



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_MAPLEWOOD 16-7

P_MAPLEWOOD 22-7

P_MAPLEWOOD 22-7

Plan: PLAN #1 1-19-10 RHS

Standard Planning Report

19 January, 2010





Azimuths to True North
Magnetic North: 9.14°
Magnetic Field
Strength: 53219.9nT
Dip Angle: 67.01°
Date: 1/19/2010
Model: IGRF2010

WELL DETAILS: P_MAPLEWOOD 22-7

+N/-S	+E/-W	Northing	Ground Level:	Latitude	Longitude	Slot
0.00	0.00	1361162.37	4848.00 Easting 3156606.55	40° 19' 24.348 N	104° 56' 17.988 W	

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	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	
2138.11	24.76	10.95	2099.93	258.61	50.02	2.00	10.95	263.41	
4946.48	24.76	10.95	4650.07	1413.50	273.40	0.00	0.00	1439.70	
6184.59	0.00	0.00	5850.00	1672.11	323.42	2.00	180.00	1703.10	
7934.59	0.00	0.00	7600.00	1672.11	323.42	0.00	0.00	1703.10	PBHL_MAPLEWOOD 22-7(2580 FSL 1280 FWL)50'TGT RAD

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

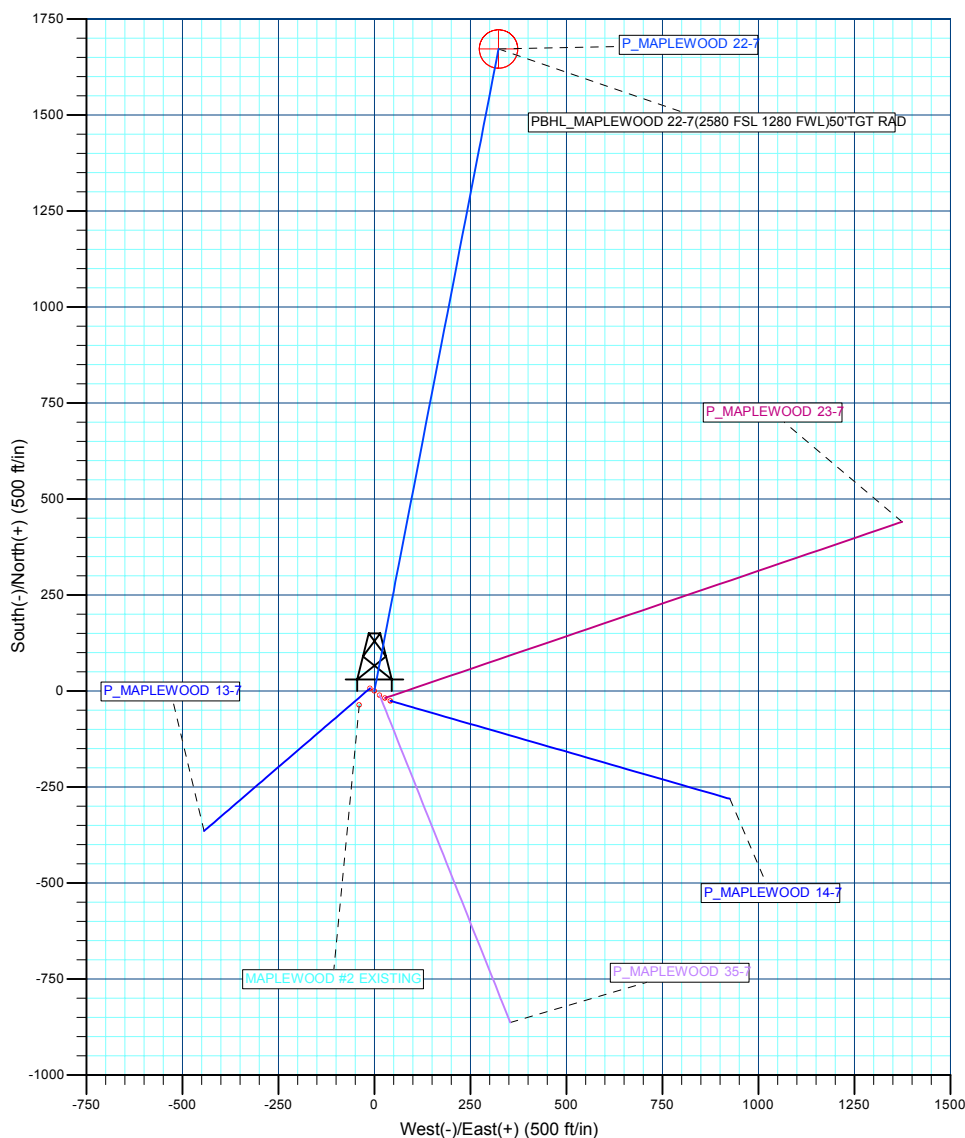
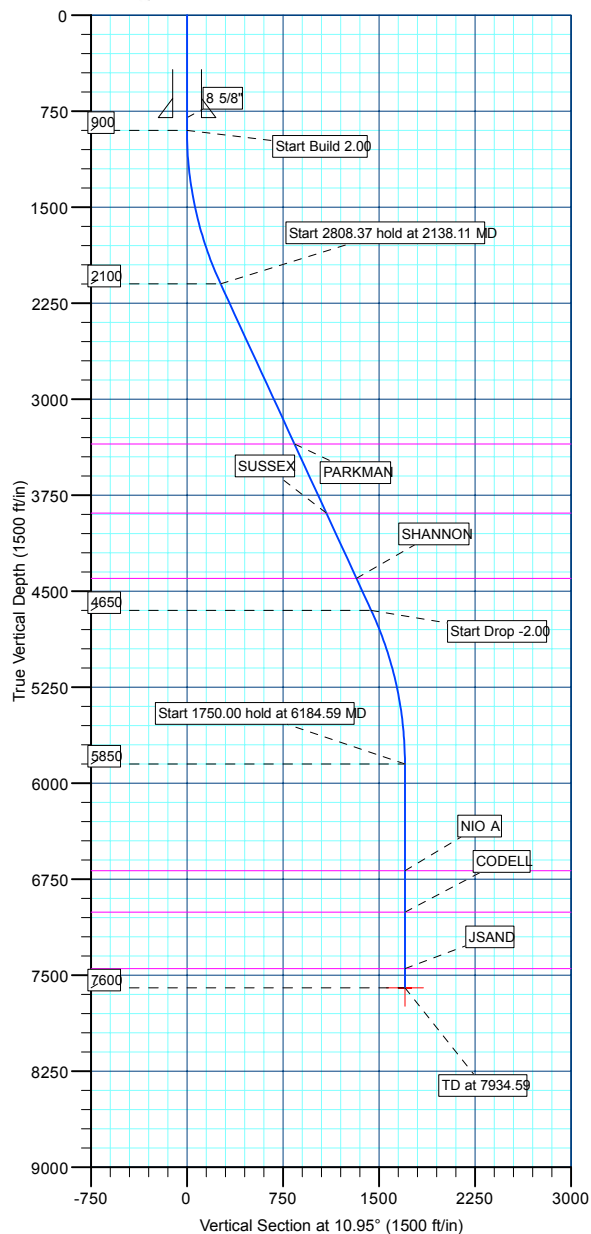
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	7600.00	1672.11	323.42	1362836.50	3156919.36	40° 19' 40.872 N	104° 56' 13.812 W	Circle (Radius: 50.00)

CASING DETAILS

TVD	MD	Name	Size
800.00	800.00	8 5/8"	8.62

KB ELEV:WELL @ 4863.00ft (Original Well Elev)

GRD ELEV: 4848.00



Plan: PLAN #1 1-19-10 RHS (P_MAPLEWOOD 22-7/P_MAPLEWOOD 22-7)

Created By: Robert H. Scott

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MAPLEWOOD 22-7
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site:	WELD_MAPLEWOOD 16-7	North Reference:	True
Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MAPLEWOOD 22-7		
Design:	PLAN #1 1-19-10 RHS		

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

Site						WELD_MAPLEWOOD 16-7, SECTION 7 T4N R67W											
Site Position:			Northing:			1,361,151.54 ft			Latitude:			40° 19' 24.240 N					
From:			Lat/Long			Easting:			3,156,620.56 ft			Longitude:			104° 56' 17.808 W		
Position Uncertainty:			0.00 ft			Slot Radius:			in			Grid Convergence:			0.36 °		

Well	P_MAPLEWOOD 22-7					
Well Position	+N/-S	10.92 ft	Northing:	1,361,162.37 ft	Latitude:	40° 19' 24.348 N
	+E/-W	-13.94 ft	Easting:	3,156,606.55 ft	Longitude:	104° 56' 17.988 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,848.00 ft

Wellbore	P_MAPLEWOOD 22-7				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/19/2010	9.14	67.01	53,220

Design	PLAN #1 1-19-10 RHS			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	10.95

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	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,138.11	24.76	10.95	2,099.93	258.61	50.02	2.00	2.00	0.00	10.95	
4,946.48	24.76	10.95	4,650.07	1,413.50	273.40	0.00	0.00	0.00	0.00	
6,184.59	0.00	0.00	5,850.00	1,672.11	323.42	2.00	-2.00	0.00	180.00	
7,934.59	0.00	0.00	7,600.00	1,672.11	323.42	0.00	0.00	0.00	0.00	PBHL_MAPLEWOC

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MAPLEWOOD 22-7
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site:	WELD_MAPLEWOOD 16-7	North Reference:	True
Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MAPLEWOOD 22-7		
Design:	PLAN #1 1-19-10 RHS		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Start Build 2.00									
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	2.00	10.95	999.98	1.71	0.33	1.75	2.00	2.00	0.00
1,100.00	4.00	10.95	1,099.84	6.85	1.33	6.98	2.00	2.00	0.00
1,200.00	6.00	10.95	1,199.45	15.41	2.98	15.69	2.00	2.00	0.00
1,300.00	8.00	10.95	1,298.70	27.37	5.29	27.88	2.00	2.00	0.00
1,400.00	10.00	10.95	1,397.47	42.73	8.26	43.52	2.00	2.00	0.00
1,500.00	12.00	10.95	1,495.62	61.46	11.89	62.60	2.00	2.00	0.00
1,600.00	14.00	10.95	1,593.06	83.55	16.16	85.10	2.00	2.00	0.00
1,700.00	16.00	10.95	1,689.64	108.96	21.07	110.98	2.00	2.00	0.00
1,800.00	18.00	10.95	1,785.27	137.66	26.63	140.21	2.00	2.00	0.00
1,900.00	20.00	10.95	1,879.82	169.62	32.81	172.77	2.00	2.00	0.00
2,000.00	22.00	10.95	1,973.17	204.81	39.61	208.60	2.00	2.00	0.00
2,100.00	24.00	10.95	2,065.21	243.17	47.03	247.67	2.00	2.00	0.00
Start 2808.37 hold at 2138.11 MD									
2,138.11	24.76	10.95	2,099.93	258.61	50.02	263.41	2.00	2.00	0.00
2,200.00	24.76	10.95	2,156.13	284.06	54.94	289.33	0.00	0.00	0.00
2,300.00	24.76	10.95	2,246.93	325.19	62.90	331.21	0.00	0.00	0.00
2,400.00	24.76	10.95	2,337.74	366.31	70.85	373.10	0.00	0.00	0.00
2,500.00	24.76	10.95	2,428.54	407.43	78.80	414.98	0.00	0.00	0.00
2,600.00	24.76	10.95	2,519.35	448.56	86.76	456.87	0.00	0.00	0.00
2,700.00	24.76	10.95	2,610.15	489.68	94.71	498.76	0.00	0.00	0.00
2,800.00	24.76	10.95	2,700.96	530.80	102.67	540.64	0.00	0.00	0.00
2,900.00	24.76	10.95	2,791.76	571.93	110.62	582.53	0.00	0.00	0.00
3,000.00	24.76	10.95	2,882.57	613.05	118.57	624.41	0.00	0.00	0.00
3,100.00	24.76	10.95	2,973.37	654.17	126.53	666.30	0.00	0.00	0.00
3,200.00	24.76	10.95	3,064.18	695.30	134.48	708.18	0.00	0.00	0.00
3,300.00	24.76	10.95	3,154.98	736.42	142.44	750.07	0.00	0.00	0.00
3,400.00	24.76	10.95	3,245.79	777.54	150.39	791.95	0.00	0.00	0.00
3,500.00	24.76	10.95	3,336.60	818.67	158.34	833.84	0.00	0.00	0.00
PARKMAN									
3,514.76	24.76	10.95	3,350.00	824.74	159.52	840.02	0.00	0.00	0.00
3,600.00	24.76	10.95	3,427.40	859.79	166.30	875.72	0.00	0.00	0.00
3,700.00	24.76	10.95	3,518.21	900.91	174.25	917.61	0.00	0.00	0.00
3,800.00	24.76	10.95	3,609.01	942.03	182.21	959.49	0.00	0.00	0.00
3,900.00	24.76	10.95	3,699.82	983.16	190.16	1,001.38	0.00	0.00	0.00
4,000.00	24.76	10.95	3,790.62	1,024.28	198.11	1,043.26	0.00	0.00	0.00
4,100.00	24.76	10.95	3,881.43	1,065.40	206.07	1,085.15	0.00	0.00	0.00
SUSSEX									
4,109.44	24.76	10.95	3,890.00	1,069.29	206.82	1,089.10	0.00	0.00	0.00
4,200.00	24.76	10.95	3,972.23	1,106.53	214.02	1,127.03	0.00	0.00	0.00
4,300.00	24.76	10.95	4,063.04	1,147.65	221.98	1,168.92	0.00	0.00	0.00
4,400.00	24.76	10.95	4,153.84	1,188.77	229.93	1,210.81	0.00	0.00	0.00
4,500.00	24.76	10.95	4,244.65	1,229.90	237.88	1,252.69	0.00	0.00	0.00
4,600.00	24.76	10.95	4,335.45	1,271.02	245.84	1,294.58	0.00	0.00	0.00
SHANNON									
4,671.08	24.76	10.95	4,400.00	1,300.25	251.49	1,324.35	0.00	0.00	0.00
4,700.00	24.76	10.95	4,426.26	1,312.14	253.79	1,336.46	0.00	0.00	0.00
4,800.00	24.76	10.95	4,517.07	1,353.27	261.74	1,378.35	0.00	0.00	0.00
4,900.00	24.76	10.95	4,607.87	1,394.39	269.70	1,420.23	0.00	0.00	0.00
Start Drop -2.00									
4,946.48	24.76	10.95	4,650.07	1,413.50	273.40	1,439.70	0.00	0.00	0.00
5,000.00	23.69	10.95	4,698.88	1,435.07	277.57	1,461.66	2.00	-2.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MAPLEWOOD 22-7
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site:	WELD_MAPLEWOOD 16-7	North Reference:	True
Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MAPLEWOOD 22-7		
Design:	PLAN #1 1-19-10 RHS		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,100.00	21.69	10.95	4,791.14	1,472.94	284.89	1,500.24	2.00	-2.00	0.00
5,200.00	19.69	10.95	4,884.68	1,507.63	291.60	1,535.57	2.00	-2.00	0.00
5,300.00	17.69	10.95	4,979.40	1,539.09	297.69	1,567.62	2.00	-2.00	0.00
5,400.00	15.69	10.95	5,075.18	1,567.29	303.14	1,596.34	2.00	-2.00	0.00
5,500.00	13.69	10.95	5,171.91	1,592.19	307.96	1,621.70	2.00	-2.00	0.00
5,600.00	11.69	10.95	5,269.46	1,613.76	312.13	1,643.67	2.00	-2.00	0.00
5,700.00	9.69	10.95	5,367.72	1,631.97	315.65	1,662.22	2.00	-2.00	0.00
5,800.00	7.69	10.95	5,466.57	1,646.81	318.52	1,677.33	2.00	-2.00	0.00
5,900.00	5.69	10.95	5,565.88	1,658.25	320.73	1,688.98	2.00	-2.00	0.00
6,000.00	3.69	10.95	5,665.54	1,666.28	322.29	1,697.16	2.00	-2.00	0.00
6,100.00	1.69	10.95	5,765.43	1,670.89	323.18	1,701.86	2.00	-2.00	0.00
Start 1750.00 hold at 6184.59 MD									
6,184.59	0.00	0.00	5,850.00	1,672.11	323.42	1,703.10	2.00	-2.00	0.00
6,200.00	0.00	0.00	5,865.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
6,300.00	0.00	0.00	5,965.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
6,400.00	0.00	0.00	6,065.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
6,500.00	0.00	0.00	6,165.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
6,600.00	0.00	0.00	6,265.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
6,700.00	0.00	0.00	6,365.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
6,800.00	0.00	0.00	6,465.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
6,900.00	0.00	0.00	6,565.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
7,000.00	0.00	0.00	6,665.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
NIO A									
7,018.59	0.00	0.00	6,684.00	1,672.11	323.42	1,703.10	0.00	0.00	0.00
7,100.00	0.00	0.00	6,765.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
7,200.00	0.00	0.00	6,865.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
7,300.00	0.00	0.00	6,965.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
CODELL									
7,342.59	0.00	0.00	7,008.00	1,672.11	323.42	1,703.10	0.00	0.00	0.00
7,400.00	0.00	0.00	7,065.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
7,500.00	0.00	0.00	7,165.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
7,600.00	0.00	0.00	7,265.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
7,700.00	0.00	0.00	7,365.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
JSAND									
7,783.59	0.00	0.00	7,449.00	1,672.11	323.42	1,703.10	0.00	0.00	0.00
7,800.00	0.00	0.00	7,465.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
7,900.00	0.00	0.00	7,565.41	1,672.11	323.42	1,703.10	0.00	0.00	0.00
PBHL_MAPLEWOOD 22-7(2580 FSL 1280 FWL)50'TGT RAD									
7,934.59	0.00	0.00	7,600.00	1,672.11	323.42	1,703.10	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_MAPLEWOOD	0.00	0.00	7,600.00	1,672.11	323.42	1,362,836.50	3,156,919.36	40° 19' 40.872 N	104° 56' 13.812 W
- plan hits target center									
- Circle (radius 50.00)									

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MAPLEWOOD 22-7
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site:	WELD_MAPLEWOOD 16-7	North Reference:	True
Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MAPLEWOOD 22-7		
Design:	PLAN #1 1-19-10 RHS		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
800.00	800.00	8 5/8"	8.62	11.00	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,514.76	3,350.00	PARKMAN				
4,109.44	3,890.00	SUSSEX				
4,671.08	4,400.00	SHANNON				
7,018.59	6,684.00	NIO A				
7,342.59	7,008.00	CODELL				
7,783.59	7,449.00	JSAND				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
900.00	900.00	0.00	0.00	Start Build 2.00	
2,138.11	2,099.93	258.61	50.02	Start 2808.37 hold at 2138.11 MD	
4,946.48	4,650.07	1,413.50	273.40	Start Drop -2.00	
6,184.59	5,850.00	1,672.11	323.42	Start 1750.00 hold at 6184.59 MD	
7,934.59	7,600.00	1,672.11	323.42	TD at 7934.59	



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_MAPLEWOOD 16-7
P_MAPLEWOOD 22-7**

**P_MAPLEWOOD 22-7
PLAN #1 1-19-10 RHS**

Anticollision Report

19 January, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MAPLEWOOD 22-7
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Reference Site:	WELD_MAPLEWOOD 16-7	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 22-7	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-19-10 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 1-19-10 RHS		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	0.00 to 20,000.00ft	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 1/19/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	7,934.59	PLAN #1 1-19-10 RHS (P_MAPLEWOOD	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_MAPLEWOOD 16-7						
MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXIST	900.00	888.00	53.40	49.62	14.137	CC, ES
MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXIST	1,100.00	1,087.84	59.19	54.52	12.681	SF
P_MAPLEWOOD 13-7 - P_MAPLEWOOD 13-7 - PLAN #	946.21	946.14	13.30	9.32	3.339	CC, ES
P_MAPLEWOOD 13-7 - P_MAPLEWOOD 13-7 - PLAN #	1,000.00	999.76	13.55	9.34	3.217	SF
P_MAPLEWOOD 14-7 - P_MAPLEWOOD 14-7 - PLAN #	900.00	900.00	48.99	45.20	12.934	CC, ES
P_MAPLEWOOD 14-7 - P_MAPLEWOOD 14-7 - PLAN #	1,000.00	998.31	51.26	47.05	12.165	SF
P_MAPLEWOOD 23-7 - P_MAPLEWOOD 23-7 - PLAN #	900.00	900.00	33.30	29.52	8.793	CC, ES
P_MAPLEWOOD 23-7 - P_MAPLEWOOD 23-7 - PLAN #	1,000.00	999.26	35.03	30.81	8.292	SF
P_MAPLEWOOD 35-7 - P_MAPLEWOOD 35-7 - PLAN #	900.00	900.00	17.71	15.35	7.512	CC, ES, SF

Offset Design WELD_MAPLEWOOD 16-7 - MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXISTING													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)	Offset Wellbore Centre +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	-133.03	-36.44	-39.04	54.73					
100.00	100.00	88.00	88.00	0.10	0.10	-133.03	-36.44	-39.04	53.40	53.20	0.19	274.621		
200.00	200.00	188.00	188.00	0.32	0.31	-133.03	-36.44	-39.04	53.40	52.77	0.63	84.697		
300.00	300.00	288.00	288.00	0.55	0.53	-133.03	-36.44	-39.04	53.40	52.32	1.08	49.444		
400.00	400.00	388.00	388.00	0.77	0.76	-133.03	-36.44	-39.04	53.40	51.87	1.53	34.912		
500.00	500.00	488.00	488.00	0.99	0.98	-133.03	-36.44	-39.04	53.40	51.42	1.98	26.982		
600.00	600.00	588.00	588.00	1.22	1.21	-133.03	-36.44	-39.04	53.40	50.97	2.43	21.988		
700.00	700.00	688.00	688.00	1.44	1.43	-133.03	-36.44	-39.04	53.40	50.52	2.88	18.553		
800.00	800.00	788.00	788.00	1.67	1.66	-133.03	-36.44	-39.04	53.40	50.07	3.33	16.047		
900.00	900.00	888.00	888.00	1.89	1.88	-133.03	-36.44	-39.04	53.40	49.62	3.78	14.137	CC, ES	
1,000.00	999.98	987.98	987.98	2.12	2.11	-145.03	-36.44	-39.04	54.82	50.60	4.22	12.977		
1,100.00	1,099.84	1,087.84	1,087.84	2.34	2.33	-147.89	-36.44	-39.04	59.19	54.52	4.67	12.681	SF	
1,200.00	1,199.45	1,187.45	1,187.45	2.57	2.56	-151.79	-36.44	-39.04	66.73	61.63	5.11	13.070		
1,300.00	1,298.70	1,286.70	1,286.70	2.82	2.78	-155.95	-36.44	-39.04	77.70	72.16	5.54	14.025		
1,400.00	1,397.47	1,385.47	1,385.47	3.09	3.00	-159.81	-36.44	-39.04	92.22	86.25	5.97	15.452		
1,500.00	1,495.62	1,483.62	1,483.62	3.40	3.22	-163.12	-36.44	-39.04	110.35	103.96	6.39	17.268		
1,600.00	1,593.06	1,581.06	1,581.06	3.75	3.44	-165.84	-36.44	-39.04	132.07	125.27	6.81	19.404		
1,700.00	1,689.64	1,677.64	1,677.64	4.16	3.66	-168.03	-36.44	-39.04	157.33	150.11	7.22	21.800		

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_MAPLEWOOD 22-7
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Reference Site:	WELD_MAPLEWOOD 16-7	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 22-7	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-19-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design		WELD_MAPLEWOOD 16-7 - MAPLEWOOD #2 EXISTING - MAPLEWOOD #									
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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_MAPLEWOOD 22-7
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Reference Site:	WELD_MAPLEWOOD 16-7	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 22-7	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-19-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_MAPLEWOOD 16-7 - MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXISTING - MAPLEWOOD #2 EXISTING												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,700.00	6,365.41	6,353.41	6,353.41	33.72	14.17	-168.02	-36.44	-39.04	1,746.57	1,714.95	31.63	55.225	
6,800.00	6,465.41	6,453.41	6,453.41	33.80	14.39	-168.02	-36.44	-39.04	1,746.57	1,714.56	32.02	54.553	
6,900.00	6,565.41	6,553.41	6,553.41	33.89	14.62	-168.02	-36.44	-39.04	1,746.57	1,714.17	32.41	53.894	
7,000.00	6,665.41	6,653.41	6,653.41	33.98	14.84	-168.02	-36.44	-39.04	1,746.57	1,713.77	32.80	53.248	
7,100.00	6,765.41	6,753.41	6,753.41	34.06	15.07	-168.02	-36.44	-39.04	1,746.57	1,713.38	33.19	52.617	
7,200.00	6,865.41	6,853.41	6,853.41	34.15	15.29	-168.02	-36.44	-39.04	1,746.57	1,712.98	33.59	51.998	
7,300.00	6,965.41	6,953.41	6,953.41	34.25	15.52	-168.02	-36.44	-39.04	1,746.57	1,712.59	33.99	51.391	
7,400.00	7,065.41	7,053.41	7,053.41	34.34	15.74	-168.02	-36.44	-39.04	1,746.57	1,712.19	34.38	50.797	
7,500.00	7,165.41	7,153.41	7,153.41	34.43	15.97	-168.02	-36.44	-39.04	1,746.57	1,711.79	34.78	50.215	
7,600.00	7,265.41	7,253.41	7,253.41	34.53	16.19	-168.02	-36.44	-39.04	1,746.57	1,711.39	35.18	49.645	
7,700.00	7,365.41	7,353.41	7,353.41	34.62	16.42	-168.02	-36.44	-39.04	1,746.57	1,710.99	35.58	49.086	
7,800.00	7,465.41	7,453.41	7,453.41	34.72	16.64	-168.02	-36.44	-39.04	1,746.57	1,710.59	35.98	48.538	
7,900.00	7,565.41	7,553.41	7,553.41	34.82	16.87	-168.02	-36.44	-39.04	1,746.57	1,710.19	36.39	48.001	
7,934.59	7,600.00	7,588.00	7,588.00	34.85	16.94	-168.02	-36.44	-39.04	1,746.57	1,710.05	36.53	47.818	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MAPLEWOOD 22-7
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Reference Site:	WELD_MAPLEWOOD 16-7	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 22-7	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-19-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_MAPLEWOOD 16-7 - P_MAPLEWOOD 13-7 - P_MAPLEWOOD 13-7 - PLAN #1 1-19-10 RHS											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	-56.86	7.28	-11.15	13.32				
100.00	100.00	100.00	100.00	0.10	0.10	-56.86	7.28	-11.15	13.32	13.13	0.19	69.718	
200.00	200.00	200.00	200.00	0.32	0.32	-56.86	7.28	-11.15	13.32	12.68	0.64	20.793	
300.00	300.00	300.00	300.00	0.55	0.55	-56.86	7.28	-11.15	13.32	12.23	1.09	12.219	
400.00	400.00	400.00	400.00	0.77	0.77	-56.86	7.28	-11.15	13.32	11.78	1.54	8.651	
500.00	500.00	500.00	500.00	0.99	0.99	-56.86	7.28	-11.15	13.32	11.33	1.99	6.696	
600.00	600.00	600.00	600.00	1.22	1.22	-56.86	7.28	-11.15	13.32	10.88	2.44	5.462	
700.00	700.00	700.00	700.00	1.44	1.44	-56.86	7.28	-11.15	13.32	10.43	2.89	4.612	
800.00	800.00	800.00	800.00	1.67	1.67	-56.86	7.28	-11.15	13.32	9.98	3.34	3.991	
900.00	900.00	900.00	900.00	1.89	1.89	-56.86	7.28	-11.15	13.32	9.53	3.79	3.517	
946.21	946.21	946.14	946.14	2.00	1.99	-70.83	7.04	-11.43	13.30	9.32	3.98	3.339 CC, ES	
1,000.00	999.98	999.76	999.74	2.12	2.10	-81.80	6.15	-12.47	13.55	9.34	4.21	3.217 SF	
1,100.00	1,099.84	1,098.88	1,098.72	2.34	2.28	-113.61	2.78	-16.39	18.21	13.59	4.62	3.944	
1,200.00	1,199.45	1,196.72	1,196.19	2.57	2.48	-135.48	-2.73	-22.79	31.68	26.66	5.02	6.313	
1,300.00	1,298.70	1,293.22	1,292.00	2.82	2.70	-145.72	-10.19	-31.48	52.99	47.57	5.42	9.772	
1,400.00	1,397.47	1,389.63	1,387.63	3.09	2.95	-151.14	-18.16	-40.75	78.79	72.96	5.83	13.512	
1,500.00	1,495.62	1,485.09	1,482.33	3.40	3.20	-154.59	-26.06	-49.94	107.98	101.74	6.24	17.301	
1,600.00	1,593.06	1,579.50	1,575.97	3.75	3.46	-157.04	-33.87	-59.02	140.46	133.81	6.65	21.111	
1,700.00	1,689.64	1,672.73	1,668.45	4.16	3.73	-158.90	-41.58	-67.99	176.19	169.12	7.07	24.932	
1,800.00	1,785.27	1,764.68	1,759.65	4.62	4.00	-160.36	-49.18	-76.83	215.11	207.63	7.48	28.755	
1,900.00	1,879.82	1,855.22	1,849.47	5.14	4.27	-161.55	-56.67	-85.54	257.17	249.28	7.90	32.574	
2,000.00	1,973.17	1,944.26	1,937.78	5.73	4.54	-162.54	-64.04	-94.11	302.34	294.03	8.31	36.386	
2,100.00	2,065.21	2,031.67	2,024.49	6.38	4.80	-163.36	-71.27	-102.52	350.56	341.84	8.72	40.186	
2,138.11	2,099.93	2,064.54	2,057.09	6.65	4.91	-163.63	-73.98	-105.68	369.73	360.85	8.88	41.630	
2,200.00	2,156.13	2,117.71	2,109.83	7.09	5.07	-164.22	-78.38	-110.80	401.22	392.02	9.20	43.607	
2,300.00	2,246.93	2,203.61	2,195.04	7.82	5.34	-165.00	-85.49	-119.06	452.17	442.44	9.72	46.496	
2,400.00	2,337.74	2,289.52	2,280.25	8.57	5.61	-165.63	-92.59	-127.32	503.16	492.90	10.26	49.057	
2,500.00	2,428.54	2,375.42	2,365.46	9.33	5.88	-166.14	-99.70	-135.59	554.19	543.39	10.79	51.339	
2,600.00	2,519.35	2,461.33	2,450.67	10.09	6.15	-166.56	-106.80	-143.85	605.25	593.91	11.34	53.382	
2,700.00	2,610.15	2,547.23	2,535.88	10.86	6.43	-166.92	-113.91	-152.12	656.32	644.44	11.89	55.220	
2,800.00	2,700.96	2,633.14	2,621.10	11.64	6.70	-167.22	-121.01	-160.38	707.42	694.98	12.44	56.879	
2,900.00	2,791.76	2,719.04	2,706.31	12.42	6.98	-167.49	-128.12	-168.65	758.52	745.53	12.99	58.384	
3,000.00	2,882.57	2,804.95	2,791.52	13.21	7.26	-167.72	-135.22	-176.91	809.64	796.09	13.55	59.754	
3,100.00	2,973.37	2,890.85	2,876.73	13.99	7.53	-167.92	-142.33	-185.18	860.76	846.65	14.11	61.005	
3,200.00	3,064.18	2,976.76	2,961.94	14.78	7.81	-168.10	-149.43	-193.44	911.89	897.22	14.67	62.152	
3,300.00	3,154.98	3,062.66	3,047.15	15.58	8.09	-168.27	-156.54	-201.70	963.03	947.80	15.24	63.207	
3,400.00	3,245.79	3,148.57	3,132.36	16.37	8.37	-168.41	-163.64	-209.97	1,014.18	998.37	15.80	64.180	
3,500.00	3,336.60	3,234.47	3,217.57	17.17	8.65	-168.54	-170.75	-218.23	1,065.32	1,048.95	16.37	65.079	
3,600.00	3,427.40	3,320.38	3,302.78	17.96	8.93	-168.66	-177.85	-226.50	1,116.48	1,099.54	16.94	65.914	
3,700.00	3,518.21	3,406.28	3,387.99	18.76	9.22	-168.77	-184.96	-234.76	1,167.63	1,150.12	17.51	66.689	
3,800.00	3,609.01	3,492.19	3,473.21	19.56	9.50	-168.87	-192.06	-243.03	1,218.79	1,200.71	18.08	67.412	
3,900.00	3,699.82	3,578.09	3,558.42	20.36	9.78	-168.96	-199.17	-251.29	1,269.95	1,251.30	18.65	68.087	
4,000.00	3,790.62	3,664.00	3,643.63	21.16	10.06	-169.05	-206.27	-259.56	1,321.11	1,301.89	19.22	68.719	
4,100.00	3,881.43	3,749.90	3,728.84	21.97	10.34	-169.13	-213.38	-267.82	1,372.27	1,352.48	19.80	69.311	
4,200.00	3,972.23	3,835.81	3,814.05	22.77	10.63	-169.20	-220.48	-276.08	1,423.44	1,403.07	20.37	69.867	
4,300.00	4,063.04	3,921.72	3,899.26	23.57	10.91	-169.27	-227.59	-284.35	1,474.61	1,453.66	20.95	70.391	
4,400.00	4,153.84	4,007.62	3,984.47	24.37	11.19	-169.33	-234.69	-292.61	1,525.78	1,504.25	21.52	70.885	
4,500.00	4,244.65	4,093.53	4,069.68	25.18	11.48	-169.39	-241.80	-300.88	1,576.95	1,554.85	22.10	71.351	
4,600.00	4,335.45	4,179.43	4,154.89	25.98	11.76	-169.44	-248.90	-309.14	1,628.12	1,605.44	22.68	71.792	
4,700.00	4,426.26	4,265.34	4,240.10	26.79	12.04	-169.50	-256.01	-317.41	1,679.29	1,656.04	23.26	72.209	
4,800.00	4,517.07	4,351.24	4,325.32	27.59	12.33	-169.55	-263.11	-325.67	1,730.47	1,706.63	23.83	72.605	
4,900.00	4,607.87	4,437.15	4,410.53	28.40	12.61	-169.59	-270.22	-333.94	1,781.64	1,757.23	24.41	72.981	

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_MAPLEWOOD 22-7
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Reference Site:	WELD_MAPLEWOOD 16-7	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 22-7	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-19-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_MAPLEWOOD 16-7 - P_MAPLEWOOD 13-7 - P_MAPLEWOOD 13-7 - PLAN #1 1-19-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,946.48	4,650.07	4,477.07	4,450.13	28.77	12.74	-169.61	-273.52	-337.78	1,805.42	1,780.74	24.68	73.149	
5,000.00	4,698.88	4,523.30	4,495.99	29.15	12.90	-169.74	-277.35	-342.22	1,832.39	1,807.31	25.08	73.068	
5,100.00	4,791.14	4,610.97	4,582.95	29.73	13.19	-169.96	-284.60	-350.66	1,880.48	1,854.70	25.77	72.957	
5,200.00	4,884.68	4,700.25	4,671.50	30.27	13.48	-170.13	-291.98	-359.25	1,925.52	1,899.08	26.44	72.818	
5,300.00	4,979.40	4,791.02	4,761.54	30.78	13.78	-170.26	-299.49	-367.98	1,967.47	1,940.39	27.08	72.658	
5,400.00	5,075.18	4,883.17	4,852.94	31.24	14.09	-170.37	-307.11	-376.84	2,006.28	1,978.60	27.68	72.481	
5,500.00	5,171.91	4,976.59	4,945.61	31.66	14.40	-170.44	-314.84	-385.83	2,041.89	2,013.64	28.24	72.293	
5,600.00	5,269.46	5,071.17	5,039.42	32.04	14.71	-170.48	-322.66	-394.93	2,074.26	2,045.49	28.77	72.095	
5,700.00	5,367.72	5,166.79	5,134.27	32.37	15.03	-170.49	-330.57	-404.13	2,103.36	2,074.11	29.26	71.892	
5,800.00	5,466.57	5,263.33	5,230.03	32.65	15.35	-170.48	-338.55	-413.42	2,129.16	2,099.46	29.70	71.685	
5,900.00	5,565.88	5,360.68	5,326.60	32.89	15.67	-170.45	-346.60	-422.78	2,151.63	2,121.53	30.10	71.476	
6,000.00	5,665.54	5,459.08	5,425.86	33.08	16.20	-170.30	-361.17	-439.73	2,168.70	2,138.01	30.69	70.666	
6,100.00	5,765.43	5,558.74	5,525.43	33.22	16.54	-170.30	-364.28	-443.34	2,174.73	2,143.61	31.11	69.896	
6,184.59	5,850.00	5,643.32	5,610.00	33.30	16.66	-159.37	-364.28	-443.34	2,175.96	2,144.70	31.26	69.602	
6,200.00	5,865.41	5,658.73	5,625.41	33.31	16.68	-159.37	-364.28	-443.34	2,175.96	2,144.65	31.31	69.495	
6,300.00	5,965.41	5,758.73	5,725.41	33.39	16.83	-159.37	-364.28	-443.34	2,175.96	2,144.32	31.64	68.774	
6,400.00	6,065.41	5,858.73	5,825.41	33.47	16.98	-159.37	-364.28	-443.34	2,175.96	2,143.99	31.97	68.061	
6,500.00	6,165.41	5,958.73	5,925.41	33.55	17.13	-159.37	-364.28	-443.34	2,175.96	2,143.65	32.30	67.357	
6,600.00	6,265.41	6,058.73	6,025.41	33.63	17.28	-159.37	-364.28	-443.34	2,175.96	2,143.32	32.64	66.662	
6,700.00	6,365.41	6,158.73	6,125.41	33.72	17.43	-159.37	-364.28	-443.34	2,175.96	2,142.98	32.98	65.976	
6,800.00	6,465.41	6,258.73	6,225.41	33.80	17.59	-159.37	-364.28	-443.34	2,175.96	2,142.64	33.32	65.299	
6,900.00	6,565.41	6,358.73	6,325.41	33.89	17.74	-159.37	-364.28	-443.34	2,175.96	2,142.29	33.67	64.631	
7,000.00	6,665.41	6,458.73	6,425.41	33.98	17.90	-159.37	-364.28	-443.34	2,175.96	2,141.94	34.01	63.972	
7,100.00	6,765.41	6,558.73	6,525.41	34.06	18.06	-159.37	-364.28	-443.34	2,175.96	2,141.60	34.36	63.322	
7,200.00	6,865.41	6,658.73	6,625.41	34.15	18.22	-159.37	-364.28	-443.34	2,175.96	2,141.24	34.72	62.680	
7,300.00	6,965.41	6,758.73	6,725.41	34.25	18.38	-159.37	-364.28	-443.34	2,175.96	2,140.89	35.07	62.048	
7,400.00	7,065.41	6,858.73	6,825.41	34.34	18.55	-159.37	-364.28	-443.34	2,175.96	2,140.53	35.42	61.425	
7,500.00	7,165.41	6,958.73	6,925.41	34.43	18.71	-159.37	-364.28	-443.34	2,175.96	2,140.18	35.78	60.811	
7,515.79	7,181.20	6,974.52	6,941.20	34.45	18.74	-159.37	-364.28	-443.34	2,175.96	2,140.12	35.84	60.714	
7,600.00	7,265.41	7,042.32	7,009.00	34.53	18.78	-159.37	-364.28	-443.34	2,176.80	2,140.77	36.03	60.421	
7,700.00	7,365.41	7,142.32	7,109.00	34.62	18.78	-159.37	-364.28	-443.34	2,181.86	2,145.67	36.20	60.277	
7,800.00	7,465.41	7,242.32	7,209.00	34.72	18.78	-159.37	-364.28	-443.34	2,191.49	2,155.12	36.37	60.257	
7,900.00	7,565.41	7,342.32	7,309.00	34.82	18.78	-159.37	-364.28	-443.34	2,205.61	2,169.06	36.54	60.360	
7,934.59	7,600.00	7,376.32	7,343.00	34.85	18.78	-159.37	-364.28	-443.34	2,211.52	2,174.92	36.60	60.423	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MAPLEWOOD 22-7
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Reference Site:	WELD_MAPLEWOOD 16-7	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 22-7	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-19-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
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	121.38	-25.50	41.82	48.99				
100.00	100.00	100.00	100.00	0.10	0.10	121.38	-25.50	41.82	48.99	48.80	0.19	256.407	
200.00	200.00	200.00	200.00	0.32	0.32	121.38	-25.50	41.82	48.99	48.35	0.64	76.472	
300.00	300.00	300.00	300.00	0.55	0.55	121.38	-25.50	41.82	48.99	47.90	1.09	44.937	
400.00	400.00	400.00	400.00	0.77	0.77	121.38	-25.50	41.82	48.99	47.45	1.54	31.817	
500.00	500.00	500.00	500.00	0.99	0.99	121.38	-25.50	41.82	48.99	47.00	1.99	24.627	
600.00	600.00	600.00	600.00	1.22	1.22	121.38	-25.50	41.82	48.99	46.55	2.44	20.087	
700.00	700.00	700.00	700.00	1.44	1.44	121.38	-25.50	41.82	48.99	46.10	2.89	16.961	
800.00	800.00	800.00	800.00	1.67	1.67	121.38	-25.50	41.82	48.99	45.65	3.34	14.677	
900.00	900.00	900.00	900.00	1.89	1.89	121.38	-25.50	41.82	48.99	45.20	3.79	12.934 CC, ES	
1,000.00	999.98	998.31	998.29	2.12	2.10	111.69	-25.97	43.44	51.26	47.05	4.21	12.165 SF	
1,100.00	1,099.84	1,096.24	1,096.09	2.34	2.29	114.85	-27.37	48.28	58.22	53.59	4.63	12.582	
1,200.00	1,199.45	1,193.42	1,192.91	2.57	2.50	118.66	-29.67	56.25	70.09	65.04	5.05	13.879	
1,300.00	1,298.70	1,289.48	1,288.28	2.82	2.73	122.17	-32.83	67.22	87.00	81.51	5.49	15.855	
1,400.00	1,397.47	1,384.08	1,381.78	3.09	2.99	124.99	-36.81	81.03	108.94	102.99	5.95	18.323	
1,500.00	1,495.62	1,476.90	1,473.01	3.40	3.28	127.10	-41.55	97.45	135.81	129.37	6.43	21.112	
1,600.00	1,593.06	1,569.92	1,563.92	3.75	3.60	128.76	-47.00	116.34	167.11	160.16	6.96	24.020	
1,700.00	1,689.64	1,663.75	1,655.57	4.16	3.96	130.46	-52.59	135.71	200.99	193.47	7.52	26.721	
1,800.00	1,785.27	1,756.58	1,746.23	4.62	4.32	132.14	-58.11	154.87	237.27	229.15	8.12	29.228	
1,900.00	1,879.82	1,848.30	1,835.80	5.14	4.70	133.76	-63.57	173.80	276.04	267.29	8.74	31.575	
2,000.00	1,973.17	1,938.78	1,924.17	5.73	5.08	135.27	-68.96	192.47	317.36	307.97	9.39	33.792	
2,100.00	2,065.21	2,027.92	2,011.24	6.38	5.46	136.66	-74.27	210.87	361.28	351.22	10.06	35.906	
2,138.11	2,099.93	2,061.52	2,044.05	6.65	5.60	137.16	-76.27	217.81	378.71	368.39	10.32	36.689	
2,200.00	2,156.13	2,115.91	2,097.17	7.09	5.84	138.31	-79.51	229.03	407.39	396.61	10.78	37.776	
2,300.00	2,246.93	2,203.79	2,183.00	7.82	6.22	139.86	-84.74	247.17	453.97	442.43	11.54	39.334	
2,400.00	2,337.74	2,291.67	2,268.82	8.57	6.61	141.13	-89.97	265.31	500.76	488.45	12.31	40.684	
2,500.00	2,428.54	2,379.55	2,354.65	9.33	7.00	142.19	-95.21	283.45	547.71	534.63	13.08	41.864	
2,600.00	2,519.35	2,467.42	2,440.48	10.09	7.40	143.07	-100.44	301.59	594.78	580.92	13.86	42.901	
2,700.00	2,610.15	2,555.30	2,526.30	10.86	7.79	143.83	-105.67	319.73	641.95	627.30	14.65	43.819	
2,800.00	2,700.96	2,643.18	2,612.13	11.64	8.19	144.49	-110.90	337.86	689.20	673.76	15.44	44.636	
2,900.00	2,791.76	2,731.06	2,697.96	12.42	8.59	145.06	-116.13	356.00	736.51	720.27	16.23	45.367	
3,000.00	2,882.57	2,818.94	2,783.78	13.21	8.99	145.56	-121.37	374.14	783.86	766.83	17.03	46.024	
3,100.00	2,973.37	2,906.82	2,869.61	13.99	9.40	146.01	-126.60	392.28	831.26	813.43	17.83	46.618	
3,200.00	3,064.18	2,994.70	2,955.44	14.78	9.80	146.40	-131.83	410.42	878.70	860.06	18.63	47.157	
3,300.00	3,154.98	3,082.57	3,041.26	15.58	10.21	146.76	-137.06	428.56	926.16	906.72	19.44	47.648	
3,400.00	3,245.79	3,170.45	3,127.09	16.37	10.61	147.08	-142.30	446.70	973.65	953.40	20.24	48.096	
3,500.00	3,336.60	3,258.33	3,212.92	17.17	11.02	147.38	-147.53	464.84	1,021.16	1,000.11	21.05	48.508	
3,600.00	3,427.40	3,346.21	3,298.75	17.96	11.43	147.64	-152.76	482.97	1,068.69	1,046.83	21.86	48.887	
3,700.00	3,518.21	3,434.09	3,384.57	18.76	11.83	147.89	-157.99	501.11	1,116.23	1,093.56	22.67	49.237	
3,800.00	3,609.01	3,521.97	3,470.40	19.56	12.24	148.11	-163.23	519.25	1,163.79	1,140.31	23.48	49.561	
3,900.00	3,699.82	3,609.85	3,556.23	20.36	12.65	148.32	-168.46	537.39	1,211.37	1,187.07	24.29	49.862	
4,000.00	3,790.62	3,697.72	3,642.05	21.16	13.06	148.51	-173.69	555.53	1,258.95	1,233.84	25.11	50.142	
4,100.00	3,881.43	3,785.60	3,727.88	21.97	13.47	148.69	-178.92	573.67	1,306.54	1,280.62	25.92	50.403	
4,200.00	3,972.23	3,873.48	3,813.71	22.77	13.88	148.85	-184.16	591.81	1,354.15	1,327.41	26.74	50.647	
4,300.00	4,063.04	3,961.36	3,899.53	23.57	14.29	149.00	-189.39	609.94	1,401.76	1,374.21	27.55	50.876	
4,400.00	4,153.84	4,049.24	3,985.36	24.37	14.70	149.15	-194.62	628.08	1,449.38	1,421.01	28.37	51.091	
4,500.00	4,244.65	4,137.12	4,071.19	25.18	15.11	149.28	-199.85	646.22	1,497.00	1,467.82	29.19	51.293	
4,600.00	4,335.45	4,225.00	4,157.01	25.98	15.52	149.41	-205.09	664.36	1,544.63	1,514.63	30.00	51.483	
4,700.00	4,426.26	4,312.87	4,242.84	26.79	15.93	149.52	-210.32	682.50	1,592.27	1,561.45	30.82	51.663	
4,800.00	4,517.07	4,400.75	4,328.67	27.59	16.34	149.64	-215.55	700.64	1,639.91	1,608.27	31.64	51.833	
4,900.00	4,607.87	4,488.63	4,414.50	28.40	16.76	149.74	-220.78	718.78	1,687.56	1,655.10	32.46	51.993	
4,946.48	4,650.07	4,529.47	4,454.39	28.77	16.95	149.79	-223.21	727.21	1,709.70	1,676.86	32.84	52.065	

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_MAPLEWOOD 22-7
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Reference Site:	WELD_MAPLEWOOD 16-7	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 22-7	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-19-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_MAPLEWOOD 16-7 - P_MAPLEWOOD 14-7 - P_MAPLEWOOD 14-7 - PLAN #1 1-19-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,000.00	4,698.88	4,576.72	4,500.53	29.15	17.17	150.12	-226.03	736.96	1,734.82	1,701.50	33.33	52.052	
5,100.00	4,791.14	4,666.08	4,587.80	29.73	17.59	150.64	-231.35	755.40	1,779.70	1,745.51	34.19	52.051	
5,200.00	4,884.68	4,756.76	4,676.36	30.27	18.01	151.06	-236.75	774.12	1,821.83	1,786.79	35.04	51.996	
5,300.00	4,979.40	4,848.65	4,766.11	30.78	18.45	151.39	-242.22	793.09	1,861.18	1,825.31	35.86	51.895	
5,400.00	5,075.18	4,941.64	4,856.93	31.24	18.88	151.62	-247.76	812.28	1,897.69	1,861.03	36.67	51.756	
5,500.00	5,171.91	5,035.62	4,948.72	31.66	19.32	151.78	-253.35	831.68	1,931.35	1,893.91	37.44	51.587	
5,600.00	5,269.46	5,130.47	5,041.35	32.04	19.77	151.85	-259.00	851.25	1,962.12	1,923.94	38.18	51.392	
5,700.00	5,367.72	5,254.23	5,162.42	32.37	20.26	151.79	-266.11	875.89	1,989.65	1,950.71	38.94	51.096	
5,800.00	5,466.57	5,411.57	5,317.65	32.65	20.72	151.71	-273.18	900.43	2,011.76	1,972.11	39.65	50.744	
5,900.00	5,565.88	5,572.35	5,477.48	32.89	21.08	151.70	-277.97	917.02	2,027.88	1,987.68	40.21	50.438	
6,000.00	5,665.54	5,735.36	5,640.25	33.08	21.35	151.78	-280.27	925.01	2,037.89	1,997.27	40.61	50.177	
6,100.00	5,765.43	5,860.53	5,765.43	33.22	21.50	151.88	-280.48	925.71	2,042.27	2,001.42	40.85	49.989	
6,184.59	5,850.00	5,945.11	5,850.00	33.30	21.60	162.86	-280.48	925.71	2,043.37	2,002.38	40.99	49.848	
6,200.00	5,865.41	5,960.52	5,865.41	33.31	21.62	162.86	-280.48	925.71	2,043.37	2,002.34	41.03	49.801	
6,300.00	5,965.41	6,060.52	5,965.41	33.39	21.74	162.86	-280.48	925.71	2,043.37	2,002.08	41.29	49.489	
6,400.00	6,065.41	6,160.52	6,065.41	33.47	21.87	162.86	-280.48	925.71	2,043.37	2,001.82	41.55	49.177	
6,500.00	6,165.41	6,260.52	6,165.41	33.55	22.00	162.86	-280.48	925.71	2,043.37	2,001.56	41.82	48.865	
6,600.00	6,265.41	6,360.52	6,265.41	33.63	22.12	162.86	-280.48	925.71	2,043.37	2,001.29	42.09	48.553	
6,700.00	6,365.41	6,460.52	6,365.41	33.72	22.25	162.86	-280.48	925.71	2,043.37	2,001.02	42.36	48.242	
6,800.00	6,465.41	6,560.52	6,465.41	33.80	22.38	162.86	-280.48	925.71	2,043.37	2,000.74	42.63	47.932	
6,900.00	6,565.41	6,660.52	6,565.41	33.89	22.52	162.86	-280.48	925.71	2,043.37	2,000.46	42.91	47.622	
7,000.00	6,665.41	6,760.52	6,665.41	33.98	22.65	162.86	-280.48	925.71	2,043.37	2,000.18	43.19	47.313	
7,100.00	6,765.41	6,860.52	6,765.41	34.06	22.79	162.86	-280.48	925.71	2,043.37	1,999.90	43.47	47.005	
7,200.00	6,865.41	6,960.52	6,865.41	34.15	22.92	162.86	-280.48	925.71	2,043.37	1,999.62	43.76	46.698	
7,300.00	6,965.41	7,060.52	6,965.41	34.25	23.06	162.86	-280.48	925.71	2,043.37	1,999.33	44.05	46.392	
7,400.00	7,065.41	7,160.52	7,065.41	34.34	23.20	162.86	-280.48	925.71	2,043.37	1,999.04	44.34	46.087	
7,500.00	7,165.41	7,260.52	7,165.41	34.43	23.34	162.86	-280.48	925.71	2,043.37	1,998.74	44.63	45.783	
7,600.00	7,265.41	7,360.52	7,265.41	34.53	23.49	162.86	-280.48	925.71	2,043.37	1,998.44	44.93	45.481	
7,700.00	7,365.41	7,460.52	7,365.41	34.62	23.63	162.86	-280.48	925.71	2,043.37	1,998.15	45.23	45.180	
7,800.00	7,465.41	7,560.52	7,465.41	34.72	23.77	162.86	-280.48	925.71	2,043.37	1,997.84	45.53	44.881	
7,900.00	7,565.41	7,660.52	7,565.41	34.82	23.92	162.86	-280.48	925.71	2,043.37	1,997.54	45.83	44.584	
7,934.59	7,600.00	7,695.11	7,600.00	34.85	23.97	162.86	-280.48	925.71	2,043.37	1,997.43	45.94	44.481	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MAPLEWOOD 22-7
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Reference Site:	WELD_MAPLEWOOD 16-7	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 22-7	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-19-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
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	123.15	-18.21	27.88	33.30				
100.00	100.00	100.00	100.00	0.10	0.10	123.15	-18.21	27.88	33.30	33.11	0.19	174.312	
200.00	200.00	200.00	200.00	0.32	0.32	123.15	-18.21	27.88	33.30	32.66	0.64	51.988	
300.00	300.00	300.00	300.00	0.55	0.55	123.15	-18.21	27.88	33.30	32.21	1.09	30.550	
400.00	400.00	400.00	400.00	0.77	0.77	123.15	-18.21	27.88	33.30	31.76	1.54	21.630	
500.00	500.00	500.00	500.00	0.99	0.99	123.15	-18.21	27.88	33.30	31.31	1.99	16.742	
600.00	600.00	600.00	600.00	1.22	1.22	123.15	-18.21	27.88	33.30	30.86	2.44	13.656	
700.00	700.00	700.00	700.00	1.44	1.44	123.15	-18.21	27.88	33.30	30.41	2.89	11.530	
800.00	800.00	800.00	800.00	1.67	1.67	123.15	-18.21	27.88	33.30	29.96	3.34	9.977	
900.00	900.00	900.00	900.00	1.89	1.89	123.15	-18.21	27.88	33.30	29.52	3.79	8.793 CC, ES	
1,000.00	999.98	999.26	999.24	2.12	2.11	112.58	-17.66	29.51	35.03	30.81	4.22	8.292 SF	
1,100.00	1,099.84	1,098.34	1,098.18	2.34	2.32	113.50	-16.00	34.38	40.22	35.56	4.66	8.638	
1,200.00	1,199.45	1,197.06	1,196.53	2.57	2.54	114.59	-13.25	42.45	48.86	43.76	5.10	9.582	
1,300.00	1,298.70	1,295.25	1,294.00	2.82	2.79	115.55	-9.43	53.65	60.95	55.38	5.57	10.947	
1,400.00	1,397.47	1,392.74	1,390.31	3.09	3.06	116.28	-4.57	67.89	76.45	70.37	6.07	12.587	
1,500.00	1,495.62	1,489.37	1,485.22	3.40	3.36	116.79	1.28	85.06	95.31	88.68	6.63	14.375	
1,600.00	1,593.06	1,584.99	1,578.49	3.75	3.71	117.10	8.09	105.03	117.49	110.24	7.25	16.203	
1,700.00	1,689.64	1,679.47	1,669.89	4.16	4.10	117.26	15.79	127.64	142.92	134.97	7.95	17.987	
1,800.00	1,785.27	1,772.67	1,759.24	4.62	4.54	117.30	24.34	152.72	171.52	162.80	8.72	19.670	
1,900.00	1,879.82	1,864.49	1,846.37	5.14	5.03	117.23	33.68	180.11	203.22	193.64	9.58	21.216	
2,000.00	1,973.17	1,955.51	1,931.81	5.73	5.57	117.09	43.80	209.81	237.91	227.39	10.52	22.612	
2,100.00	2,065.21	2,048.46	2,018.73	6.38	6.16	117.29	54.43	240.98	274.59	263.04	11.55	23.766	
2,138.11	2,099.93	2,083.68	2,051.67	6.65	6.38	117.47	58.46	252.80	288.98	277.02	11.96	24.158	
2,200.00	2,156.13	2,140.80	2,105.08	7.09	6.76	118.19	64.99	271.95	312.56	299.90	12.66	24.691	
2,300.00	2,246.93	2,233.08	2,191.37	7.82	7.37	119.16	75.54	302.90	350.74	336.93	13.81	25.403	
2,400.00	2,337.74	2,325.36	2,277.67	8.57	8.00	119.93	86.09	333.85	388.98	374.00	14.98	25.972	
2,500.00	2,428.54	2,417.65	2,363.96	9.33	8.63	120.57	96.64	364.80	427.27	411.11	16.16	26.432	
2,600.00	2,519.35	2,509.93	2,450.26	10.09	9.27	121.10	107.19	395.75	465.60	448.24	17.37	26.811	
2,700.00	2,610.15	2,602.21	2,536.55	10.86	9.91	121.55	117.74	426.70	503.96	485.38	18.58	27.127	
2,800.00	2,700.96	2,694.50	2,622.85	11.64	10.56	121.94	128.29	457.65	542.34	522.54	19.80	27.393	
2,900.00	2,791.76	2,786.78	2,709.14	12.42	11.21	122.28	138.84	488.60	580.74	559.72	21.03	27.619	
3,000.00	2,882.57	2,879.06	2,795.44	13.21	11.87	122.57	149.39	519.55	619.16	596.90	22.26	27.813	
3,100.00	2,973.37	2,971.34	2,881.74	13.99	12.52	122.83	159.94	550.50	657.59	634.09	23.50	27.981	
3,200.00	3,064.18	3,063.63	2,968.03	14.78	13.18	123.06	170.49	581.45	696.03	671.28	24.74	28.128	
3,300.00	3,154.98	3,155.91	3,054.33	15.58	13.84	123.27	181.04	612.40	734.47	708.48	25.99	28.258	
3,400.00	3,245.79	3,248.19	3,140.62	16.37	14.50	123.46	191.59	643.36	772.93	745.69	27.24	28.372	
3,500.00	3,336.60	3,340.47	3,226.92	17.17	15.17	123.62	202.14	674.31	811.39	782.89	28.50	28.474	
3,600.00	3,427.40	3,432.76	3,313.21	17.96	15.83	123.78	212.69	705.26	849.86	820.10	29.75	28.566	
3,700.00	3,518.21	3,525.04	3,399.51	18.76	16.50	123.92	223.24	736.21	888.33	857.32	31.01	28.648	
3,800.00	3,609.01	3,617.32	3,485.80	19.56	17.16	124.05	233.79	767.16	926.80	894.53	32.27	28.722	
3,900.00	3,699.82	3,709.61	3,572.10	20.36	17.83	124.17	244.34	798.11	965.28	931.75	33.53	28.789	
4,000.00	3,790.62	3,801.89	3,658.39	21.16	18.50	124.28	254.89	829.06	1,003.76	968.97	34.79	28.851	
4,100.00	3,881.43	3,894.17	3,744.69	21.97	19.17	124.38	265.44	860.01	1,042.25	1,006.19	36.06	28.907	
4,200.00	3,972.23	3,986.45	3,830.98	22.77	19.84	124.47	275.99	890.96	1,080.74	1,043.42	37.32	28.958	
4,300.00	4,063.04	4,078.74	3,917.28	23.57	20.51	124.56	286.54	921.91	1,119.23	1,080.64	38.59	29.006	
4,400.00	4,153.84	4,171.02	4,003.58	24.37	21.18	124.64	297.09	952.86	1,157.72	1,117.86	39.85	29.050	
4,500.00	4,244.65	4,263.30	4,089.87	25.18	21.85	124.72	307.64	983.81	1,196.21	1,155.09	41.12	29.090	
4,600.00	4,335.45	4,355.59	4,176.17	25.98	22.52	124.79	318.19	1,014.76	1,234.71	1,192.32	42.39	29.128	
4,700.00	4,426.26	4,447.87	4,262.46	26.79	23.19	124.86	328.74	1,045.71	1,273.20	1,229.55	43.66	29.163	
4,800.00	4,517.07	4,540.15	4,348.76	27.59	23.86	124.92	339.29	1,076.66	1,311.70	1,266.77	44.93	29.195	
4,900.00	4,607.87	4,632.43	4,435.05	28.40	24.53	124.98	349.84	1,107.61	1,350.20	1,304.00	46.20	29.226	
4,946.48	4,650.07	4,675.32	4,475.16	28.77	24.85	125.01	354.74	1,121.99	1,368.10	1,321.31	46.79	29.239	

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_MAPLEWOOD 22-7
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Reference Site:	WELD_MAPLEWOOD 16-7	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 22-7	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-19-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_MAPLEWOOD 16-7 - P_MAPLEWOOD 23-7 - P_MAPLEWOOD 23-7 - PLAN #1 1-19-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.00	4,698.88	4,724.83	4,521.45	29.15	25.21	125.38	360.40	1,138.60	1,388.44	1,340.94	47.49	29.234	
5,100.00	4,791.14	4,817.89	4,608.47	29.73	25.88	125.94	371.04	1,169.81	1,425.00	1,376.28	48.72	29.249	
5,200.00	4,884.68	4,913.33	4,697.73	30.27	26.57	126.35	381.95	1,201.80	1,459.65	1,409.72	49.93	29.233	
5,300.00	4,979.40	5,029.97	4,807.74	30.78	27.27	126.63	394.44	1,238.47	1,491.56	1,440.43	51.13	29.172	
5,400.00	5,075.18	5,148.79	4,921.33	31.24	27.84	126.90	405.68	1,271.43	1,520.06	1,467.88	52.18	29.131	
5,500.00	5,171.91	5,269.56	5,038.17	31.66	28.36	127.15	415.53	1,300.33	1,545.06	1,491.93	53.13	29.080	
5,600.00	5,269.46	5,392.03	5,157.86	32.04	28.81	127.40	423.89	1,324.86	1,566.48	1,512.50	53.97	29.023	
5,700.00	5,367.72	5,515.92	5,279.95	32.37	29.19	127.64	430.66	1,344.72	1,584.24	1,529.55	54.69	28.965	
5,800.00	5,466.57	5,640.91	5,403.93	32.65	29.50	127.88	435.76	1,359.67	1,598.30	1,543.01	55.29	28.907	
5,900.00	5,565.88	5,766.68	5,529.25	32.89	29.73	128.11	439.12	1,369.54	1,608.60	1,552.84	55.76	28.848	
6,000.00	5,665.54	5,892.88	5,655.35	33.08	29.90	128.34	440.71	1,374.19	1,615.13	1,559.02	56.11	28.786	
6,100.00	5,765.43	6,002.96	5,765.43	33.22	29.99	128.52	440.84	1,374.59	1,618.17	1,561.84	56.33	28.728	
6,184.59	5,850.00	6,087.53	5,850.00	33.30	30.07	139.51	440.84	1,374.59	1,618.95	1,562.48	56.47	28.669	
6,200.00	5,865.41	6,102.95	5,865.41	33.31	30.09	139.51	440.84	1,374.59	1,618.95	1,562.45	56.50	28.654	
6,300.00	5,965.41	6,202.95	5,965.41	33.39	30.18	139.51	440.84	1,374.59	1,618.95	1,562.26	56.69	28.558	
6,400.00	6,065.41	6,302.95	6,065.41	33.47	30.27	139.51	440.84	1,374.59	1,618.95	1,562.06	56.88	28.461	
6,500.00	6,165.41	6,402.95	6,165.41	33.55	30.37	139.51	440.84	1,374.59	1,618.95	1,561.87	57.08	28.363	
6,600.00	6,265.41	6,502.95	6,265.41	33.63	30.47	139.51	440.84	1,374.59	1,618.95	1,561.67	57.28	28.265	
6,700.00	6,365.41	6,602.95	6,365.41	33.72	30.57	139.51	440.84	1,374.59	1,618.95	1,561.47	57.48	28.165	
6,800.00	6,465.41	6,702.95	6,465.41	33.80	30.67	139.51	440.84	1,374.59	1,618.95	1,561.26	57.68	28.065	
6,900.00	6,565.41	6,802.95	6,565.41	33.89	30.77	139.51	440.84	1,374.59	1,618.95	1,561.06	57.89	27.965	
7,000.00	6,665.41	6,902.95	6,665.41	33.98	30.87	139.51	440.84	1,374.59	1,618.95	1,560.85	58.10	27.864	
7,100.00	6,765.41	7,002.95	6,765.41	34.06	30.97	139.51	440.84	1,374.59	1,618.95	1,560.63	58.32	27.762	
7,200.00	6,865.41	7,102.95	6,865.41	34.15	31.08	139.51	440.84	1,374.59	1,618.95	1,560.42	58.53	27.660	
7,300.00	6,965.41	7,202.95	6,965.41	34.25	31.18	139.51	440.84	1,374.59	1,618.95	1,560.20	58.75	27.557	
7,400.00	7,065.41	7,302.95	7,065.41	34.34	31.29	139.51	440.84	1,374.59	1,618.95	1,559.98	58.97	27.454	
7,500.00	7,165.41	7,402.95	7,165.41	34.43	31.40	139.51	440.84	1,374.59	1,618.95	1,559.75	59.19	27.350	
7,600.00	7,265.41	7,502.95	7,265.41	34.53	31.51	139.51	440.84	1,374.59	1,618.95	1,559.53	59.42	27.246	
7,700.00	7,365.41	7,602.95	7,365.41	34.62	31.62	139.51	440.84	1,374.59	1,618.95	1,559.30	59.65	27.142	
7,800.00	7,465.41	7,702.95	7,465.41	34.72	31.74	139.51	440.84	1,374.59	1,618.95	1,559.07	59.88	27.037	
7,900.00	7,565.41	7,802.95	7,565.41	34.82	31.85	139.51	440.84	1,374.59	1,618.95	1,558.84	60.11	26.932	
7,934.59	7,600.00	7,837.53	7,600.00	34.85	31.89	139.51	440.84	1,374.59	1,618.95	1,558.75	60.19	26.896	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MAPLEWOOD 22-7
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Reference Site:	WELD_MAPLEWOOD 16-7	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 22-7	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-19-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-Good_gyro												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	128.06	-10.92	13.94	17.71				
100.00	100.00	100.00	100.00	0.10	0.04	128.06	-10.92	13.94	17.71	17.57	0.14	126.448	
200.00	200.00	200.00	200.00	0.32	0.10	128.06	-10.92	13.94	17.71	17.29	0.42	42.446	
300.00	300.00	300.00	300.00	0.55	0.15	128.06	-10.92	13.94	17.71	17.01	0.69	25.504	
400.00	400.00	400.00	400.00	0.77	0.20	128.06	-10.92	13.94	17.71	16.74	0.97	18.228	
500.00	500.00	500.00	500.00	0.99	0.25	128.06	-10.92	13.94	17.71	16.46	1.25	14.182	
600.00	600.00	600.00	600.00	1.22	0.31	128.06	-10.92	13.94	17.71	16.18	1.53	11.606	
700.00	700.00	700.00	700.00	1.44	0.36	128.06	-10.92	13.94	17.71	15.90	1.80	9.822	
800.00	800.00	800.00	800.00	1.67	0.41	128.06	-10.92	13.94	17.71	15.63	2.08	8.513	
900.00	900.00	900.00	900.00	1.89	0.46	128.06	-10.92	13.94	17.71	15.35	2.36	7.512 CC, ES, SF	
1,000.00	999.98	999.36	999.34	2.12	0.52	123.95	-12.52	14.58	20.15	17.51	2.64	7.646	
1,100.00	1,099.84	1,098.05	1,097.90	2.34	0.57	136.66	-17.27	16.48	28.55	25.64	2.91	9.798	
1,200.00	1,199.45	1,195.45	1,194.93	2.57	0.63	146.25	-25.05	19.58	43.97	40.77	3.20	13.759	
1,300.00	1,298.70	1,290.93	1,289.72	2.82	0.71	151.93	-35.65	23.81	66.30	62.82	3.48	19.047	
1,400.00	1,397.47	1,383.95	1,381.65	3.09	0.81	155.22	-48.79	29.06	95.18	91.40	3.77	25.229	
1,500.00	1,495.62	1,474.01	1,470.18	3.40	0.92	157.17	-64.15	35.18	130.26	126.19	4.07	31.977	
1,600.00	1,593.06	1,563.14	1,557.31	3.75	1.06	158.43	-81.57	42.14	170.93	166.54	4.39	38.963	
1,700.00	1,689.64	1,652.82	1,644.91	4.16	1.22	159.43	-99.41	49.26	214.97	210.26	4.71	45.603	
1,800.00	1,785.27	1,740.96	1,731.00	4.62	1.37	160.24	-116.95	56.25	262.01	256.95	5.05	51.851	
1,900.00	1,879.82	1,827.44	1,815.48	5.14	1.53	160.92	-134.15	63.12	311.99	306.59	5.40	57.724	
2,000.00	1,973.17	1,912.17	1,898.24	5.73	1.69	161.49	-151.01	69.85	364.88	359.11	5.77	63.239	
2,100.00	2,065.21	1,995.04	1,979.18	6.38	1.85	161.97	-167.50	76.43	420.61	414.46	6.15	68.406	
2,138.11	2,099.93	2,026.10	2,009.53	6.65	1.91	162.13	-173.68	78.89	442.58	436.29	6.30	70.286	
2,200.00	2,156.13	2,076.33	2,058.58	7.09	2.00	162.62	-183.67	82.88	478.61	472.06	6.55	73.016	
2,300.00	2,246.93	2,157.47	2,137.85	7.82	2.16	163.26	-199.81	89.32	536.86	529.89	6.98	76.932	
2,400.00	2,337.74	2,238.62	2,217.11	8.57	2.32	163.78	-215.96	95.77	595.15	587.75	7.41	80.330	
2,500.00	2,428.54	2,319.77	2,296.38	9.33	2.48	164.21	-232.10	102.21	653.47	645.63	7.85	83.296	
2,600.00	2,519.35	2,400.92	2,375.64	10.09	2.63	164.57	-248.25	108.65	711.81	703.52	8.29	85.902	
2,700.00	2,610.15	2,482.06	2,454.90	10.86	2.79	164.87	-264.39	115.09	770.16	761.43	8.73	88.204	
2,800.00	2,700.96	2,563.21	2,534.17	11.64	2.95	165.13	-280.54	121.54	828.52	819.34	9.18	90.250	
2,900.00	2,791.76	2,644.36	2,613.43	12.42	3.11	165.36	-296.68	127.98	886.90	877.26	9.63	92.078	
3,000.00	2,882.57	2,725.51	2,692.69	13.21	3.28	165.56	-312.83	134.42	945.28	935.19	10.09	93.719	
3,100.00	2,973.37	2,806.65	2,771.96	13.99	3.44	165.73	-328.97	140.87	1,003.67	993.12	10.54	95.199	
3,200.00	3,064.18	2,887.80	2,851.22	14.78	3.60	165.89	-345.12	147.31	1,062.06	1,051.06	11.00	96.539	
3,300.00	3,154.98	2,968.95	2,930.49	15.58	3.76	166.03	-361.26	153.75	1,120.46	1,109.00	11.46	97.758	
3,400.00	3,245.79	3,050.10	3,009.75	16.37	3.92	166.16	-377.41	160.19	1,178.86	1,166.94	11.92	98.871	
3,500.00	3,336.60	3,131.24	3,089.01	17.17	4.08	166.27	-393.55	166.64	1,237.27	1,224.88	12.39	99.890	
3,600.00	3,427.40	3,212.39	3,168.28	17.96	4.25	166.38	-409.70	173.08	1,295.68	1,282.83	12.85	100.827	
3,700.00	3,518.21	3,293.54	3,247.54	18.76	4.41	166.47	-425.84	179.52	1,354.09	1,340.77	13.32	101.690	
3,800.00	3,609.01	3,374.69	3,326.80	19.56	4.57	166.56	-441.99	185.97	1,412.50	1,398.72	13.78	102.488	
3,900.00	3,699.82	3,455.83	3,406.07	20.36	4.73	166.64	-458.13	192.41	1,470.92	1,456.67	14.25	103.228	
4,000.00	3,790.62	3,536.98	3,485.33	21.16	4.90	166.71	-474.27	198.85	1,529.34	1,514.62	14.72	103.915	
4,100.00	3,881.43	3,618.13	3,564.60	21.97	5.06	166.78	-490.42	205.29	1,587.76	1,572.57	15.19	104.555	
4,200.00	3,972.23	3,699.27	3,643.86	22.77	5.22	166.84	-506.56	211.74	1,646.18	1,630.52	15.66	105.153	
4,300.00	4,063.04	3,780.42	3,723.12	23.57	5.38	166.90	-522.71	218.18	1,704.60	1,688.47	16.12	105.712	
4,400.00	4,153.84	3,861.57	3,802.39	24.37	5.55	166.96	-538.85	224.62	1,763.02	1,746.43	16.60	106.236	
4,500.00	4,244.65	3,942.72	3,881.65	25.18	5.71	167.01	-555.00	231.07	1,821.45	1,804.38	17.07	106.729	
4,600.00	4,335.45	4,023.86	3,960.91	25.98	5.87	167.06	-571.14	237.51	1,879.87	1,862.33	17.54	107.192	
4,700.00	4,426.26	4,105.01	4,040.18	26.79	6.04	167.11	-587.29	243.95	1,938.30	1,920.29	18.01	107.628	
4,800.00	4,517.07	4,186.16	4,119.44	27.59	6.20	167.15	-603.43	250.39	1,996.72	1,978.24	18.48	108.040	
4,900.00	4,607.87	4,267.31	4,198.70	28.40	6.36	167.19	-619.58	256.84	2,055.15	2,036.20	18.95	108.429	
4,946.48	4,650.07	4,305.02	4,235.54	28.77	6.44	167.21	-627.08	259.83	2,082.31	2,063.13	19.17	108.603	

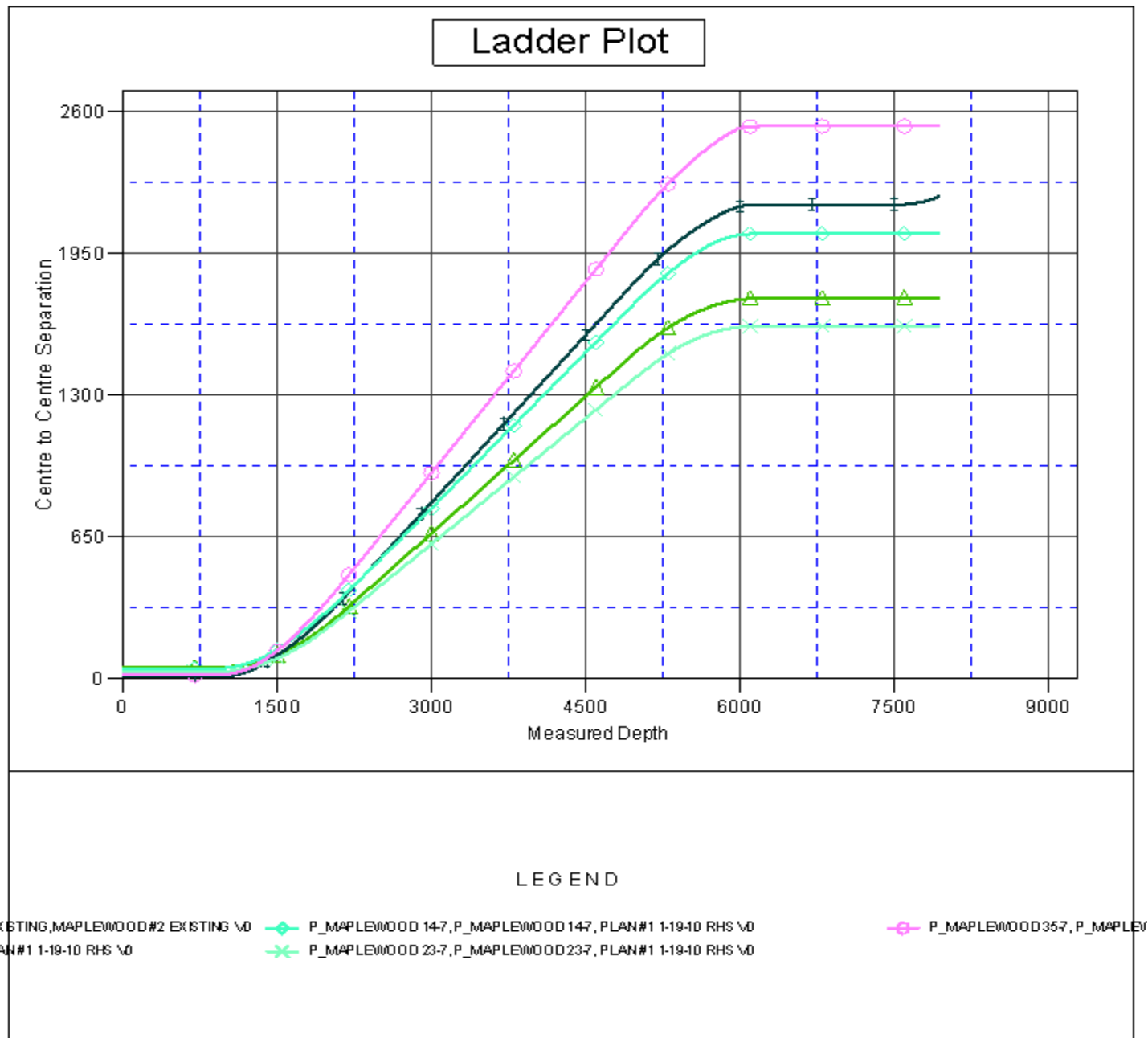
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MAPLEWOOD 22-7
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Reference Site:	WELD_MAPLEWOOD 16-7	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 22-7	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-19-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_MAPLEWOOD 16-7 - P_MAPLEWOOD 35-7 - P_MAPLEWOOD 35-7 - PLAN #1 1-19-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-Good_gyro												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.00	4,698.88	4,348.74	4,278.25	29.15	6.52	167.39	-635.78	263.30	2,113.18	2,093.80	19.38	109.040	
5,100.00	4,791.14	4,431.90	4,359.47	29.73	6.69	167.69	-652.32	269.90	2,168.71	2,148.98	19.73	109.936	
5,200.00	4,884.68	4,516.90	4,442.51	30.27	6.86	167.94	-669.24	276.65	2,221.37	2,201.22	20.15	110.243	
5,300.00	4,979.40	4,603.65	4,527.24	30.78	7.04	168.14	-686.49	283.54	2,271.10	2,250.55	20.55	110.542	
5,400.00	5,075.18	4,692.03	4,613.57	31.24	7.22	168.31	-704.08	290.56	2,317.83	2,296.92	20.91	110.843	
5,500.00	5,171.91	4,781.94	4,701.39	31.66	7.40	168.43	-721.97	297.70	2,361.53	2,340.28	21.25	111.153	
5,600.00	5,269.46	4,873.26	4,790.60	32.04	7.58	168.53	-740.14	304.95	2,402.12	2,380.57	21.55	111.478	
5,700.00	5,367.72	4,965.90	4,881.08	32.37	7.77	168.59	-758.57	312.30	2,439.57	2,417.75	21.82	111.822	
5,800.00	5,466.57	5,059.73	4,972.73	32.65	7.96	168.62	-777.23	319.75	2,473.83	2,451.78	22.05	112.191	
5,900.00	5,565.88	5,154.63	5,065.43	32.89	8.15	168.62	-796.12	327.29	2,504.87	2,482.62	22.25	112.586	
6,000.00	5,665.54	5,250.94	5,166.55	33.08	8.35	168.63	-815.01	334.71	2,535.66	2,513.41	22.42	112.981	
6,100.00	5,765.43	5,347.06	5,263.66	33.22	8.59	168.65	-833.90	342.12	2,566.45	2,544.20	22.58	113.376	
6,184.59	5,850.00	5,432.17	5,348.77	33.30	8.90	179.31	-863.36	354.12	2,535.66	2,512.83	22.83	111.058	
6,200.00	5,865.41	5,447.58	5,364.18	33.31	8.90	179.31	-863.36	354.12	2,535.66	2,512.80	22.86	110.932	
6,300.00	5,965.41	5,547.58	5,464.18	33.39	8.92	179.31	-863.36	354.12	2,535.66	2,512.62	23.04	110.059	
6,400.00	6,065.41	5,647.58	5,564.18	33.47	8.94	179.31	-863.36	354.12	2,535.66	2,512.44	23.22	109.191	
6,500.00	6,165.41	5,747.58	5,664.18	33.55	8.96	179.31	-863.36	354.12	2,535.66	2,512.25	23.41	108.328	
6,600.00	6,265.41	5,847.58	5,764.18	33.63	8.98	179.31	-863.36	354.12	2,535.66	2,512.06	23.59	107.471	
6,700.00	6,365.41	5,947.58	5,864.18	33.72	9.00	179.31	-863.36	354.12	2,535.66	2,511.87	23.78	106.619	
6,800.00	6,465.41	6,047.58	5,964.18	33.80	9.02	179.31	-863.36	354.12	2,535.66	2,511.68	23.97	105.772	
6,900.00	6,565.41	6,147.58	6,064.18	33.89	9.04	179.31	-863.36	354.12	2,535.66	2,511.49	24.16	104.932	
7,000.00	6,665.41	6,247.58	6,164.18	33.98	9.06	179.31	-863.36	354.12	2,535.66	2,511.30	24.36	104.098	
7,100.00	6,765.41	6,347.58	6,264.18	34.06	9.08	179.31	-863.36	354.12	2,535.66	2,511.10	24.55	103.270	
7,200.00	6,865.41	6,447.58	6,364.18	34.15	9.10	179.31	-863.36	354.12	2,535.66	2,510.91	24.75	102.449	
7,300.00	6,965.41	6,547.58	6,464.18	34.25	9.12	179.31	-863.36	354.12	2,535.66	2,510.71	24.95	101.635	
7,400.00	7,065.41	6,647.58	6,564.18	34.34	9.14	179.31	-863.36	354.12	2,535.66	2,510.51	25.15	100.827	
7,500.00	7,165.41	6,747.58	6,664.18	34.43	9.16	179.31	-863.36	354.12	2,535.66	2,510.31	25.35	100.027	
7,600.00	7,265.41	6,847.58	6,764.18	34.53	9.19	179.31	-863.36	354.12	2,535.66	2,510.10	25.55	99.234	
7,700.00	7,365.41	6,947.58	6,864.18	34.62	9.21	179.31	-863.36	354.12	2,535.66	2,509.90	25.76	98.447	
7,800.00	7,465.41	7,047.58	6,964.18	34.72	9.23	179.31	-863.36	354.12	2,535.66	2,509.70	25.96	97.669	
7,900.00	7,565.41	7,147.58	7,064.18	34.82	9.25	179.31	-863.36	354.12	2,535.66	2,509.49	26.17	96.897	
7,934.59	7,600.00	7,182.17	7,100.00	34.85	9.26	179.31	-863.36	354.12	2,535.66	2,509.42	26.24	96.632	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MAPLEWOOD 22-7
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Reference Site:	WELD_MAPLEWOOD 16-7	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 22-7	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-19-10 RHS	Offset TVD Reference:	Offset Datum

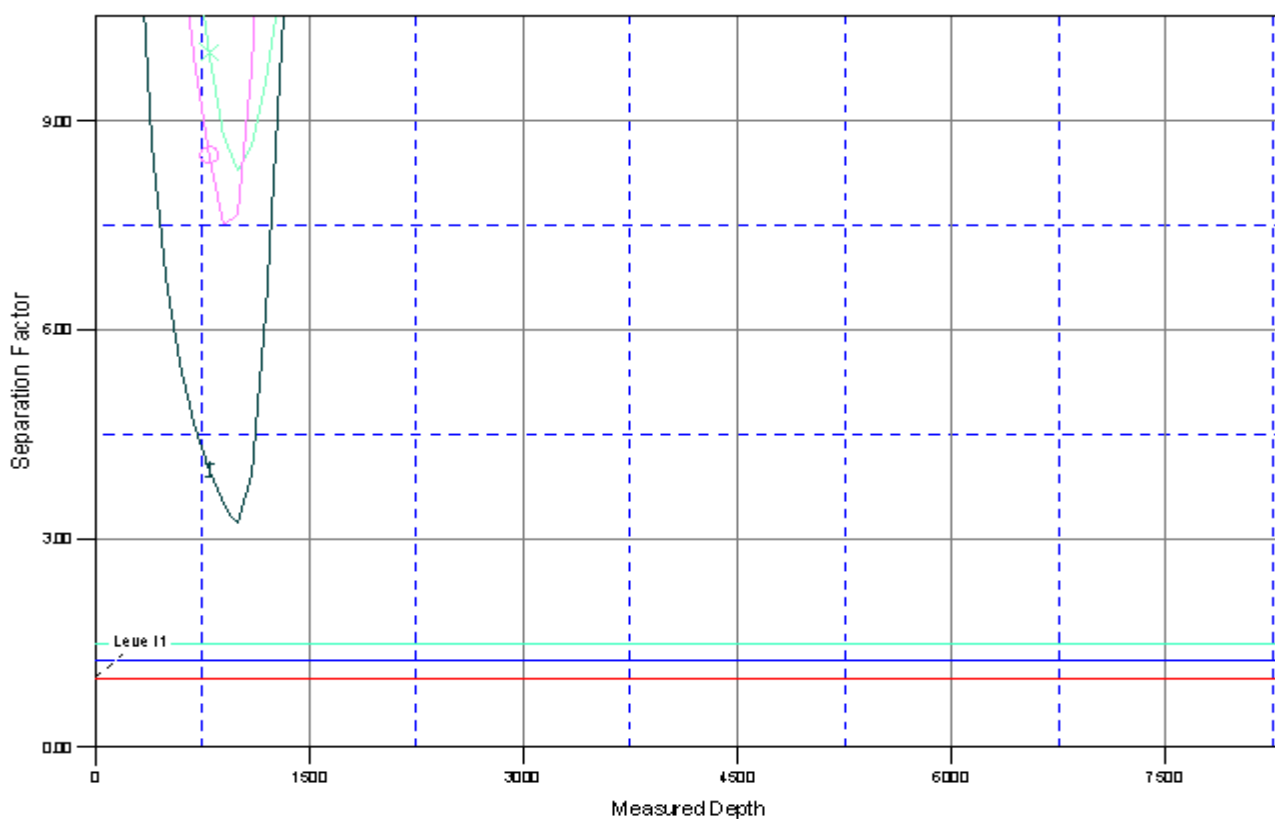
Reference Depths are relative to WELL @ 4863.00ft (Original Well Elev) Coordinates are relative to: P_MAPLEWOOD 22-7
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.36°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MAPLEWOOD 22-7
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4863.00ft (Original Well Elev)
Reference Site:	WELD_MAPLEWOOD 16-7	MD Reference:	WELL @ 4863.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_MAPLEWOOD 22-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 22-7	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 1-19-10 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4863.00ft (Original Well Elev) Coordinates are relative to: P_MAPLEWOOD 22-7
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: 0.36°

Separation Factor Plot



LEGEND

EXISTING,MAPLEWOOD#2 EXISTING \O P_MAPLEWOOD 147,P_MAPLEWOOD 147,PLAN#1 1-19-10 RHS \O P_MAPLEWOOD 357,P_MAPLEWOOD 357,PLAN#1 1-19-10 RHS \O
 \AN#1 1-19-10 RHS \O P_MAPLEWOOD 237,P_MAPLEWOOD 237,PLAN#1 1-19-10 RHS \O