



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_RURAL 22-31 PAD

P_RURAL 19-31

P_RURAL 19-31

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 19-31

+N/-S	+E/-W	Northing	Easting	Ground Level:	4880.00	Latitude	Longitude	Slot
0.00	0.00	1341661.17	3220187.31	40° 16' 6.852 N	104° 42' 39.348 W			

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3850.00	3925.71	PARKMAN TOP
4500.00	4593.91	SUSSEX TOP
7005.00	7128.55	NIO A TOP
7314.00	7437.55	CODELL TOP

SECTION DETAILS

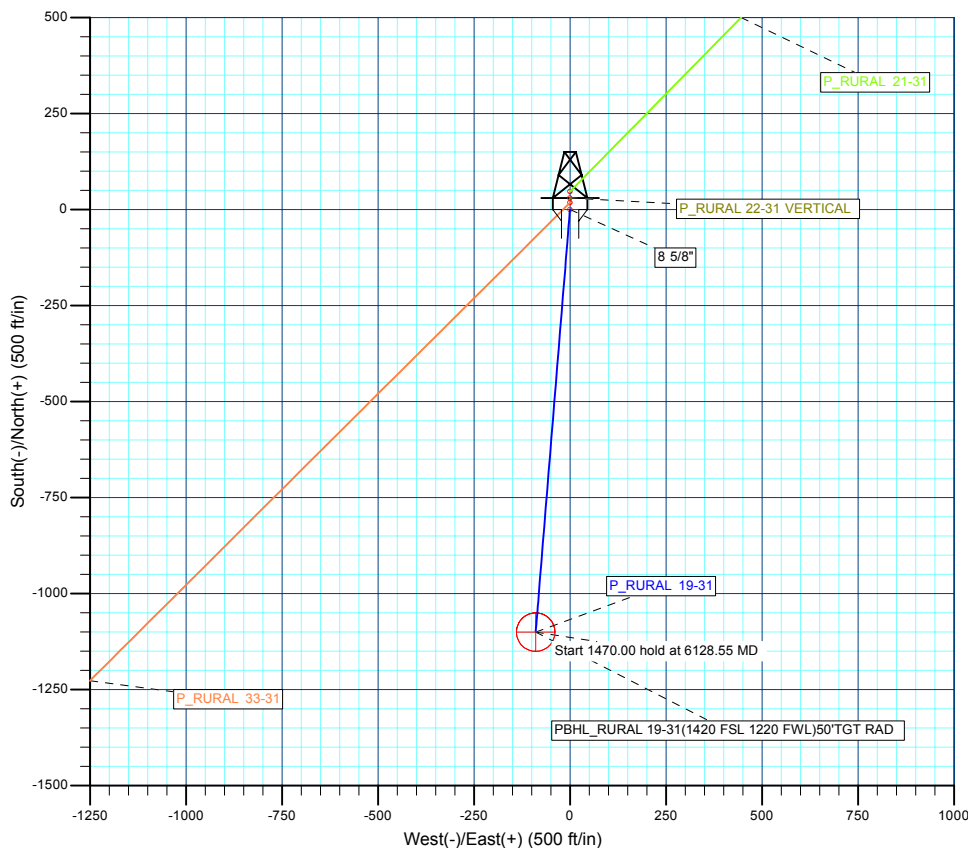
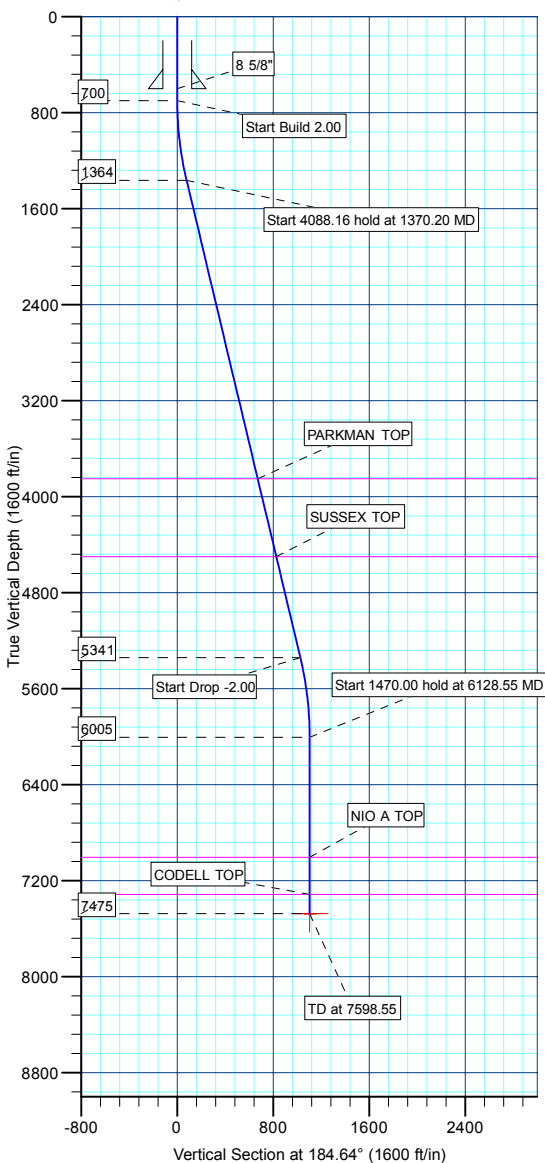
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	
1370.20	13.40	184.64	1364.10	-77.78	-6.31	2.00	184.64	78.04	
5458.36	13.40	184.64	5340.90	-1022.37	-82.99	0.00	0.00	1025.73	
6128.55	0.00	0.00	6005.00	-1100.15	-89.30	2.00	180.00	1103.77	
7598.55	0.00	0.00	7475.00	-1100.15	-89.30	0.00	0.00	1103.77	PBHL_RURAL 19-31(1420 FSL 1220 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	7475.00	-1100.15	-89.30	1340560.27	3220107.8040° 15'	55.980 N	104° 42' 40.500 W	Circle (Radius: 50.00)

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_RURAL 19-31
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 19-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_RURAL 19-31		
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 19-31			
Well Position	+N/-S	0.00 ft	Northing:	1,341,661.17 ft
	+E/-W	0.00 ft	Easting:	3,220,187.31 ft
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft
			Ground Level:	4,880.00 ft

Wellbore	P_RURAL 19-31				
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	184.64

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	
1,370.20	13.40	184.64	1,364.10	-77.78	-6.31	2.00	2.00	0.00	184.64	
5,458.36	13.40	184.64	5,340.90	-1,022.37	-82.99	0.00	0.00	0.00	0.00	
6,128.55	0.00	0.00	6,005.00	-1,100.15	-89.30	2.00	-2.00	0.00	180.00	
7,598.55	0.00	0.00	7,475.00	-1,100.15	-89.30	0.00	0.00	0.00	0.00	PBHL_RURAL 19-3

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_RURAL 19-31
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 19-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_RURAL 19-31		
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	184.64	799.98	-1.74	-0.14	1.75	2.00	2.00	0.00
900.00	4.00	184.64	899.84	-6.96	-0.56	6.98	2.00	2.00	0.00
1,000.00	6.00	184.64	999.45	-15.64	-1.27	15.69	2.00	2.00	0.00
1,100.00	8.00	184.64	1,098.70	-27.79	-2.26	27.88	2.00	2.00	0.00
1,200.00	10.00	184.64	1,197.47	-43.38	-3.52	43.52	2.00	2.00	0.00
1,300.00	12.00	184.64	1,295.62	-62.40	-5.06	62.60	2.00	2.00	0.00
Start 4088.16 hold at 1370.20 MD									
1,370.20	13.40	184.64	1,364.10	-77.78	-6.31	78.04	2.00	2.00	0.00
1,400.00	13.40	184.64	1,393.09	-84.67	-6.87	84.95	0.00	0.00	0.00
1,500.00	13.40	184.64	1,490.37	-107.77	-8.75	108.13	0.00	0.00	0.00
1,600.00	13.40	184.64	1,587.64	-130.88	-10.62	131.31	0.00	0.00	0.00
1,700.00	13.40	184.64	1,684.92	-153.98	-12.50	154.49	0.00	0.00	0.00
1,800.00	13.40	184.64	1,782.20	-177.09	-14.37	177.67	0.00	0.00	0.00
1,900.00	13.40	184.64	1,879.47	-200.19	-16.25	200.85	0.00	0.00	0.00
2,000.00	13.40	184.64	1,976.75	-223.30	-18.13	224.03	0.00	0.00	0.00
2,100.00	13.40	184.64	2,074.02	-246.41	-20.00	247.22	0.00	0.00	0.00
2,200.00	13.40	184.64	2,171.30	-269.51	-21.88	270.40	0.00	0.00	0.00
2,300.00	13.40	184.64	2,268.58	-292.62	-23.75	293.58	0.00	0.00	0.00
2,400.00	13.40	184.64	2,365.85	-315.72	-25.63	316.76	0.00	0.00	0.00
2,500.00	13.40	184.64	2,463.13	-338.83	-27.50	339.94	0.00	0.00	0.00
2,600.00	13.40	184.64	2,560.40	-361.93	-29.38	363.12	0.00	0.00	0.00
2,700.00	13.40	184.64	2,657.68	-385.04	-31.25	386.30	0.00	0.00	0.00
2,800.00	13.40	184.64	2,754.96	-408.14	-33.13	409.49	0.00	0.00	0.00
2,900.00	13.40	184.64	2,852.23	-431.25	-35.00	432.67	0.00	0.00	0.00
3,000.00	13.40	184.64	2,949.51	-454.35	-36.88	455.85	0.00	0.00	0.00
3,100.00	13.40	184.64	3,046.78	-477.46	-38.76	479.03	0.00	0.00	0.00
3,200.00	13.40	184.64	3,144.06	-500.57	-40.63	502.21	0.00	0.00	0.00
3,300.00	13.40	184.64	3,241.34	-523.67	-42.51	525.39	0.00	0.00	0.00
3,400.00	13.40	184.64	3,338.61	-546.78	-44.38	548.57	0.00	0.00	0.00
3,500.00	13.40	184.64	3,435.89	-569.88	-46.26	571.76	0.00	0.00	0.00
3,600.00	13.40	184.64	3,533.16	-592.99	-48.13	594.94	0.00	0.00	0.00
3,700.00	13.40	184.64	3,630.44	-616.09	-50.01	618.12	0.00	0.00	0.00
3,800.00	13.40	184.64	3,727.72	-639.20	-51.88	641.30	0.00	0.00	0.00
3,900.00	13.40	184.64	3,824.99	-662.30	-53.76	664.48	0.00	0.00	0.00
PARKMAN TOP									
3,925.71	13.40	184.64	3,850.00	-668.24	-54.24	670.44	0.00	0.00	0.00
4,000.00	13.40	184.64	3,922.27	-685.41	-55.64	687.66	0.00	0.00	0.00
4,100.00	13.40	184.64	4,019.54	-708.51	-57.51	710.84	0.00	0.00	0.00
4,200.00	13.40	184.64	4,116.82	-731.62	-59.39	734.03	0.00	0.00	0.00
4,300.00	13.40	184.64	4,214.10	-754.72	-61.26	757.21	0.00	0.00	0.00
4,400.00	13.40	184.64	4,311.37	-777.83	-63.14	780.39	0.00	0.00	0.00
4,500.00	13.40	184.64	4,408.65	-800.94	-65.01	803.57	0.00	0.00	0.00
SUSSEX TOP									
4,593.91	13.40	184.64	4,500.00	-822.63	-66.77	825.34	0.00	0.00	0.00
4,600.00	13.40	184.64	4,505.92	-824.04	-66.89	826.75	0.00	0.00	0.00
4,700.00	13.40	184.64	4,603.20	-847.15	-68.76	849.93	0.00	0.00	0.00
4,800.00	13.40	184.64	4,700.48	-870.25	-70.64	873.11	0.00	0.00	0.00
4,900.00	13.40	184.64	4,797.75	-893.36	-72.51	896.30	0.00	0.00	0.00
5,000.00	13.40	184.64	4,895.03	-916.46	-74.39	919.48	0.00	0.00	0.00
5,100.00	13.40	184.64	4,992.30	-939.57	-76.27	942.66	0.00	0.00	0.00
5,200.00	13.40	184.64	5,089.58	-962.67	-78.14	965.84	0.00	0.00	0.00

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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 19-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_RURAL 19-31		
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)
5,300.00	13.40	184.64	5,186.86	-985.78	-80.02	989.02	0.00	0.00	0.00
5,400.00	13.40	184.64	5,284.13	-1,008.88	-81.89	1,012.20	0.00	0.00	0.00
Start Drop -2.00									
5,458.36	13.40	184.64	5,340.90	-1,022.37	-82.99	1,025.73	0.00	0.00	0.00
5,500.00	12.57	184.64	5,381.48	-1,031.70	-83.74	1,035.09	2.00	-2.00	0.00
5,600.00	10.57	184.64	5,479.44	-1,051.69	-85.37	1,055.15	2.00	-2.00	0.00
5,700.00	8.57	184.64	5,578.04	-1,068.26	-86.71	1,071.77	2.00	-2.00	0.00
5,800.00	6.57	184.64	5,677.17	-1,081.39	-87.78	1,084.95	2.00	-2.00	0.00
5,900.00	4.57	184.64	5,776.69	-1,091.07	-88.56	1,094.66	2.00	-2.00	0.00
6,000.00	2.57	184.64	5,876.49	-1,097.28	-89.07	1,100.88	2.00	-2.00	0.00
6,100.00	0.57	184.64	5,976.45	-1,100.01	-89.29	1,103.63	2.00	-2.00	0.00
Start 1470.00 hold at 6128.55 MD									
6,128.55	0.00	0.00	6,005.00	-1,100.15	-89.30	1,103.77	2.00	-2.00	614.13
6,200.00	0.00	0.00	6,076.45	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
6,300.00	0.00	0.00	6,176.45	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
6,400.00	0.00	0.00	6,276.45	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
6,500.00	0.00	0.00	6,376.45	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
6,600.00	0.00	0.00	6,476.45	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
6,700.00	0.00	0.00	6,576.45	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
6,800.00	0.00	0.00	6,676.45	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
6,900.00	0.00	0.00	6,776.45	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
7,000.00	0.00	0.00	6,876.45	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
7,100.00	0.00	0.00	6,976.45	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
NIO A TOP									
7,128.55	0.00	0.00	7,005.00	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
7,200.00	0.00	0.00	7,076.45	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
7,300.00	0.00	0.00	7,176.45	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
7,400.00	0.00	0.00	7,276.45	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
CODELL TOP									
7,437.55	0.00	0.00	7,314.00	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
7,500.00	0.00	0.00	7,376.45	-1,100.15	-89.30	1,103.77	0.00	0.00	0.00
PBHL_RURAL 19-31(1420 FSL 1220 FWL)50'TGT RAD									
7,598.55	0.00	0.00	7,475.00	-1,100.15	-89.30	1,103.77	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 19-31(0.00	0.00	7,475.00	-1,100.15	-89.30	1,340,560.27	3,220,107.80	40° 15' 55.980 N	104° 42' 40.500 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 19-31
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 19-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_RURAL 19-31		
Design:	PLAN #1 11-05-09 RHS		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,925.71	3,850.00	PARKMAN TOP				
4,593.91	4,500.00	SUSSEX TOP				
7,128.55	7,005.00	NIO A TOP				
7,437.55	7,314.00	CODELL TOP				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
700.00	700.00	0.00	0.00	Start Build 2.00	
1,370.20	1,364.10	-77.78	-6.31	Start 4088.16 hold at 1370.20 MD	
5,458.36	5,340.90	-1,022.37	-82.99	Start Drop -2.00	
6,128.55	6,005.00	-1,100.15	-89.30	Start 1470.00 hold at 6128.55 MD	
7,598.55	7,475.00	-1,100.15	-89.30	TD at 7598.55	

US ROCKIES REGION PLANNING

**COLORADO NOTHERN ZONE - 83
WELD_RURAL 22-31 PAD
P_RURAL 19-31**

**P_RURAL 19-31
PLAN #1 11-05-09 RHS**

Anticollision Report

05 November, 2009

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_RURAL 19-31
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 19-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 19-31	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	7,598.55	PLAN #1 11-05-09 RHS (P_RURAL 19-31	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 21-31 - P_RURAL 21-31 - PLAN #1 11-05-09	700.00	700.00	47.35	44.46	16.392	CC, ES
P_RURAL 21-31 - P_RURAL 21-31 - PLAN #1 11-05-09	800.00	798.73	50.33	47.03	15.244	SF
P_RURAL 22-31 VERTICAL - P_RURAL 22-31 - PLAN #	700.00	700.00	30.00	27.12	10.388	CC, ES
P_RURAL 22-31 VERTICAL - P_RURAL 22-31 - PLAN #	800.00	799.98	31.74	28.44	9.596	SF
P_RURAL 33-31 - P_RURAL 33-31 - PLAN #1 11-05-09	700.00	700.00	18.20	15.31	6.301	CC, ES
P_RURAL 33-31 - P_RURAL 33-31 - PLAN #1 11-05-09	900.00	900.78	20.68	17.03	5.666	SF

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	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.35	0.00	47.35					
100.00	100.00	100.00	100.00	0.10	0.10	0.00	47.35	0.00	47.35	47.15	0.19	247.813		
200.00	200.00	200.00	200.00	0.32	0.32	0.00	47.35	0.00	47.35	46.70	0.64	73.909		
300.00	300.00	300.00	300.00	0.55	0.55	0.00	47.35	0.00	47.35	46.25	1.09	43.431		
400.00	400.00	400.00	400.00	0.77	0.77	0.00	47.35	0.00	47.35	45.81	1.54	30.751		
500.00	500.00	500.00	500.00	0.99	0.99	0.00	47.35	0.00	47.35	45.36	1.99	23.801		
600.00	600.00	600.00	600.00	1.22	1.22	0.00	47.35	0.00	47.35	44.91	2.44	19.414		
700.00	700.00	700.00	700.00	1.44	1.44	0.00	47.35	0.00	47.35	44.46	2.89	16.392	CC, ES	
800.00	799.98	798.73	798.71	1.64	1.66	176.87	48.56	1.19	50.33	47.03	3.30	15.244	SF	
900.00	899.84	896.84	896.68	1.82	1.88	-179.51	52.16	4.74	59.44	55.75	3.69	16.107		
1,000.00	999.45	993.71	993.19	2.02	2.11	-175.47	58.07	10.55	74.92	70.83	4.09	18.335		
1,100.00	1,098.70	1,088.77	1,087.57	2.25	2.35	-171.99	66.13	18.47	96.81	92.33	4.49	21.576		
1,200.00	1,197.47	1,181.48	1,179.22	2.53	2.61	-169.30	76.13	28.30	125.01	120.12	4.89	25.548		
1,300.00	1,295.62	1,271.39	1,267.61	2.85	2.89	-167.27	87.84	39.82	159.28	153.98	5.30	30.029		
1,370.20	1,364.10	1,332.59	1,327.46	3.11	3.11	-166.14	96.94	48.77	186.83	181.23	5.60	33.385		
1,400.00	1,393.09	1,358.12	1,352.35	3.22	3.20	-165.78	101.01	52.77	199.23	193.50	5.73	34.748		
1,500.00	1,490.37	1,442.35	1,434.07	3.63	3.55	-164.65	115.54	67.06	242.46	236.26	6.20	39.087		
1,600.00	1,587.64	1,524.30	1,512.97	4.06	3.92	-163.64	131.32	82.57	288.12	281.43	6.68	43.107		
1,700.00	1,684.92	1,600.00	1,585.27	4.51	4.29	-162.78	147.32	98.31	336.15	328.98	7.16	46.941		
1,800.00	1,782.20	1,681.27	1,662.19	4.96	4.75	-161.92	166.01	116.68	386.38	378.71	7.67	50.353		
1,900.00	1,879.47	1,756.26	1,732.49	5.42	5.20	-161.18	184.62	134.98	438.82	430.64	8.18	53.645		

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 19-31
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 19-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 19-31	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
2,000.00	1,976.75	1,828.91	1,799.92	5.89	5.68	-160.50	203.91	153.94	493.34	484.65	8.69	56.775	
2,100.00	2,074.02	1,900.00	1,865.21	6.36	6.17	-159.87	223.95	173.65	549.85	540.65	9.20	59.754	
2,200.00	2,171.30	1,976.31	1,934.72	6.84	6.74	-159.26	246.41	195.73	607.86	598.12	9.74	62.383	
2,300.00	2,268.58	2,057.50	2,008.63	7.32	7.36	-158.71	270.37	219.29	666.03	655.72	10.31	64.615	
2,400.00	2,365.85	2,138.70	2,082.55	7.80	7.99	-158.25	294.32	242.85	724.22	713.35	10.88	66.593	
2,500.00	2,463.13	2,219.89	2,156.46	8.28	8.62	-157.85	318.28	266.41	782.44	771.00	11.45	68.353	
2,600.00	2,560.40	2,301.08	2,230.38	8.76	9.26	-157.52	342.24	289.97	840.69	828.67	12.02	69.925	
2,700.00	2,657.68	2,382.28	2,304.29	9.25	9.90	-157.22	366.20	313.52	898.95	886.35	12.60	71.329	
2,800.00	2,754.96	2,463.47	2,378.21	9.74	10.55	-156.96	390.16	337.08	957.22	944.04	13.19	72.597	
2,900.00	2,852.23	2,544.66	2,452.12	10.22	11.20	-156.73	414.12	360.64	1,015.51	1,001.74	13.77	73.746	
3,000.00	2,949.51	2,625.86	2,526.04	10.71	11.85	-156.53	438.07	384.20	1,073.81	1,059.45	14.36	74.791	
3,100.00	3,046.78	2,707.05	2,599.95	11.20	12.51	-156.34	462.03	407.75	1,132.11	1,117.16	14.95	75.745	
3,200.00	3,144.06	2,788.24	2,673.87	11.69	13.16	-156.18	485.99	431.31	1,190.42	1,174.88	15.54	76.616	
3,300.00	3,241.34	2,869.44	2,747.78	12.18	13.82	-156.03	509.95	454.87	1,248.74	1,232.61	16.13	77.417	
3,400.00	3,338.61	2,950.63	2,821.70	12.68	14.48	-155.89	533.91	478.43	1,307.06	1,290.34	16.72	78.155	
3,500.00	3,435.89	3,031.83	2,895.61	13.17	15.14	-155.77	557.87	501.99	1,365.39	1,348.07	17.32	78.837	
3,600.00	3,533.16	3,113.02	2,969.53	13.66	15.80	-155.65	581.82	525.54	1,423.72	1,405.80	17.92	79.470	
3,700.00	3,630.44	3,194.21	3,043.44	14.15	16.46	-155.55	605.78	549.10	1,482.05	1,463.54	18.51	80.057	
3,800.00	3,727.72	3,275.41	3,117.36	14.64	17.13	-155.45	629.74	572.66	1,540.39	1,521.28	19.11	80.603	
3,900.00	3,824.99	3,356.60	3,191.27	15.14	17.79	-155.36	653.70	596.22	1,598.73	1,579.02	19.71	81.112	
4,000.00	3,922.27	3,437.79	3,265.19	15.63	18.46	-155.27	677.66	619.78	1,657.07	1,636.76	20.31	81.589	
4,100.00	4,019.54	3,518.99	3,339.10	16.12	19.12	-155.20	701.62	643.33	1,715.41	1,694.50	20.91	82.037	
4,200.00	4,116.82	3,600.18	3,413.02	16.62	19.79	-155.12	725.57	666.89	1,773.76	1,752.25	21.51	82.456	
4,300.00	4,214.10	3,681.37	3,486.93	17.11	20.45	-155.05	749.53	690.45	1,832.11	1,810.00	22.11	82.851	
4,400.00	4,311.37	3,762.57	3,560.85	17.61	21.12	-154.99	773.49	714.01	1,890.46	1,867.74	22.72	83.222	
4,500.00	4,408.65	3,843.76	3,634.76	18.10	21.79	-154.93	797.45	737.56	1,948.81	1,925.49	23.32	83.573	
4,600.00	4,505.92	3,924.96	3,708.68	18.60	22.46	-154.87	821.41	761.12	2,007.16	1,983.24	23.92	83.904	
4,700.00	4,603.20	4,006.15	3,782.59	19.09	23.12	-154.82	845.37	784.68	2,065.52	2,040.99	24.53	84.218	
4,800.00	4,700.48	4,087.34	3,856.51	19.59	23.79	-154.77	869.32	808.24	2,123.87	2,098.74	25.13	84.515	
4,900.00	4,797.75	4,168.54	3,930.42	20.08	24.46	-154.72	893.28	831.80	2,182.23	2,156.49	25.73	84.797	
5,000.00	4,895.03	4,249.73	4,004.34	20.58	25.13	-154.67	917.24	855.35	2,240.59	2,214.25	26.34	85.065	
5,100.00	4,992.30	4,330.92	4,078.25	21.07	25.80	-154.63	941.20	878.91	2,298.94	2,272.00	26.94	85.321	
5,200.00	5,089.58	4,412.12	4,152.17	21.57	26.47	-154.59	965.16	902.47	2,357.30	2,329.75	27.55	85.564	
5,300.00	5,186.86	4,493.31	4,226.08	22.06	27.14	-154.55	989.12	926.03	2,415.66	2,387.51	28.16	85.795	
5,400.00	5,284.13	4,574.51	4,300.00	22.56	27.80	-154.51	1,013.07	949.58	2,474.02	2,445.26	28.76	86.016	
5,458.36	5,340.90	4,621.89	4,343.14	22.85	28.20	-154.49	1,027.06	963.33	2,508.08	2,478.96	29.12	86.141	
5,500.00	5,381.48	4,655.86	4,374.06	23.02	28.48	-154.73	1,037.08	973.19	2,532.16	2,502.69	29.47	85.913	
5,600.00	5,479.44	4,738.67	4,449.44	23.33	29.16	-155.23	1,061.51	997.22	2,588.15	2,557.86	30.28	85.468	
5,700.00	5,578.04	4,823.15	4,526.35	23.61	29.86	-155.65	1,086.44	1,021.73	2,641.48	2,610.42	31.06	85.036	
5,800.00	5,677.17	4,909.20	4,604.69	23.85	30.57	-155.99	1,111.84	1,046.70	2,692.11	2,660.30	31.81	84.628	
5,900.00	5,776.69	4,996.72	4,684.37	24.05	31.29	-156.26	1,137.66	1,072.09	2,739.98	2,707.46	32.52	84.250	
6,000.00	5,876.49	5,085.60	4,765.27	24.22	32.02	-156.48	1,163.89	1,097.87	2,785.05	2,751.85	33.19	83.906	
6,100.00	5,976.45	5,175.49	4,846.20	24.34	32.79	-156.67	1,190.99	1,125.12	2,833.03	2,797.00	33.86	83.534	
6,128.55	6,005.00	5,204.44	4,875.34	24.37	32.89	-156.71	1,195.31	1,128.12	2,833.03	2,797.00	33.86	83.534	
6,200.00	6,076.45	5,275.93	4,946.83	24.45	33.17	-156.75	1,200.76	1,133.57	2,833.98	2,797.25	33.91	83.539	
6,300.00	6,176.45	5,375.93	5,046.83	24.54	33.25	-156.75	1,206.21	1,139.02	2,833.98	2,796.97	33.91	83.539	
6,400.00	6,276.45	5,475.93	5,146.83	24.64	33.32	-156.75	1,211.66	1,144.57	2,833.98	2,796.69	33.91	83.539	
6,500.00	6,376.45	5,575.93	5,246.83	24.73	33.40	-156.75	1,217.21	1,150.12	2,833.98	2,796.40	33.91	83.539	
6,600.00	6,476.45	5,675.93	5,346.83	24.83	33.48	-156.75	1,222.76	1,155.67	2,833.98	2,796.12	33.91	83.539	
6,700.00	6,576.45	5,775.93	5,446.83	24.93	33.56	-156.75	1,228.31	1,161.22	2,833.98	2,795.82	33.91	83.539	
6,800.00	6,676.45	5,875.93	5,546.83	25.03	33.64	-156.75	1,233.86	1,166.77	2,833.98	2,795.53	33.91	83.539	
6,900.00	6,776.45	5,975.93	5,646.83	25.14	33.73	-156.75	1,239.41	1,172.32	2,833.98	2,795.23	33.91	83.539	

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 19-31
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 19-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 19-31	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
7,000.00	6,876.45	7,240.43	6,876.45	25.24	37.81	29.36	1,369.76	1,300.30	2,833.98	2,794.93	39.05	72.576	
7,100.00	6,976.45	7,340.43	6,976.45	25.35	37.89	29.36	1,369.76	1,300.30	2,833.98	2,794.63	39.35	72.017	
7,200.00	7,076.45	7,440.43	7,076.45	25.46	37.98	29.36	1,369.76	1,300.30	2,833.98	2,794.32	39.66	71.462	
7,300.00	7,176.45	7,540.43	7,176.45	25.57	38.07	29.36	1,369.76	1,300.30	2,833.98	2,794.01	39.97	70.910	
7,400.00	7,276.45	7,640.43	7,276.45	25.68	38.16	29.36	1,369.76	1,300.30	2,833.98	2,793.70	40.28	70.362	
7,457.57	7,334.01	7,697.99	7,334.01	25.74	38.21	29.36	1,369.76	1,300.30	2,833.98	2,793.52	40.46	70.048	
7,500.00	7,376.45	7,718.98	7,355.00	25.79	38.23	29.36	1,369.76	1,300.30	2,834.06	2,793.50	40.56	69.877	
7,598.55	7,475.00	7,718.98	7,355.00	25.91	38.23	29.36	1,369.76	1,300.30	2,836.52	2,795.80	40.72	69.668	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_RURAL 19-31
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 19-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 19-31	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						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	-0.09	30.00	-0.05	30.00				
100.00	100.00	100.00	100.00	0.10	0.10	-0.09	30.00	-0.05	30.00	29.81	0.19	157.045	
200.00	200.00	200.00	200.00	0.32	0.32	-0.09	30.00	-0.05	30.00	29.36	0.64	46.838	
300.00	300.00	300.00	300.00	0.55	0.55	-0.09	30.00	-0.05	30.00	28.91	1.09	27.523	
400.00	400.00	400.00	400.00	0.77	0.77	-0.09	30.00	-0.05	30.00	28.46	1.54	19.487	
500.00	500.00	500.00	500.00	0.99	0.99	-0.09	30.00	-0.05	30.00	28.01	1.99	15.083	
600.00	600.00	600.00	600.00	1.22	1.22	-0.09	30.00	-0.05	30.00	27.57	2.44	12.303	
700.00	700.00	700.00	700.00	1.44	1.44	-0.09	30.00	-0.05	30.00	27.12	2.89	10.388 CC, ES	
800.00	799.98	799.98	799.98	1.64	1.67	175.53	30.00	-0.05	31.74	28.44	3.31	9.596 SF	
900.00	899.84	899.84	899.84	1.82	1.89	176.15	30.00	-0.05	36.96	33.26	3.71	9.976	
1,000.00	999.45	999.45	999.45	2.02	2.12	176.88	30.00	-0.05	45.66	41.56	4.11	11.118	
1,100.00	1,098.70	1,098.70	1,098.70	2.25	2.34	177.52	30.00	-0.05	57.83	53.32	4.51	12.818	
1,200.00	1,197.47	1,197.47	1,197.47	2.53	2.56	178.04	30.00	-0.05	73.47	68.55	4.92	14.936	
1,300.00	1,295.62	1,295.62	1,295.62	2.85	2.78	178.43	30.00	-0.05	92.54	87.21	5.33	17.373	
1,370.20	1,364.10	1,364.10	1,364.10	3.11	2.94	178.65	30.00	-0.05	107.97	102.35	5.61	19.235	
1,400.00	1,393.09	1,393.09	1,393.09	3.22	3.00	178.73	30.00	-0.05	114.87	109.13	5.75	19.990	
1,500.00	1,490.37	1,490.37	1,490.37	3.63	3.22	178.94	30.00	-0.05	138.05	131.85	6.20	22.268	
1,600.00	1,587.64	1,587.64	1,587.64	4.06	3.44	179.10	30.00	-0.05	161.23	154.57	6.66	24.214	
1,700.00	1,684.92	1,684.92	1,684.92	4.51	3.66	179.21	30.00	-0.05	184.41	177.29	7.12	25.892	
1,800.00	1,782.20	1,782.20	1,782.20	4.96	3.88	179.30	30.00	-0.05	207.59	200.00	7.59	27.350	
1,900.00	1,879.47	1,879.47	1,879.47	5.42	4.10	179.37	30.00	-0.05	230.77	222.71	8.06	28.629	
2,000.00	1,976.75	1,976.75	1,976.75	5.89	4.31	179.43	30.00	-0.05	253.95	245.41	8.53	29.757	
2,100.00	2,074.02	2,074.02	2,074.02	6.36	4.53	179.47	30.00	-0.05	277.13	268.12	9.01	30.759	
2,200.00	2,171.30	2,171.30	2,171.30	6.84	4.75	179.51	30.00	-0.05	300.31	290.82	9.49	31.654	
2,300.00	2,268.58	2,268.58	2,268.58	7.32	4.97	179.55	30.00	-0.05	323.49	313.52	9.97	32.459	
2,400.00	2,365.85	2,365.85	2,365.85	7.80	5.19	179.58	30.00	-0.05	346.67	336.22	10.45	33.186	
2,500.00	2,463.13	2,463.13	2,463.13	8.28	5.41	179.61	30.00	-0.05	369.85	358.92	10.93	33.846	
2,600.00	2,560.40	2,560.40	2,560.40	8.76	5.63	179.63	30.00	-0.05	393.03	381.62	11.41	34.447	
2,700.00	2,657.68	2,657.68	2,657.68	9.25	5.84	179.65	30.00	-0.05	416.21	404.32	11.89	34.997	
2,800.00	2,754.96	2,754.96	2,754.96	9.74	6.06	179.67	30.00	-0.05	439.39	427.02	12.38	35.501	
2,900.00	2,852.23	2,852.23	2,852.23	10.22	6.28	179.69	30.00	-0.05	462.58	449.71	12.86	35.966	
3,000.00	2,949.51	2,949.51	2,949.51	10.71	6.50	179.70	30.00	-0.05	485.76	472.41	13.35	36.396	
3,100.00	3,046.78	3,046.78	3,046.78	11.20	6.72	179.71	30.00	-0.05	508.94	495.11	13.83	36.794	
3,200.00	3,144.06	3,144.06	3,144.06	11.69	6.94	179.73	30.00	-0.05	532.12	517.80	14.32	37.164	
3,300.00	3,241.34	3,241.34	3,241.34	12.18	7.16	179.74	30.00	-0.05	555.30	540.50	14.80	37.509	
3,400.00	3,338.61	3,338.61	3,338.61	12.68	7.37	179.75	30.00	-0.05	578.48	563.19	15.29	37.831	
3,500.00	3,435.89	3,435.89	3,435.89	13.17	7.59	179.76	30.00	-0.05	601.66	585.88	15.78	38.132	
3,600.00	3,533.16	3,533.16	3,533.16	13.66	7.81	179.77	30.00	-0.05	624.84	608.58	16.27	38.415	
3,700.00	3,630.44	3,630.44	3,630.44	14.15	8.03	179.78	30.00	-0.05	648.02	631.27	16.75	38.680	
3,800.00	3,727.72	3,727.72	3,727.72	14.64	8.25	179.78	30.00	-0.05	671.21	653.96	17.24	38.930	
3,900.00	3,824.99	3,824.99	3,824.99	15.14	8.47	179.79	30.00	-0.05	694.39	676.66	17.73	39.166	
4,000.00	3,922.27	3,922.27	3,922.27	15.63	8.69	179.80	30.00	-0.05	717.57	699.35	18.22	39.388	
4,100.00	4,019.54	4,019.54	4,019.54	16.12	8.91	179.80	30.00	-0.05	740.75	722.04	18.71	39.599	
4,200.00	4,116.82	4,116.82	4,116.82	16.62	9.12	179.81	30.00	-0.05	763.93	744.74	19.20	39.798	
4,300.00	4,214.10	4,214.10	4,214.10	17.11	9.34	179.81	30.00	-0.05	787.11	767.43	19.68	39.987	
4,400.00	4,311.37	4,311.37	4,311.37	17.61	9.56	179.82	30.00	-0.05	810.29	790.12	20.17	40.167	
4,500.00	4,408.65	4,408.65	4,408.65	18.10	9.78	179.83	30.00	-0.05	833.48	812.81	20.66	40.338	
4,600.00	4,505.92	4,505.92	4,505.92	18.60	10.00	179.83	30.00	-0.05	856.66	835.51	21.15	40.501	
4,700.00	4,603.20	4,603.20	4,603.20	19.09	10.22	179.83	30.00	-0.05	879.84	858.20	21.64	40.656	
4,800.00	4,700.48	4,700.48	4,700.48	19.59	10.44	179.84	30.00	-0.05	903.02	880.89	22.13	40.805	
4,900.00	4,797.75	4,797.75	4,797.75	20.08	10.65	179.84	30.00	-0.05	926.20	903.58	22.62	40.946	
5,000.00	4,895.03	4,895.03	4,895.03	20.58	10.87	179.85	30.00	-0.05	949.38	926.27	23.11	41.082	

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 19-31
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 19-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 19-31	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	4,992.30	4,992.30	4,992.30	21.07	11.09	179.85	30.00	-0.05	972.56	948.96	23.60	41.211	
5,200.00	5,089.58	5,089.58	5,089.58	21.57	11.31	179.85	30.00	-0.05	995.74	971.66	24.09	41.335	
5,300.00	5,186.86	5,186.86	5,186.86	22.06	11.53	179.86	30.00	-0.05	1,018.93	994.35	24.58	41.455	
5,400.00	5,284.13	5,284.13	5,284.13	22.56	11.75	179.86	30.00	-0.05	1,042.11	1,017.04	25.07	41.569	
5,458.36	5,340.90	5,340.90	5,340.90	22.85	11.88	179.86	30.00	-0.05	1,055.64	1,030.28	25.36	41.634	
5,500.00	5,381.48	5,381.48	5,381.48	23.02	11.97	179.86	30.00	-0.05	1,064.99	1,039.40	25.59	41.614	
5,600.00	5,479.44	5,479.44	5,479.44	23.33	12.19	179.87	30.00	-0.05	1,085.05	1,058.94	26.12	41.548	
5,700.00	5,578.04	5,578.04	5,578.04	23.61	12.41	179.87	30.00	-0.05	1,101.68	1,075.08	26.60	41.415	
5,800.00	5,677.17	5,677.17	5,677.17	23.85	12.63	179.87	30.00	-0.05	1,114.85	1,087.81	27.05	41.220	
5,900.00	5,776.69	5,776.69	5,776.69	24.05	12.85	179.87	30.00	-0.05	1,124.56	1,097.11	27.45	40.967	
6,000.00	5,876.49	5,876.49	5,876.49	24.22	13.08	179.87	30.00	-0.05	1,130.79	1,102.98	27.81	40.658	
6,100.00	5,976.45	5,976.45	5,976.45	24.34	13.30	179.87	30.00	-0.05	1,133.53	1,105.40	28.13	40.297	
6,128.55	6,005.00	6,005.00	6,005.00	24.37	13.37	4.52	30.00	-0.05	1,133.67	1,105.46	28.22	40.178	
6,200.00	6,076.45	6,076.45	6,076.45	24.45	13.53	4.52	30.00	-0.05	1,133.67	1,105.17	28.50	39.778	
6,300.00	6,176.45	6,176.45	6,176.45	24.54	13.75	4.52	30.00	-0.05	1,133.67	1,104.79	28.88	39.249	
6,400.00	6,276.45	6,276.45	6,276.45	24.64	13.98	4.52	30.00	-0.05	1,133.67	1,104.40	29.27	38.731	
6,500.00	6,376.45	6,376.45	6,376.45	24.73	14.20	4.52	30.00	-0.05	1,133.67	1,104.01	29.66	38.225	
6,600.00	6,476.45	6,476.45	6,476.45	24.83	14.43	4.52	30.00	-0.05	1,133.67	1,103.63	30.05	37.730	
6,700.00	6,576.45	6,576.45	6,576.45	24.93	14.65	4.52	30.00	-0.05	1,133.67	1,103.23	30.44	37.246	
6,800.00	6,676.45	6,676.45	6,676.45	25.03	14.88	4.52	30.00	-0.05	1,133.67	1,102.84	30.83	36.773	
6,900.00	6,776.45	6,776.45	6,776.45	25.14	15.10	4.52	30.00	-0.05	1,133.67	1,102.45	31.22	36.309	
7,000.00	6,876.45	6,876.45	6,876.45	25.24	15.33	4.52	30.00	-0.05	1,133.67	1,102.05	31.62	35.856	
7,100.00	6,976.45	6,976.45	6,976.45	25.35	15.55	4.52	30.00	-0.05	1,133.67	1,101.66	32.01	35.412	
7,200.00	7,076.45	7,076.45	7,076.45	25.46	15.78	4.52	30.00	-0.05	1,133.67	1,101.26	32.41	34.978	
7,300.00	7,176.45	7,176.45	7,176.45	25.57	16.00	4.52	30.00	-0.05	1,133.67	1,100.86	32.81	34.553	
7,400.00	7,276.45	7,276.45	7,276.45	25.68	16.23	4.52	30.00	-0.05	1,133.67	1,100.46	33.21	34.137	
7,500.00	7,376.45	7,376.45	7,376.45	25.79	16.45	4.52	30.00	-0.05	1,133.67	1,100.06	33.61	33.730	
7,563.95	7,440.39	7,440.39	7,440.39	25.87	16.59	4.52	30.00	-0.05	1,133.67	1,099.81	33.87	33.474	
7,598.55	7,475.00	7,475.00	7,475.00	25.91	16.66	4.52	30.00	-0.05	1,133.68	1,099.69	33.99	33.349	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_RURAL 19-31
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 19-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 19-31	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 33-31 - P_RURAL 33-31 - 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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.20	0.00	18.20				
100.00	100.00	100.00	100.00	0.10	0.10	0.00	18.20	0.00	18.20	18.01	0.19	95.251	
200.00	200.00	200.00	200.00	0.32	0.32	0.00	18.20	0.00	18.20	17.56	0.64	28.408	
300.00	300.00	300.00	300.00	0.55	0.55	0.00	18.20	0.00	18.20	17.11	1.09	16.694	
400.00	400.00	400.00	400.00	0.77	0.77	0.00	18.20	0.00	18.20	16.66	1.54	11.820	
500.00	500.00	500.00	500.00	0.99	0.99	0.00	18.20	0.00	18.20	16.21	1.99	9.148	
600.00	600.00	600.00	600.00	1.22	1.22	0.00	18.20	0.00	18.20	15.76	2.44	7.462	
700.00	700.00	700.00	700.00	1.44	1.44	0.00	18.20	0.00	18.20	15.31	2.89	6.301 CC, ES	
800.00	799.98	800.44	800.41	1.64	1.65	171.97	16.96	-1.25	18.73	15.45	3.29	5.701	
900.00	899.84	900.78	900.62	1.82	1.84	163.02	13.24	-4.98	20.68	17.03	3.65	5.666 SF	
1,000.00	999.45	1,000.95	1,000.40	2.02	2.05	151.72	7.05	-11.19	24.79	20.74	4.05	6.125	
1,100.00	1,098.70	1,100.86	1,099.55	2.25	2.29	141.38	-1.56	-19.84	31.59	27.09	4.50	7.022	
1,200.00	1,197.47	1,200.42	1,197.88	2.53	2.57	133.38	-12.56	-30.89	41.22	36.19	5.03	8.199	
1,300.00	1,295.62	1,299.55	1,295.19	2.85	2.90	127.59	-25.91	-44.30	53.58	47.93	5.65	9.484	
1,370.20	1,364.10	1,368.84	1,362.78	3.11	3.16	124.54	-36.64	-55.08	63.81	57.66	6.15	10.369	
1,400.00	1,393.09	1,398.19	1,391.30	3.22	3.28	123.41	-41.53	-59.99	68.45	62.07	6.38	10.729	
1,500.00	1,490.37	1,496.33	1,486.12	3.63	3.71	119.05	-59.39	-77.93	84.53	77.31	7.22	11.709	
1,600.00	1,587.64	1,593.82	1,579.39	4.06	4.21	114.26	-79.39	-98.01	101.77	93.63	8.14	12.505	
1,700.00	1,684.92	1,690.42	1,670.81	4.51	4.77	109.39	-101.40	-120.12	120.61	111.50	9.11	13.234	
1,800.00	1,782.20	1,785.95	1,760.13	4.96	5.39	104.65	-125.29	-144.12	141.43	131.31	10.12	13.974	
1,900.00	1,879.47	1,880.69	1,847.57	5.42	6.05	100.17	-151.02	-169.95	164.50	153.37	11.14	14.773	
2,000.00	1,976.75	1,977.02	1,936.07	5.89	6.77	96.45	-177.86	-196.91	188.90	176.75	12.16	15.540	
2,100.00	2,074.02	2,073.35	2,024.57	6.36	7.50	93.58	-204.70	-223.87	213.89	200.73	13.16	16.249	
2,200.00	2,171.30	2,169.68	2,113.07	6.84	8.23	91.31	-231.54	-250.83	239.27	225.11	14.16	16.893	
2,300.00	2,268.58	2,266.02	2,201.58	7.32	8.98	89.48	-258.38	-277.79	264.95	249.79	15.16	17.476	
2,400.00	2,365.85	2,362.35	2,290.08	7.80	9.73	87.97	-285.22	-304.75	290.83	274.67	16.15	18.003	
2,500.00	2,463.13	2,458.68	2,378.58	8.28	10.48	86.70	-312.07	-331.71	316.87	299.72	17.15	18.479	
2,600.00	2,560.40	2,555.01	2,467.08	8.76	11.24	85.63	-338.91	-358.67	343.03	324.89	18.14	18.911	
2,700.00	2,657.68	2,651.34	2,555.58	9.25	12.00	84.71	-365.75	-385.63	369.29	350.16	19.13	19.303	
2,800.00	2,754.96	2,747.68	2,644.09	9.74	12.76	83.91	-392.59	-412.58	395.63	375.50	20.12	19.661	
2,900.00	2,852.23	2,844.01	2,732.59	10.22	13.53	83.21	-419.43	-439.54	422.03	400.91	21.11	19.989	
3,000.00	2,949.51	2,940.34	2,821.09	10.71	14.30	82.59	-446.27	-466.50	448.48	426.37	22.10	20.289	
3,100.00	3,046.78	3,036.67	2,909.59	11.20	15.06	82.05	-473.11	-493.46	474.97	451.88	23.09	20.566	
3,200.00	3,144.06	3,133.00	2,998.09	11.69	15.83	81.56	-499.96	-520.42	501.50	477.42	24.09	20.822	
3,300.00	3,241.34	3,229.34	3,086.60	12.18	16.60	81.11	-526.80	-547.38	528.06	502.99	25.08	21.058	
3,400.00	3,338.61	3,325.67	3,175.10	12.68	17.37	80.71	-553.64	-574.34	554.65	528.58	26.07	21.278	
3,500.00	3,435.89	3,422.00	3,263.60	13.17	18.15	80.35	-580.48	-601.30	581.26	554.20	27.06	21.483	
3,600.00	3,533.16	3,518.33	3,352.10	13.66	18.92	80.02	-607.32	-628.26	607.89	579.84	28.05	21.674	
3,700.00	3,630.44	3,614.67	3,440.60	14.15	19.69	79.72	-634.16	-655.22	634.54	605.50	29.04	21.853	
3,800.00	3,727.72	3,711.00	3,529.11	14.64	20.47	79.44	-661.01	-682.17	661.20	631.17	30.03	22.021	
3,900.00	3,824.99	3,807.33	3,617.61	15.14	21.24	79.18	-687.85	-709.13	687.88	656.86	31.02	22.178	
4,000.00	3,922.27	3,903.66	3,706.11	15.63	22.02	78.94	-714.69	-736.09	714.56	682.56	32.00	22.327	
4,100.00	4,019.54	3,999.99	3,794.61	16.12	22.79	78.72	-741.53	-763.05	741.26	708.27	32.99	22.467	
4,200.00	4,116.82	4,096.33	3,883.12	16.62	23.57	78.52	-768.37	-790.01	767.97	733.99	33.98	22.599	
4,300.00	4,214.10	4,192.66	3,971.62	17.11	24.34	78.33	-795.21	-816.97	794.69	759.72	34.97	22.725	
4,400.00	4,311.37	4,288.99	4,060.12	17.61	25.12	78.15	-822.06	-843.93	821.41	785.45	35.96	22.844	
4,500.00	4,408.65	4,385.32	4,148.62	18.10	25.90	77.98	-848.90	-870.89	848.14	811.20	36.94	22.957	
4,600.00	4,505.92	4,481.65	4,237.12	18.60	26.67	77.82	-875.74	-897.85	874.88	836.95	37.93	23.065	
4,700.00	4,603.20	4,577.99	4,325.63	19.09	27.45	77.67	-902.58	-924.80	901.62	862.71	38.92	23.167	
4,800.00	4,700.48	4,674.32	4,414.13	19.59	28.23	77.53	-929.42	-951.76	928.37	888.47	39.90	23.265	
4,900.00	4,797.75	4,770.65	4,502.63	20.08	29.00	77.40	-956.26	-978.72	955.13	914.24	40.89	23.358	
5,000.00	4,895.03	4,866.98	4,591.13	20.58	29.78	77.28	-983.10	-1,005.68	981.88	940.01	41.88	23.448	

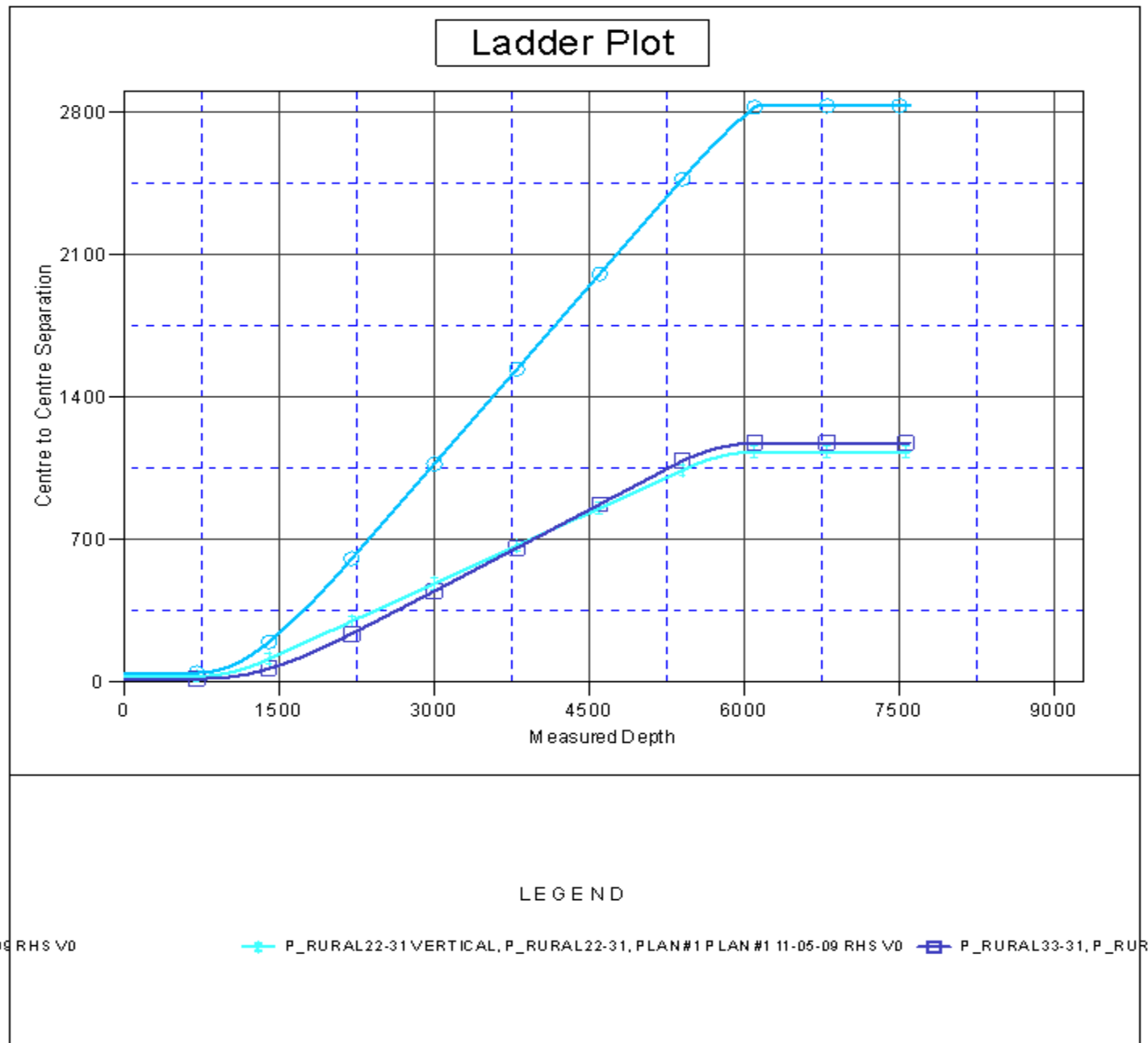
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_RURAL 19-31
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 19-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 19-31	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 33-31 - P_RURAL 33-31 - 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	4,992.30	4,963.32	4,679.63	21.07	30.56	77.16	-1,009.95	-1,032.64	1,008.65	965.79	42.86	23.534	
5,200.00	5,089.58	5,059.65	4,768.14	21.57	31.34	77.05	-1,036.79	-1,059.60	1,035.41	991.57	43.84	23.616	
5,300.00	5,186.86	5,155.98	4,856.64	22.06	32.11	76.94	-1,063.63	-1,086.56	1,062.18	1,017.35	44.83	23.695	
5,400.00	5,284.13	5,282.76	4,973.81	22.56	32.92	76.87	-1,097.78	-1,120.86	1,087.96	1,042.10	45.86	23.725	
5,458.36	5,340.90	5,364.01	5,049.95	22.85	33.35	76.92	-1,117.77	-1,140.94	1,101.37	1,054.89	46.48	23.698	
5,500.00	5,381.48	5,422.45	5,105.20	23.02	33.65	77.16	-1,131.21	-1,154.43	1,110.23	1,063.29	46.93	23.655	
5,600.00	5,479.44	5,564.17	5,240.71	23.33	34.31	77.65	-1,160.47	-1,183.82	1,129.35	1,081.47	47.88	23.587	
5,700.00	5,578.04	5,707.65	5,379.81	23.61	34.88	78.05	-1,185.23	-1,208.69	1,145.35	1,096.64	48.71	23.515	
5,800.00	5,677.17	5,852.59	5,521.93	23.85	35.36	78.37	-1,205.23	-1,228.78	1,158.15	1,108.75	49.40	23.444	
5,900.00	5,776.69	5,998.70	5,666.47	24.05	35.74	78.59	-1,220.23	-1,243.85	1,167.70	1,117.72	49.97	23.367	
6,000.00	5,876.49	6,145.64	5,812.73	24.22	36.02	78.73	-1,230.06	-1,253.71	1,173.92	1,123.52	50.40	23.292	
6,100.00	5,976.45	6,293.07	5,960.01	24.34	36.20	78.78	-1,234.58	-1,258.26	1,176.81	1,126.10	50.70	23.209	
6,128.55	6,005.00	6,335.21	6,002.14	24.37	36.24	-96.57	-1,234.89	-1,258.57	1,177.01	1,126.24	50.77	23.182	
6,200.00	6,076.45	6,409.51	6,076.45	24.45	36.29	-96.57	-1,234.90	-1,258.58	1,177.02	1,126.10	50.92	23.114	
6,300.00	6,176.45	6,509.51	6,176.45	24.54	36.36	-96.57	-1,234.90	-1,258.58	1,177.02	1,125.91	51.11	23.030	
6,400.00	6,276.45	6,609.51	6,276.45	24.64	36.43	-96.57	-1,234.90	-1,258.58	1,177.02	1,125.73	51.30	22.946	
6,500.00	6,376.45	6,709.51	6,376.45	24.73	36.50	-96.57	-1,234.90	-1,258.58	1,177.02	1,125.53	51.49	22.860	
6,600.00	6,476.45	6,809.51	6,476.45	24.83	36.58	-96.57	-1,234.90	-1,258.58	1,177.02	1,125.34	51.68	22.774	
6,700.00	6,576.45	6,909.51	6,576.45	24.93	36.65	-96.57	-1,234.90	-1,258.58	1,177.02	1,125.14	51.88	22.687	
6,800.00	6,676.45	7,009.51	6,676.45	25.03	36.73	-96.57	-1,234.90	-1,258.58	1,177.02	1,124.94	52.08	22.600	
6,900.00	6,776.45	7,109.51	6,776.45	25.14	36.80	-96.57	-1,234.90	-1,258.58	1,177.02	1,124.74	52.29	22.511	
7,000.00	6,876.45	7,209.51	6,876.45	25.24	36.88	-96.57	-1,234.90	-1,258.58	1,177.02	1,124.53	52.49	22.422	
7,100.00	6,976.45	7,309.51	6,976.45	25.35	36.96	-96.57	-1,234.90	-1,258.58	1,177.02	1,124.32	52.70	22.333	
7,200.00	7,076.45	7,409.51	7,076.45	25.46	37.04	-96.57	-1,234.90	-1,258.58	1,177.02	1,124.10	52.92	22.243	
7,300.00	7,176.45	7,509.51	7,176.45	25.57	37.13	-96.57	-1,234.90	-1,258.58	1,177.02	1,123.89	53.13	22.152	
7,400.00	7,276.45	7,609.51	7,276.45	25.68	37.21	-96.57	-1,234.90	-1,258.58	1,177.02	1,123.67	53.35	22.061	
7,500.00	7,376.45	7,709.51	7,376.45	25.79	37.29	-96.57	-1,234.90	-1,258.58	1,177.02	1,123.45	53.57	21.970	
7,561.99	7,438.44	7,771.50	7,438.44	25.86	37.35	-96.57	-1,234.90	-1,258.58	1,177.02	1,123.31	53.71	21.913	
7,598.55	7,475.00	7,798.06	7,465.00	25.91	37.37	-96.57	-1,234.90	-1,258.58	1,177.06	1,123.28	53.79	21.884	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_RURAL 19-31
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 19-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 19-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-05-09 RHS	Offset TVD Reference:	Offset Datum

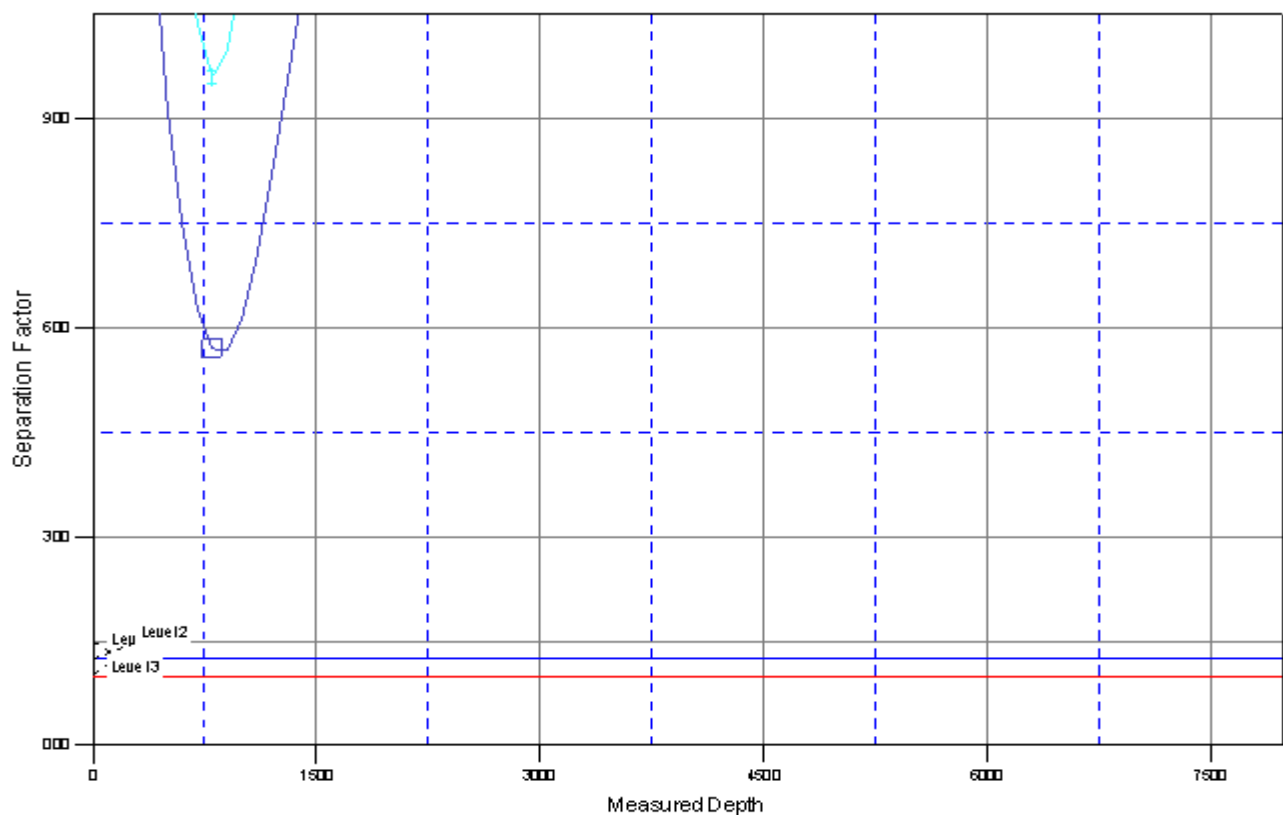
Reference Depths are relative to WELL @ 4895.00ft (Original Well Elev) Coordinates are relative to: P_RURAL 19-31
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.51°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_RURAL 19-31
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 19-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_RURAL 19-31	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 19-31
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°

Separation Factor Plot



LEGEND

09 RHS V0

— P_RURAL22-31 VERTICAL, P_RURAL22-31, PLAN #1 PLAN #1 11-05-09 RHS V0 — P_RURAL33-31, P_RUR