



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_MAPLEWOOD 16-7

P_MAPLEWOOD 13-7

P_MAPLEWOOD 13-7

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 13-7

+N/-S	+E/-W	Northing	Ground Level: Easting	4848.00 Latitude	Longitude	Slot
0.00	0.00	1361169.58	3156595.35	40° 19' 24.420 N	104° 56' 18.132 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	
1264.44	7.29	229.31	1263.46	-15.09	-17.55	2.00	229.31	23.15	
5391.88	7.29	229.31	5357.54	-356.47	-414.63	0.00	0.00	546.80	
5756.32	0.00	0.00	5721.00	-371.56	-432.19	2.00	180.00	569.95	
7240.32	0.00	0.00	7205.00	-371.56	-432.19	0.00	0.00	569.95	PBHL_MAPLEWOOD 13-7(510 FSL 510 FWL)50°TGT RAD

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

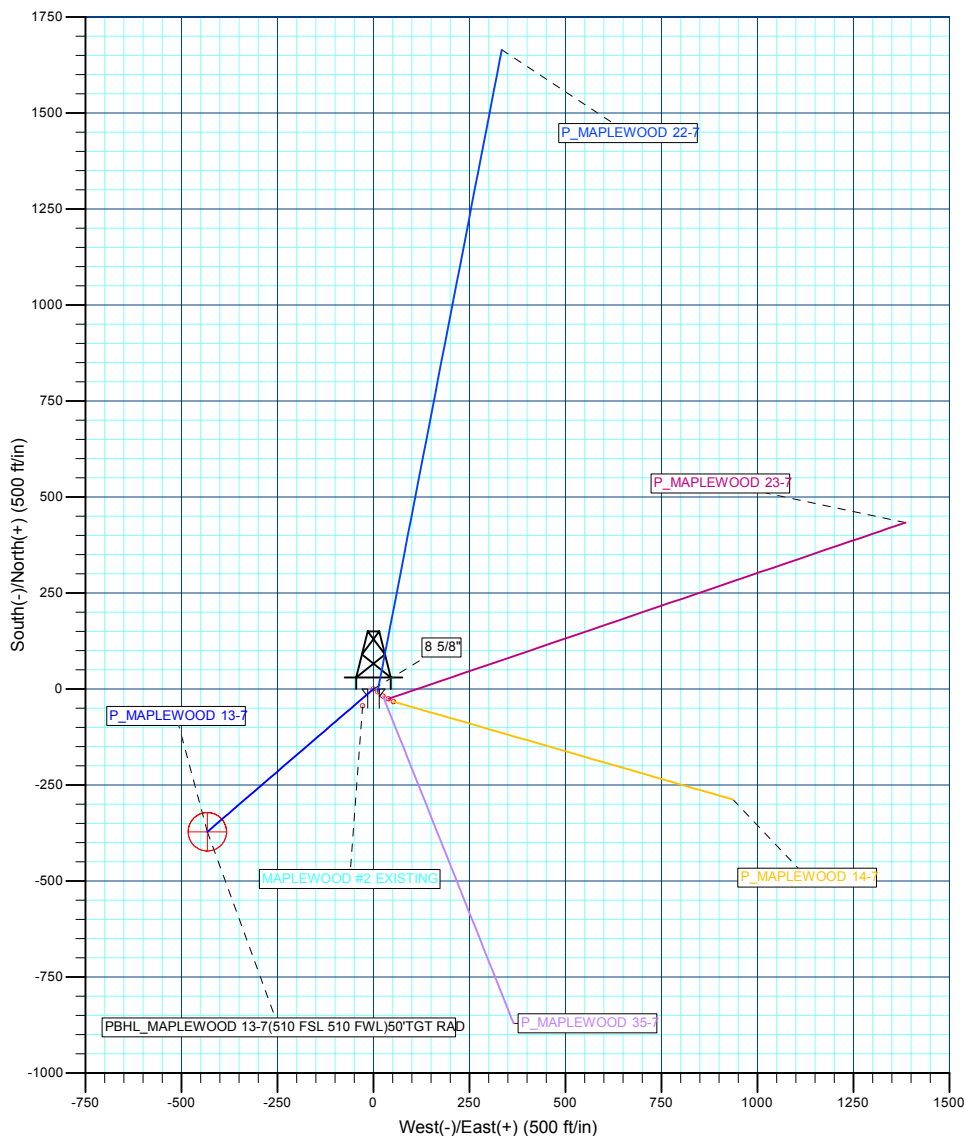
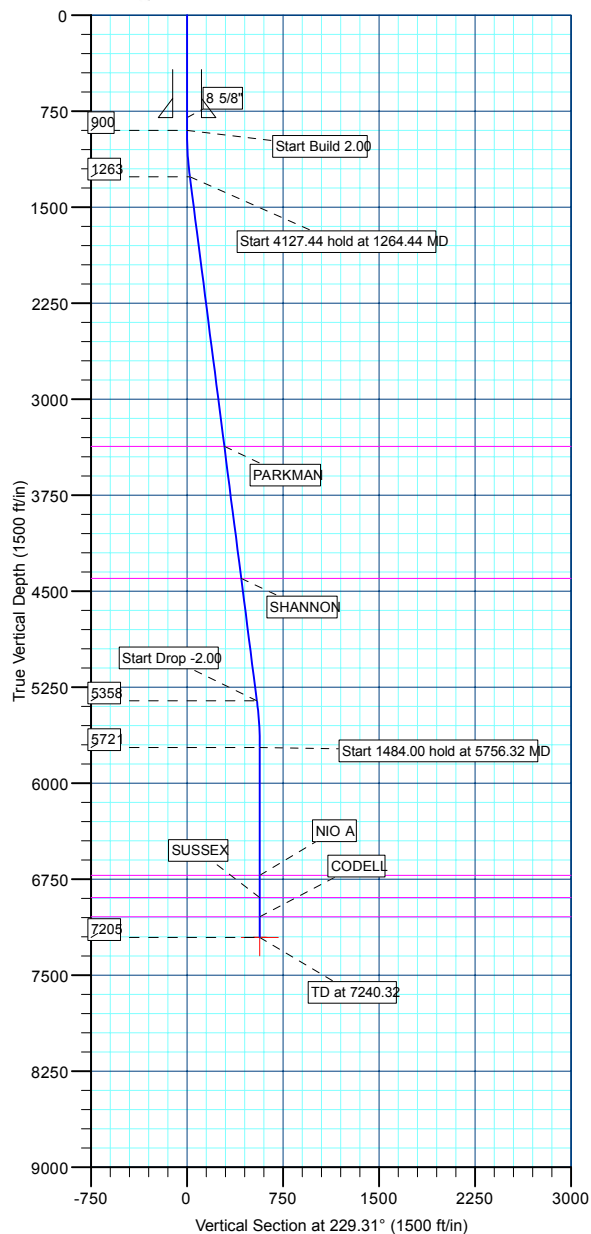
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	7205.00	-371.56	-432.19	1360795.29	3156165.52	40° 19' 20.748 N	104° 56' 23.712 W	Circle (Radius: 50.00)

CASING DETAILS

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



KB ELEV:WELL @ 4863.00ft (Original Well Elev)
4848.00
GRD ELEV:



Plan: PLAN #1 1-19-10 RHS (P_MAPLEWOOD 13-7/P_MAPLEWOOD 13-7)

Created By: Robert H. Scott

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MAPLEWOOD 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MAPLEWOOD 13-7		
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 13-7					
Well Position	+N/-S	18.20 ft	Northing:	1,361,169.58 ft	Latitude:	40° 19' 24.420 N
	+E/-W	-25.09 ft	Easting:	3,156,595.35 ft	Longitude:	104° 56' 18.132 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,848.00 ft

Wellbore	P_MAPLEWOOD 13-7				
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	229.31

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	
1,264.44	7.29	229.31	1,263.46	-15.09	-17.55	2.00	2.00	0.00	229.31	
5,391.88	7.29	229.31	5,357.54	-356.47	-414.63	0.00	0.00	0.00	0.00	
5,756.32	0.00	0.00	5,721.00	-371.56	-432.19	2.00	-2.00	0.00	180.00	
7,240.32	0.00	0.00	7,205.00	-371.56	-432.19	0.00	0.00	0.00	0.00	PBHL_MAPLEWOC

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MAPLEWOOD 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MAPLEWOOD 13-7		
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	229.31	999.98	-1.14	-1.32	1.75	2.00	2.00	0.00
1,100.00	4.00	229.31	1,099.84	-4.55	-5.29	6.98	2.00	2.00	0.00
1,200.00	6.00	229.31	1,199.45	-10.23	-11.90	15.69	2.00	2.00	0.00
Start 4127.44 hold at 1264.44 MD									
1,264.44	7.29	229.31	1,263.46	-15.09	-17.55	23.15	2.00	2.00	0.00
1,300.00	7.29	229.31	1,298.73	-18.03	-20.98	27.66	0.00	0.00	0.00
1,400.00	7.29	229.31	1,397.92	-26.30	-30.60	40.35	0.00	0.00	0.00
1,500.00	7.29	229.31	1,497.11	-34.57	-40.22	53.04	0.00	0.00	0.00
1,600.00	7.29	229.31	1,596.31	-42.85	-49.84	65.72	0.00	0.00	0.00
1,700.00	7.29	229.31	1,695.50	-51.12	-59.46	78.41	0.00	0.00	0.00
1,800.00	7.29	229.31	1,794.69	-59.39	-69.08	91.10	0.00	0.00	0.00
1,900.00	7.29	229.31	1,893.88	-67.66	-78.70	103.78	0.00	0.00	0.00
2,000.00	7.29	229.31	1,993.07	-75.93	-88.32	116.47	0.00	0.00	0.00
2,100.00	7.29	229.31	2,092.27	-84.20	-97.94	129.16	0.00	0.00	0.00
2,200.00	7.29	229.31	2,191.46	-92.47	-107.56	141.84	0.00	0.00	0.00
2,300.00	7.29	229.31	2,290.65	-100.74	-117.18	154.53	0.00	0.00	0.00
2,400.00	7.29	229.31	2,389.84	-109.01	-126.80	167.22	0.00	0.00	0.00
2,500.00	7.29	229.31	2,489.03	-117.28	-136.42	179.91	0.00	0.00	0.00
2,600.00	7.29	229.31	2,588.23	-125.55	-146.04	192.59	0.00	0.00	0.00
2,700.00	7.29	229.31	2,687.42	-133.82	-155.66	205.28	0.00	0.00	0.00
2,800.00	7.29	229.31	2,786.61	-142.10	-165.28	217.97	0.00	0.00	0.00
2,900.00	7.29	229.31	2,885.80	-150.37	-174.90	230.65	0.00	0.00	0.00
3,000.00	7.29	229.31	2,984.99	-158.64	-184.52	243.34	0.00	0.00	0.00
3,100.00	7.29	229.31	3,084.19	-166.91	-194.14	256.03	0.00	0.00	0.00
3,200.00	7.29	229.31	3,183.38	-175.18	-203.76	268.71	0.00	0.00	0.00
3,300.00	7.29	229.31	3,282.57	-183.45	-213.38	281.40	0.00	0.00	0.00
PARKMAN									
3,388.14	7.29	229.31	3,370.00	-190.74	-221.86	292.58	0.00	0.00	0.00
3,400.00	7.29	229.31	3,381.76	-191.72	-223.00	294.09	0.00	0.00	0.00
3,500.00	7.29	229.31	3,480.95	-199.99	-232.62	306.78	0.00	0.00	0.00
3,600.00	7.29	229.31	3,580.14	-208.26	-242.25	319.46	0.00	0.00	0.00
3,700.00	7.29	229.31	3,679.34	-216.53	-251.87	332.15	0.00	0.00	0.00
3,800.00	7.29	229.31	3,778.53	-224.80	-261.49	344.84	0.00	0.00	0.00
3,900.00	7.29	229.31	3,877.72	-233.07	-271.11	357.52	0.00	0.00	0.00
4,000.00	7.29	229.31	3,976.91	-241.35	-280.73	370.21	0.00	0.00	0.00
4,100.00	7.29	229.31	4,076.10	-249.62	-290.35	382.90	0.00	0.00	0.00
4,200.00	7.29	229.31	4,175.30	-257.89	-299.97	395.58	0.00	0.00	0.00
4,300.00	7.29	229.31	4,274.49	-266.16	-309.59	408.27	0.00	0.00	0.00
4,400.00	7.29	229.31	4,373.68	-274.43	-319.21	420.96	0.00	0.00	0.00
SHANNON									
4,426.53	7.29	229.31	4,400.00	-276.62	-321.76	424.32	0.00	0.00	0.00
4,500.00	7.29	229.31	4,472.87	-282.70	-328.83	433.64	0.00	0.00	0.00
4,600.00	7.29	229.31	4,572.06	-290.97	-338.45	446.33	0.00	0.00	0.00
4,700.00	7.29	229.31	4,671.26	-299.24	-348.07	459.02	0.00	0.00	0.00
4,800.00	7.29	229.31	4,770.45	-307.51	-357.69	471.71	0.00	0.00	0.00
4,900.00	7.29	229.31	4,869.64	-315.78	-367.31	484.39	0.00	0.00	0.00
5,000.00	7.29	229.31	4,968.83	-324.05	-376.93	497.08	0.00	0.00	0.00
5,100.00	7.29	229.31	5,068.02	-332.33	-386.55	509.77	0.00	0.00	0.00
5,200.00	7.29	229.31	5,167.22	-340.60	-396.17	522.45	0.00	0.00	0.00
5,300.00	7.29	229.31	5,266.41	-348.87	-405.79	535.14	0.00	0.00	0.00
Start Drop -2.00									

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MAPLEWOOD 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MAPLEWOOD 13-7		
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)
5,391.88	7.29	229.31	5,357.54	-356.47	-414.63	546.80	0.00	0.00	0.00
5,400.00	7.13	229.31	5,365.60	-357.13	-415.40	547.82	2.00	-2.00	0.00
5,500.00	5.13	229.31	5,465.03	-364.09	-423.50	558.49	2.00	-2.00	0.00
5,600.00	3.13	229.31	5,564.76	-368.78	-428.95	565.68	2.00	-2.00	0.00
5,700.00	1.13	229.31	5,664.69	-371.20	-431.77	569.39	2.00	-2.00	0.00
Start 1484.00 hold at 5756.32 MD									
5,756.32	0.00	0.00	5,721.00	-371.56	-432.19	569.95	2.00	-2.00	232.06
5,800.00	0.00	0.00	5,764.68	-371.56	-432.19	569.95	0.00	0.00	0.00
5,900.00	0.00	0.00	5,864.68	-371.56	-432.19	569.95	0.00	0.00	0.00
6,000.00	0.00	0.00	5,964.68	-371.56	-432.19	569.95	0.00	0.00	0.00
6,100.00	0.00	0.00	6,064.68	-371.56	-432.19	569.95	0.00	0.00	0.00
6,200.00	0.00	0.00	6,164.68	-371.56	-432.19	569.95	0.00	0.00	0.00
6,300.00	0.00	0.00	6,264.68	-371.56	-432.19	569.95	0.00	0.00	0.00
6,400.00	0.00	0.00	6,364.68	-371.56	-432.19	569.95	0.00	0.00	0.00
6,500.00	0.00	0.00	6,464.68	-371.56	-432.19	569.95	0.00	0.00	0.00
6,600.00	0.00	0.00	6,564.68	-371.56	-432.19	569.95	0.00	0.00	0.00
6,700.00	0.00	0.00	6,664.68	-371.56	-432.19	569.95	0.00	0.00	0.00
NIO A									
6,756.32	0.00	0.00	6,721.00	-371.56	-432.19	569.95	0.00	0.00	0.00
6,800.00	0.00	0.00	6,764.68	-371.56	-432.19	569.95	0.00	0.00	0.00
6,900.00	0.00	0.00	6,864.68	-371.56	-432.19	569.95	0.00	0.00	0.00
SUSSEX									
6,930.32	0.00	0.00	6,895.00	-371.56	-432.19	569.95	0.00	0.00	0.00
7,000.00	0.00	0.00	6,964.68	-371.56	-432.19	569.95	0.00	0.00	0.00
CODELL									
7,080.32	0.00	0.00	7,045.00	-371.56	-432.19	569.95	0.00	0.00	0.00
7,100.00	0.00	0.00	7,064.68	-371.56	-432.19	569.95	0.00	0.00	0.00
7,200.00	0.00	0.00	7,164.68	-371.56	-432.19	569.95	0.00	0.00	0.00
PBHL_MAPLEWOOD 13-7(510 FSL 510 FWL)50'TGT RAD									
7,240.32	0.00	0.00	7,205.00	-371.56	-432.19	569.95	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	7,205.00	-371.56	-432.19	1,360,795.29	3,156,165.52	40° 19' 20.748 N	104° 56' 23.712 W
- plan hits target center									
- Circle (radius 50.00)									

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

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_MAPLEWOOD 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_MAPLEWOOD 13-7		
Design:	PLAN #1 1-19-10 RHS		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,388.14	3,370.00	PARKMAN				
4,426.53	4,400.00	SHANNON				
6,756.32	6,721.00	NIO A				
6,930.32	6,895.00	SUSSEX				
7,080.32	7,045.00	CODELL				

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	
1,264.44	1,263.46	-15.09	-17.55	Start 4127.44 hold at 1264.44 MD	
5,391.88	5,357.54	-356.47	-414.63	Start Drop -2.00	
5,756.32	5,721.00	-371.56	-432.19	Start 1484.00 hold at 5756.32 MD	
7,240.32	7,205.00	-371.56	-432.19	TD at 7240.32	



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_MAPLEWOOD 16-7
P_MAPLEWOOD 13-7**

**P_MAPLEWOOD 13-7
PLAN #1 1-19-10 RHS**

Anticollision Report

19 January, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MAPLEWOOD 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 13-7	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	7,240.32	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	1,473.27	1,458.60	14.97	8.62	2.356	CC, ES, SF
P_MAPLEWOOD 14-7 - P_MAPLEWOOD 14-7 - PLAN #	900.00	900.00	62.30	58.51	16.450	CC, ES
P_MAPLEWOOD 14-7 - P_MAPLEWOOD 14-7 - PLAN #	1,000.00	997.86	64.51	60.32	15.393	SF
P_MAPLEWOOD 22-7 - P_MAPLEWOOD 22-7 - PLAN #	946.14	946.21	13.30	9.32	3.339	CC, ES
P_MAPLEWOOD 22-7 - P_MAPLEWOOD 22-7 - PLAN #	1,000.00	1,000.07	13.55	9.34	3.218	SF
P_MAPLEWOOD 23-7 - P_MAPLEWOOD 23-7 - PLAN #	900.00	900.00	46.62	42.83	12.310	CC, ES
P_MAPLEWOOD 23-7 - P_MAPLEWOOD 23-7 - PLAN #	1,000.00	998.89	48.27	44.07	11.489	SF
P_MAPLEWOOD 35-7 - P_MAPLEWOOD 35-7 - PLAN #	900.00	900.00	31.00	28.64	13.151	CC, ES
P_MAPLEWOOD 35-7 - P_MAPLEWOOD 35-7 - PLAN #	1,000.00	999.05	32.87	30.26	12.587	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									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)	Offset Wellbore Centre +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	-147.47	-43.72	-27.88	53.22					
100.00	100.00	88.00	88.00	0.10	0.10	-147.47	-43.72	-27.88	51.85	51.66	0.19	266.673		
200.00	200.00	188.00	188.00	0.32	0.31	-147.47	-43.72	-27.88	51.85	51.22	0.63	82.246		
300.00	300.00	288.00	288.00	0.55	0.53	-147.47	-43.72	-27.88	51.85	50.77	1.08	48.013		
400.00	400.00	388.00	388.00	0.77	0.76	-147.47	-43.72	-27.88	51.85	50.32	1.53	33.902		
500.00	500.00	488.00	488.00	0.99	0.98	-147.47	-43.72	-27.88	51.85	49.87	1.98	26.201		
600.00	600.00	588.00	588.00	1.22	1.21	-147.47	-43.72	-27.88	51.85	49.43	2.43	21.351		
700.00	700.00	688.00	688.00	1.44	1.43	-147.47	-43.72	-27.88	51.85	48.98	2.88	18.016		
800.00	800.00	788.00	788.00	1.67	1.66	-147.47	-43.72	-27.88	51.85	48.53	3.33	15.583		
900.00	900.00	888.00	888.00	1.89	1.88	-147.47	-43.72	-27.88	51.85	48.08	3.78	13.728		
1,000.00	999.98	987.98	987.98	2.10	2.11	-17.37	-43.72	-27.88	50.19	45.98	4.20	11.943		
1,100.00	1,099.84	1,087.84	1,087.84	2.28	2.33	-19.38	-43.72	-27.88	45.22	40.61	4.61	9.815		
1,200.00	1,199.45	1,187.45	1,187.45	2.49	2.56	-23.92	-43.72	-27.88	37.11	32.09	5.02	7.392		
1,264.44	1,263.46	1,251.46	1,251.46	2.64	2.70	-29.67	-43.72	-27.88	30.43	25.14	5.29	5.748		
1,300.00	1,298.73	1,286.73	1,286.73	2.72	2.78	-34.48	-43.72	-27.88	26.60	21.14	5.46	4.873		
1,400.00	1,397.92	1,385.92	1,385.92	2.97	3.00	-58.38	-43.72	-27.88	17.63	11.66	5.96	2.955		
1,473.27	1,470.60	1,458.60	1,458.60	3.17	3.17	-90.00	-43.72	-27.88	14.97	8.62	6.36	2.356	CC, ES, SF	
1,500.00	1,497.11	1,485.11	1,485.11	3.24	3.23	-102.66	-43.72	-27.88	15.35	8.88	6.47	2.373		

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 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 13-7	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
1,600.00	1,596.31	1,584.31	1,584.31	3.52	3.45	-136.80	-43.72	-27.88	21.97	15.14	6.83	3.217	
1,700.00	1,695.50	1,683.50	1,683.50	3.81	3.67	-152.31	-43.72	-27.88	32.43	25.21	7.22	4.491	
1,800.00	1,794.69	1,782.69	1,782.69	4.10	3.89	-159.99	-43.72	-27.88	44.07	36.43	7.64	5.767	
1,900.00	1,893.88	1,881.88	1,881.88	4.40	4.12	-164.42	-43.72	-27.88	56.17	48.09	8.08	6.955	
2,000.00	1,993.07	1,981.07	1,981.07	4.71	4.34	-167.27	-43.72	-27.88	68.48	59.97	8.52	8.040	
2,100.00	2,092.27	2,080.27	2,080.27	5.01	4.56	-169.25	-43.72	-27.88	80.91	71.95	8.96	9.027	
2,200.00	2,191.46	2,179.46	2,179.46	5.33	4.79	-170.70	-43.72	-27.88	93.41	84.00	9.41	9.925	
2,300.00	2,290.65	2,278.65	2,278.65	5.64	5.01	-171.81	-43.72	-27.88	105.95	96.09	9.86	10.744	
2,400.00	2,389.84	2,377.84	2,377.84	5.96	5.23	-172.68	-43.72	-27.88	118.52	108.21	10.31	11.493	
2,500.00	2,489.03	2,477.03	2,477.03	6.28	5.46	-173.39	-43.72	-27.88	131.12	120.35	10.77	12.179	
2,600.00	2,588.23	2,576.23	2,576.23	6.60	5.68	-173.97	-43.72	-27.88	143.73	132.51	11.22	12.810	
2,700.00	2,687.42	2,675.42	2,675.42	6.92	5.90	-174.46	-43.72	-27.88	156.35	144.68	11.67	13.392	
2,800.00	2,786.61	2,774.61	2,774.61	7.24	6.12	-174.87	-43.72	-27.88	168.99	156.86	12.13	13.931	
2,900.00	2,885.80	2,873.80	2,873.80	7.56	6.35	-175.23	-43.72	-27.88	181.63	169.04	12.59	14.430	
3,000.00	2,984.99	2,972.99	2,972.99	7.89	6.57	-175.54	-43.72	-27.88	194.27	181.23	13.04	14.894	
3,100.00	3,084.19	3,072.19	3,072.19	8.21	6.79	-175.82	-43.72	-27.88	206.93	193.42	13.50	15.327	
3,200.00	3,183.38	3,171.38	3,171.38	8.54	7.02	-176.06	-43.72	-27.88	219.58	205.62	13.96	15.731	
3,300.00	3,282.57	3,270.57	3,270.57	8.87	7.24	-176.27	-43.72	-27.88	232.24	217.82	14.42	16.109	
3,400.00	3,381.76	3,369.76	3,369.76	9.19	7.46	-176.47	-43.72	-27.88	244.90	230.03	14.88	16.464	
3,500.00	3,480.95	3,468.95	3,468.95	9.52	7.68	-176.64	-43.72	-27.88	257.57	242.23	15.33	16.797	
3,600.00	3,580.14	3,568.14	3,568.14	9.85	7.91	-176.80	-43.72	-27.88	270.23	254.44	15.79	17.111	
3,700.00	3,679.34	3,667.34	3,667.34	10.18	8.13	-176.94	-43.72	-27.88	282.90	266.65	16.25	17.406	
3,800.00	3,778.53	3,766.53	3,766.53	10.51	8.35	-177.07	-43.72	-27.88	295.57	278.86	16.71	17.686	
3,900.00	3,877.72	3,865.72	3,865.72	10.84	8.58	-177.19	-43.72	-27.88	308.24	291.07	17.17	17.950	
4,000.00	3,976.91	3,964.91	3,964.91	11.17	8.80	-177.30	-43.72	-27.88	320.92	303.28	17.63	18.201	
4,100.00	4,076.10	4,064.10	4,064.10	11.50	9.02	-177.41	-43.72	-27.88	333.59	315.50	18.09	18.438	
4,200.00	4,175.30	4,163.30	4,163.30	11.83	9.25	-177.50	-43.72	-27.88	346.26	327.71	18.55	18.664	
4,300.00	4,274.49	4,262.49	4,262.49	12.16	9.47	-177.59	-43.72	-27.88	358.94	339.93	19.01	18.878	
4,400.00	4,373.68	4,361.68	4,361.68	12.49	9.69	-177.67	-43.72	-27.88	371.62	352.14	19.47	19.083	
4,500.00	4,472.87	4,460.87	4,460.87	12.82	9.91	-177.75	-43.72	-27.88	384.29	364.36	19.93	19.277	
4,600.00	4,572.06	4,560.06	4,560.06	13.15	10.14	-177.82	-43.72	-27.88	396.97	376.57	20.40	19.463	
4,700.00	4,671.26	4,659.26	4,659.26	13.48	10.36	-177.89	-43.72	-27.88	409.65	388.79	20.86	19.641	
4,800.00	4,770.45	4,758.45	4,758.45	13.81	10.58	-177.95	-43.72	-27.88	422.33	401.01	21.32	19.811	
4,900.00	4,869.64	4,857.64	4,857.64	14.14	10.81	-178.01	-43.72	-27.88	435.01	413.23	21.78	19.973	
5,000.00	4,968.83	4,956.83	4,956.83	14.48	11.03	-178.07	-43.72	-27.88	447.69	425.45	22.24	20.129	
5,100.00	5,068.02	5,056.02	5,056.02	14.81	11.25	-178.12	-43.72	-27.88	460.37	437.66	22.70	20.278	
5,200.00	5,167.22	5,155.22	5,155.22	15.14	11.47	-178.17	-43.72	-27.88	473.05	449.88	23.16	20.422	
5,300.00	5,266.41	5,254.41	5,254.41	15.47	11.70	-178.22	-43.72	-27.88	485.73	462.10	23.63	20.559	
5,391.88	5,357.54	5,345.54	5,345.54	15.78	11.90	-178.26	-43.72	-27.88	497.38	473.33	24.05	20.681	
5,400.00	5,365.60	5,353.60	5,353.60	15.80	11.92	-178.26	-43.72	-27.88	498.40	474.31	24.09	20.689	
5,500.00	5,465.03	5,453.03	5,453.03	16.02	12.14	-178.31	-43.72	-27.88	509.06	484.51	24.55	20.736	
5,600.00	5,564.76	5,552.76	5,552.76	16.22	12.37	-178.34	-43.72	-27.88	516.26	491.28	24.98	20.670	
5,700.00	5,664.69	5,652.69	5,652.69	16.38	12.59	-178.35	-43.72	-27.88	519.96	494.60	25.37	20.497	
5,756.32	5,721.00	5,709.00	5,709.00	16.47	12.72	50.96	-43.72	-27.88	520.52	494.94	25.58	20.348	
5,800.00	5,764.68	5,752.68	5,752.68	16.54	12.82	50.96	-43.72	-27.88	520.52	494.76	25.76	20.204	
5,900.00	5,864.68	5,852.68	5,852.68	16.68	13.04	50.96	-43.72	-27.88	520.52	494.35	26.17	19.889	
6,000.00	5,964.68	5,952.68	5,952.68	16.83	13.27	50.96	-43.72	-27.88	520.52	493.94	26.58	19.583	
6,100.00	6,064.68	6,052.68	6,052.68	16.98	13.49	50.96	-43.72	-27.88	520.52	493.53	26.99	19.285	
6,200.00	6,164.68	6,152.68	6,152.68	17.13	13.72	50.96	-43.72	-27.88	520.52	493.11	27.40	18.995	
6,300.00	6,264.68	6,252.68	6,252.68	17.28	13.94	50.96	-43.72	-27.88	520.52	492.70	27.82	18.713	
6,400.00	6,364.68	6,352.68	6,352.68	17.43	14.17	50.96	-43.72	-27.88	520.52	492.29	28.23	18.438	
6,500.00	6,464.68	6,452.68	6,452.68	17.59	14.39	50.96	-43.72	-27.88	520.52	491.87	28.65	18.171	

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 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 13-7	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												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
6,600.00	6,564.68	6,552.68	6,552.68	17.74	14.62	50.96	-43.72	-27.88	520.52	491.46	29.06	17.911	
6,700.00	6,664.68	6,652.68	6,652.68	17.90	14.84	50.96	-43.72	-27.88	520.52	491.04	29.48	17.657	
6,800.00	6,764.68	6,752.68	6,752.68	18.06	15.07	50.96	-43.72	-27.88	520.52	490.62	29.90	17.410	
6,900.00	6,864.68	6,852.68	6,852.68	18.22	15.29	50.96	-43.72	-27.88	520.52	490.20	30.32	17.170	
7,000.00	6,964.68	6,952.68	6,952.68	18.38	15.51	50.96	-43.72	-27.88	520.52	489.78	30.74	16.935	
7,100.00	7,064.68	7,052.68	7,052.68	18.55	15.74	50.96	-43.72	-27.88	520.52	489.36	31.16	16.707	
7,200.00	7,164.68	7,152.68	7,152.68	18.71	15.96	50.96	-43.72	-27.88	520.52	488.94	31.58	16.484	
7,240.32	7,205.00	7,193.00	7,193.00	18.78	16.06	50.96	-43.72	-27.88	520.52	488.77	31.75	16.396	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MAPLEWOOD 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 13-7	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						
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	121.75	-32.79	52.98	62.30				
100.00	100.00	100.00	100.00	0.10	0.10	121.75	-32.79	52.98	62.30	62.11	0.19	326.099	
200.00	200.00	200.00	200.00	0.32	0.32	121.75	-32.79	52.98	62.30	61.66	0.64	97.258	
300.00	300.00	300.00	300.00	0.55	0.55	121.75	-32.79	52.98	62.30	61.21	1.09	57.151	
400.00	400.00	400.00	400.00	0.77	0.77	121.75	-32.79	52.98	62.30	60.76	1.54	40.465	
500.00	500.00	500.00	500.00	0.99	0.99	121.75	-32.79	52.98	62.30	60.31	1.99	31.320	
600.00	600.00	600.00	600.00	1.22	1.22	121.75	-32.79	52.98	62.30	59.86	2.44	25.547	
700.00	700.00	700.00	700.00	1.44	1.44	121.75	-32.79	52.98	62.30	59.41	2.89	21.571	
800.00	800.00	800.00	800.00	1.67	1.67	121.75	-32.79	52.98	62.30	58.96	3.34	18.666	
900.00	900.00	900.00	900.00	1.89	1.89	121.75	-32.79	52.98	62.30	58.51	3.79	16.450 CC, ES	
1,000.00	999.98	997.86	997.84	2.10	2.10	-109.37	-33.25	54.58	64.51	60.32	4.19	15.393 SF	
1,100.00	1,099.84	1,095.18	1,095.03	2.28	2.29	-114.07	-34.63	59.36	71.47	66.91	4.56	15.658	
1,200.00	1,199.45	1,191.44	1,190.94	2.49	2.50	-120.02	-36.89	67.21	83.91	78.96	4.95	16.948	
1,264.44	1,263.46	1,252.67	1,251.78	2.64	2.64	-123.80	-38.80	73.81	95.11	89.90	5.21	18.262	
1,300.00	1,298.73	1,286.18	1,285.01	2.72	2.73	-125.78	-39.99	77.95	102.26	96.90	5.35	19.101	
1,400.00	1,397.92	1,379.52	1,377.29	2.97	2.98	-129.95	-43.88	91.45	125.02	119.24	5.77	21.651	
1,500.00	1,497.11	1,471.41	1,467.63	3.24	3.26	-132.62	-48.53	107.55	151.32	145.12	6.21	24.374	
1,600.00	1,596.31	1,564.26	1,558.40	3.52	3.58	-134.36	-53.94	126.32	180.53	173.87	6.66	27.107	
1,700.00	1,695.50	1,659.64	1,651.56	3.81	3.94	-135.62	-59.62	146.01	210.29	203.15	7.13	29.485	
1,800.00	1,794.69	1,755.03	1,744.71	4.10	4.32	-136.57	-65.30	165.70	240.11	232.49	7.62	31.529	
1,900.00	1,893.88	1,850.41	1,837.87	4.40	4.71	-137.31	-70.98	185.39	269.98	261.87	8.11	33.294	
2,000.00	1,993.07	1,945.79	1,931.02	4.71	5.11	-137.91	-76.66	205.07	299.88	291.27	8.61	34.827	
2,100.00	2,092.27	2,041.18	2,024.18	5.01	5.51	-138.39	-82.34	224.76	329.81	320.69	9.12	36.166	
2,200.00	2,191.46	2,136.56	2,117.34	5.33	5.93	-138.80	-88.02	244.45	359.75	350.12	9.63	37.343	
2,300.00	2,290.65	2,231.94	2,210.49	5.64	6.35	-139.14	-93.70	264.14	389.71	379.56	10.15	38.383	
2,400.00	2,389.84	2,327.33	2,303.65	5.96	6.77	-139.43	-99.38	283.82	419.68	409.01	10.68	39.307	
2,500.00	2,489.03	2,422.71	2,396.80	6.28	7.20	-139.69	-105.06	303.51	449.66	438.46	11.20	40.132	
2,600.00	2,588.23	2,518.09	2,489.96	6.60	7.63	-139.91	-110.74	323.20	479.65	467.91	11.74	40.872	
2,700.00	2,687.42	2,613.47	2,583.12	6.92	8.06	-140.11	-116.42	342.89	509.64	497.37	12.27	41.540	
2,800.00	2,786.61	2,708.86	2,676.27	7.24	8.49	-140.28	-122.09	362.57	539.63	526.83	12.80	42.144	
2,900.00	2,885.80	2,804.24	2,769.43	7.56	8.93	-140.44	-127.77	382.26	569.64	556.29	13.34	42.693	
3,000.00	2,984.99	2,899.62	2,862.58	7.89	9.36	-140.58	-133.45	401.95	599.64	585.76	13.88	43.194	
3,100.00	3,084.19	2,995.01	2,955.74	8.21	9.80	-140.71	-139.13	421.64	629.65	615.22	14.42	43.652	
3,200.00	3,183.38	3,090.39	3,048.90	8.54	10.24	-140.82	-144.81	441.32	659.66	644.69	14.97	44.073	
3,300.00	3,282.57	3,185.77	3,142.05	8.87	10.68	-140.93	-150.49	461.01	689.67	674.15	15.51	44.460	
3,400.00	3,381.76	3,281.15	3,235.21	9.19	11.12	-141.02	-156.17	480.70	719.68	703.62	16.06	44.818	
3,500.00	3,480.95	3,376.54	3,328.36	9.52	11.57	-141.11	-161.85	500.39	749.70	733.09	16.60	45.150	
3,600.00	3,580.14	3,471.92	3,421.52	9.85	12.01	-141.20	-167.53	520.07	779.71	762.56	17.15	45.458	
3,700.00	3,679.34	3,567.30	3,514.68	10.18	12.45	-141.27	-173.21	539.76	809.73	792.03	17.70	45.745	
3,800.00	3,778.53	3,662.69	3,607.83	10.51	12.90	-141.34	-178.89	559.45	839.75	821.50	18.25	46.012	
3,900.00	3,877.72	3,758.07	3,700.99	10.84	13.34	-141.41	-184.57	579.14	869.77	850.97	18.80	46.263	
4,000.00	3,976.91	3,853.45	3,794.14	11.17	13.79	-141.47	-190.25	598.82	899.79	880.44	19.35	46.497	
4,100.00	4,076.10	3,948.83	3,887.30	11.50	14.23	-141.53	-195.92	618.51	929.81	909.91	19.90	46.717	
4,200.00	4,175.30	4,044.22	3,980.46	11.83	14.68	-141.58	-201.60	638.20	959.84	939.38	20.46	46.924	
4,300.00	4,274.49	4,139.60	4,073.61	12.16	15.12	-141.63	-207.28	657.89	989.86	968.85	21.01	47.118	
4,400.00	4,373.68	4,234.98	4,166.77	12.49	15.57	-141.68	-212.96	677.57	1,019.89	998.32	21.56	47.302	
4,500.00	4,472.87	4,330.37	4,259.92	12.82	16.01	-141.72	-218.64	697.26	1,049.91	1,027.80	22.11	47.476	
4,600.00	4,572.06	4,425.75	4,353.08	13.15	16.46	-141.77	-224.32	716.95	1,079.94	1,057.27	22.67	47.640	
4,700.00	4,671.26	4,521.13	4,446.24	13.48	16.91	-141.81	-230.00	736.64	1,109.96	1,086.74	23.22	47.796	
4,800.00	4,770.45	4,616.51	4,539.39	13.81	17.36	-141.85	-235.68	756.32	1,139.99	1,116.21	23.78	47.944	
4,900.00	4,869.64	4,711.90	4,632.55	14.14	17.80	-141.88	-241.36	776.01	1,170.02	1,145.68	24.33	48.084	
5,000.00	4,968.83	4,807.28	4,725.70	14.48	18.25	-141.92	-247.04	795.70	1,200.04	1,175.16	24.89	48.218	

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 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 13-7	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									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.00	5,068.02	4,902.66	4,818.86	14.81	18.70	-141.95	-252.72	815.39	1,230.07	1,204.63	25.44	48.345	
5,200.00	5,167.22	4,998.05	4,912.02	15.14	19.15	-141.98	-258.40	835.07	1,260.10	1,234.10	26.00	48.466	
5,300.00	5,266.41	5,093.43	5,005.17	15.47	19.60	-142.01	-264.07	854.76	1,290.13	1,263.57	26.56	48.582	
5,391.88	5,357.54	5,181.99	5,091.67	15.78	20.01	-142.03	-269.35	873.04	1,317.72	1,290.65	27.07	48.680	
5,400.00	5,365.60	5,195.69	5,105.06	15.80	20.07	-142.07	-270.15	875.83	1,320.13	1,292.99	27.13	48.652	
5,500.00	5,465.03	5,367.99	5,274.52	16.02	20.60	-142.43	-278.74	905.61	1,345.40	1,317.58	27.82	48.359	
5,600.00	5,564.76	5,545.69	5,450.91	16.22	21.03	-142.67	-284.63	926.02	1,362.34	1,333.90	28.44	47.899	
5,700.00	5,664.69	5,726.70	5,631.60	16.38	21.34	-142.79	-287.50	935.96	1,370.68	1,341.70	28.98	47.290	
5,756.32	5,721.00	5,816.11	5,721.00	16.47	21.45	86.50	-287.76	936.86	1,371.61	1,342.36	29.25	46.892	
5,800.00	5,764.68	5,859.79	5,764.68	16.54	21.50	86.50	-287.76	936.86	1,371.61	1,342.21	29.40	46.657	
5,900.00	5,864.68	5,959.79	5,864.68	16.68	21.62	86.50	-287.76	936.86	1,371.61	1,341.89	29.73	46.143	
6,000.00	5,964.68	6,059.79	5,964.68	16.83	21.74	86.50	-287.76	936.86	1,371.61	1,341.56	30.06	45.636	
6,100.00	6,064.68	6,159.79	6,064.68	16.98	21.87	86.50	-287.76	936.86	1,371.61	1,341.22	30.39	45.135	
6,200.00	6,164.68	6,259.79	6,164.68	17.13	21.99	86.50	-287.76	936.86	1,371.61	1,340.89	30.73	44.641	
6,300.00	6,264.68	6,359.79	6,264.68	17.28	22.12	86.50	-287.76	936.86	1,371.61	1,340.55	31.06	44.153	
6,400.00	6,364.68	6,459.79	6,364.68	17.43	22.25	86.50	-287.76	936.86	1,371.61	1,340.21	31.41	43.673	
6,500.00	6,464.68	6,559.79	6,464.68	17.59	22.38	86.50	-287.76	936.86	1,371.61	1,339.86	31.75	43.198	
6,600.00	6,564.68	6,659.79	6,564.68	17.74	22.52	86.50	-287.76	936.86	1,371.61	1,339.51	32.10	42.731	
6,700.00	6,664.68	6,759.79	6,664.68	17.90	22.65	86.50	-287.76	936.86	1,371.61	1,339.16	32.45	42.271	
6,800.00	6,764.68	6,859.79	6,764.68	18.06	22.79	86.50	-287.76	936.86	1,371.61	1,338.81	32.80	41.817	
6,900.00	6,864.68	6,959.79	6,864.68	18.22	22.92	86.50	-287.76	936.86	1,371.61	1,338.46	33.16	41.369	
7,000.00	6,964.68	7,059.79	6,964.68	18.38	23.06	86.50	-287.76	936.86	1,371.61	1,338.10	33.51	40.929	
7,100.00	7,064.68	7,159.79	7,064.68	18.55	23.20	86.50	-287.76	936.86	1,371.61	1,337.74	33.87	40.495	
7,200.00	7,164.68	7,259.79	7,164.68	18.71	23.34	86.50	-287.76	936.86	1,371.61	1,337.38	34.23	40.068	
7,240.32	7,205.00	7,300.11	7,205.00	18.78	23.40	86.50	-287.76	936.86	1,371.61	1,337.23	34.38	39.898	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MAPLEWOOD 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 13-7	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 22-7 - P_MAPLEWOOD 22-7 - 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
0.00	0.00	0.00	0.00	0.00	0.00	123.14	-7.28	11.15	13.32				
100.00	100.00	100.00	100.00	0.10	0.10	123.14	-7.28	11.15	13.32	13.13	0.19	69.718	
200.00	200.00	200.00	200.00	0.32	0.32	123.14	-7.28	11.15	13.32	12.68	0.64	20.793	
300.00	300.00	300.00	300.00	0.55	0.55	123.14	-7.28	11.15	13.32	12.23	1.09	12.219	
400.00	400.00	400.00	400.00	0.77	0.77	123.14	-7.28	11.15	13.32	11.78	1.54	8.651	
500.00	500.00	500.00	500.00	0.99	0.99	123.14	-7.28	11.15	13.32	11.33	1.99	6.696	
600.00	600.00	600.00	600.00	1.22	1.22	123.14	-7.28	11.15	13.32	10.88	2.44	5.462	
700.00	700.00	700.00	700.00	1.44	1.44	123.14	-7.28	11.15	13.32	10.43	2.89	4.612	
800.00	800.00	800.00	800.00	1.67	1.67	123.14	-7.28	11.15	13.32	9.98	3.34	3.991	
900.00	900.00	900.00	900.00	1.89	1.89	123.14	-7.28	11.15	13.32	9.53	3.79	3.517	
946.14	946.14	946.21	946.21	1.99	2.00	-109.20	-6.92	11.22	13.30	9.32	3.98	3.339 CC, ES	
1,000.00	999.98	1,000.07	1,000.05	2.10	2.12	-120.23	-5.57	11.48	13.55	9.34	4.21	3.218 SF	
1,100.00	1,099.84	1,099.48	1,099.32	2.28	2.34	-152.15	-0.47	12.47	18.23	13.62	4.61	3.955	
1,200.00	1,199.45	1,197.62	1,197.08	2.49	2.57	-174.11	7.88	14.09	31.77	26.76	5.01	6.342	
1,264.44	1,263.46	1,259.89	1,258.95	2.64	2.72	178.40	14.88	15.44	44.80	39.54	5.27	8.508	
1,300.00	1,298.73	1,293.92	1,292.68	2.72	2.80	175.56	19.27	16.29	53.07	47.65	5.42	9.799	
1,400.00	1,397.92	1,388.55	1,386.18	2.97	3.06	170.10	33.52	19.04	78.62	72.77	5.84	13.452	
1,500.00	1,497.11	1,481.47	1,477.49	3.24	3.34	166.60	50.46	22.32	107.36	101.08	6.28	17.092	
1,600.00	1,596.31	1,572.55	1,566.39	3.52	3.66	164.08	69.87	26.08	139.15	132.43	6.72	20.692	
1,700.00	1,695.50	1,661.66	1,652.72	3.81	4.00	162.15	91.54	30.27	173.87	166.70	7.17	24.235	
1,800.00	1,794.69	1,748.69	1,736.33	4.10	4.38	160.61	115.24	34.85	211.43	203.80	7.63	27.715	
1,900.00	1,893.88	1,833.57	1,817.13	4.40	4.80	159.33	140.75	39.78	251.72	243.63	8.09	31.129	
2,000.00	1,993.07	1,916.23	1,895.05	4.71	5.24	158.25	167.83	45.02	294.63	286.09	8.55	34.475	
2,100.00	2,092.27	2,000.00	1,973.17	5.01	5.73	157.30	197.53	50.77	340.10	331.08	9.02	37.717	
2,200.00	2,191.46	2,074.71	2,042.07	5.33	6.22	156.54	225.89	56.25	387.95	378.47	9.47	40.954	
2,300.00	2,290.65	2,152.33	2,112.84	5.64	6.75	155.82	257.18	62.30	438.11	428.17	9.94	44.072	
2,400.00	2,389.84	2,238.23	2,190.84	5.96	7.37	155.16	292.51	69.14	489.09	478.65	10.44	46.844	
2,500.00	2,489.03	2,324.14	2,268.85	6.28	8.00	154.62	327.83	75.97	540.11	529.16	10.94	49.349	
2,600.00	2,588.23	2,410.04	2,346.86	6.60	8.64	154.18	363.16	82.80	591.16	579.71	11.45	51.616	
2,700.00	2,687.42	2,495.95	2,424.86	6.92	9.29	153.80	398.49	89.64	642.23	630.26	11.97	53.673	
2,800.00	2,786.61	2,581.85	2,502.87	7.24	9.95	153.48	433.81	96.47	693.32	680.84	12.48	55.544	
2,900.00	2,885.80	2,667.76	2,580.88	7.56	10.61	153.21	469.14	103.30	744.42	731.42	13.00	57.255	
3,000.00	2,984.99	2,753.66	2,658.88	7.89	11.28	152.97	504.47	110.13	795.54	782.01	13.52	58.824	
3,100.00	3,084.19	2,839.57	2,736.89	8.21	11.95	152.76	539.79	116.97	846.66	832.61	14.05	60.266	
3,200.00	3,183.38	2,925.48	2,814.90	8.54	12.62	152.57	575.12	123.80	897.79	883.21	14.58	61.596	
3,300.00	3,282.57	3,011.38	2,892.90	8.87	13.29	152.40	610.45	130.63	948.93	933.82	15.10	62.825	
3,400.00	3,381.76	3,097.29	2,970.91	9.19	13.97	152.26	645.77	137.47	1,000.07	984.43	15.63	63.964	
3,500.00	3,480.95	3,183.19	3,048.92	9.52	14.65	152.12	681.10	144.30	1,051.21	1,035.05	16.17	65.021	
3,600.00	3,580.14	3,269.10	3,126.92	9.85	15.33	152.00	716.43	151.13	1,102.37	1,085.66	16.70	66.006	
3,700.00	3,679.34	3,355.00	3,204.93	10.18	16.01	151.89	751.76	157.96	1,153.52	1,136.28	17.24	66.925	
3,800.00	3,778.53	3,440.91	3,282.94	10.51	16.70	151.78	787.08	164.80	1,204.68	1,186.90	17.77	67.784	
3,900.00	3,877.72	3,526.81	3,360.94	10.84	17.38	151.69	822.41	171.63	1,255.84	1,237.53	18.31	68.589	
4,000.00	3,976.91	3,612.72	3,438.95	11.17	18.07	151.60	857.74	178.46	1,307.00	1,288.15	18.85	69.345	
4,100.00	4,076.10	3,698.62	3,516.95	11.50	18.75	151.52	893.06	185.30	1,358.16	1,338.77	19.39	70.055	
4,200.00	4,175.30	3,784.53	3,594.96	11.83	19.44	151.45	928.39	192.13	1,409.33	1,389.40	19.93	70.724	
4,300.00	4,274.49	3,870.43	3,672.97	12.16	20.13	151.38	963.72	198.96	1,460.49	1,440.03	20.47	71.354	
4,400.00	4,373.68	3,956.34	3,750.97	12.49	20.81	151.31	999.04	205.79	1,511.66	1,490.65	21.01	71.950	
4,500.00	4,472.87	4,042.24	3,828.98	12.82	21.50	151.25	1,034.37	212.63	1,562.83	1,541.28	21.55	72.514	
4,600.00	4,572.06	4,128.15	3,906.99	13.15	22.19	151.20	1,069.70	219.46	1,614.00	1,591.91	22.09	73.049	
4,700.00	4,671.26	4,214.05	3,984.99	13.48	22.88	151.15	1,105.02	226.29	1,665.18	1,642.54	22.64	73.556	
4,800.00	4,770.45	4,299.96	4,063.00	13.81	23.57	151.10	1,140.35	233.12	1,716.35	1,693.17	23.18	74.037	
4,900.00	4,869.64	4,385.86	4,141.01	14.14	24.26	151.05	1,175.68	239.96	1,767.52	1,743.80	23.73	74.495	

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 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 13-7	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 22-7 - P_MAPLEWOOD 22-7 - 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	4,968.83	4,471.77	4,219.01	14.48	24.95	151.00	1,211.01	246.79	1,818.70	1,794.43	24.27	74.931	
5,100.00	5,068.02	4,557.67	4,297.02	14.81	25.64	150.96	1,246.33	253.62	1,869.87	1,845.06	24.82	75.346	
5,200.00	5,167.22	4,643.58	4,375.03	15.14	26.33	150.92	1,281.66	260.46	1,921.05	1,895.69	25.36	75.743	
5,300.00	5,266.41	4,729.48	4,453.03	15.47	27.03	150.89	1,316.99	267.29	1,972.23	1,946.32	25.91	76.121	
5,391.88	5,357.54	4,808.41	4,524.71	15.78	27.66	150.85	1,349.44	273.57	2,019.25	1,992.84	26.41	76.455	
5,400.00	5,365.60	4,815.39	4,531.04	15.80	27.72	150.90	1,352.32	274.12	2,023.40	1,996.92	26.47	76.434	
5,500.00	5,465.03	4,902.17	4,609.84	16.02	28.42	151.38	1,388.00	281.02	2,073.04	2,045.85	27.19	76.242	
5,600.00	5,564.76	5,108.33	4,798.88	16.22	29.77	151.62	1,468.67	296.63	2,118.78	2,090.57	28.21	75.100	
5,700.00	5,664.69	5,463.18	5,136.20	16.38	31.51	151.59	1,576.13	317.41	2,152.35	2,122.85	29.50	72.951	
5,756.32	5,721.00	5,676.60	5,344.67	16.47	32.29	20.84	1,620.73	326.04	2,164.66	2,134.48	30.17	71.739	
5,800.00	5,764.68	5,846.63	5,512.82	16.54	32.76	20.72	1,645.28	330.79	2,170.99	2,140.41	30.59	70.980	
5,900.00	5,864.68	6,199.27	5,864.68	16.68	33.31	20.63	1,664.83	334.57	2,175.96	2,144.65	31.31	69.500	
6,000.00	5,964.68	6,299.27	5,964.68	16.83	33.39	20.63	1,664.83	334.57	2,175.96	2,144.32	31.64	68.779	
6,100.00	6,064.68	6,399.27	6,064.68	16.98	33.47	20.63	1,664.83	334.57	2,175.96	2,143.99	31.97	68.066	
6,200.00	6,164.68	6,499.27	6,164.68	17.13	33.55	20.63	1,664.83	334.57	2,175.96	2,143.66	32.30	67.362	
6,300.00	6,264.68	6,599.27	6,264.68	17.28	33.63	20.63	1,664.83	334.57	2,175.96	2,143.32	32.64	66.667	
6,400.00	6,364.68	6,699.27	6,364.68	17.43	33.72	20.63	1,664.83	334.57	2,175.96	2,142.98	32.98	65.981	
6,500.00	6,464.68	6,799.27	6,464.68	17.59	33.80	20.63	1,664.83	334.57	2,175.96	2,142.64	33.32	65.304	
6,600.00	6,564.68	6,899.27	6,564.68	17.74	33.89	20.63	1,664.83	334.57	2,175.96	2,142.29	33.66	64.636	
6,700.00	6,664.68	6,999.27	6,664.68	17.90	33.97	20.63	1,664.83	334.57	2,175.96	2,141.95	34.01	63.976	
6,800.00	6,764.68	7,099.27	6,764.68	18.06	34.06	20.63	1,664.83	334.57	2,175.96	2,141.60	34.36	63.326	
6,900.00	6,864.68	7,199.27	6,864.68	18.22	34.15	20.63	1,664.83	334.57	2,175.96	2,141.25	34.71	62.685	
7,000.00	6,964.68	7,299.27	6,964.68	18.38	34.24	20.63	1,664.83	334.57	2,175.96	2,140.89	35.07	62.053	
7,100.00	7,064.68	7,399.27	7,064.68	18.55	34.34	20.63	1,664.83	334.57	2,175.96	2,140.54	35.42	61.429	
7,200.00	7,164.68	7,499.27	7,164.68	18.71	34.43	20.63	1,664.83	334.57	2,175.96	2,140.18	35.78	60.815	
7,240.32	7,205.00	7,539.59	7,205.00	18.78	34.47	20.63	1,664.83	334.57	2,175.96	2,140.03	35.93	60.569	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MAPLEWOOD 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 13-7	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		
0.00	0.00	0.00	0.00	0.00	0.00	123.15	-25.49	39.04	46.62						
100.00	100.00	100.00	100.00	0.10	0.10	123.15	-25.49	39.04	46.62	46.43	0.19	244.030			
200.00	200.00	200.00	200.00	0.32	0.32	123.15	-25.49	39.04	46.62	45.98	0.64	72.781			
300.00	300.00	300.00	300.00	0.55	0.55	123.15	-25.49	39.04	46.62	45.53	1.09	42.768			
400.00	400.00	400.00	400.00	0.77	0.77	123.15	-25.49	39.04	46.62	45.08	1.54	30.281			
500.00	500.00	500.00	500.00	0.99	0.99	123.15	-25.49	39.04	46.62	44.63	1.99	23.438			
600.00	600.00	600.00	600.00	1.22	1.22	123.15	-25.49	39.04	46.62	44.18	2.44	19.118			
700.00	700.00	700.00	700.00	1.44	1.44	123.15	-25.49	39.04	46.62	43.73	2.89	16.142			
800.00	800.00	800.00	800.00	1.67	1.67	123.15	-25.49	39.04	46.62	43.28	3.34	13.968			
900.00	900.00	900.00	900.00	1.89	1.89	123.15	-25.49	39.04	46.62	42.83	3.79	12.310 CC, ES			
1,000.00	999.98	998.89	998.87	2.10	2.11	-109.70	-24.94	40.65	48.27	44.07	4.20	11.489 SF			
1,100.00	1,099.84	1,097.10	1,096.94	2.28	2.32	-118.78	-23.31	45.45	54.18	49.59	4.59	11.802			
1,200.00	1,199.45	1,193.96	1,193.44	2.49	2.54	-129.68	-20.63	53.30	66.30	61.31	4.98	13.300			
1,264.44	1,263.46	1,255.36	1,254.45	2.64	2.69	-136.05	-18.39	59.87	78.02	72.78	5.24	14.891			
1,300.00	1,298.73	1,288.89	1,287.70	2.72	2.77	-139.17	-16.99	63.98	85.68	80.29	5.38	15.916			
1,400.00	1,397.92	1,382.08	1,379.81	2.97	3.03	-145.74	-12.44	77.34	110.32	104.52	5.79	19.044			
1,500.00	1,497.11	1,473.51	1,469.69	3.24	3.31	-150.05	-7.03	93.19	138.95	132.75	6.21	22.384			
1,600.00	1,596.31	1,563.06	1,557.16	3.52	3.62	-152.95	-0.84	111.34	171.10	164.47	6.63	25.818			
1,700.00	1,695.50	1,650.62	1,642.06	3.81	3.98	-154.97	6.05	131.58	206.45	199.40	7.05	29.282			
1,800.00	1,794.69	1,736.09	1,724.27	4.10	4.36	-156.41	13.59	153.70	244.77	237.30	7.48	32.740			
1,900.00	1,893.88	1,819.39	1,803.69	4.40	4.78	-157.45	21.70	177.48	285.91	278.01	7.90	36.169			
2,000.00	1,993.07	1,900.00	1,879.82	4.71	5.23	-158.22	30.25	202.56	329.72	321.38	8.33	39.565			
2,100.00	2,092.27	1,984.80	1,959.20	5.01	5.75	-158.84	39.87	230.79	375.71	366.93	8.78	42.786			
2,200.00	2,191.46	2,073.38	2,042.04	5.33	6.32	-159.35	50.00	260.50	422.00	412.76	9.25	45.646			
2,300.00	2,290.65	2,161.97	2,124.87	5.64	6.90	-159.76	60.12	290.20	468.32	458.60	9.71	48.206			
2,400.00	2,389.84	2,250.55	2,207.71	5.96	7.49	-160.09	70.25	319.91	514.65	504.46	10.19	50.506			
2,500.00	2,489.03	2,339.14	2,290.55	6.28	8.09	-160.37	80.38	349.62	560.99	550.32	10.67	52.579			
2,600.00	2,588.23	2,427.72	2,373.38	6.60	8.70	-160.61	90.51	379.33	607.34	596.18	11.15	54.455			
2,700.00	2,687.42	2,516.30	2,456.22	6.92	9.31	-160.81	100.63	409.04	653.69	642.05	11.64	56.158			
2,800.00	2,786.61	2,604.89	2,539.06	7.24	9.93	-160.99	110.76	438.75	700.06	687.92	12.13	57.709			
2,900.00	2,885.80	2,693.47	2,621.89	7.56	10.55	-161.14	120.89	468.46	746.42	733.80	12.62	59.127			
3,000.00	2,984.99	2,782.06	2,704.73	7.89	11.18	-161.28	131.01	498.17	792.79	779.67	13.12	60.426			
3,100.00	3,084.19	2,870.64	2,787.57	8.21	11.81	-161.40	141.14	527.88	839.17	825.55	13.62	61.621			
3,200.00	3,183.38	2,959.22	2,870.40	8.54	12.44	-161.51	151.27	557.59	885.54	871.42	14.12	62.723			
3,300.00	3,282.57	3,047.81	2,953.24	8.87	13.07	-161.61	161.40	587.30	931.92	917.30	14.62	63.743			
3,400.00	3,381.76	3,136.39	3,036.08	9.19	13.70	-161.70	171.52	617.01	978.30	963.18	15.12	64.689			
3,500.00	3,480.95	3,224.98	3,118.91	9.52	14.34	-161.78	181.65	646.72	1,024.68	1,009.05	15.63	65.568			
3,600.00	3,580.14	3,313.56	3,201.75	9.85	14.97	-161.85	191.78	676.43	1,071.07	1,054.93	16.13	66.386			
3,700.00	3,679.34	3,402.15	3,284.59	10.18	15.61	-161.92	201.91	706.14	1,117.45	1,100.81	16.64	67.150			
3,800.00	3,778.53	3,490.73	3,367.42	10.51	16.25	-161.98	212.03	735.85	1,163.84	1,146.69	17.15	67.865			
3,900.00	3,877.72	3,579.31	3,450.26	10.84	16.89	-162.04	222.16	765.56	1,210.22	1,192.57	17.66	68.535			
4,000.00	3,976.91	3,667.90	3,533.10	11.17	17.53	-162.09	232.29	795.27	1,256.61	1,238.44	18.17	69.163			
4,100.00	4,076.10	3,756.48	3,615.93	11.50	18.17	-162.14	242.41	824.98	1,303.00	1,284.32	18.68	69.755			
4,200.00	4,175.30	3,845.07	3,698.77	11.83	18.81	-162.19	252.54	854.69	1,349.39	1,330.20	19.19	70.312			
4,300.00	4,274.49	3,933.65	3,781.61	12.16	19.45	-162.23	262.67	884.40	1,395.78	1,376.08	19.70	70.838			
4,400.00	4,373.68	4,022.23	3,864.44	12.49	20.10	-162.27	272.80	914.11	1,442.17	1,421.95	20.22	71.336			
4,500.00	4,472.87	4,110.82	3,947.28	12.82	20.74	-162.31	282.92	943.82	1,488.56	1,467.83	20.73	71.806			
4,600.00	4,572.06	4,199.40	4,030.12	13.15	21.38	-162.34	293.05	973.53	1,534.95	1,513.71	21.24	72.252			
4,700.00	4,671.26	4,287.99	4,112.95	13.48	22.03	-162.38	303.18	1,003.24	1,581.34	1,559.58	21.76	72.675			
4,800.00	4,770.45	4,376.57	4,195.79	13.81	22.67	-162.41	313.30	1,032.95	1,627.74	1,605.46	22.27	73.077			
4,900.00	4,869.64	4,465.16	4,278.63	14.14	23.32	-162.44	323.43	1,062.66	1,674.13	1,651.34	22.79	73.460			
5,000.00	4,968.83	4,553.74	4,361.46	14.48	23.96	-162.47	333.56	1,092.37	1,720.52	1,697.22	23.31	73.824			

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 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 13-7	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
5,100.00	5,068.02	4,642.32	4,444.30	14.81	24.61	-162.49	343.69	1,122.08	1,766.91	1,743.09	23.82	74.172	
5,200.00	5,167.22	4,730.91	4,527.14	15.14	25.25	-162.52	353.81	1,151.79	1,813.31	1,788.97	24.34	74.503	
5,300.00	5,266.41	4,819.49	4,609.97	15.47	25.90	-162.54	363.94	1,181.50	1,859.70	1,834.85	24.86	74.820	
5,391.88	5,357.54	4,900.88	4,686.08	15.78	26.49	-162.56	373.25	1,208.80	1,902.33	1,877.00	25.33	75.099	
5,400.00	5,365.60	4,916.30	4,700.51	15.80	26.59	-162.59	375.00	1,213.94	1,906.08	1,880.67	25.41	75.016	
5,500.00	5,465.03	5,194.01	4,964.93	16.02	28.05	-162.90	402.27	1,293.95	1,946.03	1,919.52	26.51	73.411	
5,600.00	5,564.76	5,496.10	5,260.36	16.22	29.14	-163.09	422.41	1,353.03	1,973.35	1,945.81	27.54	71.660	
5,700.00	5,664.69	5,814.34	5,576.84	16.38	29.80	-163.19	432.65	1,383.07	1,986.83	1,958.40	28.43	69.877	
5,756.32	5,721.00	5,958.53	5,721.00	16.47	29.96	66.11	433.56	1,385.74	1,988.23	1,959.41	28.82	68.991	
5,800.00	5,764.68	6,002.22	5,764.68	16.54	29.99	66.11	433.56	1,385.74	1,988.23	1,959.26	28.97	68.637	
5,900.00	5,864.68	6,102.22	5,864.68	16.68	30.09	66.11	433.56	1,385.74	1,988.23	1,958.92	29.31	67.841	
6,000.00	5,964.68	6,202.22	5,964.68	16.83	30.18	66.11	433.56	1,385.74	1,988.23	1,958.58	29.65	67.058	
6,100.00	6,064.68	6,302.22	6,064.68	16.98	30.27	66.11	433.56	1,385.74	1,988.23	1,958.24	29.99	66.286	
6,200.00	6,164.68	6,402.22	6,164.68	17.13	30.37	66.11	433.56	1,385.74	1,988.23	1,957.89	30.34	65.525	
6,300.00	6,264.68	6,502.22	6,264.68	17.28	30.47	66.11	433.56	1,385.74	1,988.23	1,957.54	30.69	64.777	
6,400.00	6,364.68	6,602.22	6,364.68	17.43	30.56	66.11	433.56	1,385.74	1,988.23	1,957.18	31.05	64.040	
6,500.00	6,464.68	6,702.22	6,464.68	17.59	30.66	66.11	433.56	1,385.74	1,988.23	1,956.83	31.40	63.315	
6,600.00	6,564.68	6,802.22	6,564.68	17.74	30.77	66.11	433.56	1,385.74	1,988.23	1,956.47	31.76	62.601	
6,700.00	6,664.68	6,902.22	6,664.68	17.90	30.87	66.11	433.56	1,385.74	1,988.23	1,956.11	32.12	61.899	
6,800.00	6,764.68	7,002.22	6,764.68	18.06	30.97	66.11	433.56	1,385.74	1,988.23	1,955.75	32.48	61.208	
6,900.00	6,864.68	7,102.22	6,864.68	18.22	31.08	66.11	433.56	1,385.74	1,988.23	1,955.38	32.85	60.529	
7,000.00	6,964.68	7,202.22	6,964.68	18.38	31.18	66.11	433.56	1,385.74	1,988.23	1,955.02	33.21	59.861	
7,100.00	7,064.68	7,302.22	7,064.68	18.55	31.29	66.11	433.56	1,385.74	1,988.23	1,954.65	33.58	59.204	
7,200.00	7,164.68	7,402.22	7,164.68	18.71	31.40	66.11	433.56	1,385.74	1,988.23	1,954.28	33.95	58.557	
7,240.32	7,205.00	7,442.53	7,205.00	18.78	31.44	66.11	433.56	1,385.74	1,988.23	1,954.13	34.10	58.300	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MAPLEWOOD 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 13-7	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	125.95	-18.20	25.09	31.00				
100.00	100.00	100.00	100.00	0.10	0.04	125.95	-18.20	25.09	31.00	30.86	0.14	221.367	
200.00	200.00	200.00	200.00	0.32	0.10	125.95	-18.20	25.09	31.00	30.58	0.42	74.308	
300.00	300.00	300.00	300.00	0.55	0.15	125.95	-18.20	25.09	31.00	30.30	0.69	44.648	
400.00	400.00	400.00	400.00	0.77	0.20	125.95	-18.20	25.09	31.00	30.03	0.97	31.911	
500.00	500.00	500.00	500.00	0.99	0.25	125.95	-18.20	25.09	31.00	29.75	1.25	24.828	
600.00	600.00	600.00	600.00	1.22	0.31	125.95	-18.20	25.09	31.00	29.47	1.53	20.318	
700.00	700.00	700.00	700.00	1.44	0.36	125.95	-18.20	25.09	31.00	29.20	1.80	17.195	
800.00	800.00	800.00	800.00	1.67	0.41	125.95	-18.20	25.09	31.00	28.92	2.08	14.904	
900.00	900.00	900.00	900.00	1.89	0.46	125.95	-18.20	25.09	31.00	28.64	2.36	13.151 CC, ES	
1,000.00	999.98	999.05	999.03	2.10	0.52	-104.67	-19.79	25.73	32.87	30.26	2.61	12.587 SF	
1,100.00	1,099.84	1,097.87	1,097.71	2.28	0.57	-107.79	-24.54	27.63	38.57	35.72	2.85	13.514	
1,200.00	1,199.45	1,196.20	1,195.67	2.49	0.63	-111.30	-32.41	30.76	48.23	45.11	3.12	15.464	
1,264.44	1,263.46	1,259.21	1,258.26	2.64	0.68	-113.32	-39.09	33.43	56.59	53.28	3.31	17.106	
1,300.00	1,298.73	1,293.85	1,292.61	2.72	0.71	-114.22	-43.30	35.11	61.82	58.41	3.42	18.097	
1,400.00	1,397.92	1,390.79	1,388.40	2.97	0.81	-114.91	-57.15	40.64	78.21	74.46	3.74	20.885	
1,500.00	1,497.11	1,486.89	1,482.80	3.24	0.94	-113.98	-73.84	47.30	96.98	92.88	4.10	23.636	
1,600.00	1,596.31	1,583.89	1,577.58	3.52	1.10	-112.49	-92.98	54.94	117.65	113.16	4.49	26.217	
1,700.00	1,695.50	1,681.66	1,673.08	3.81	1.27	-111.38	-112.43	62.70	138.51	133.62	4.89	28.331	
1,800.00	1,794.69	1,779.43	1,768.58	4.10	1.44	-110.57	-131.88	70.46	159.40	154.10	5.30	30.068	
1,900.00	1,893.88	1,877.20	1,864.08	4.40	1.62	-109.94	-151.33	78.22	180.32	174.59	5.72	31.510	
2,000.00	1,993.07	1,974.97	1,959.58	4.71	1.81	-109.45	-170.79	85.99	201.25	195.10	6.15	32.721	
2,100.00	2,092.27	2,072.75	2,055.09	5.01	2.00	-109.04	-190.24	93.75	222.20	215.61	6.58	33.748	
2,200.00	2,191.46	2,170.52	2,150.59	5.33	2.18	-108.71	-209.69	101.51	243.15	236.13	7.02	34.628	
2,300.00	2,290.65	2,268.29	2,246.09	5.64	2.37	-108.43	-229.14	109.27	264.11	256.65	7.46	35.388	
2,400.00	2,389.84	2,366.06	2,341.59	5.96	2.57	-108.19	-248.60	117.04	285.08	277.17	7.91	36.051	
2,500.00	2,489.03	2,463.83	2,437.09	6.28	2.76	-107.99	-268.05	124.80	306.05	297.69	8.35	36.632	
2,600.00	2,588.23	2,561.60	2,532.59	6.60	2.95	-107.81	-287.50	132.56	327.02	318.21	8.80	37.145	
2,700.00	2,687.42	2,659.37	2,628.10	6.92	3.14	-107.65	-306.95	140.33	347.99	338.74	9.25	37.602	
2,800.00	2,786.61	2,757.14	2,723.60	7.24	3.34	-107.51	-326.40	148.09	368.97	359.27	9.71	38.010	
2,900.00	2,885.80	2,854.91	2,819.10	7.56	3.53	-107.38	-345.86	155.85	389.95	379.79	10.16	38.376	
3,000.00	2,984.99	2,952.69	2,914.60	7.89	3.73	-107.27	-365.31	163.61	410.93	400.32	10.62	38.708	
3,100.00	3,084.19	3,050.46	3,010.10	8.21	3.92	-107.17	-384.76	171.38	431.92	420.84	11.07	39.008	
3,200.00	3,183.38	3,148.23	3,105.60	8.54	4.12	-107.08	-404.21	179.14	452.90	441.37	11.53	39.282	
3,300.00	3,282.57	3,246.00	3,201.11	8.87	4.31	-106.99	-423.66	186.90	473.89	461.90	11.99	39.532	
3,400.00	3,381.76	3,343.77	3,296.61	9.19	4.51	-106.92	-443.12	194.66	494.87	482.43	12.45	39.761	
3,500.00	3,480.95	3,441.54	3,392.11	9.52	4.70	-106.85	-462.57	202.43	515.86	502.95	12.91	39.972	
3,600.00	3,580.14	3,539.31	3,487.61	9.85	4.90	-106.78	-482.02	210.19	536.85	523.48	13.37	40.167	
3,700.00	3,679.34	3,637.08	3,583.11	10.18	5.10	-106.72	-501.47	217.95	557.83	544.01	13.83	40.348	
3,800.00	3,778.53	3,734.85	3,678.61	10.51	5.29	-106.66	-520.92	225.71	578.82	564.54	14.29	40.516	
3,900.00	3,877.72	3,832.63	3,774.11	10.84	5.49	-106.61	-540.38	233.48	599.81	585.06	14.75	40.672	
4,000.00	3,976.91	3,930.40	3,869.62	11.17	5.68	-106.56	-559.83	241.24	620.80	605.59	15.21	40.817	
4,100.00	4,076.10	4,028.17	3,965.12	11.50	5.88	-106.52	-579.28	249.00	641.79	626.12	15.67	40.953	
4,200.00	4,175.30	4,125.94	4,060.62	11.83	6.08	-106.48	-598.73	256.77	662.78	646.65	16.13	41.080	
4,300.00	4,274.49	4,223.71	4,156.12	12.16	6.27	-106.44	-618.19	264.53	683.77	667.18	16.60	41.200	
4,400.00	4,373.68	4,321.48	4,251.62	12.49	6.47	-106.40	-637.64	272.29	704.76	687.70	17.06	41.313	
4,500.00	4,472.87	4,419.25	4,347.12	12.82	6.67	-106.36	-657.09	280.05	725.75	708.23	17.52	41.418	
4,600.00	4,572.06	4,517.02	4,442.63	13.15	6.86	-106.33	-676.54	287.82	746.74	728.76	17.99	41.518	
4,700.00	4,671.26	4,614.79	4,538.13	13.48	7.06	-106.30	-695.99	295.58	767.74	749.29	18.45	41.613	
4,800.00	4,770.45	4,712.57	4,633.63	13.81	7.26	-106.27	-715.45	303.34	788.73	769.81	18.91	41.702	
4,900.00	4,869.64	4,810.34	4,729.13	14.14	7.45	-106.24	-734.90	311.10	809.72	790.34	19.38	41.787	
5,000.00	4,968.83	4,908.11	4,824.63	14.48	7.65	-106.22	-754.35	318.87	830.71	810.87	19.84	41.867	

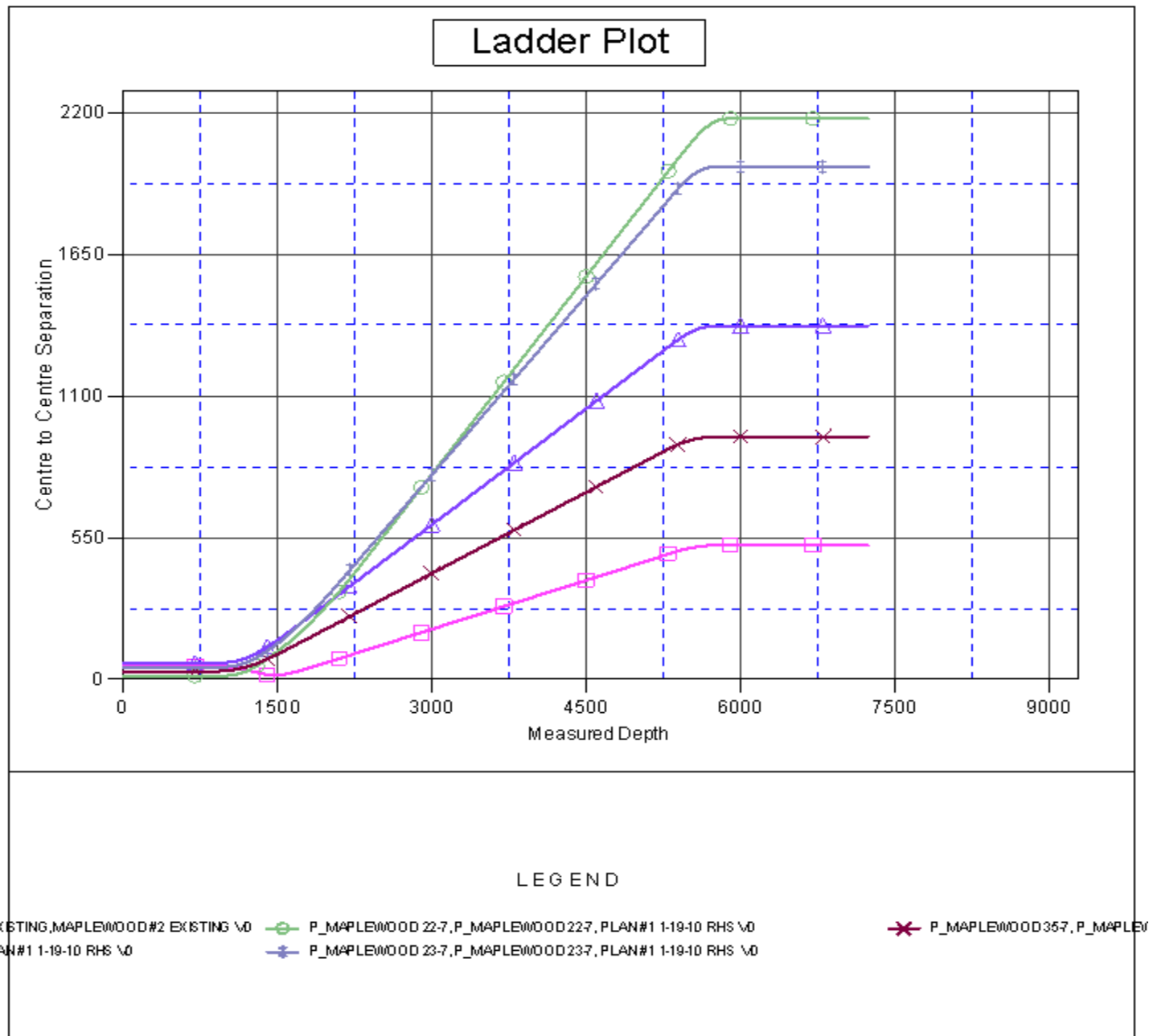
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_MAPLEWOOD 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 13-7	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								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	
5,100.00	5,068.02	5,005.88	4,920.13	14.81	7.85	-106.19	-773.80	326.63	851.70	831.40	20.31	41.944	
5,200.00	5,167.22	5,103.65	5,015.63	15.14	8.04	-106.17	-793.25	334.39	872.70	851.93	20.77	42.016	
5,300.00	5,266.41	5,207.94	5,117.53	15.47	8.25	-106.15	-813.90	342.63	893.62	872.38	21.24	42.067	
5,391.88	5,357.54	5,329.16	5,236.66	15.78	8.46	-106.26	-834.69	350.93	910.71	889.01	21.70	41.971	
5,400.00	5,365.60	5,339.95	5,247.30	15.80	8.48	-106.30	-836.31	351.57	912.07	890.33	21.73	41.968	
5,500.00	5,465.03	5,473.63	5,379.71	16.02	8.66	-106.76	-853.32	358.36	926.25	904.17	22.08	41.959	
5,600.00	5,564.76	5,608.64	5,514.15	16.22	8.79	-107.07	-864.67	362.89	935.67	913.33	22.35	41.873	
5,700.00	5,664.69	5,744.43	5,649.80	16.38	8.86	-107.24	-870.13	365.07	940.27	917.73	22.54	41.716	
5,756.32	5,721.00	5,815.63	5,721.00	16.47	8.88	122.04	-870.64	365.27	940.76	918.13	22.63	41.578	
5,800.00	5,764.68	5,859.31	5,764.68	16.54	8.88	122.04	-870.64	365.27	940.76	918.05	22.70	41.435	
5,900.00	5,864.68	5,959.31	5,864.68	16.68	8.90	122.04	-870.64	365.27	940.76	917.88	22.88	41.124	
6,000.00	5,964.68	6,059.31	5,964.68	16.83	8.92	122.04	-870.64	365.27	940.76	917.71	23.05	40.815	
6,100.00	6,064.68	6,159.31	6,064.68	16.98	8.94	122.04	-870.64	365.27	940.76	917.53	23.22	40.507	
6,200.00	6,164.68	6,259.31	6,164.68	17.13	8.96	122.04	-870.64	365.27	940.76	917.35	23.40	40.200	
6,300.00	6,264.68	6,359.31	6,264.68	17.28	8.98	122.04	-870.64	365.27	940.76	917.18	23.58	39.894	
6,400.00	6,364.68	6,459.31	6,364.68	17.43	9.00	122.04	-870.64	365.27	940.76	916.99	23.76	39.590	
6,500.00	6,464.68	6,559.31	6,464.68	17.59	9.02	122.04	-870.64	365.27	940.76	916.81	23.95	39.287	
6,600.00	6,564.68	6,659.31	6,564.68	17.74	9.04	122.04	-870.64	365.27	940.76	916.63	24.13	38.986	
6,700.00	6,664.68	6,759.31	6,664.68	17.90	9.06	122.04	-870.64	365.27	940.76	916.44	24.32	38.687	
6,800.00	6,764.68	6,859.31	6,764.68	18.06	9.08	122.04	-870.64	365.27	940.76	916.25	24.51	38.390	
6,900.00	6,864.68	6,959.31	6,864.68	18.22	9.10	122.04	-870.64	365.27	940.76	916.06	24.70	38.094	
7,000.00	6,964.68	7,059.31	6,964.68	18.38	9.12	122.04	-870.64	365.27	940.76	915.87	24.89	37.801	
7,100.00	7,064.68	7,159.31	7,064.68	18.55	9.14	122.04	-870.64	365.27	940.76	915.68	25.08	37.509	
7,200.00	7,164.68	7,259.31	7,164.68	18.71	9.16	122.04	-870.64	365.27	940.76	915.48	25.28	37.220	
7,240.32	7,205.00	7,299.63	7,205.00	18.78	9.17	122.04	-870.64	365.27	940.76	915.40	25.35	37.104	

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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 13-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 13-7	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 13-7
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 13-7
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 13-7	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_MAPLEWOOD 13-7	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 13-7
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°

