.00	227.67	1,199.93	-2.64	-2.90	3.93	2.00	2.00	0.00
1,300.00	5.00	227.67	1,299.68	-7.34	-8.06	10.90	2.00	2.00	0.00
1,400.00	7.00	227.67	1,399.13	-14.38	-15.79	21.35	2.00	2.00	0.00
1,500.00	9.00	227.67	1,498.15	-23.75	-26.07	35.27	2.00	2.00	0.00
1,600.00	11.00	227.67	1,596.63	-35.45	-38.91	52.63	2.00	2.00	0.00
Start 4028.16 hold at 1651.57 MD									
1,651.57	12.03	227.67	1,647.16	-42.38	-46.52	62.93	2.00	2.00	0.00
1,700.00	12.03	227.67	1,694.52	-49.18	-53.98	73.02	0.00	0.00	0.00
1,800.00	12.03	227.67	1,792.33	-63.22	-69.39	93.87	0.00	0.00	0.00
1,900.00	12.03	227.67	1,890.13	-77.25	-84.80	114.71	0.00	0.00	0.00
2,000.00	12.03	227.67	1,987.93	-91.29	-100.21	135.56	0.00	0.00	0.00
2,100.00	12.03	227.67	2,085.74	-105.33	-115.62	156.40	0.00	0.00	0.00
2,200.00	12.03	227.67	2,183.54	-119.37	-131.03	177.25	0.00	0.00	0.00
2,300.00	12.03	227.67	2,281.34	-133.40	-146.44	198.09	0.00	0.00	0.00
2,400.00	12.03	227.67	2,379.15	-147.44	-161.85	218.94	0.00	0.00	0.00
2,500.00	12.03	227.67	2,476.95	-161.48	-177.26	239.78	0.00	0.00	0.00
2,600.00	12.03	227.67	2,574.75	-175.52	-192.67	260.63	0.00	0.00	0.00
2,700.00	12.03	227.67	2,672.56	-189.56	-208.08	281.47	0.00	0.00	0.00
2,800.00	12.03	227.67	2,770.36	-203.59	-223.49	302.32	0.00	0.00	0.00
2,900.00	12.03	227.67	2,868.16	-217.63	-238.90	323.16	0.00	0.00	0.00
3,000.00	12.03	227.67	2,965.97	-231.67	-254.30	344.01	0.00	0.00	0.00
3,100.00	12.03	227.67	3,063.77	-245.71	-269.71	364.85	0.00	0.00	0.00
3,200.00	12.03	227.67	3,161.57	-259.74	-285.12	385.70	0.00	0.00	0.00
3,300.00	12.03	227.67	3,259.38	-273.78	-300.53	406.54	0.00	0.00	0.00
3,400.00	12.03	227.67	3,357.18	-287.82	-315.94	427.39	0.00	0.00	0.00
3,500.00	12.03	227.67	3,454.98	-301.86	-331.35	448.23	0.00	0.00	0.00
3,600.00	12.03	227.67	3,552.79	-315.89	-346.76	469.08	0.00	0.00	0.00
3,700.00	12.03	227.67	3,650.59	-329.93	-362.17	489.92	0.00	0.00	0.00
3,800.00	12.03	227.67	3,748.39	-343.97	-377.58	510.77	0.00	0.00	0.00
3,900.00	12.03	227.67	3,846.20	-358.01	-392.99	531.61	0.00	0.00	0.00
4,000.00	12.03	227.67	3,944.00	-372.05	-408.40	552.46	0.00	0.00	0.00
4,100.00	12.03	227.67	4,041.80	-386.08	-423.81	573.30	0.00	0.00	0.00
4,200.00	12.03	227.67	4,139.61	-400.12	-439.22	594.15	0.00	0.00	0.00
PARKMAN									
4,253.57	12.03	227.67	4,192.00	-407.64	-447.47	605.31	0.00	0.00	0.00
4,300.00	12.03	227.67	4,237.41	-414.16	-454.63	614.99	0.00	0.00	0.00
4,400.00	12.03	227.67	4,335.21	-428.20	-470.04	635.84	0.00	0.00	0.00
4,500.00	12.03	227.67	4,433.02	-442.23	-485.45	656.68	0.00	0.00	0.00
4,600.00	12.03	227.67	4,530.82	-456.27	-500.86	677.52	0.00	0.00	0.00
4,700.00	12.03	227.67	4,628.62	-470.31	-516.26	698.37	0.00	0.00	0.00
SUSSEX									
4,770.93	12.03	227.67	4,698.00	-480.27	-527.19	713.16	0.00	0.00	0.00
4,800.00	12.03	227.67	4,726.43	-484.35	-531.67	719.21	0.00	0.00	0.00
4,900.00	12.03	227.67	4,824.23	-498.39	-547.08	740.06	0.00	0.00	0.00
5,000.00	12.03	227.67	4,922.03	-512.42	-562.49	760.90	0.00	0.00	0.00
5,100.00	12.03	227.67	5,019.84	-526.46	-577.90	781.75	0.00	0.00	0.00
5,200.00	12.03	227.67	5,117.64	-540.50	-593.31	802.59	0.00	0.00	0.00
5,300.00	12.03	227.67	5,215.44	-554.54	-608.72	823.44	0.00	0.00	0.00
5,400.00	12.03	227.67	5,313.25	-568.57	-624.13	844.28	0.00	0.00	0.00
5,500.00	12.03	227.67	5,411.05	-582.61	-639.54	865.13	0.00	0.00	0.00

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4997.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4997.00ft (Original Well Elev)
Site:	WELD_COTTONWOOD 15-33 PAD	North Reference:	True
Well:	P_COTTONWOOD 36-33	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_COTTONWOOD 36-33		
Design:	PLAN #1 2-18-10 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)
5,600.00	12.03	227.67	5,508.85	-596.65	-654.95	885.97	0.00	0.00	0.00
Start Drop -2.00									
5,679.74	12.03	227.67	5,586.84	-607.84	-667.24	902.59	0.00	0.00	0.00
5,700.00	11.63	227.67	5,606.67	-610.64	-670.31	906.75	2.00	-2.00	0.00
5,800.00	9.63	227.67	5,704.95	-623.06	-683.94	925.19	2.00	-2.00	0.00
5,900.00	7.63	227.67	5,803.82	-633.16	-695.02	940.19	2.00	-2.00	0.00
6,000.00	5.63	227.67	5,903.14	-640.93	-703.55	951.72	2.00	-2.00	0.00
6,100.00	3.63	227.67	6,002.81	-646.36	-709.52	959.79	2.00	-2.00	0.00
6,200.00	1.63	227.67	6,102.70	-649.45	-712.90	964.37	2.00	-2.00	0.00
Start 1919.00 hold at 6281.31 MD									
6,281.31	0.00	0.00	6,184.00	-650.22	-713.76	965.52	2.00	-2.00	162.76
6,300.00	0.00	0.00	6,202.69	-650.22	-713.76	965.52	0.00	0.00	0.00
6,400.00	0.00	0.00	6,302.69	-650.22	-713.76	965.52	0.00	0.00	0.00
6,500.00	0.00	0.00	6,402.69	-650.22	-713.76	965.52	0.00	0.00	0.00
6,600.00	0.00	0.00	6,502.69	-650.22	-713.76	965.52	0.00	0.00	0.00
6,700.00	0.00	0.00	6,602.69	-650.22	-713.76	965.52	0.00	0.00	0.00
6,800.00	0.00	0.00	6,702.69	-650.22	-713.76	965.52	0.00	0.00	0.00
6,900.00	0.00	0.00	6,802.69	-650.22	-713.76	965.52	0.00	0.00	0.00
7,000.00	0.00	0.00	6,902.69	-650.22	-713.76	965.52	0.00	0.00	0.00
7,100.00	0.00	0.00	7,002.69	-650.22	-713.76	965.52	0.00	0.00	0.00
7,200.00	0.00	0.00	7,102.69	-650.22	-713.76	965.52	0.00	0.00	0.00
NIO A									
7,281.31	0.00	0.00	7,184.00	-650.22	-713.76	965.52	0.00	0.00	0.00
7,300.00	0.00	0.00	7,202.69	-650.22	-713.76	965.52	0.00	0.00	0.00
7,400.00	0.00	0.00	7,302.69	-650.22	-713.76	965.52	0.00	0.00	0.00
7,500.00	0.00	0.00	7,402.69	-650.22	-713.76	965.52	0.00	0.00	0.00
7,600.00	0.00	0.00	7,502.69	-650.22	-713.76	965.52	0.00	0.00	0.00
CODELL									
7,601.31	0.00	0.00	7,504.00	-650.22	-713.76	965.52	0.00	0.00	0.00
GRNHRN									
7,691.31	0.00	0.00	7,594.00	-650.22	-713.76	965.52	0.00	0.00	0.00
7,700.00	0.00	0.00	7,602.69	-650.22	-713.76	965.52	0.00	0.00	0.00
7,800.00	0.00	0.00	7,702.69	-650.22	-713.76	965.52	0.00	0.00	0.00
7,900.00	0.00	0.00	7,802.69	-650.22	-713.76	965.52	0.00	0.00	0.00
8,000.00	0.00	0.00	7,902.69	-650.22	-713.76	965.52	0.00	0.00	0.00
JSAND									
8,065.31	0.00	0.00	7,968.00	-650.22	-713.76	965.52	0.00	0.00	0.00
8,100.00	0.00	0.00	8,002.69	-650.22	-713.76	965.52	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_COTTONWOC	0.00	0.00	8,103.00	-650.22	-713.76	1,275,538.82	3,200,914.58	40° 5' 15.043 N	104° 46' 54.883 W
- plan misses target center by 100.31ft at 8100.00ft MD (8002.69 TVD, -650.22 N, -713.76 E)									
- Circle (radius 50.00)									

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_COTTONWOOD 36-33
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4997.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4997.00ft (Original Well Elev)
Site:	WELD_COTTONWOOD 15-33 PAD	North Reference:	True
Well:	P_COTTONWOOD 36-33	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_COTTONWOOD 36-33		
Design:	PLAN #1 2-18-10 RHS		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
950.00	950.00	8 5/8"	8.62	11.00	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,253.57	4,192.00	PARKMAN				
4,770.93	4,698.00	SUSSEX				
7,281.31	7,184.00	NIO A				
7,601.31	7,504.00	CODELL				
7,691.31	7,594.00	GRNHRN				
8,065.31	7,968.00	JSAND				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,050.00	1,050.00	0.00	0.00	Start Build 2.00	
1,651.57	1,647.16	-42.38	-46.52	Start 4028.16 hold at 1651.57 MD	
5,679.74	5,586.84	-607.84	-667.24	Start Drop -2.00	
6,281.31	6,184.00	-650.22	-713.76	Start 1919.00 hold at 6281.31 MD	
8,200.31	8,103.00	-650.22	-713.76	TD at 8200.31	



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_COTTONWOOD 15-33 PAD
P_COTTONWOOD 36-33**

**P_COTTONWOOD 36-33
PLAN #1 2-18-10 RHS**

Anticollision Report

18 February, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_COTTONWOOD 36-33
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4997.00ft (Original Well Elev)
Reference Site:	WELD_COTTONWOOD 15-33 PAD	MD Reference:	WELL @ 4997.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_COTTONWOOD 36-33	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_COTTONWOOD 36-33	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 2-18-10 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 2-18-10 RHS		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	0.00 to 20,000.00ft	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 2/18/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	8,200.31	PLAN #1 2-18-10 RHS (P_COTTONWOO	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_COTTONWOOD 15-33 PAD						
P_COTTONWOOD 14-33 - P_COTTONWOOD 14-33 - F	1,050.00	1,050.00	16.03	11.57	3.593	CC, ES
P_COTTONWOOD 14-33 - P_COTTONWOOD 14-33 - F	1,100.00	1,100.01	16.31	11.64	3.495	SF
P_COTTONWOOD 15-33 VERTICAL - P_COTTONWOC	1,050.00	1,050.00	32.04	27.57	7.180	CC, ES
P_COTTONWOOD 15-33 VERTICAL - P_COTTONWOC	1,200.00	1,199.93	34.80	29.72	6.853	SF
P_COTTONWOOD 23-33 - P_COTTONWOOD 23-33 - F	1,050.00	1,050.00	48.08	43.61	10.776	CC, ES
P_COTTONWOOD 23-33 - P_COTTONWOOD 23-33 - F	1,100.00	1,099.48	48.64	43.97	10.414	SF

Offset Design WELD_COTTONWOOD 15-33 PAD - P_COTTONWOOD 14-33 - P_COTTONWOOD 14-33 - PLAN #1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis	Distance											
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.03	0.00	16.03					
100.00	100.00	100.00	100.00	0.10	0.10	0.00	16.03	0.00	16.03	15.84	0.19	83.917		
200.00	200.00	200.00	200.00	0.32	0.32	0.00	16.03	0.00	16.03	15.39	0.64	25.028		
300.00	300.00	300.00	300.00	0.55	0.55	0.00	16.03	0.00	16.03	14.94	1.09	14.707		
400.00	400.00	400.00	400.00	0.77	0.77	0.00	16.03	0.00	16.03	14.49	1.54	10.413		
500.00	500.00	500.00	500.00	0.99	0.99	0.00	16.03	0.00	16.03	14.04	1.99	8.060		
600.00	600.00	600.00	600.00	1.22	1.22	0.00	16.03	0.00	16.03	13.59	2.44	6.574		
700.00	700.00	700.00	700.00	1.44	1.44	0.00	16.03	0.00	16.03	13.14	2.89	5.551		
800.00	800.00	800.00	800.00	1.67	1.67	0.00	16.03	0.00	16.03	12.69	3.34	4.803		
900.00	900.00	900.00	900.00	1.89	1.89	0.00	16.03	0.00	16.03	12.25	3.79	4.233		
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	0.00	16.03	0.00	16.03	11.80	4.24	3.784		
1,050.00	1,050.00	1,050.00	1,050.00	2.23	2.23	0.00	16.03	0.00	16.03	11.57	4.46	3.593	CC, ES	
1,100.00	1,100.00	1,100.01	1,100.01	2.33	2.34	131.93	16.02	-0.44	16.31	11.64	4.67	3.495	SF	
1,200.00	1,199.93	1,199.99	1,199.92	2.51	2.54	129.14	15.88	-3.92	18.55	13.50	5.05	3.674		
1,300.00	1,299.68	1,299.83	1,299.52	2.71	2.75	125.19	15.60	-10.88	23.11	17.66	5.45	4.241		
1,400.00	1,399.13	1,399.47	1,398.60	2.92	2.98	121.52	15.18	-21.27	30.07	24.19	5.88	5.111		
1,500.00	1,498.15	1,498.81	1,496.98	3.16	3.23	118.63	14.63	-35.06	39.44	33.08	6.37	6.197		
1,600.00	1,596.63	1,597.78	1,594.44	3.44	3.52	116.46	13.95	-52.17	51.19	44.28	6.91	7.408		
1,651.57	1,647.16	1,648.64	1,644.30	3.61	3.69	115.56	13.55	-62.27	58.18	50.95	7.23	8.048		
1,700.00	1,694.52	1,696.31	1,690.84	3.77	3.85	114.64	13.14	-72.54	65.13	57.59	7.54	8.638		
1,800.00	1,792.33	1,794.38	1,786.03	4.12	4.23	111.51	12.20	-96.09	80.25	72.00	8.25	9.723		

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_COTTONWOOD 36-33
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4997.00ft (Original Well Elev)
Reference Site:	WELD_COTTONWOOD 15-33 PAD	MD Reference:	WELL @ 4997.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_COTTONWOOD 36-33	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_COTTONWOOD 36-33	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 2-18-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_COTTONWOOD 15-33 PAD - P_COTTONWOOD 14-33 - P_COTTONWOOD 14-33 - PLAN #1												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
1,900.00	1,890.13	1,891.80	1,879.74	4.49	4.66	107.50	11.14	-122.69	96.73	87.70	9.04	10.706	
2,000.00	1,987.93	1,988.35	1,971.66	4.88	5.16	103.18	9.96	-152.19	114.97	105.10	9.87	11.646	
2,100.00	2,085.74	2,085.64	2,063.58	5.28	5.71	99.17	8.70	-184.01	134.80	124.06	10.74	12.555	
2,200.00	2,183.54	2,183.26	2,155.81	5.69	6.28	96.16	7.42	-216.01	155.13	143.52	11.61	13.357	
2,300.00	2,281.34	2,280.89	2,248.03	6.11	6.88	93.84	6.14	-248.01	175.79	163.29	12.50	14.065	
2,400.00	2,379.15	2,378.51	2,340.25	6.53	7.49	92.02	4.87	-280.01	196.66	183.27	13.39	14.689	
2,500.00	2,476.95	2,476.14	2,432.48	6.96	8.11	90.54	3.59	-312.02	217.68	203.40	14.28	15.241	
2,600.00	2,574.75	2,573.76	2,524.70	7.39	8.74	89.33	2.32	-344.02	238.82	223.64	15.18	15.730	
2,700.00	2,672.56	2,671.39	2,616.92	7.83	9.37	88.31	1.04	-376.02	260.05	243.96	16.09	16.167	
2,800.00	2,770.36	2,769.01	2,709.15	8.27	10.01	87.45	-0.23	-408.02	281.34	264.35	16.99	16.557	
2,900.00	2,868.16	2,866.64	2,801.37	8.71	10.66	86.71	-1.51	-440.02	302.69	284.78	17.90	16.908	
3,000.00	2,965.97	2,964.27	2,893.59	9.15	11.31	86.06	-2.79	-472.02	324.07	305.26	18.81	17.225	
3,100.00	3,063.77	3,061.89	2,985.82	9.60	11.96	85.50	-4.06	-504.02	345.49	325.77	19.73	17.512	
3,200.00	3,161.57	3,159.52	3,078.04	10.05	12.61	85.00	-5.34	-536.02	366.94	346.30	20.64	17.774	
3,300.00	3,259.38	3,257.14	3,170.26	10.50	13.27	84.55	-6.61	-568.02	388.42	366.85	21.56	18.014	
3,400.00	3,357.18	3,354.77	3,262.48	10.95	13.93	84.16	-7.89	-600.02	409.91	387.43	22.48	18.234	
3,500.00	3,454.98	3,452.39	3,354.71	11.40	14.59	83.80	-9.17	-632.02	431.42	408.02	23.40	18.436	
3,600.00	3,552.79	3,550.02	3,446.93	11.85	15.25	83.48	-10.44	-664.02	452.94	428.62	24.32	18.623	
3,700.00	3,650.59	3,647.64	3,539.15	12.30	15.91	83.18	-11.72	-696.02	474.48	449.24	25.24	18.796	
3,800.00	3,748.39	3,745.27	3,631.38	12.75	16.58	82.91	-12.99	-728.02	496.03	469.86	26.17	18.957	
3,900.00	3,846.20	3,842.89	3,723.60	13.21	17.24	82.67	-14.27	-760.02	517.59	490.50	27.09	19.107	
4,000.00	3,944.00	3,940.52	3,815.82	13.66	17.91	82.44	-15.54	-792.02	539.15	511.14	28.01	19.247	
4,100.00	4,041.80	4,038.15	3,908.05	14.12	18.57	82.23	-16.82	-824.02	560.73	531.79	28.94	19.378	
4,200.00	4,139.61	4,135.77	4,000.27	14.58	19.24	82.04	-18.10	-856.02	582.31	552.45	29.86	19.501	
4,300.00	4,237.41	4,233.40	4,092.49	15.03	19.91	81.86	-19.37	-888.02	603.89	573.11	30.78	19.617	
4,400.00	4,335.21	4,331.02	4,184.72	15.49	20.58	81.69	-20.65	-920.02	625.48	593.77	31.71	19.726	
4,500.00	4,433.02	4,428.65	4,276.94	15.95	21.25	81.53	-21.92	-952.02	647.08	614.45	32.63	19.829	
4,600.00	4,530.82	4,526.27	4,369.16	16.40	21.92	81.39	-23.20	-984.02	668.68	635.12	33.56	19.926	
4,700.00	4,628.62	4,623.90	4,461.39	16.86	22.59	81.25	-24.47	-1,016.02	690.28	655.80	34.48	20.019	
4,800.00	4,726.43	4,721.52	4,553.61	17.32	23.26	81.12	-25.75	-1,048.02	711.89	676.48	35.41	20.106	
4,900.00	4,824.23	4,819.15	4,645.83	17.78	23.93	81.00	-27.03	-1,080.02	733.50	697.17	36.33	20.189	
5,000.00	4,922.03	4,916.78	4,738.05	18.24	24.60	80.89	-28.30	-1,112.02	755.12	717.86	37.26	20.269	
5,100.00	5,019.84	5,014.40	4,830.28	18.69	25.27	80.78	-29.58	-1,144.02	776.73	738.55	38.18	20.344	
5,200.00	5,117.64	5,112.03	4,922.50	19.15	25.94	80.68	-30.85	-1,176.02	798.35	759.25	39.10	20.416	
5,300.00	5,215.44	5,209.65	5,014.72	19.61	26.61	80.58	-32.13	-1,208.02	819.97	779.95	40.03	20.485	
5,400.00	5,313.25	5,307.28	5,106.95	20.07	27.28	80.49	-33.41	-1,240.02	841.60	800.65	40.95	20.551	
5,500.00	5,411.05	5,404.90	5,199.17	20.53	27.96	80.40	-34.68	-1,272.02	863.22	821.35	41.87	20.615	
5,600.00	5,508.85	5,502.73	5,308.93	20.99	28.66	80.35	-36.15	-1,308.96	884.23	841.40	42.83	20.645	
5,679.74	5,586.84	5,622.90	5,406.87	21.36	29.13	80.46	-37.31	-1,338.05	898.82	855.24	43.58	20.624	
5,700.00	5,606.67	5,649.01	5,432.05	21.44	29.25	80.58	-37.59	-1,344.92	902.21	858.44	43.77	20.612	
5,800.00	5,704.95	5,778.54	5,557.88	21.75	29.76	81.09	-38.81	-1,375.60	917.26	872.67	44.60	20.569	
5,900.00	5,803.82	5,909.12	5,686.00	22.01	30.20	81.49	-39.81	-1,400.75	929.51	884.20	45.31	20.516	
6,000.00	5,903.14	6,040.54	5,815.96	22.25	30.56	81.81	-40.59	-1,420.14	938.89	892.99	45.90	20.455	
6,100.00	6,002.81	6,172.57	5,947.29	22.44	30.84	82.03	-41.12	-1,433.61	945.36	898.98	46.38	20.382	
6,200.00	6,102.70	6,304.98	6,079.49	22.60	31.04	82.16	-41.42	-1,441.03	948.89	902.14	46.75	20.297	
6,281.31	6,184.00	6,409.51	6,184.00	22.70	31.14	-50.13	-41.48	-1,442.59	949.61	902.63	46.98	20.214	
6,300.00	6,202.69	6,428.21	6,202.69	22.72	31.16	-50.13	-41.48	-1,442.59	949.61	902.59	47.02	20.196	
6,400.00	6,302.69	6,528.21	6,302.69	22.84	31.25	-50.13	-41.48	-1,442.59	949.61	902.36	47.24	20.100	
6,500.00	6,402.69	6,628.21	6,402.69	22.95	31.34	-50.13	-41.48	-1,442.59	949.61	902.13	47.48	20.002	
6,600.00	6,502.69	6,728.21	6,502.69	23.07	31.44	-50.13	-41.48	-1,442.59	949.61	901.90	47.71	19.904	
6,700.00	6,602.69	6,828.21	6,602.69	23.19	31.54	-50.13	-41.48	-1,442.59	949.61	901.66	47.95	19.806	
6,800.00	6,702.69	6,928.21	6,702.69	23.31	31.64	-50.13	-41.48	-1,442.59	949.61	901.42	48.19	19.707	

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_COTTONWOOD 36-33
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4997.00ft (Original Well Elev)
Reference Site:	WELD_COTTONWOOD 15-33 PAD	MD Reference:	WELL @ 4997.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_COTTONWOOD 36-33	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_COTTONWOOD 36-33	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 2-18-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_COTTONWOOD 15-33 PAD - P_COTTONWOOD 14-33 - P_COTTONWOOD 14-33 - PLAN #1												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
6,900.00	6,802.69	7,028.21	6,802.69	23.43	31.74	-50.13	-41.48	-1,442.59	949.61	901.18	48.43	19.609	
7,000.00	6,902.69	7,128.21	6,902.69	23.55	31.84	-50.13	-41.48	-1,442.59	949.61	900.94	48.67	19.510	
7,100.00	7,002.69	7,228.21	7,002.69	23.68	31.94	-50.13	-41.48	-1,442.59	949.61	900.69	48.92	19.411	
7,200.00	7,102.69	7,328.21	7,102.69	23.81	32.05	-50.13	-41.48	-1,442.59	949.61	900.44	49.17	19.311	
7,300.00	7,202.69	7,428.21	7,202.69	23.93	32.15	-50.13	-41.48	-1,442.59	949.61	900.18	49.43	19.212	
7,400.00	7,302.69	7,528.21	7,302.69	24.06	32.26	-50.13	-41.48	-1,442.59	949.61	899.92	49.68	19.113	
7,500.00	7,402.69	7,628.21	7,402.69	24.19	32.37	-50.13	-41.48	-1,442.59	949.61	899.66	49.94	19.013	
7,600.00	7,502.69	7,728.21	7,502.69	24.33	32.48	-50.13	-41.48	-1,442.59	949.61	899.40	50.21	18.914	
7,700.00	7,602.69	7,828.21	7,602.69	24.46	32.59	-50.13	-41.48	-1,442.59	949.61	899.14	50.47	18.815	
7,800.00	7,702.69	7,928.21	7,702.69	24.59	32.70	-50.13	-41.48	-1,442.59	949.61	898.87	50.74	18.715	
7,900.00	7,802.69	8,028.21	7,802.69	24.73	32.81	-50.13	-41.48	-1,442.59	949.61	898.60	51.01	18.616	
8,000.00	7,902.69	8,128.21	7,902.69	24.87	32.92	-50.13	-41.48	-1,442.59	949.61	898.33	51.28	18.517	
8,100.00	8,002.69	8,228.21	8,002.69	25.01	33.04	-50.13	-41.48	-1,442.59	949.61	898.05	51.56	18.418	
8,163.17	8,065.86	8,291.38	8,065.86	25.09	33.11	-50.13	-41.48	-1,442.59	949.61	897.88	51.73	18.356	
8,200.31	8,103.00	8,318.51	8,093.00	25.15	33.14	-50.13	-41.48	-1,442.59	949.66	897.84	51.82	18.325	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_COTTONWOOD 36-33
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4997.00ft (Original Well Elev)
Reference Site:	WELD_COTTONWOOD 15-33 PAD	MD Reference:	WELL @ 4997.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_COTTONWOOD 36-33	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_COTTONWOOD 36-33	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 2-18-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_COTTONWOOD 15-33 PAD - P_COTTONWOOD 15-33 VERTICAL - P_COTTONWOOD 15-33													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance										Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.04	0.00	32.04					
100.00	100.00	100.00	100.00	0.10	0.10	0.00	32.04	0.00	32.04	31.84	0.19	167.680		
200.00	200.00	200.00	200.00	0.32	0.32	0.00	32.04	0.00	32.04	31.39	0.64	50.010		
300.00	300.00	300.00	300.00	0.55	0.55	0.00	32.04	0.00	32.04	30.95	1.09	29.387		
400.00	400.00	400.00	400.00	0.77	0.77	0.00	32.04	0.00	32.04	30.50	1.54	20.807		
500.00	500.00	500.00	500.00	0.99	0.99	0.00	32.04	0.00	32.04	30.05	1.99	16.105		
600.00	600.00	600.00	600.00	1.22	1.22	0.00	32.04	0.00	32.04	29.60	2.44	13.136		
700.00	700.00	700.00	700.00	1.44	1.44	0.00	32.04	0.00	32.04	29.15	2.89	11.092		
800.00	800.00	800.00	800.00	1.67	1.67	0.00	32.04	0.00	32.04	28.70	3.34	9.598		
900.00	900.00	900.00	900.00	1.89	1.89	0.00	32.04	0.00	32.04	28.25	3.79	8.459		
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	0.00	32.04	0.00	32.04	27.80	4.24	7.561		
1,050.00	1,050.00	1,050.00	1,050.00	2.23	2.23	0.00	32.04	0.00	32.04	27.57	4.46	7.180 CC, ES		
1,100.00	1,100.00	1,100.00	1,100.00	2.33	2.34	132.90	32.04	0.00	32.33	27.66	4.67	6.917		
1,200.00	1,199.93	1,199.93	1,199.93	2.51	2.57	137.08	32.04	0.00	34.80	29.72	5.08	6.853 SF		
1,300.00	1,299.68	1,299.68	1,299.68	2.71	2.79	143.80	32.04	0.00	40.19	34.71	5.49	7.327		
1,400.00	1,399.13	1,399.13	1,399.13	2.92	3.02	150.93	32.04	0.00	49.03	43.14	5.89	8.322		
1,500.00	1,498.15	1,498.15	1,498.15	3.16	3.24	157.13	32.04	0.00	61.58	55.29	6.29	9.785		
1,600.00	1,596.63	1,596.63	1,596.63	3.44	3.46	161.99	32.04	0.00	77.90	71.21	6.69	11.644		
1,651.57	1,647.16	1,647.16	1,647.16	3.61	3.57	164.01	32.04	0.00	87.76	80.87	6.89	12.732		
1,700.00	1,694.52	1,694.52	1,694.52	3.77	3.68	165.64	32.04	0.00	97.52	90.42	7.10	13.730		
1,800.00	1,792.33	1,792.33	1,792.33	4.12	3.90	168.15	32.04	0.00	117.85	110.31	7.54	15.627		
1,900.00	1,890.13	1,890.13	1,890.13	4.49	4.12	169.93	32.04	0.00	138.33	130.34	7.99	17.322		
2,000.00	1,987.93	1,987.93	1,987.93	4.88	4.34	171.24	32.04	0.00	158.91	150.47	8.44	18.839		
2,100.00	2,085.74	2,085.74	2,085.74	5.28	4.56	172.25	32.04	0.00	179.55	170.66	8.89	20.200		
2,200.00	2,183.54	2,183.54	2,183.54	5.69	4.78	173.06	32.04	0.00	200.23	190.88	9.34	21.426		
2,300.00	2,281.34	2,281.34	2,281.34	6.11	5.00	173.71	32.04	0.00	220.94	211.14	9.80	22.535		
2,400.00	2,379.15	2,379.15	2,379.15	6.53	5.22	174.25	32.04	0.00	241.68	231.41	10.27	23.541		
2,500.00	2,476.95	2,476.95	2,476.95	6.96	5.44	174.71	32.04	0.00	262.43	251.70	10.73	24.457		
2,600.00	2,574.75	2,574.75	2,574.75	7.39	5.66	175.10	32.04	0.00	283.19	272.00	11.20	25.294		
2,700.00	2,672.56	2,672.56	2,672.56	7.83	5.88	175.43	32.04	0.00	303.97	292.31	11.66	26.061		
2,800.00	2,770.36	2,770.36	2,770.36	8.27	6.10	175.72	32.04	0.00	324.76	312.62	12.13	26.767		
2,900.00	2,868.16	2,868.16	2,868.16	8.71	6.32	175.98	32.04	0.00	345.55	332.95	12.60	27.418		
3,000.00	2,965.97	2,965.97	2,965.97	9.15	6.54	176.21	32.04	0.00	366.35	353.27	13.07	28.020		
3,100.00	3,063.77	3,063.77	3,063.77	9.60	6.76	176.41	32.04	0.00	387.15	373.60	13.55	28.579		
3,200.00	3,161.57	3,161.57	3,161.57	10.05	6.98	176.60	32.04	0.00	407.96	393.94	14.02	29.099		
3,300.00	3,259.38	3,259.38	3,259.38	10.50	7.20	176.76	32.04	0.00	428.77	414.28	14.49	29.583		
3,400.00	3,357.18	3,357.18	3,357.18	10.95	7.42	176.91	32.04	0.00	449.59	434.62	14.97	30.035		
3,500.00	3,454.98	3,454.98	3,454.98	11.40	7.64	177.05	32.04	0.00	470.40	454.96	15.44	30.459		
3,600.00	3,552.79	3,552.79	3,552.79	11.85	7.86	177.17	32.04	0.00	491.22	475.30	15.92	30.856		
3,700.00	3,650.59	3,650.59	3,650.59	12.30	8.08	177.29	32.04	0.00	512.04	495.65	16.40	31.229		
3,800.00	3,748.39	3,748.39	3,748.39	12.75	8.30	177.40	32.04	0.00	532.87	515.99	16.87	31.580		
3,900.00	3,846.20	3,846.20	3,846.20	13.21	8.52	177.49	32.04	0.00	553.69	536.34	17.35	31.911		
4,000.00	3,944.00	3,944.00	3,944.00	13.66	8.74	177.58	32.04	0.00	574.52	556.69	17.83	32.224		
4,100.00	4,041.80	4,041.80	4,041.80	14.12	8.96	177.67	32.04	0.00	595.35	577.04	18.31	32.520		
4,200.00	4,139.61	4,139.61	4,139.61	14.58	9.18	177.75	32.04	0.00	616.17	597.39	18.79	32.801		
4,300.00	4,237.41	4,237.41	4,237.41	15.03	9.40	177.82	32.04	0.00	637.00	617.74	19.26	33.067		
4,400.00	4,335.21	4,335.21	4,335.21	15.49	9.61	177.89	32.04	0.00	657.84	638.09	19.74	33.319		
4,500.00	4,433.02	4,433.02	4,433.02	15.95	9.83	177.96	32.04	0.00	678.67	658.44	20.22	33.559		
4,600.00	4,530.82	4,530.82	4,530.82	16.40	10.05	178.02	32.04	0.00	699.50	678.80	20.70	33.788		
4,700.00	4,628.62	4,628.62	4,628.62	16.86	10.27	178.07	32.04	0.00	720.33	699.15	21.18	34.006		
4,800.00	4,726.43	4,726.43	4,726.43	17.32	10.49	178.13	32.04	0.00	741.17	719.50	21.66	34.214		
4,900.00	4,824.23	4,824.23	4,824.23	17.78	10.71	178.18	32.04	0.00	762.00	739.86	22.14	34.413		

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_COTTONWOOD 36-33
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4997.00ft (Original Well Elev)
Reference Site:	WELD_COTTONWOOD 15-33 PAD	MD Reference:	WELL @ 4997.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_COTTONWOOD 36-33	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_COTTONWOOD 36-33	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 2-18-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_COTTONWOOD 15-33 PAD - P_COTTONWOOD 15-33 VERTICAL - P_COTTONWOOD 15-33												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.00	4,922.03	4,922.03	4,922.03	18.24	10.93	178.23	32.04	0.00	782.84	760.21	22.62	34.603	
5,100.00	5,019.84	5,019.84	5,019.84	18.69	11.15	178.27	32.04	0.00	803.67	780.57	23.10	34.785	
5,200.00	5,117.64	5,117.64	5,117.64	19.15	11.37	178.32	32.04	0.00	824.51	800.92	23.59	34.959	
5,300.00	5,215.44	5,215.44	5,215.44	19.61	11.59	178.36	32.04	0.00	845.34	821.28	24.07	35.126	
5,400.00	5,313.25	5,313.25	5,313.25	20.07	11.81	178.40	32.04	0.00	866.18	841.63	24.55	35.286	
5,500.00	5,411.05	5,411.05	5,411.05	20.53	12.03	178.44	32.04	0.00	887.02	861.99	25.03	35.440	
5,600.00	5,508.85	5,508.85	5,508.85	20.99	12.25	178.47	32.04	0.00	907.86	882.35	25.51	35.588	
5,679.74	5,586.84	5,586.84	5,586.84	21.36	12.43	178.50	32.04	0.00	924.47	898.58	25.89	35.702	
5,700.00	5,606.67	5,606.67	5,606.67	21.44	12.47	178.51	32.04	0.00	928.62	902.62	26.01	35.706	
5,800.00	5,704.95	5,704.95	5,704.95	21.75	12.69	178.55	32.04	0.00	947.06	920.53	26.53	35.698	
5,900.00	5,803.82	5,803.82	5,803.82	22.01	12.92	178.58	32.04	0.00	962.05	935.04	27.01	35.613	
6,000.00	5,903.14	5,903.14	5,903.14	22.25	13.14	178.60	32.04	0.00	973.59	946.13	27.46	35.456	
6,100.00	6,002.81	6,002.81	6,002.81	22.44	13.36	178.61	32.04	0.00	981.65	953.78	27.86	35.230	
6,200.00	6,102.70	6,102.70	6,102.70	22.60	13.59	178.62	32.04	0.00	986.23	958.00	28.23	34.939	
6,281.31	6,184.00	6,184.00	6,184.00	22.70	13.77	46.29	32.04	0.00	987.38	958.88	28.50	34.646	
6,300.00	6,202.69	6,202.69	6,202.69	22.72	13.81	46.29	32.04	0.00	987.38	958.81	28.57	34.555	
6,400.00	6,302.69	6,302.69	6,302.69	22.84	14.04	46.29	32.04	0.00	987.38	958.41	28.97	34.080	
6,500.00	6,402.69	6,402.69	6,402.69	22.95	14.26	46.29	32.04	0.00	987.38	958.01	29.37	33.617	
6,600.00	6,502.69	6,502.69	6,502.69	23.07	14.49	46.29	32.04	0.00	987.38	957.61	29.77	33.164	
6,700.00	6,602.69	6,602.69	6,602.69	23.19	14.71	46.29	32.04	0.00	987.38	957.21	30.17	32.722	
6,800.00	6,702.69	6,702.69	6,702.69	23.31	14.94	46.29	32.04	0.00	987.38	956.80	30.58	32.291	
6,900.00	6,802.69	6,802.69	6,802.69	23.43	15.16	46.29	32.04	0.00	987.38	956.40	30.98	31.869	
7,000.00	6,902.69	6,902.69	6,902.69	23.55	15.39	46.29	32.04	0.00	987.38	955.99	31.39	31.458	
7,100.00	7,002.69	7,002.69	7,002.69	23.68	15.61	46.29	32.04	0.00	987.38	955.59	31.79	31.055	
7,200.00	7,102.69	7,102.69	7,102.69	23.81	15.84	46.29	32.04	0.00	987.38	955.18	32.20	30.662	
7,300.00	7,202.69	7,202.69	7,202.69	23.93	16.06	46.29	32.04	0.00	987.38	954.77	32.61	30.278	
7,400.00	7,302.69	7,302.69	7,302.69	24.06	16.28	46.29	32.04	0.00	987.38	954.36	33.02	29.902	
7,500.00	7,402.69	7,402.69	7,402.69	24.19	16.51	46.29	32.04	0.00	987.38	953.95	33.43	29.535	
7,600.00	7,502.69	7,502.69	7,502.69	24.33	16.73	46.29	32.04	0.00	987.38	953.54	33.84	29.176	
7,700.00	7,602.69	7,602.69	7,602.69	24.46	16.96	46.29	32.04	0.00	987.38	953.13	34.26	28.824	
7,800.00	7,702.69	7,702.69	7,702.69	24.59	17.18	46.29	32.04	0.00	987.38	952.71	34.67	28.481	
7,900.00	7,802.69	7,802.69	7,802.69	24.73	17.41	46.29	32.04	0.00	987.38	952.30	35.08	28.144	
8,000.00	7,902.69	7,902.69	7,902.69	24.87	17.63	46.29	32.04	0.00	987.38	951.88	35.50	27.815	
8,100.00	8,002.69	8,002.69	8,002.69	25.01	17.86	46.29	32.04	0.00	987.38	951.47	35.91	27.493	
8,165.12	8,067.81	8,067.81	8,067.81	25.10	18.00	46.29	32.04	0.00	987.38	951.20	36.19	27.287	
8,200.31	8,103.00	8,098.00	8,098.00	25.15	18.07	46.29	32.04	0.00	987.39	951.07	36.32	27.186	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_COTTONWOOD 36-33
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4997.00ft (Original Well Elev)
Reference Site:	WELD_COTTONWOOD 15-33 PAD	MD Reference:	WELL @ 4997.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_COTTONWOOD 36-33	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_COTTONWOOD 36-33	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 2-18-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_COTTONWOOD 15-33 PAD - P_COTTONWOOD 23-33 - P_COTTONWOOD 23-33 - PLAN #1												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 Tooface (")	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	0.00	48.08	0.00	48.08				
100.00	100.00	100.00	100.00	0.10	0.10	0.00	48.08	0.00	48.08	47.89	0.19	251.641	
200.00	200.00	200.00	200.00	0.32	0.32	0.00	48.08	0.00	48.08	47.44	0.64	75.051	
300.00	300.00	300.00	300.00	0.55	0.55	0.00	48.08	0.00	48.08	46.99	1.09	44.102	
400.00	400.00	400.00	400.00	0.77	0.77	0.00	48.08	0.00	48.08	46.54	1.54	31.226	
500.00	500.00	500.00	500.00	0.99	0.99	0.00	48.08	0.00	48.08	46.09	1.99	24.169	
600.00	600.00	600.00	600.00	1.22	1.22	0.00	48.08	0.00	48.08	45.64	2.44	19.714	
700.00	700.00	700.00	700.00	1.44	1.44	0.00	48.08	0.00	48.08	45.19	2.89	16.646	
800.00	800.00	800.00	800.00	1.67	1.67	0.00	48.08	0.00	48.08	44.74	3.34	14.404	
900.00	900.00	900.00	900.00	1.89	1.89	0.00	48.08	0.00	48.08	44.29	3.79	12.694	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	0.00	48.08	0.00	48.08	43.84	4.24	11.347	
1,050.00	1,050.00	1,050.00	1,050.00	2.23	2.23	0.00	48.08	0.00	48.08	43.61	4.46	10.776 CC, ES	
1,100.00	1,100.00	1,099.48	1,099.47	2.33	2.34	132.31	48.34	-0.33	48.64	43.97	4.67	10.414 SF	
1,200.00	1,199.93	1,198.28	1,198.21	2.51	2.55	132.12	50.47	-3.00	53.14	48.08	5.06	10.492	
1,300.00	1,299.68	1,296.63	1,296.33	2.71	2.77	131.81	54.69	-8.29	62.13	56.66	5.47	11.355	
1,400.00	1,399.13	1,394.25	1,393.42	2.92	3.01	131.45	60.96	-16.15	75.56	69.66	5.90	12.817	
1,500.00	1,498.15	1,490.85	1,489.11	3.16	3.25	131.08	69.19	-26.46	93.38	87.04	6.35	14.717	
1,600.00	1,596.63	1,586.17	1,583.05	3.44	3.53	130.72	79.28	-39.11	115.53	108.70	6.83	16.913	
1,651.57	1,647.16	1,635.17	1,631.11	3.61	3.68	130.55	85.20	-46.52	128.58	121.48	7.10	18.116	
1,700.00	1,694.52	1,681.91	1,676.94	3.77	3.83	130.65	90.96	-53.75	141.24	133.87	7.37	19.163	
1,800.00	1,792.33	1,778.43	1,771.55	4.12	4.16	130.81	102.86	-68.66	167.37	159.42	7.96	21.038	
1,900.00	1,890.13	1,874.96	1,866.17	4.49	4.51	130.93	114.76	-83.58	193.51	184.94	8.57	22.590	
2,000.00	1,987.93	1,971.48	1,960.79	4.88	4.87	131.02	126.67	-98.49	219.65	210.45	9.20	23.885	
2,100.00	2,085.74	2,068.00	2,055.41	5.28	5.23	131.09	138.57	-113.41	245.78	235.94	9.84	24.972	
2,200.00	2,183.54	2,164.53	2,150.03	5.69	5.61	131.14	150.47	-128.32	271.92	261.42	10.50	25.893	
2,300.00	2,281.34	2,261.05	2,244.65	6.11	5.99	131.19	162.37	-143.24	298.06	286.89	11.17	26.680	
2,400.00	2,379.15	2,357.57	2,339.26	6.53	6.37	131.23	174.27	-158.16	324.20	312.35	11.85	27.357	
2,500.00	2,476.95	2,454.10	2,433.88	6.96	6.76	131.27	186.17	-173.07	350.33	337.80	12.54	27.944	
2,600.00	2,574.75	2,550.62	2,528.50	7.39	7.15	131.29	198.07	-187.99	376.47	363.24	13.23	28.456	
2,700.00	2,672.56	2,647.14	2,623.12	7.83	7.55	131.32	209.98	-202.90	402.61	388.68	13.93	28.907	
2,800.00	2,770.36	2,743.67	2,717.74	8.27	7.95	131.34	221.88	-217.82	428.75	414.12	14.63	29.305	
2,900.00	2,868.16	2,840.19	2,812.36	8.71	8.35	131.36	233.78	-232.74	454.89	439.55	15.34	29.659	
3,000.00	2,965.97	2,936.71	2,906.97	9.15	8.75	131.38	245.68	-247.65	481.03	464.98	16.05	29.975	
3,100.00	3,063.77	3,033.24	3,001.59	9.60	9.16	131.39	257.58	-262.57	507.16	490.40	16.76	30.259	
3,200.00	3,161.57	3,129.76	3,096.21	10.05	9.56	131.41	269.48	-277.48	533.30	515.83	17.48	30.515	
3,300.00	3,259.38	3,226.29	3,190.83	10.50	9.97	131.42	281.38	-292.40	559.44	541.25	18.19	30.747	
3,400.00	3,357.18	3,322.81	3,285.45	10.95	10.38	131.43	293.29	-307.31	585.58	566.66	18.91	30.959	
3,500.00	3,454.98	3,419.33	3,380.07	11.40	10.79	131.44	305.19	-322.23	611.72	592.08	19.64	31.151	
3,600.00	3,552.79	3,515.86	3,474.68	11.85	11.20	131.45	317.09	-337.15	637.86	617.50	20.36	31.328	
3,700.00	3,650.59	3,612.38	3,569.30	12.30	11.61	131.46	328.99	-352.06	663.99	642.91	21.09	31.490	
3,800.00	3,748.39	3,708.90	3,663.92	12.75	12.02	131.47	340.89	-366.98	690.13	668.32	21.81	31.640	
3,900.00	3,846.20	3,805.43	3,758.54	13.21	12.43	131.48	352.79	-381.89	716.27	693.73	22.54	31.778	
4,000.00	3,944.00	3,901.95	3,853.16	13.66	12.84	131.49	364.69	-396.81	742.41	719.14	23.27	31.906	
4,100.00	4,041.80	3,998.47	3,947.78	14.12	13.26	131.49	376.60	-411.73	768.55	744.55	24.00	32.025	
4,200.00	4,139.61	4,095.00	4,042.40	14.58	13.67	131.50	388.50	-426.64	794.69	769.96	24.73	32.136	
4,300.00	4,237.41	4,191.52	4,137.01	15.03	14.09	131.50	400.40	-441.56	820.83	795.37	25.46	32.240	
4,400.00	4,335.21	4,288.04	4,231.63	15.49	14.50	131.51	412.30	-456.47	846.96	820.77	26.19	32.336	
4,500.00	4,433.02	4,384.57	4,326.25	15.95	14.91	131.51	424.20	-471.39	873.10	846.18	26.93	32.427	
4,600.00	4,530.82	4,481.09	4,420.87	16.40	15.33	131.52	436.10	-486.30	899.24	871.58	27.66	32.512	
4,700.00	4,628.62	4,577.61	4,515.49	16.86	15.75	131.52	448.00	-501.22	925.38	896.99	28.39	32.592	
4,800.00	4,726.43	4,674.14	4,610.11	17.32	16.16	131.53	459.91	-516.14	951.52	922.39	29.13	32.667	
4,900.00	4,824.23	4,770.66	4,704.72	17.78	16.58	131.53	471.81	-531.05	977.66	947.79	29.86	32.739	

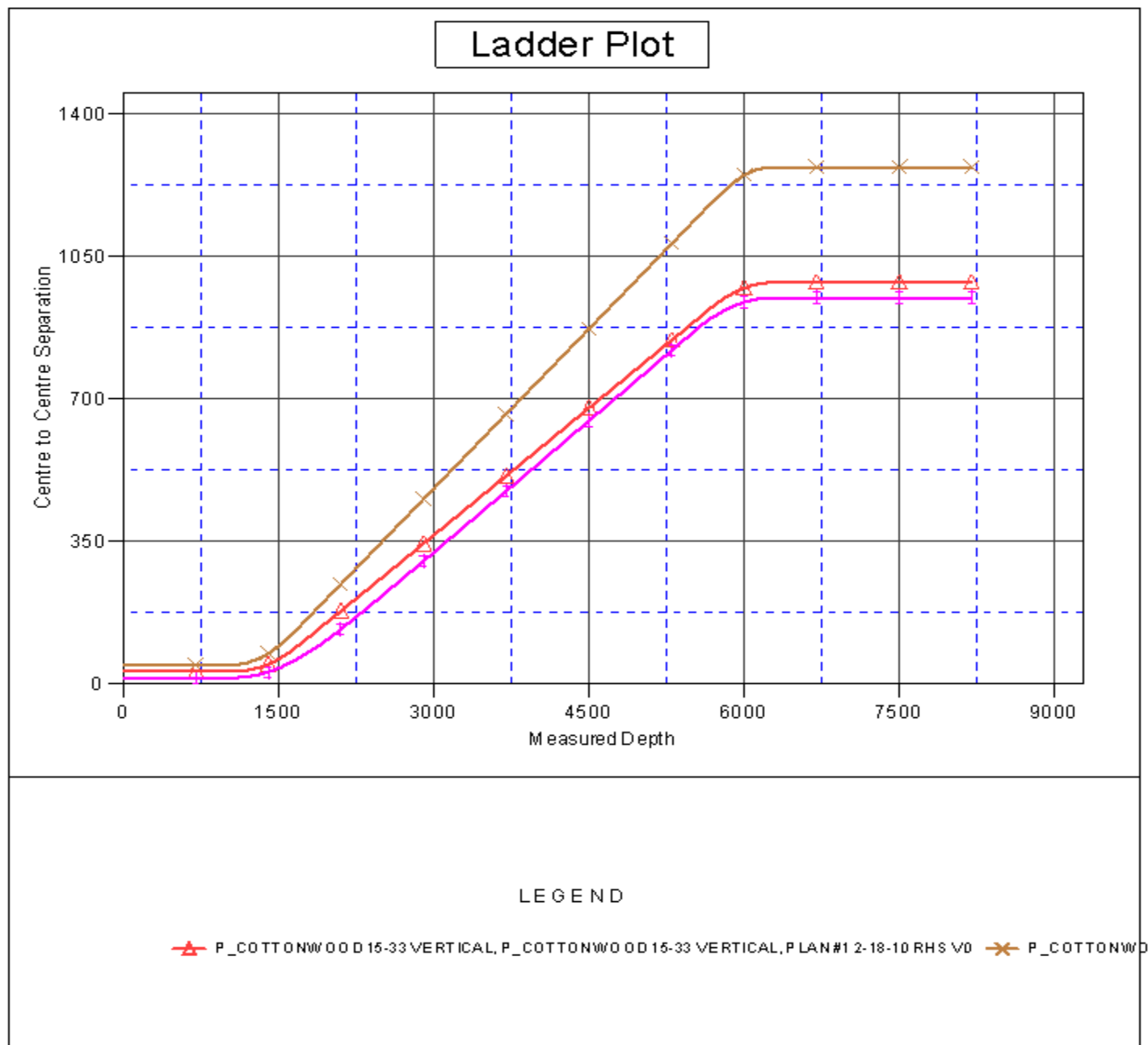
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_COTTONWOOD 36-33
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4997.00ft (Original Well Elev)
Reference Site:	WELD_COTTONWOOD 15-33 PAD	MD Reference:	WELL @ 4997.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_COTTONWOOD 36-33	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_COTTONWOOD 36-33	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 2-18-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,000.00	4,922.03	4,867.18	4,799.34	18.24	16.99	131.54	483.71	-545.97	1,003.80	973.20	30.60	32.806	
5,100.00	5,019.84	4,963.71	4,893.96	18.69	17.41	131.54	495.61	-560.88	1,029.93	998.60	31.33	32.869	
5,200.00	5,117.64	5,060.23	4,988.58	19.15	17.83	131.54	507.51	-575.80	1,056.07	1,024.00	32.07	32.930	
5,300.00	5,215.44	5,156.75	5,083.20	19.61	18.24	131.55	519.41	-590.71	1,082.21	1,049.40	32.81	32.987	
5,400.00	5,313.25	5,253.28	5,177.82	20.07	18.66	131.55	531.32	-605.63	1,108.35	1,074.81	33.54	33.041	
5,500.00	5,411.05	5,349.80	5,272.43	20.53	19.08	131.55	543.22	-620.55	1,134.49	1,100.21	34.28	33.093	
5,600.00	5,508.85	5,446.32	5,367.05	20.99	19.50	131.56	555.12	-635.46	1,160.63	1,125.61	35.02	33.142	
5,679.74	5,586.84	5,523.29	5,442.50	21.36	19.83	131.56	564.61	-647.36	1,181.47	1,145.86	35.61	33.180	
5,700.00	5,606.67	5,542.86	5,461.68	21.44	19.91	131.64	567.02	-650.38	1,186.72	1,150.95	35.77	33.179	
5,800.00	5,704.95	5,639.78	5,556.69	21.75	20.33	131.93	578.97	-665.36	1,211.28	1,174.79	36.49	33.195	
5,900.00	5,803.82	5,755.61	5,670.39	22.01	20.76	132.04	592.75	-682.62	1,233.21	1,196.03	37.18	33.170	
6,000.00	5,903.14	5,890.49	5,803.72	22.25	21.14	132.09	605.43	-698.52	1,250.33	1,212.54	37.79	33.087	
6,100.00	6,002.81	6,027.18	5,939.66	22.44	21.45	132.14	614.28	-709.61	1,262.22	1,223.92	38.30	32.954	
6,200.00	6,102.70	6,165.05	6,077.29	22.60	21.69	132.17	619.10	-715.65	1,268.80	1,230.08	38.72	32.770	
6,281.31	6,184.00	6,271.77	6,184.00	22.70	21.83	-0.14	620.02	-716.80	1,270.24	1,231.26	38.99	32.581	
6,300.00	6,202.69	6,290.46	6,202.69	22.72	21.85	-0.14	620.02	-716.80	1,270.24	1,231.20	39.04	32.539	
6,400.00	6,302.69	6,390.46	6,302.69	22.84	21.99	-0.14	620.02	-716.80	1,270.24	1,230.92	39.33	32.300	
6,500.00	6,402.69	6,490.46	6,402.69	22.95	22.13	-0.14	620.02	-716.80	1,270.24	1,230.62	39.62	32.062	
6,600.00	6,502.69	6,590.46	6,502.69	23.07	22.27	-0.14	620.02	-716.80	1,270.24	1,230.33	39.91	31.825	
6,700.00	6,602.69	6,690.46	6,602.69	23.19	22.41	-0.14	620.02	-716.80	1,270.24	1,230.03	40.21	31.589	
6,800.00	6,702.69	6,790.46	6,702.69	23.31	22.55	-0.14	620.02	-716.80	1,270.24	1,229.73	40.51	31.354	
6,900.00	6,802.69	6,890.46	6,802.69	23.43	22.69	-0.14	620.02	-716.80	1,270.24	1,229.43	40.82	31.121	
7,000.00	6,902.69	6,990.46	6,902.69	23.55	22.84	-0.14	620.02	-716.80	1,270.24	1,229.12	41.12	30.889	
7,100.00	7,002.69	7,090.46	7,002.69	23.68	22.98	-0.14	620.02	-716.80	1,270.24	1,228.81	41.43	30.659	
7,200.00	7,102.69	7,190.46	7,102.69	23.81	23.13	-0.14	620.02	-716.80	1,270.24	1,228.50	41.74	30.430	
7,300.00	7,202.69	7,290.46	7,202.69	23.93	23.28	-0.14	620.02	-716.80	1,270.24	1,228.19	42.06	30.203	
7,400.00	7,302.69	7,390.46	7,302.69	24.06	23.43	-0.14	620.02	-716.80	1,270.24	1,227.87	42.37	29.978	
7,500.00	7,402.69	7,490.46	7,402.69	24.19	23.58	-0.14	620.02	-716.80	1,270.24	1,227.55	42.69	29.754	
7,600.00	7,502.69	7,590.46	7,502.69	24.33	23.73	-0.14	620.02	-716.80	1,270.24	1,227.23	43.01	29.532	
7,700.00	7,602.69	7,690.46	7,602.69	24.46	23.89	-0.14	620.02	-716.80	1,270.24	1,226.91	43.34	29.311	
7,800.00	7,702.69	7,790.46	7,702.69	24.59	24.04	-0.14	620.02	-716.80	1,270.24	1,226.58	43.66	29.093	
7,900.00	7,802.69	7,890.46	7,802.69	24.73	24.20	-0.14	620.02	-716.80	1,270.24	1,226.25	43.99	28.876	
8,000.00	7,902.69	7,990.46	7,902.69	24.87	24.36	-0.14	620.02	-716.80	1,270.24	1,225.92	44.32	28.661	
8,100.00	8,002.69	8,090.46	8,002.69	25.01	24.51	-0.14	620.02	-716.80	1,270.24	1,225.59	44.65	28.448	
8,160.99	8,063.68	8,151.45	8,063.68	25.09	24.61	-0.14	620.02	-716.80	1,270.24	1,225.39	44.86	28.319	
8,200.31	8,103.00	8,175.77	8,088.00	25.15	24.65	-0.14	620.02	-716.80	1,270.33	1,225.37	44.96	28.254	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_COTTONWOOD 36-33
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Reference Site:	WELD_COTTONWOOD 15-33 PAD	MD Reference:	WELL @ 4997.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_COTTONWOOD 36-33	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_COTTONWOOD 36-33	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 2-18-10 RHS	Offset TVD Reference:	Offset Datum

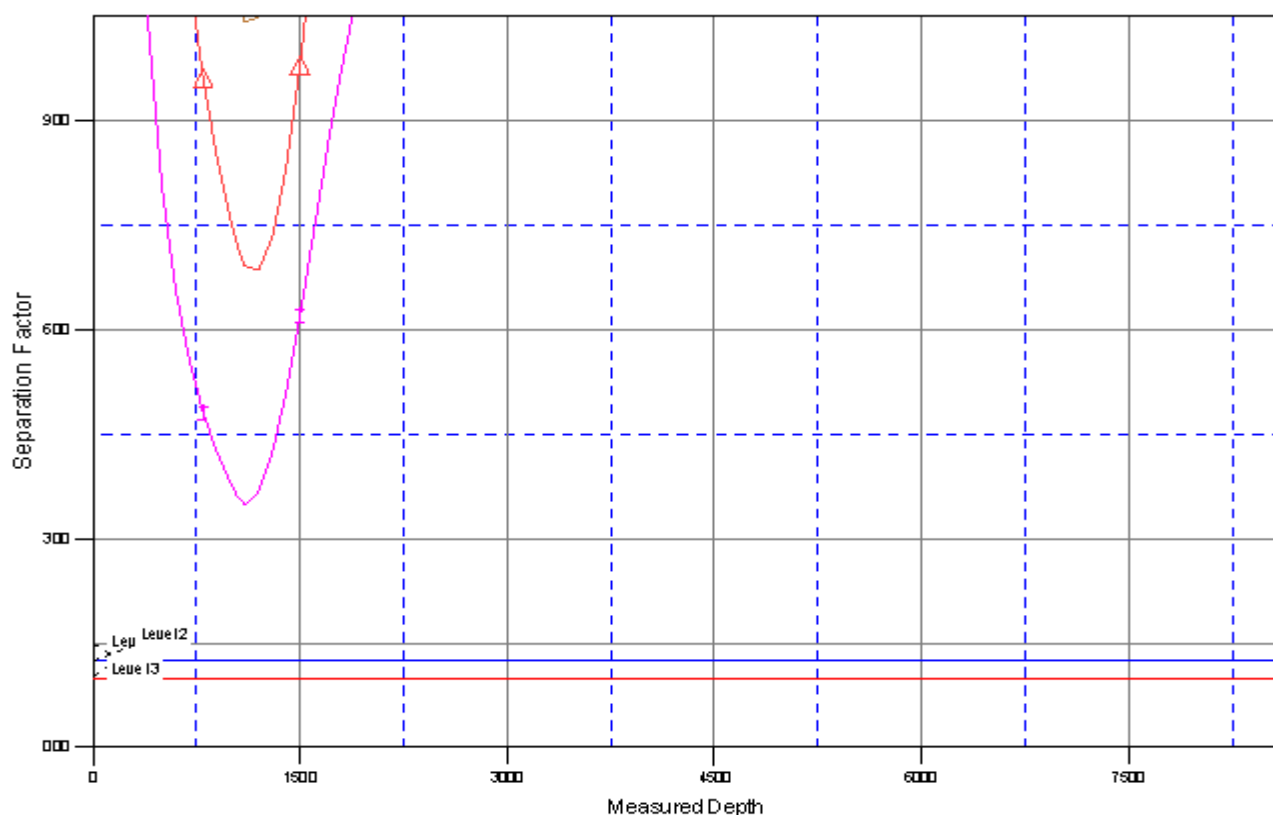
Reference Depths are relative to WELL @ 4997.00ft (Original Well Elev) Coordinates are relative to: P_COTTONWOOD 36-33
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.47°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_COTTONWOOD 36-33
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4997.00ft (Original Well Elev)
Reference Site:	WELD_COTTONWOOD 15-33 PAD	MD Reference:	WELL @ 4997.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_COTTONWOOD 36-33	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_COTTONWOOD 36-33	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 2-18-10 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4997.00ft (Original Well Elev) Coordinates are relative to: P_COTTONWOOD 36-33
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: 0.47°

Separation Factor Plot



LEGEND

▲ P_COTTONWOOD 15-33 VERTICAL, P_COTTONWOOD 15-33 VERTICAL, PLAN #1 2-18-10 RHS VD ✕ P_COTTONWOOD