



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_RURAL 22-31 PAD

P_RURAL 33-31

P_RURAL 33-31

Plan: PLAN #1 11-05-09 RHS

Standard Planning Report

05 November, 2009





Azimuths to True North
Magnetic North: 9.00°

Magnetic Field
Strength: 53256.3nT
Dip Angle: 67.02°
Date: 11/5/2009
Model: IGRF200510

WELL DETAILS: P_RURAL 33-31

+N/-S	+E/-W	Northing	Easting	Ground Level:	Latitude	Longitude	Slot
0.00	0.00	1341679.37	3220187.15	4880.00	40° 16' 7.032 N	104° 42' 39.348 W	

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3900.00	4114.70	PARKMAN TOP
4350.00	4604.52	SUSSEX TOP
7011.00	7344.06	NIO A TOP
7302.00	7635.06	CODELL TOP

SECTION DETAILS

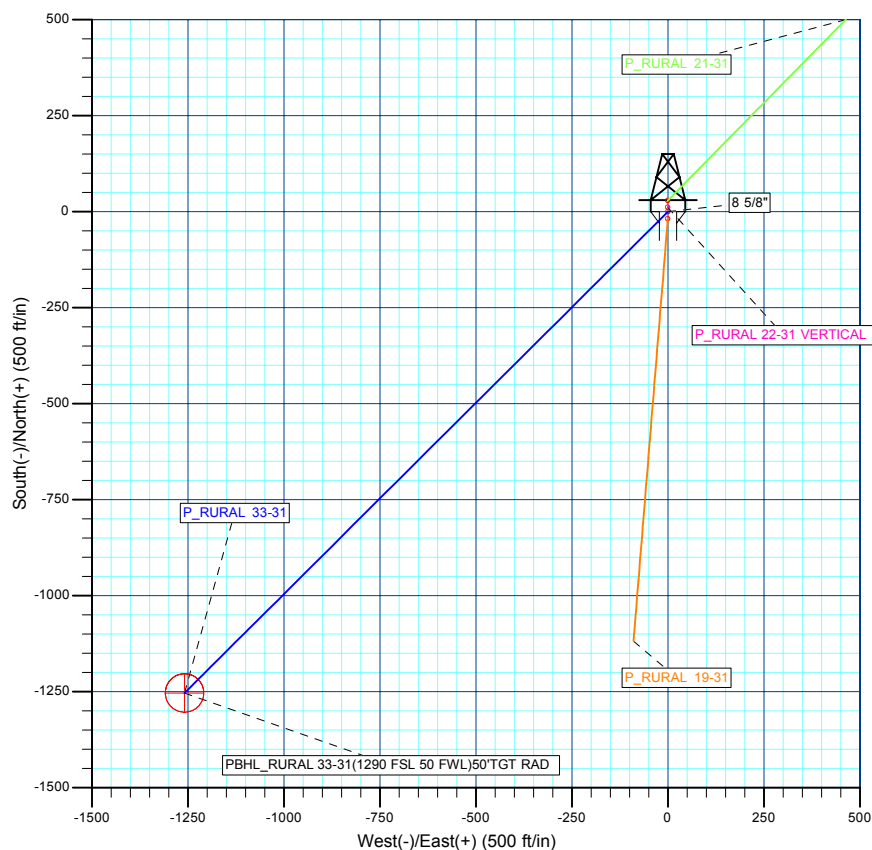
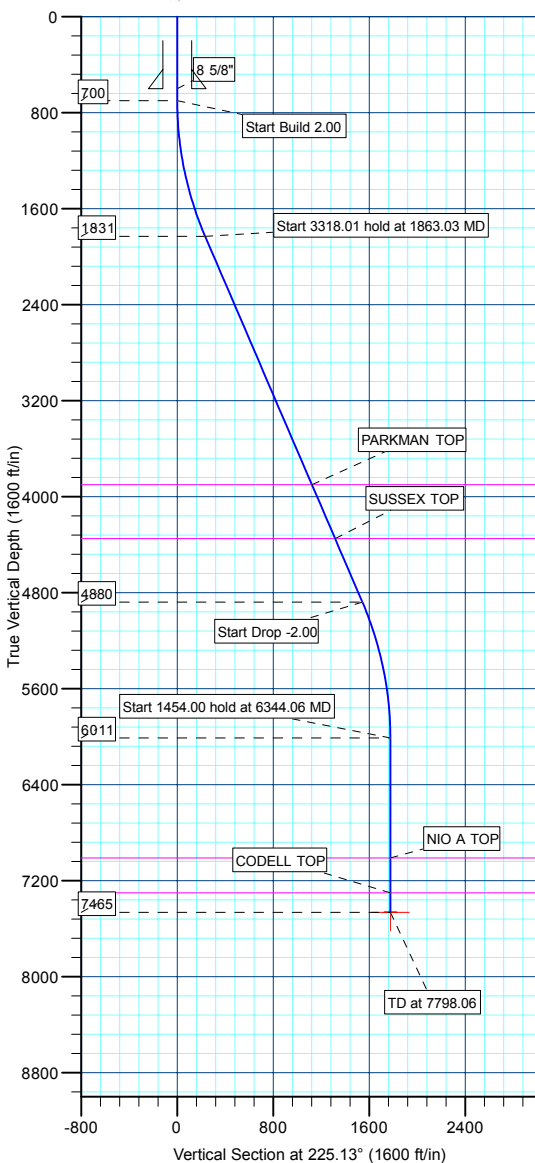
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	
1863.03	23.26	225.13	1831.34	-164.29	-165.01	2.00	225.13	232.85	
5181.04	23.26	225.13	4879.66	-1088.81	-1093.57	0.00	0.00	1543.18	
6344.06	0.00	0.00	6011.00	-1253.10	-1258.58	2.00	180.00	1776.03	
7798.06	0.00	0.00	7465.00	-1253.10	-1258.58	0.00	0.00	1776.03	PBHL_RURAL 33-31(1290 FSL 50 FWL)50°TGT RAD

CASING DETAILS

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



KB ELEV: WELL @ 4895.00ft (Original Well Elev)
IRD ELEV: 4880.00



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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	7465.00	-1253.10	-1258.58	1340415.12	3218939.7740	15° 54.648 N	104° 42' 55.584 W	Circle (Radius: 50.00)

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_RURAL 33-31
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4895.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 4895.00ft (Original Well Elev)
Site:	WELD_RURAL 22-31 PAD	North Reference:	True
Well:	P_RURAL 33-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_RURAL 33-31		
Design:	PLAN #1 11-05-09 RHS		

Project	COLORADO NOTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site						WELD_RURAL 22-31 PAD, SECTION 31 T4N R65W											
Site Position:			Northing:			1,341,661.17 ft			Latitude:			40° 16' 6.852 N					
From:			Lat/Long			Easting:			3,220,187.31 ft			Longitude:			104° 42' 39.348 W		
Position Uncertainty:			0.00 ft			Slot Radius:			in			Grid Convergence:			0.51 °		

Well	P_RURAL 33-31					
Well Position	+N/-S	18.20 ft	Northing:	1,341,679.37 ft	Latitude:	40° 16' 7.032 N
	+E/-W	0.00 ft	Easting:	3,220,187.15 ft	Longitude:	104° 42' 39.348 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,880.00 ft

Wellbore	P_RURAL 33-31				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/5/2009	9.00	67.02	53,256

Design	PLAN #1 11-05-09 RHS			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	225.13

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	
1,863.03	23.26	225.13	1,831.34	-164.29	-165.01	2.00	2.00	0.00	225.13	
5,181.04	23.26	225.13	4,879.66	-1,088.81	-1,093.57	0.00	0.00	0.00	0.00	
6,344.06	0.00	0.00	6,011.00	-1,253.10	-1,258.58	2.00	-2.00	0.00	180.00	
7,798.06	0.00	0.00	7,465.00	-1,253.10	-1,258.58	0.00	0.00	0.00	0.00	PBHL_RURAL 33-3

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_RURAL 33-31
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4895.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 4895.00ft (Original Well Elev)
Site:	WELD_RURAL 22-31 PAD	North Reference:	True
Well:	P_RURAL 33-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_RURAL 33-31		
Design:	PLAN #1 11-05-09 RHS		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Start Build 2.00									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	2.00	225.13	799.98	-1.23	-1.24	1.75	2.00	2.00	0.00
900.00	4.00	225.13	899.84	-4.92	-4.95	6.98	2.00	2.00	0.00
1,000.00	6.00	225.13	999.45	-11.07	-11.12	15.69	2.00	2.00	0.00
1,100.00	8.00	225.13	1,098.70	-19.67	-19.76	27.88	2.00	2.00	0.00
1,200.00	10.00	225.13	1,197.47	-30.71	-30.84	43.52	2.00	2.00	0.00
1,300.00	12.00	225.13	1,295.62	-44.17	-44.36	62.60	2.00	2.00	0.00
1,400.00	14.00	225.13	1,393.06	-60.04	-60.30	85.10	2.00	2.00	0.00
1,500.00	16.00	225.13	1,489.64	-78.30	-78.64	110.98	2.00	2.00	0.00
1,600.00	18.00	225.13	1,585.27	-98.93	-99.36	140.21	2.00	2.00	0.00
1,700.00	20.00	225.13	1,679.82	-121.90	-122.43	172.77	2.00	2.00	0.00
1,800.00	22.00	225.13	1,773.17	-147.18	-147.83	208.60	2.00	2.00	0.00
Start 3318.01 hold at 1863.03 MD									
1,863.03	23.26	225.13	1,831.34	-164.29	-165.01	232.85	2.00	2.00	0.00
1,900.00	23.26	225.13	1,865.31	-174.60	-175.36	247.46	0.00	0.00	0.00
2,000.00	23.26	225.13	1,957.18	-202.46	-203.34	286.95	0.00	0.00	0.00
2,100.00	23.26	225.13	2,049.05	-230.32	-231.33	326.44	0.00	0.00	0.00
2,200.00	23.26	225.13	2,140.93	-258.19	-259.31	365.93	0.00	0.00	0.00
2,300.00	23.26	225.13	2,232.80	-286.05	-287.30	405.42	0.00	0.00	0.00
2,400.00	23.26	225.13	2,324.67	-313.91	-315.29	444.91	0.00	0.00	0.00
2,500.00	23.26	225.13	2,416.54	-341.78	-343.27	484.40	0.00	0.00	0.00
2,600.00	23.26	225.13	2,508.41	-369.64	-371.26	523.89	0.00	0.00	0.00
2,700.00	23.26	225.13	2,600.28	-397.50	-399.24	563.39	0.00	0.00	0.00
2,800.00	23.26	225.13	2,692.16	-425.37	-427.23	602.88	0.00	0.00	0.00
2,900.00	23.26	225.13	2,784.03	-453.23	-455.21	642.37	0.00	0.00	0.00
3,000.00	23.26	225.13	2,875.90	-481.09	-483.20	681.86	0.00	0.00	0.00
3,100.00	23.26	225.13	2,967.77	-508.96	-511.18	721.35	0.00	0.00	0.00
3,200.00	23.26	225.13	3,059.64	-536.82	-539.17	760.84	0.00	0.00	0.00
3,300.00	23.26	225.13	3,151.52	-564.69	-567.15	800.33	0.00	0.00	0.00
3,400.00	23.26	225.13	3,243.39	-592.55	-595.14	839.82	0.00	0.00	0.00
3,500.00	23.26	225.13	3,335.26	-620.41	-623.13	879.32	0.00	0.00	0.00
3,600.00	23.26	225.13	3,427.13	-648.28	-651.11	918.81	0.00	0.00	0.00
3,700.00	23.26	225.13	3,519.00	-676.14	-679.10	958.30	0.00	0.00	0.00
3,800.00	23.26	225.13	3,610.87	-704.00	-707.08	997.79	0.00	0.00	0.00
3,900.00	23.26	225.13	3,702.75	-731.87	-735.07	1,037.28	0.00	0.00	0.00
4,000.00	23.26	225.13	3,794.62	-759.73	-763.05	1,076.77	0.00	0.00	0.00
4,100.00	23.26	225.13	3,886.49	-787.59	-791.04	1,116.26	0.00	0.00	0.00
PARKMAN TOP									
4,114.70	23.26	225.13	3,900.00	-791.69	-795.15	1,122.07	0.00	0.00	0.00
4,200.00	23.26	225.13	3,978.36	-815.46	-819.02	1,155.76	0.00	0.00	0.00
4,300.00	23.26	225.13	4,070.23	-843.32	-847.01	1,195.25	0.00	0.00	0.00
4,400.00	23.26	225.13	4,162.11	-871.18	-874.99	1,234.74	0.00	0.00	0.00
4,500.00	23.26	225.13	4,253.98	-899.05	-902.98	1,274.23	0.00	0.00	0.00
4,600.00	23.26	225.13	4,345.85	-926.91	-930.97	1,313.72	0.00	0.00	0.00
SUSSEX TOP									
4,604.52	23.26	225.13	4,350.00	-928.17	-932.23	1,315.50	0.00	0.00	0.00
4,700.00	23.26	225.13	4,437.72	-954.78	-958.95	1,353.21	0.00	0.00	0.00
4,800.00	23.26	225.13	4,529.59	-982.64	-986.94	1,392.70	0.00	0.00	0.00
4,900.00	23.26	225.13	4,621.47	-1,010.50	-1,014.92	1,432.19	0.00	0.00	0.00
5,000.00	23.26	225.13	4,713.34	-1,038.37	-1,042.91	1,471.69	0.00	0.00	0.00
5,100.00	23.26	225.13	4,805.21	-1,066.23	-1,070.89	1,511.18	0.00	0.00	0.00
Start Drop -2.00									

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_RURAL 33-31
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4895.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 4895.00ft (Original Well Elev)
Site:	WELD_RURAL 22-31 PAD	North Reference:	True
Well:	P_RURAL 33-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_RURAL 33-31		
Design:	PLAN #1 11-05-09 RHS		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,181.04	23.26	225.13	4,879.66	-1,088.81	-1,093.57	1,543.18	0.00	0.00	0.00
5,200.00	22.88	225.13	4,897.11	-1,094.05	-1,098.84	1,550.61	2.00	-2.00	0.00
5,300.00	20.88	225.13	4,989.90	-1,120.35	-1,125.25	1,587.88	2.00	-2.00	0.00
5,400.00	18.88	225.13	5,083.93	-1,144.34	-1,149.34	1,621.88	2.00	-2.00	0.00
5,500.00	16.88	225.13	5,179.10	-1,166.00	-1,171.10	1,652.59	2.00	-2.00	0.00
5,600.00	14.88	225.13	5,275.27	-1,185.31	-1,190.49	1,679.95	2.00	-2.00	0.00
5,700.00	12.88	225.13	5,372.35	-1,202.23	-1,207.49	1,703.94	2.00	-2.00	0.00
5,800.00	10.88	225.13	5,470.20	-1,216.76	-1,222.08	1,724.53	2.00	-2.00	0.00
5,900.00	8.88	225.13	5,568.71	-1,228.87	-1,234.24	1,741.69	2.00	-2.00	0.00
6,000.00	6.88	225.13	5,667.76	-1,238.54	-1,243.96	1,755.40	2.00	-2.00	0.00
6,100.00	4.88	225.13	5,767.23	-1,245.77	-1,251.22	1,765.64	2.00	-2.00	0.00
6,200.00	2.88	225.13	5,867.00	-1,250.55	-1,256.02	1,772.41	2.00	-2.00	0.00
6,300.00	0.88	225.13	5,966.94	-1,252.86	-1,258.34	1,775.69	2.00	-2.00	0.00
Start 1454.00 hold at 6344.06 MD									
6,344.06	0.00	0.00	6,011.00	-1,253.10	-1,258.58	1,776.03	2.00	-2.00	0.00
6,400.00	0.00	0.00	6,066.94	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
6,500.00	0.00	0.00	6,166.94	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
6,600.00	0.00	0.00	6,266.94	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
6,700.00	0.00	0.00	6,366.94	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
6,800.00	0.00	0.00	6,466.94	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
6,900.00	0.00	0.00	6,566.94	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
7,000.00	0.00	0.00	6,666.94	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
7,100.00	0.00	0.00	6,766.94	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
7,200.00	0.00	0.00	6,866.94	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
7,300.00	0.00	0.00	6,966.94	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
NIO A TOP									
7,344.06	0.00	0.00	7,011.00	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
7,400.00	0.00	0.00	7,066.94	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
7,500.00	0.00	0.00	7,166.94	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
7,600.00	0.00	0.00	7,266.94	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
CODELL TOP									
7,635.06	0.00	0.00	7,302.00	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
7,700.00	0.00	0.00	7,366.94	-1,253.10	-1,258.58	1,776.03	0.00	0.00	0.00
PBHL_RURAL 33-31(1290 FSL 50 FWL)50'TGT RAD									
7,798.06	0.00	0.00	7,465.00	-1,253.10	-1,258.58	1,776.03	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_RURAL 33-31(0.00	0.00	7,465.00	-1,253.10	-1,258.58	1,340,415.12	3,218,939.77	40° 15' 54.648 N	104° 42' 55.584 W
- plan hits target center									
- Circle (radius 50.00)									

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	

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_RURAL 33-31
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4895.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 4895.00ft (Original Well Elev)
Site:	WELD_RURAL 22-31 PAD	North Reference:	True
Well:	P_RURAL 33-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_RURAL 33-31		
Design:	PLAN #1 11-05-09 RHS		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,114.70	3,900.00	PARKMAN TOP			
4,604.52	4,350.00	SUSSEX TOP			
7,344.06	7,011.00	NIO A TOP			
7,635.06	7,302.00	CODELL TOP			

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
700.00	700.00	0.00	0.00	Start Build 2.00
1,863.03	1,831.34	-164.29	-165.01	Start 3318.01 hold at 1863.03 MD
5,181.04	4,879.66	-1,088.81	-1,093.57	Start Drop -2.00
6,344.06	6,011.00	-1,253.10	-1,258.58	Start 1454.00 hold at 6344.06 MD
7,798.06	7,465.00	-1,253.10	-1,258.58	TD at 7798.06



US ROCKIES REGION PLANNING

**COLORADO NOTHERN ZONE - 83
WELD_RURAL 22-31 PAD
P_RURAL 33-31**

**P_RURAL 33-31
PLAN #1 11-05-09 RHS**

Anticollision Report

05 November, 2009



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_RURAL 33-31
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4895.00ft (Original Well Elev)
Reference Site:	WELD_RURAL 22-31 PAD	MD Reference:	WELL @ 4895.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_RURAL 33-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 33-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-05-09 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 11-05-09 RHS		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	0.00 to 20,000.00ft	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 11/5/2009			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	7,798.06	PLAN #1 11-05-09 RHS (P_RURAL 33-31	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_RURAL 22-31 PAD						
P_RURAL 19-31 - P_RURAL 19-31 - PLAN #1 11-05-09	700.00	700.00	18.20	15.31	6.301	CC, ES
P_RURAL 19-31 - P_RURAL 19-31 - PLAN #1 11-05-09	900.00	898.63	20.65	17.00	5.657	SF
P_RURAL 21-31 - P_RURAL 21-31 - PLAN #1 11-05-09	700.00	700.00	29.15	26.26	10.092	CC, ES
P_RURAL 21-31 - P_RURAL 21-31 - PLAN #1 11-05-09	800.00	799.16	31.71	28.40	9.584	SF
P_RURAL 22-31 VERTICAL - P_RURAL 22-31 - PLAN #	700.00	700.00	11.81	8.92	4.088	CC, ES
P_RURAL 22-31 VERTICAL - P_RURAL 22-31 - PLAN #	800.00	799.98	13.09	9.78	3.951	SF

Offset Design	WELD_RURAL 22-31 PAD - P_RURAL 19-31 - P_RURAL 19-31 - PLAN #1 11-05-09 RHS												Offset Site Error:	0.00 ft
Survey Program:	0-MWD												Offset Well Error:	0.00 ft
Reference Measured Depth (ft)	Vertical Depth (ft)	Offset Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	-180.00	-18.20	0.00	18.20					
100.00	100.00	100.00	100.00	0.10	0.10	-180.00	-18.20	0.00	18.20	18.01	0.19	95.251		
200.00	200.00	200.00	200.00	0.32	0.32	-180.00	-18.20	0.00	18.20	17.56	0.64	28.408		
300.00	300.00	300.00	300.00	0.55	0.55	-180.00	-18.20	0.00	18.20	17.11	1.09	16.694		
400.00	400.00	400.00	400.00	0.77	0.77	-180.00	-18.20	0.00	18.20	16.66	1.54	11.820		
500.00	500.00	500.00	500.00	0.99	0.99	-180.00	-18.20	0.00	18.20	16.21	1.99	9.148		
600.00	600.00	600.00	600.00	1.22	1.22	-180.00	-18.20	0.00	18.20	15.76	2.44	7.462		
700.00	700.00	700.00	700.00	1.44	1.44	-180.00	-18.20	0.00	18.20	15.31	2.89	6.301	CC, ES	
800.00	799.98	799.36	799.34	1.65	1.64	-48.45	-19.92	-0.14	18.73	15.44	3.28	5.701		
900.00	899.84	898.63	898.47	1.84	1.82	-57.26	-25.06	-0.56	20.65	17.00	3.65	5.657	SF	
1,000.00	999.45	997.73	997.19	2.05	2.02	-68.38	-33.60	-1.25	24.70	20.65	4.05	6.096		
1,100.00	1,098.70	1,096.58	1,095.31	2.29	2.25	-78.54	-45.51	-2.22	31.42	26.91	4.51	6.968		
1,200.00	1,197.47	1,195.09	1,192.63	2.57	2.51	-86.35	-60.73	-3.45	40.93	35.89	5.04	8.120		
1,300.00	1,295.62	1,293.19	1,288.96	2.90	2.83	-91.92	-79.19	-4.95	53.14	47.48	5.66	9.385		
1,400.00	1,393.06	1,391.07	1,384.41	3.28	3.19	-95.87	-100.80	-6.71	67.89	61.50	6.39	10.628		
1,500.00	1,489.64	1,489.59	1,480.24	3.73	3.59	-100.05	-123.57	-8.55	83.96	76.75	7.22	11.634		
1,600.00	1,585.27	1,587.77	1,575.74	4.24	4.01	-104.70	-146.25	-10.39	101.22	93.09	8.13	12.456		
1,700.00	1,679.82	1,685.48	1,670.79	4.83	4.44	-109.44	-168.83	-12.23	120.12	111.03	9.09	13.211		
1,800.00	1,773.17	1,782.61	1,765.28	5.48	4.88	-114.06	-191.27	-14.05	141.08	130.99	10.09	13.981		
1,863.03	1,831.34	1,843.47	1,824.48	5.92	5.16	-116.85	-205.33	-15.19	155.49	144.77	10.73	14.497		
1,900.00	1,865.31	1,879.09	1,859.13	6.19	5.33	-118.52	-213.56	-15.86	164.31	153.20	11.10	14.799		

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_RURAL 33-31
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4895.00ft (Original Well Elev)
Reference Site:	WELD_RURAL 22-31 PAD	MD Reference:	WELL @ 4895.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_RURAL 33-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 33-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-05-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_RURAL 22-31 PAD - P_RURAL 19-31 - P_RURAL 19-31 - PLAN #1 11-05-09 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
2,000.00	1,957.18	1,975.42	1,952.84	6.94	5.78	-122.24	-235.82	-17.66	188.70	176.59	12.11	15.577	
2,100.00	2,049.05	2,071.75	2,046.55	7.70	6.23	-125.12	-258.08	-19.47	213.68	200.57	13.12	16.289	
2,200.00	2,140.93	2,168.08	2,140.25	8.47	6.69	-127.39	-280.33	-21.28	239.07	224.95	14.12	16.934	
2,300.00	2,232.80	2,264.42	2,233.96	9.24	7.15	-129.23	-302.59	-23.08	264.74	249.62	15.11	17.515	
2,400.00	2,324.67	2,360.75	2,327.67	10.02	7.61	-130.74	-324.85	-24.89	290.62	274.50	16.11	18.038	
2,500.00	2,416.54	2,457.08	2,421.38	10.81	8.07	-132.01	-347.11	-26.70	316.66	299.55	17.11	18.510	
2,600.00	2,508.41	2,553.41	2,515.09	11.59	8.54	-133.08	-369.37	-28.50	342.82	324.71	18.10	18.938	
2,700.00	2,600.28	2,649.75	2,608.79	12.38	9.01	-134.00	-391.62	-30.31	369.08	349.98	19.10	19.325	
2,800.00	2,692.16	2,746.08	2,702.50	13.18	9.47	-134.80	-413.88	-32.12	395.41	375.32	20.09	19.678	
2,900.00	2,784.03	2,842.41	2,796.21	13.97	9.94	-135.50	-436.14	-33.92	421.81	400.72	21.09	20.001	
3,000.00	2,875.90	2,938.74	2,889.92	14.77	10.41	-136.12	-458.40	-35.73	448.26	426.18	22.09	20.297	
3,100.00	2,967.77	3,035.07	2,983.63	15.57	10.89	-136.67	-480.66	-37.54	474.76	451.67	23.08	20.569	
3,200.00	3,059.64	3,131.41	3,077.33	16.37	11.36	-137.16	-502.91	-39.34	501.29	477.21	24.08	20.820	
3,300.00	3,151.52	3,227.74	3,171.04	17.17	11.83	-137.60	-525.17	-41.15	527.85	502.77	25.07	21.052	
3,400.00	3,243.39	3,324.07	3,264.75	17.97	12.30	-138.00	-547.43	-42.96	554.43	528.36	26.07	21.268	
3,500.00	3,335.26	3,420.40	3,358.46	18.77	12.78	-138.36	-569.69	-44.77	581.04	553.98	27.06	21.469	
3,600.00	3,427.13	3,516.73	3,452.17	19.58	13.25	-138.69	-591.95	-46.57	607.67	579.61	28.06	21.656	
3,700.00	3,519.00	3,613.07	3,545.87	20.38	13.72	-139.00	-614.20	-48.38	634.32	605.27	29.06	21.831	
3,800.00	3,610.87	3,709.40	3,639.58	21.18	14.20	-139.28	-636.46	-50.19	660.98	630.93	30.05	21.995	
3,900.00	3,702.75	3,805.73	3,733.29	21.99	14.67	-139.53	-658.72	-51.99	687.66	656.61	31.05	22.150	
4,000.00	3,794.62	3,902.06	3,827.00	22.79	15.15	-139.77	-680.98	-53.80	714.35	682.31	32.04	22.295	
4,100.00	3,886.49	3,998.40	3,920.71	23.60	15.62	-139.99	-703.24	-55.61	741.05	708.01	33.03	22.432	
4,200.00	3,978.36	4,094.73	4,014.41	24.40	16.10	-140.20	-725.49	-57.41	767.75	733.73	34.03	22.562	
4,300.00	4,070.23	4,191.06	4,108.12	25.21	16.57	-140.39	-747.75	-59.22	794.47	759.45	35.02	22.685	
4,400.00	4,162.11	4,287.39	4,201.83	26.01	17.05	-140.57	-770.01	-61.03	821.19	785.18	36.02	22.801	
4,500.00	4,253.98	4,383.72	4,295.54	26.82	17.53	-140.74	-792.27	-62.83	847.93	810.92	37.01	22.912	
4,600.00	4,345.85	4,480.06	4,389.25	27.63	18.00	-140.89	-814.53	-64.64	874.66	836.66	38.00	23.017	
4,700.00	4,437.72	4,576.39	4,482.96	28.43	18.48	-141.04	-836.78	-66.45	901.41	862.41	38.99	23.118	
4,800.00	4,529.59	4,672.72	4,576.66	29.24	18.96	-141.18	-859.04	-68.25	928.16	888.17	39.98	23.214	
4,900.00	4,621.47	4,769.05	4,670.37	30.05	19.43	-141.31	-881.30	-70.06	954.91	913.93	40.97	23.305	
5,000.00	4,713.34	4,865.38	4,764.08	30.85	19.91	-141.44	-903.56	-71.87	981.67	939.70	41.96	23.393	
5,100.00	4,805.21	4,961.72	4,857.79	31.66	20.39	-141.56	-925.82	-73.67	1,008.43	965.47	42.95	23.477	
5,181.04	4,879.66	5,039.78	4,933.72	32.32	20.77	-141.65	-943.85	-75.14	1,030.12	986.36	43.76	23.542	
5,200.00	4,897.11	5,058.06	4,951.51	32.45	20.86	-141.73	-948.08	-75.48	1,035.15	991.21	43.94	23.560	
5,300.00	4,989.90	5,154.90	5,045.71	33.02	21.34	-142.07	-970.45	-77.30	1,060.09	1,015.26	44.83	23.647	
5,400.00	5,083.93	5,252.37	5,140.52	33.54	21.83	-142.26	-992.97	-79.12	1,082.35	1,036.61	45.74	23.663	
5,500.00	5,179.10	5,350.35	5,235.84	34.02	22.31	-142.30	-1,015.61	-80.96	1,101.93	1,055.27	46.66	23.616	
5,600.00	5,275.27	5,448.73	5,331.54	34.46	22.80	-142.20	-1,038.34	-82.81	1,118.81	1,071.22	47.59	23.510	
5,700.00	5,372.35	5,540.54	5,421.11	34.85	23.15	-142.06	-1,058.41	-84.44	1,133.28	1,084.93	48.35	23.439	
5,800.00	5,470.20	5,632.01	5,510.94	35.20	23.42	-141.94	-1,075.56	-85.83	1,145.72	1,096.74	48.98	23.391	
5,900.00	5,568.71	5,723.82	5,601.61	35.50	23.67	-141.85	-1,089.90	-86.99	1,156.11	1,106.59	49.52	23.347	
6,000.00	5,667.76	5,815.93	5,692.99	35.75	23.88	-141.78	-1,101.36	-87.92	1,164.42	1,114.46	49.96	23.305	
6,100.00	5,767.23	5,908.25	5,784.91	35.95	24.07	-141.73	-1,109.91	-88.62	1,170.65	1,120.33	50.32	23.266	
6,200.00	5,867.00	6,000.00	5,876.49	36.10	24.22	-141.71	-1,115.47	-89.07	1,174.78	1,124.20	50.57	23.229	
6,300.00	5,966.94	6,093.31	5,969.76	36.21	24.33	-141.70	-1,118.13	-89.28	1,176.80	1,126.06	50.74	23.195	
6,344.06	6,011.00	6,134.55	6,011.00	36.24	24.38	83.43	-1,118.35	-89.30	1,177.02	1,126.23	50.79	23.175	
6,400.00	6,066.94	6,190.49	6,066.94	36.29	24.44	83.43	-1,118.35	-89.30	1,177.02	1,126.12	50.90	23.122	
6,500.00	6,166.94	6,290.49	6,166.94	36.35	24.53	83.43	-1,118.35	-89.30	1,177.02	1,125.93	51.09	23.038	
6,600.00	6,266.94	6,390.49	6,266.94	36.43	24.63	83.43	-1,118.35	-89.30	1,177.02	1,125.74	51.28	22.954	
6,700.00	6,366.94	6,490.49	6,366.94	36.50	24.72	83.43	-1,118.35	-89.30	1,177.02	1,125.55	51.47	22.868	
6,800.00	6,466.94	6,590.49	6,466.94	36.57	24.82	83.43	-1,118.35	-89.30	1,177.02	1,125.36	51.66	22.782	
6,900.00	6,566.94	6,690.49	6,566.94	36.64	24.92	83.43	-1,118.35	-89.30	1,177.02	1,125.16	51.86	22.696	

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_RURAL 33-31
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4895.00ft (Original Well Elev)
Reference Site:	WELD_RURAL 22-31 PAD	MD Reference:	WELL @ 4895.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_RURAL 33-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 33-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-05-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_RURAL 22-31 PAD - P_RURAL 19-31 - P_RURAL 19-31 - PLAN #1 11-05-09 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
7,000.00	6,666.94	6,790.49	6,666.94	36.72	25.03	83.43	-1,118.35	-89.30	1,177.02	1,124.96	52.06	22.608	
7,100.00	6,766.94	6,890.49	6,766.94	36.80	25.13	83.43	-1,118.35	-89.30	1,177.02	1,124.76	52.27	22.520	
7,200.00	6,866.94	6,990.49	6,866.94	36.88	25.23	83.43	-1,118.35	-89.30	1,177.02	1,124.55	52.47	22.431	
7,300.00	6,966.94	7,090.49	6,966.94	36.96	25.34	83.43	-1,118.35	-89.30	1,177.02	1,124.34	52.68	22.341	
7,400.00	7,066.94	7,190.49	7,066.94	37.04	25.45	83.43	-1,118.35	-89.30	1,177.02	1,124.12	52.90	22.251	
7,500.00	7,166.94	7,290.49	7,166.94	37.12	25.56	83.43	-1,118.35	-89.30	1,177.02	1,123.91	53.11	22.161	
7,600.00	7,266.94	7,390.49	7,266.94	37.20	25.67	83.43	-1,118.35	-89.30	1,177.02	1,123.69	53.33	22.070	
7,700.00	7,366.94	7,490.49	7,366.94	37.28	25.78	83.43	-1,118.35	-89.30	1,177.02	1,123.47	53.55	21.978	
7,798.06	7,465.00	7,588.55	7,465.00	37.37	25.89	83.43	-1,118.35	-89.30	1,177.02	1,123.25	53.77	21.888	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_RURAL 33-31
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4895.00ft (Original Well Elev)
Reference Site:	WELD_RURAL 22-31 PAD	MD Reference:	WELL @ 4895.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_RURAL 33-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 33-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-05-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_RURAL 22-31 PAD - P_RURAL 21-31 - P_RURAL 21-31 - PLAN #1 11-05-09 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.15	0.00	29.15				
100.00	100.00	100.00	100.00	0.10	0.10	0.00	29.15	0.00	29.15	28.96	0.19	152.562	
200.00	200.00	200.00	200.00	0.32	0.32	0.00	29.15	0.00	29.15	28.51	0.64	45.501	
300.00	300.00	300.00	300.00	0.55	0.55	0.00	29.15	0.00	29.15	28.06	1.09	26.738	
400.00	400.00	400.00	400.00	0.77	0.77	0.00	29.15	0.00	29.15	27.61	1.54	18.931	
500.00	500.00	500.00	500.00	0.99	0.99	0.00	29.15	0.00	29.15	27.16	1.99	14.653	
600.00	600.00	600.00	600.00	1.22	1.22	0.00	29.15	0.00	29.15	26.71	2.44	11.952	
700.00	700.00	700.00	700.00	1.44	1.44	0.00	29.15	0.00	29.15	26.26	2.89	10.092 CC, ES	
800.00	799.98	799.16	799.14	1.65	1.66	139.24	30.37	1.20	31.71	28.40	3.31	9.584 SF	
900.00	899.84	897.61	897.45	1.84	1.88	148.71	34.00	4.78	40.20	36.49	3.71	10.842	
1,000.00	999.45	994.64	994.12	2.05	2.11	157.62	39.94	10.61	55.71	51.60	4.11	13.559	
1,100.00	1,098.70	1,089.62	1,088.42	2.29	2.35	163.94	48.01	18.55	78.45	73.94	4.51	17.409	
1,200.00	1,197.47	1,181.95	1,179.68	2.57	2.61	168.08	57.99	28.36	108.11	103.21	4.90	22.070	
1,300.00	1,295.62	1,271.09	1,267.32	2.90	2.89	170.78	69.60	39.78	144.31	139.02	5.29	27.305	
1,400.00	1,393.06	1,356.61	1,350.88	3.28	3.20	172.59	82.57	52.53	186.67	181.01	5.67	32.950	
1,500.00	1,489.64	1,438.14	1,430.00	3.73	3.53	173.85	96.58	66.31	234.84	228.80	6.04	38.893	
1,600.00	1,585.27	1,515.41	1,504.44	4.24	3.87	174.74	111.34	80.81	288.46	282.05	6.40	45.056	
1,700.00	1,679.82	1,588.21	1,574.05	4.83	4.23	175.39	126.54	95.77	347.16	340.40	6.76	51.362	
1,800.00	1,773.17	1,656.42	1,638.75	5.48	4.61	175.86	141.93	110.90	410.60	403.49	7.11	57.753	
1,863.03	1,831.34	1,700.00	1,679.82	5.92	4.85	176.12	152.34	121.13	452.87	445.54	7.33	61.792	
1,900.00	1,865.31	1,720.12	1,698.70	6.19	4.98	176.26	157.29	126.00	478.25	470.77	7.49	63.889	
2,000.00	1,957.18	1,780.86	1,755.40	6.94	5.36	176.64	172.82	141.27	548.00	540.08	7.92	69.163	
2,100.00	2,049.05	1,839.13	1,809.35	7.70	5.75	176.93	188.52	156.71	619.24	610.88	8.36	74.033	
2,200.00	2,140.93	1,900.00	1,865.21	8.47	6.17	177.19	205.75	173.65	691.89	683.08	8.81	78.505	
2,300.00	2,232.80	1,955.77	1,916.02	9.24	6.59	177.38	222.15	189.78	765.65	756.39	9.26	82.674	
2,400.00	2,324.67	2,023.07	1,977.28	10.02	7.10	177.58	242.01	209.30	839.59	829.86	9.74	86.231	
2,500.00	2,416.54	2,090.36	2,038.55	10.81	7.61	177.75	261.86	228.83	913.54	903.32	10.22	89.420	
2,600.00	2,508.41	2,157.65	2,099.81	11.59	8.13	177.90	281.72	248.35	987.49	976.79	10.70	92.271	
2,700.00	2,600.28	2,224.95	2,161.07	12.38	8.66	178.02	301.58	267.88	1,061.45	1,050.26	11.19	94.855	
2,800.00	2,692.16	2,292.24	2,222.33	13.18	9.19	178.12	321.43	287.40	1,135.40	1,123.72	11.68	97.196	
2,900.00	2,784.03	2,359.54	2,283.59	13.97	9.72	178.22	341.29	306.93	1,209.36	1,197.19	12.18	99.314	
3,000.00	2,875.90	2,426.83	2,344.85	14.77	10.26	178.30	361.15	326.45	1,283.32	1,270.65	12.67	101.253	
3,100.00	2,967.77	2,494.13	2,406.12	15.57	10.79	178.38	381.01	345.98	1,357.28	1,344.11	13.17	103.030	
3,200.00	3,059.64	2,561.42	2,467.38	16.37	11.33	178.44	400.86	365.50	1,431.24	1,417.57	13.68	104.653	
3,300.00	3,151.52	2,628.71	2,528.64	17.17	11.87	178.50	420.72	385.03	1,505.21	1,491.03	14.18	106.153	
3,400.00	3,243.39	2,696.01	2,589.90	17.97	12.42	178.56	440.58	404.55	1,579.17	1,564.48	14.68	107.539	
3,500.00	3,335.26	2,763.30	2,651.16	18.77	12.96	178.61	460.43	424.08	1,653.13	1,637.94	15.19	108.817	
3,600.00	3,427.13	2,830.60	2,712.42	19.58	13.51	178.65	480.29	443.60	1,727.10	1,711.40	15.70	110.006	
3,700.00	3,519.00	2,897.89	2,773.69	20.38	14.05	178.69	500.15	463.13	1,801.06	1,784.85	16.21	111.114	
3,800.00	3,610.87	2,965.19	2,834.95	21.18	14.60	178.73	520.00	482.65	1,875.03	1,858.31	16.72	112.143	
3,900.00	3,702.75	3,032.48	2,896.21	21.99	15.15	178.77	539.86	502.18	1,948.99	1,931.76	17.23	113.106	
4,000.00	3,794.62	3,099.77	2,957.47	22.79	15.69	178.80	559.72	521.70	2,022.96	2,005.21	17.74	114.009	
4,100.00	3,886.49	3,167.07	3,018.73	23.60	16.24	178.83	579.58	541.23	2,096.92	2,078.66	18.26	114.853	
4,200.00	3,978.36	3,234.36	3,079.99	24.40	16.79	178.86	599.43	560.75	2,170.89	2,152.12	18.77	115.647	
4,300.00	4,070.23	3,301.66	3,141.26	25.21	17.34	178.88	619.29	580.28	2,244.85	2,225.57	19.29	116.395	
4,400.00	4,162.11	3,368.95	3,202.52	26.01	17.89	178.91	639.15	599.80	2,318.82	2,299.02	19.80	117.099	
4,500.00	4,253.98	3,436.25	3,263.78	26.82	18.44	178.93	659.00	619.33	2,392.79	2,372.47	20.32	117.764	
4,600.00	4,345.85	3,503.54	3,325.04	27.63	19.00	178.95	678.86	638.85	2,466.75	2,445.92	20.84	118.393	
4,700.00	4,437.72	3,570.83	3,386.30	28.43	19.55	178.97	698.72	658.38	2,540.72	2,519.37	21.35	118.988	
4,800.00	4,529.59	3,638.13	3,447.56	29.24	20.10	178.99	718.57	677.90	2,614.69	2,592.82	21.87	119.552	
4,900.00	4,621.47	3,705.42	3,508.83	30.05	20.65	179.01	738.43	697.43	2,688.66	2,666.27	22.39	120.088	
5,000.00	4,713.34	3,772.72	3,570.09	30.85	21.20	179.03	758.29	716.95	2,762.62	2,739.72	22.91	120.597	

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_RURAL 33-31
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4895.00ft (Original Well Elev)
Reference Site:	WELD_RURAL 22-31 PAD	MD Reference:	WELL @ 4895.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_RURAL 33-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 33-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-05-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_RURAL 22-31 PAD - P_RURAL 21-31 - P_RURAL 21-31 - PLAN #1 11-05-09 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	4,805.21	3,840.01	3,631.35	31.66	21.76	179.05	778.15	736.48	2,836.59	2,813.16	23.43	121.081	
5,181.04	4,879.66	3,894.54	3,680.99	32.32	22.21	179.06	794.24	752.30	2,896.53	2,872.68	23.85	121.457	
5,200.00	4,897.11	3,907.35	3,692.65	32.45	22.31	179.07	798.02	756.01	2,910.52	2,886.52	24.00	121.286	
5,300.00	4,989.90	3,976.40	3,755.52	33.02	22.88	179.11	818.39	776.05	2,982.84	2,958.08	24.75	120.501	
5,400.00	5,083.93	4,047.94	3,820.64	33.54	23.47	179.16	839.50	796.80	3,052.71	3,027.22	25.49	119.783	
5,500.00	5,179.10	4,121.87	3,887.94	34.02	24.08	179.19	861.31	818.25	3,120.04	3,093.85	26.19	119.129	
5,600.00	5,275.27	4,198.10	3,957.34	34.46	24.70	179.22	883.81	840.37	3,184.75	3,157.88	26.87	118.533	
5,700.00	5,372.35	4,276.55	4,028.75	34.85	25.35	179.25	906.96	863.13	3,246.76	3,219.24	27.52	117.993	
5,800.00	5,470.20	4,357.11	4,102.09	35.20	26.01	179.28	930.73	886.51	3,305.99	3,277.86	28.13	117.506	
5,900.00	5,568.71	4,439.69	4,177.27	35.50	26.69	179.30	955.10	910.47	3,362.38	3,333.66	28.72	117.071	
6,000.00	5,667.76	4,524.18	4,254.19	35.75	27.39	179.32	980.03	934.98	3,415.85	3,386.58	29.27	116.684	
6,100.00	5,767.23	4,610.50	4,332.76	35.95	28.10	179.33	1,005.50	960.03	3,466.34	3,436.55	29.79	116.346	
6,200.00	5,867.00	4,698.52	4,412.89	36.10	28.83	179.35	1,031.47	985.57	3,513.79	3,483.51	30.28	116.054	
6,300.00	5,966.94	4,788.14	4,494.48	36.21	29.57	179.36	1,057.92	1,011.57	3,558.13	3,527.41	30.72	115.807	
6,344.06	6,011.00	4,828.11	4,530.87	36.24	29.90	44.49	1,069.71	1,023.17	3,576.68	3,545.76	30.91	115.701	
6,400.00	6,066.94	4,879.03	4,577.23	36.29	30.32	44.49	1,084.74	1,037.94	3,599.83	3,568.66	31.16	115.515	
6,500.00	6,166.94	4,970.07	4,660.10	36.35	31.07	44.49	1,111.60	1,064.36	3,641.21	3,609.60	31.61	115.203	
6,600.00	6,266.94	5,030.92	4,746.94	36.43	31.82	44.49	1,139.56	1,093.30	3,683.32	3,651.82	32.11	114.891	
6,700.00	6,366.94	5,130.92	4,833.94	36.50	32.57	44.49	1,167.56	1,122.30	3,725.32	3,693.82	32.61	114.579	
6,800.00	6,466.94	5,230.92	4,920.94	36.57	33.32	44.49	1,195.56	1,150.30	3,767.32	3,735.82	33.11	114.267	
6,900.00	6,566.94	5,330.92	5,007.94	36.64	34.07	44.49	1,223.56	1,178.30	3,809.32	3,777.82	33.61	113.955	
7,000.00	6,666.94	5,430.92	5,094.94	36.72	34.82	44.49	1,251.56	1,206.30	3,851.32	3,819.82	34.11	113.643	
7,100.00	6,766.94	5,530.92	5,181.94	36.80	35.57	44.49	1,279.56	1,234.30	3,893.32	3,861.82	34.61	113.331	
7,200.00	6,866.94	5,630.92	5,268.94	36.88	36.32	44.49	1,307.56	1,262.30	3,935.32	3,903.82	35.11	113.019	
7,300.00	6,966.94	5,730.92	5,355.94	36.96	37.07	44.49	1,335.56	1,290.30	3,977.32	3,945.82	35.61	112.707	
7,400.00	7,066.94	5,830.92	5,442.94	37.04	37.82	44.49	1,363.56	1,318.30	4,019.32	3,987.82	36.11	112.395	
7,500.00	7,166.94	5,930.92	5,529.94	37.12	38.57	44.49	1,391.56	1,346.30	4,061.32	4,029.82	36.61	112.083	
7,600.00	7,266.94	6,030.92	5,616.94	37.20	39.32	44.49	1,419.56	1,374.30	4,103.32	4,071.82	37.11	111.771	
7,662.15	7,329.09	6,093.07	5,679.09	37.25	39.82	44.49	1,439.56	1,394.30	4,133.32	4,091.82	37.36	111.645	
7,700.00	7,366.94	6,130.92	5,716.94	37.28	40.07	44.49	1,459.56	1,414.30	4,163.32	4,121.82	37.61	111.519	
7,798.06	7,465.00	6,230.92	5,803.94	37.37	40.77	44.49	1,487.56	1,442.30	4,205.32	4,163.89	37.99	111.342	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_RURAL 33-31
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4895.00ft (Original Well Elev)
Reference Site:	WELD_RURAL 22-31 PAD	MD Reference:	WELL @ 4895.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_RURAL 33-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 33-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-05-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_RURAL 22-31 PAD - P_RURAL 22-31 VERTICAL - P_RURAL 22-31 - PLAN #1 PLAN #1 11-05												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	-0.22	11.81	-0.05	11.81				
100.00	100.00	100.00	100.00	0.10	0.10	-0.22	11.81	-0.05	11.81	11.61	0.19	61.794	
200.00	200.00	200.00	200.00	0.32	0.32	-0.22	11.81	-0.05	11.81	11.17	0.64	18.430	
300.00	300.00	300.00	300.00	0.55	0.55	-0.22	11.81	-0.05	11.81	10.72	1.09	10.830	
400.00	400.00	400.00	400.00	0.77	0.77	-0.22	11.81	-0.05	11.81	10.27	1.54	7.668	
500.00	500.00	500.00	500.00	0.99	0.99	-0.22	11.81	-0.05	11.81	9.82	1.99	5.935	
600.00	600.00	600.00	600.00	1.22	1.22	-0.22	11.81	-0.05	11.81	9.37	2.44	4.841	
700.00	700.00	700.00	700.00	1.44	1.44	-0.22	11.81	-0.05	11.81	8.92	2.89	4.088 CC, ES	
800.00	799.98	799.98	799.98	1.65	1.67	140.07	11.81	-0.05	13.09	9.78	3.31	3.951 SF	
900.00	899.84	899.84	899.84	1.84	1.89	151.14	11.81	-0.05	17.43	13.71	3.72	4.686	
1,000.00	999.45	999.45	999.45	2.05	2.12	160.61	11.81	-0.05	25.42	21.29	4.13	6.155	
1,100.00	1,098.70	1,098.70	1,098.70	2.29	2.34	166.81	11.81	-0.05	37.14	32.60	4.54	8.181	
1,200.00	1,197.47	1,197.47	1,197.47	2.57	2.56	170.65	11.81	-0.05	52.50	47.55	4.95	10.606	
1,300.00	1,295.62	1,295.62	1,295.62	2.90	2.78	173.09	11.81	-0.05	71.40	66.04	5.36	13.321	
1,400.00	1,393.06	1,393.06	1,393.06	3.28	3.00	174.70	11.81	-0.05	93.77	88.00	5.77	16.252	
1,500.00	1,489.64	1,489.64	1,489.64	3.73	3.22	175.81	11.81	-0.05	119.57	113.39	6.18	19.349	
1,600.00	1,585.27	1,585.27	1,585.27	4.24	3.43	176.60	11.81	-0.05	148.75	142.16	6.59	22.571	
1,700.00	1,679.82	1,679.82	1,679.82	4.83	3.65	177.17	11.81	-0.05	181.26	174.26	7.00	25.892	
1,800.00	1,773.17	1,773.17	1,773.17	5.48	3.86	177.61	11.81	-0.05	217.06	209.65	7.41	29.288	
1,863.03	1,831.34	1,831.34	1,831.34	5.92	3.99	177.83	11.81	-0.05	241.30	233.63	7.67	31.459	
1,900.00	1,865.31	1,865.31	1,865.31	6.19	4.06	177.95	11.81	-0.05	255.89	248.04	7.85	32.580	
2,000.00	1,957.18	1,957.18	1,957.18	6.94	4.27	178.23	11.81	-0.05	295.36	287.01	8.36	35.341	
2,100.00	2,049.05	2,049.05	2,049.05	7.70	4.48	178.44	11.81	-0.05	334.84	325.97	8.87	37.760	
2,200.00	2,140.93	2,140.93	2,140.93	8.47	4.68	178.60	11.81	-0.05	374.32	364.94	9.38	39.894	
2,300.00	2,232.80	2,232.80	2,232.80	9.24	4.89	178.73	11.81	-0.05	413.80	403.90	9.90	41.788	
2,400.00	2,324.67	2,324.67	2,324.67	10.02	5.10	178.84	11.81	-0.05	453.29	442.86	10.43	43.477	
2,500.00	2,416.54	2,416.54	2,416.54	10.81	5.30	178.94	11.81	-0.05	492.77	481.82	10.95	44.993	
2,600.00	2,508.41	2,508.41	2,508.41	11.59	5.51	179.02	11.81	-0.05	532.26	520.78	11.48	46.359	
2,700.00	2,600.28	2,600.28	2,600.28	12.38	5.72	179.08	11.81	-0.05	571.74	559.73	12.01	47.597	
2,800.00	2,692.16	2,692.16	2,692.16	13.18	5.92	179.14	11.81	-0.05	611.23	598.69	12.55	48.722	
2,900.00	2,784.03	2,784.03	2,784.03	13.97	6.13	179.20	11.81	-0.05	650.72	637.64	13.08	49.750	
3,000.00	2,875.90	2,875.90	2,875.90	14.77	6.33	179.24	11.81	-0.05	690.21	676.59	13.62	50.692	
3,100.00	2,967.77	2,967.77	2,967.77	15.57	6.54	179.28	11.81	-0.05	729.70	715.54	14.15	51.558	
3,200.00	3,059.64	3,059.64	3,059.64	16.37	6.75	179.32	11.81	-0.05	769.19	754.49	14.69	52.357	
3,300.00	3,151.52	3,151.52	3,151.52	17.17	6.95	179.35	11.81	-0.05	808.67	793.44	15.23	53.096	
3,400.00	3,243.39	3,243.39	3,243.39	17.97	7.16	179.38	11.81	-0.05	848.16	832.39	15.77	53.782	
3,500.00	3,335.26	3,335.26	3,335.26	18.77	7.37	179.41	11.81	-0.05	887.65	871.34	16.31	54.420	
3,600.00	3,427.13	3,427.13	3,427.13	19.58	7.57	179.44	11.81	-0.05	927.14	910.29	16.85	55.015	
3,700.00	3,519.00	3,519.00	3,519.00	20.38	7.78	179.46	11.81	-0.05	966.63	949.24	17.39	55.571	
3,800.00	3,610.87	3,610.87	3,610.87	21.18	7.99	179.48	11.81	-0.05	1,006.12	988.19	17.94	56.092	
3,900.00	3,702.75	3,702.75	3,702.75	21.99	8.19	179.50	11.81	-0.05	1,045.61	1,027.13	18.48	56.581	
4,000.00	3,794.62	3,794.62	3,794.62	22.79	8.40	179.52	11.81	-0.05	1,085.10	1,066.08	19.02	57.040	
4,100.00	3,886.49	3,886.49	3,886.49	23.60	8.61	179.53	11.81	-0.05	1,124.59	1,105.02	19.57	57.473	
4,200.00	3,978.36	3,978.36	3,978.36	24.40	8.81	179.55	11.81	-0.05	1,164.08	1,143.97	20.11	57.881	
4,300.00	4,070.23	4,070.23	4,070.23	25.21	9.02	179.56	11.81	-0.05	1,203.57	1,182.92	20.66	58.267	
4,400.00	4,162.11	4,162.11	4,162.11	26.01	9.23	179.58	11.81	-0.05	1,243.06	1,221.86	21.20	58.633	
4,500.00	4,253.98	4,253.98	4,253.98	26.82	9.43	179.59	11.81	-0.05	1,282.55	1,260.81	21.75	58.979	
4,600.00	4,345.85	4,345.85	4,345.85	27.63	9.64	179.60	11.81	-0.05	1,322.04	1,299.75	22.29	59.308	
4,700.00	4,437.72	4,437.72	4,437.72	28.43	9.85	179.62	11.81	-0.05	1,361.53	1,338.70	22.84	59.620	
4,800.00	4,529.59	4,529.59	4,529.59	29.24	10.05	179.63	11.81	-0.05	1,401.03	1,377.64	23.38	59.917	
4,900.00	4,621.47	4,621.47	4,621.47	30.05	10.26	179.64	11.81	-0.05	1,440.52	1,416.59	23.93	60.200	
5,000.00	4,713.34	4,713.34	4,713.34	30.85	10.46	179.65	11.81	-0.05	1,480.01	1,455.53	24.47	60.470	

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_RURAL 33-31
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4895.00ft (Original Well Elev)
Reference Site:	WELD_RURAL 22-31 PAD	MD Reference:	WELL @ 4895.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_RURAL 33-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 33-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-05-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_RURAL 22-31 PAD - P_RURAL 22-31 VERTICAL - P_RURAL 22-31 - PLAN #1 PLAN #1 11-05												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	4,805.21	4,805.21	4,805.21	31.66	10.67	179.66	11.81	-0.05	1,519.50	1,494.48	25.02	60.728	
5,181.04	4,879.66	4,879.66	4,879.66	32.32	10.84	179.66	11.81	-0.05	1,551.50	1,526.03	25.46	60.929	
5,200.00	4,897.11	4,897.11	4,897.11	32.45	10.88	179.66	11.81	-0.05	1,558.93	1,533.33	25.60	60.904	
5,300.00	4,989.90	4,989.90	4,989.90	33.02	11.09	179.68	11.81	-0.05	1,596.20	1,569.94	26.26	60.788	
5,400.00	5,083.93	5,083.93	5,083.93	33.54	11.30	179.69	11.81	-0.05	1,630.20	1,603.32	26.88	60.644	
5,500.00	5,179.10	5,179.10	5,179.10	34.02	11.51	179.70	11.81	-0.05	1,660.90	1,633.44	27.46	60.475	
5,600.00	5,275.27	5,275.27	5,275.27	34.46	11.73	179.71	11.81	-0.05	1,688.27	1,660.26	28.01	60.284	
5,700.00	5,372.35	5,372.35	5,372.35	34.85	11.95	179.71	11.81	-0.05	1,712.26	1,683.75	28.50	60.074	
5,800.00	5,470.20	5,470.20	5,470.20	35.20	12.17	179.72	11.81	-0.05	1,732.84	1,703.89	28.95	59.847	
5,900.00	5,568.71	5,568.71	5,568.71	35.50	12.39	179.72	11.81	-0.05	1,750.00	1,720.64	29.36	59.605	
6,000.00	5,667.76	5,667.76	5,667.76	35.75	12.61	179.73	11.81	-0.05	1,763.71	1,734.00	29.72	59.350	
6,100.00	5,767.23	5,767.23	5,767.23	35.95	12.83	179.73	11.81	-0.05	1,773.96	1,743.93	30.03	59.081	
6,200.00	5,867.00	5,867.00	5,867.00	36.10	13.06	179.73	11.81	-0.05	1,780.73	1,750.44	30.28	58.801	
6,300.00	5,966.94	5,966.94	5,966.94	36.21	13.28	179.73	11.81	-0.05	1,784.01	1,753.52	30.49	58.509	
6,344.06	6,011.00	6,011.00	6,011.00	36.24	13.38	44.86	11.81	-0.05	1,784.35	1,753.78	30.57	58.370	
6,400.00	6,066.94	6,066.94	6,066.94	36.29	13.51	44.86	11.81	-0.05	1,784.35	1,753.57	30.78	57.978	
6,500.00	6,166.94	6,166.94	6,166.94	36.35	13.73	44.86	11.81	-0.05	1,784.35	1,753.21	31.14	57.298	
6,600.00	6,266.94	6,266.94	6,266.94	36.43	13.96	44.86	11.81	-0.05	1,784.35	1,752.84	31.51	56.630	
6,700.00	6,366.94	6,366.94	6,366.94	36.50	14.18	44.86	11.81	-0.05	1,784.35	1,752.47	31.88	55.975	
6,800.00	6,466.94	6,466.94	6,466.94	36.57	14.41	44.86	11.81	-0.05	1,784.35	1,752.10	32.25	55.331	
6,900.00	6,566.94	6,566.94	6,566.94	36.64	14.63	44.86	11.81	-0.05	1,784.35	1,751.73	32.62	54.700	
7,000.00	6,666.94	6,666.94	6,666.94	36.72	14.86	44.86	11.81	-0.05	1,784.35	1,751.36	32.99	54.080	
7,100.00	6,766.94	6,766.94	6,766.94	36.80	15.08	44.86	11.81	-0.05	1,784.35	1,750.98	33.37	53.472	
7,200.00	6,866.94	6,866.94	6,866.94	36.88	15.31	44.86	11.81	-0.05	1,784.35	1,750.60	33.75	52.874	
7,300.00	6,966.94	6,966.94	6,966.94	36.96	15.53	44.86	11.81	-0.05	1,784.35	1,750.22	34.13	52.288	
7,400.00	7,066.94	7,066.94	7,066.94	37.04	15.75	44.86	11.81	-0.05	1,784.35	1,749.84	34.51	51.713	
7,500.00	7,166.94	7,166.94	7,166.94	37.12	15.98	44.86	11.81	-0.05	1,784.35	1,749.46	34.89	51.147	
7,600.00	7,266.94	7,266.94	7,266.94	37.20	16.20	44.86	11.81	-0.05	1,784.35	1,749.08	35.27	50.593	
7,700.00	7,366.94	7,366.94	7,366.94	37.28	16.43	44.86	11.81	-0.05	1,784.35	1,748.70	35.65	50.048	
7,798.06	7,465.00	7,465.00	7,465.00	37.37	16.65	44.86	11.81	-0.05	1,784.35	1,748.32	36.03	49.523	

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Reference Site:	WELD_RURAL 22-31 PAD	MD Reference:	WELL @ 4895.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_RURAL 33-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 33-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-05-09 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4895.00ft (Original Well Elev) Coordinates are relative to: P_RURAL 33-31
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: 0.51°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_RURAL 33-31
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4895.00ft (Original Well Elev)
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