



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_VARRA 18-28 PAD

P_VARRA 22-28

P_VARRA 22-28

Plan: PLAN #1 4-5-10 RHS

Standard Planning Report

05 April, 2010

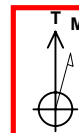




Project: COLORADO NORTHERN ZONE - 83
 Site: WELD_VARRA 18-28 PAD
 Well: P_VARRA 22-28
 Wellbore: P_VARRA 22-28
 Section: SECTION 28 T3N R67W
 SHL: 1597 FNL 1571 FWL
 Design: PLAN #1 4-5-10 RHS
 Latitude: 40° 11' 58.689 N
 Longitude: 104° 53' 55.878 W
 GL: 4735.00
 KB: WELL @ 4750.00ft (Original Well Elev)



Weatherford®



Azimuths to True North
 Magnetic North: 9.08°
 Magnetic Field
 Strength: 53137.9snT
 Dip Angle: 66.91°
 Date: 4/5/2010
 Model: IGRF2010

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3600.00	3660.12	PARKMAN
4040.00	4111.26	SUSSEX
4565.00	4649.54	SHANNON
6862.00	6968.62	NIO A
7117.00	7223.62	CODELL
7557.00	7663.62	JSAND

CASING DETAILS

TVD	MD	Name	Size
700.00	700.00	8 5/8"	8.62

SECTION DETAILS

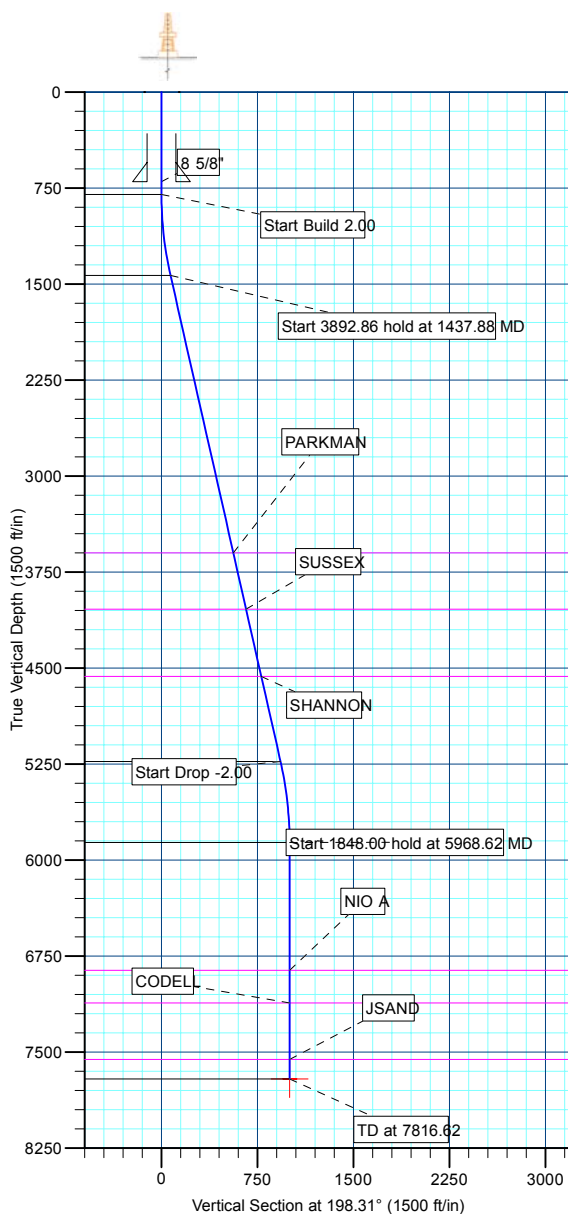
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
1437.88	12.76	198.31	1432.62	-67.14	-22.22	2.00	198.31	70.72	Start 3892.86 hold at 1437.88 MD
5330.74	12.76	198.31	5229.38	-883.26	-292.32	0.00	0.00	930.37	Start Drop -2.00
5968.62	0.00	0.00	5862.00	-950.40	-314.54	2.00	180.00	1001.10	Start 1848.00 hold at 5968.62 MD
7816.62	0.00	0.00	7710.00	-950.40	-314.54	0.00	0.00	1001.10	TD at 7816.62

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

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
PBHL	7710.00	-950.40	-314.54	40° 11' 49.297 N	104° 53' 59.932 W	Circle (Radius: 50.00)

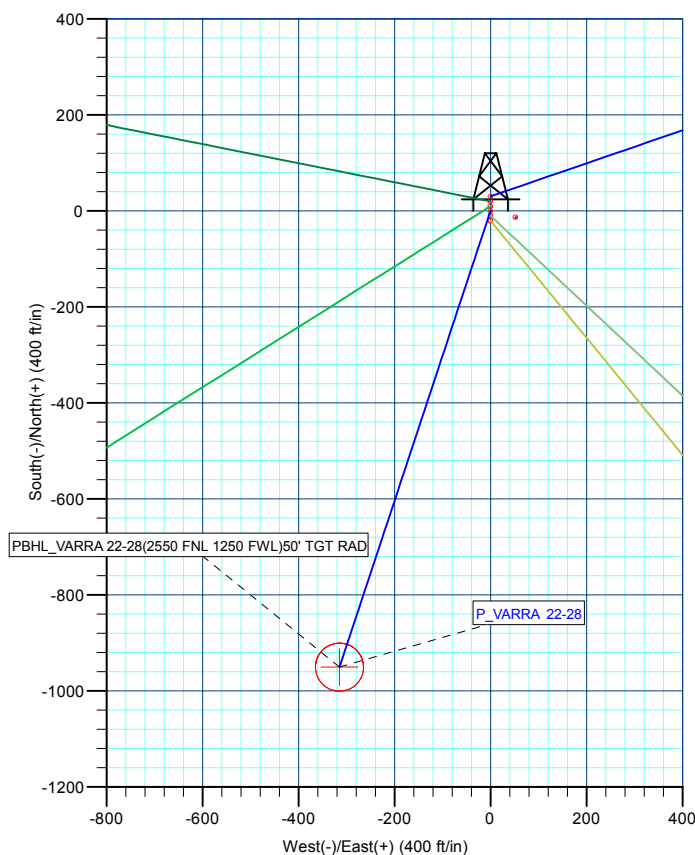
WELL DETAILS: P_VARRA 22-28

+N/-S	+E/-W	Northing	Ground Level: Easting	4735.00 Latitude	Longitude	Slot
0.00	0.00	1316139.02	3167918.64	40° 11' 58.689 N	104° 53' 55.878 W	



LEGEND

- HSR-MCGREGOR #6-28 EXISTING, HSR-MCGREGOR #6-28 EXISTING, HSR-MCGREGOR #6-28 EXISTING V0
- HSR-SHERRY #5-28 EXISTING, HSR-SHERRY #5-28 EXISTING, HSR-SHERRY #5-28 EXISTING V0
- P_VARRA 21-28, P_VARRA 21-28, PLAN #1 4-5-10 RHS V0
- P_VARRA 25-28, P_VARRA 25-28, PLAN #1 4-5-10 RHS V0
- P_VARRA 31-28, P_VARRA 31-28, PLAN #1 4-5-10 RHS V0
- P_VARRA 32-28, P_VARRA 32-28, PLAN #1 4-5-10 RHS V0
- P_VARRA 6-28, P_VARRA 6-28, PLAN #1 4-5-10 RHS V0
- PLAN #1 4-5-10 RHS



Plan: PLAN #1 4-5-10 RHS (P_VARRA 22-28/P_VARRA 22-28)

Created By: Robert H. Scott Date: 11:08, April 05 2010

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_VARRA 22-28
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site:	WELD_VARRA 18-28 PAD	North Reference:	True
Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_VARRA 22-28		
Design:	PLAN #1 4-5-10 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_VARRA 18-28 PAD, SECTION 28 T3N R67W											
Site Position:			Northing:			1,316,169.27 ft			Latitude:			40° 11' 58.988 N					
From:			Lat/Long			Easting:			3,167,918.16ft			Longitude:			104° 53' 55.882 W		
Position Uncertainty:			0.00 ft			Slot Radius:			in			Grid Convergence:			0.39 °		

Well	P_VARRA 22-28					
Well Position	+N/-S	-30.25 ft	Northing:	1,316,139.02 ft	Latitude:	40° 11' 58.689 N
	+E/-W	0.28 ft	Easting:	3,167,918.64 ft	Longitude:	104° 53' 55.878 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,735.00 ft

Wellbore	P_VARRA 22-28				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/5/2010	9.08	66.91	53,138

Design	PLAN #1 4-5-10 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	198.31

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	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,437.88	12.76	198.31	1,432.62	-67.14	-22.22	2.00	2.00	0.00	198.31	
5,330.74	12.76	198.31	5,229.38	-883.26	-292.32	0.00	0.00	0.00	0.00	
5,968.62	0.00	0.00	5,862.00	-950.40	-314.54	2.00	-2.00	0.00	180.00	
7,816.62	0.00	0.00	7,710.00	-950.40	-314.54	0.00	0.00	0.00	0.00	PBHL_VARRA 22-2

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_VARRA 22-28
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site:	WELD_VARRA 18-28 PAD	North Reference:	True
Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_VARRA 22-28		
Design:	PLAN #1 4-5-10 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									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	2.00	198.31	899.98	-1.66	-0.55	1.75	2.00	2.00	0.00
1,000.00	4.00	198.31	999.84	-6.63	-2.19	6.98	2.00	2.00	0.00
1,100.00	6.00	198.31	1,099.45	-14.90	-4.93	15.69	2.00	2.00	0.00
1,200.00	8.00	198.31	1,198.70	-26.47	-8.76	27.88	2.00	2.00	0.00
1,300.00	10.00	198.31	1,297.47	-41.32	-13.67	43.52	2.00	2.00	0.00
1,400.00	12.00	198.31	1,395.62	-59.43	-19.67	62.60	2.00	2.00	0.00
Start 3892.86 hold at 1437.88 MD									
1,437.88	12.76	198.31	1,432.62	-67.14	-22.22	70.72	2.00	2.00	0.00
1,500.00	12.76	198.31	1,493.21	-80.16	-26.53	84.44	0.00	0.00	0.00
1,600.00	12.76	198.31	1,590.74	-101.13	-33.47	106.52	0.00	0.00	0.00
1,700.00	12.76	198.31	1,688.27	-122.09	-40.41	128.61	0.00	0.00	0.00
1,800.00	12.76	198.31	1,785.80	-143.06	-47.35	150.69	0.00	0.00	0.00
1,900.00	12.76	198.31	1,883.33	-164.02	-54.28	172.77	0.00	0.00	0.00
2,000.00	12.76	198.31	1,980.87	-184.99	-61.22	194.85	0.00	0.00	0.00
2,100.00	12.76	198.31	2,078.40	-205.95	-68.16	216.94	0.00	0.00	0.00
2,200.00	12.76	198.31	2,175.93	-226.92	-75.10	239.02	0.00	0.00	0.00
2,300.00	12.76	198.31	2,273.46	-247.88	-82.04	261.10	0.00	0.00	0.00
2,400.00	12.76	198.31	2,370.99	-268.84	-88.98	283.19	0.00	0.00	0.00
2,500.00	12.76	198.31	2,468.52	-289.81	-95.91	305.27	0.00	0.00	0.00
2,600.00	12.76	198.31	2,566.05	-310.77	-102.85	327.35	0.00	0.00	0.00
2,700.00	12.76	198.31	2,663.58	-331.74	-109.79	349.43	0.00	0.00	0.00
2,800.00	12.76	198.31	2,761.12	-352.70	-116.73	371.52	0.00	0.00	0.00
2,900.00	12.76	198.31	2,858.65	-373.67	-123.67	393.60	0.00	0.00	0.00
3,000.00	12.76	198.31	2,956.18	-394.63	-130.61	415.68	0.00	0.00	0.00
3,100.00	12.76	198.31	3,053.71	-415.60	-137.54	437.76	0.00	0.00	0.00
3,200.00	12.76	198.31	3,151.24	-436.56	-144.48	459.85	0.00	0.00	0.00
3,300.00	12.76	198.31	3,248.77	-457.52	-151.42	481.93	0.00	0.00	0.00
3,400.00	12.76	198.31	3,346.30	-478.49	-158.36	504.01	0.00	0.00	0.00
3,500.00	12.76	198.31	3,443.83	-499.45	-165.30	526.10	0.00	0.00	0.00
3,600.00	12.76	198.31	3,541.37	-520.42	-172.24	548.18	0.00	0.00	0.00
PARKMAN									
3,660.12	12.76	198.31	3,600.00	-533.02	-176.41	561.45	0.00	0.00	0.00
3,700.00	12.76	198.31	3,638.90	-541.38	-179.17	570.26	0.00	0.00	0.00
3,800.00	12.76	198.31	3,736.43	-562.35	-186.11	592.34	0.00	0.00	0.00
3,900.00	12.76	198.31	3,833.96	-583.31	-193.05	614.43	0.00	0.00	0.00
4,000.00	12.76	198.31	3,931.49	-604.27	-199.99	636.51	0.00	0.00	0.00
4,100.00	12.76	198.31	4,029.02	-625.24	-206.93	658.59	0.00	0.00	0.00
SUSSEX									
4,111.26	12.76	198.31	4,040.00	-627.60	-207.71	661.08	0.00	0.00	0.00
4,200.00	12.76	198.31	4,126.55	-646.20	-213.87	680.67	0.00	0.00	0.00
4,300.00	12.76	198.31	4,224.08	-667.17	-220.80	702.76	0.00	0.00	0.00
4,400.00	12.76	198.31	4,321.62	-688.13	-227.74	724.84	0.00	0.00	0.00
4,500.00	12.76	198.31	4,419.15	-709.10	-234.68	746.92	0.00	0.00	0.00
4,600.00	12.76	198.31	4,516.68	-730.06	-241.62	769.01	0.00	0.00	0.00
SHANNON									
4,649.54	12.76	198.31	4,565.00	-740.45	-245.06	779.95	0.00	0.00	0.00
4,700.00	12.76	198.31	4,614.21	-751.03	-248.56	791.09	0.00	0.00	0.00
4,800.00	12.76	198.31	4,711.74	-771.99	-255.50	813.17	0.00	0.00	0.00
4,900.00	12.76	198.31	4,809.27	-792.95	-262.44	835.25	0.00	0.00	0.00
5,000.00	12.76	198.31	4,906.80	-813.92	-269.37	857.34	0.00	0.00	0.00
5,100.00	12.76	198.31	5,004.34	-834.88	-276.31	879.42	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_VARRA 22-28
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site:	WELD_VARRA 18-28 PAD	North Reference:	True
Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_VARRA 22-28		
Design:	PLAN #1 4-5-10 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)
5,200.00	12.76	198.31	5,101.87	-855.85	-283.25	901.50	0.00	0.00	0.00
5,300.00	12.76	198.31	5,199.40	-876.81	-290.19	923.58	0.00	0.00	0.00
Start Drop -2.00									
5,330.74	12.76	198.31	5,229.38	-883.26	-292.32	930.37	0.00	0.00	0.00
5,400.00	11.37	198.31	5,297.11	-897.00	-296.87	944.85	2.00	-2.00	0.00
5,500.00	9.37	198.31	5,395.47	-914.09	-302.53	962.85	2.00	-2.00	0.00
5,600.00	7.37	198.31	5,494.40	-927.91	-307.10	977.41	2.00	-2.00	0.00
5,700.00	5.37	198.31	5,593.77	-938.45	-310.59	988.51	2.00	-2.00	0.00
5,800.00	3.37	198.31	5,693.48	-945.69	-312.98	996.13	2.00	-2.00	0.00
5,900.00	1.37	198.31	5,793.39	-949.62	-314.28	1,000.27	2.00	-2.00	0.00
Start 1848.00 hold at 5968.62 MD									
5,968.62	0.00	0.00	5,862.00	-950.40	-314.54	1,001.10	2.00	-2.00	0.00
6,000.00	0.00	0.00	5,893.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
6,100.00	0.00	0.00	5,993.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
6,200.00	0.00	0.00	6,093.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
6,300.00	0.00	0.00	6,193.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
6,400.00	0.00	0.00	6,293.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
6,500.00	0.00	0.00	6,393.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
6,600.00	0.00	0.00	6,493.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
6,700.00	0.00	0.00	6,593.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
6,800.00	0.00	0.00	6,693.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
6,900.00	0.00	0.00	6,793.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
NIO A									
6,968.62	0.00	0.00	6,862.00	-950.40	-314.54	1,001.10	0.00	0.00	0.00
7,000.00	0.00	0.00	6,893.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
7,100.00	0.00	0.00	6,993.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
7,200.00	0.00	0.00	7,093.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
CODELL									
7,223.62	0.00	0.00	7,117.00	-950.40	-314.54	1,001.10	0.00	0.00	0.00
7,300.00	0.00	0.00	7,193.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
7,400.00	0.00	0.00	7,293.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
7,500.00	0.00	0.00	7,393.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
7,600.00	0.00	0.00	7,493.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
JSAND									
7,663.62	0.00	0.00	7,557.00	-950.40	-314.54	1,001.10	0.00	0.00	0.00
7,700.00	0.00	0.00	7,593.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
7,800.00	0.00	0.00	7,693.38	-950.40	-314.54	1,001.10	0.00	0.00	0.00
PBHL_VARRA 22-28(2550 FNL 1250 FWL)50' TGT RAD									
7,816.62	0.00	0.00	7,710.00	-950.40	-314.54	1,001.10	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_VARRA 22-28(- plan hits target center - Circle (radius 50.00)	0.00	0.00	7,710.00	-950.40	-314.54	1,315,186.52	3,167,610.55	40° 11' 49.297 N	104° 53' 59.932 W

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_VARRA 22-28
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site:	WELD_VARRA 18-28 PAD	North Reference:	True
Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_VARRA 22-28		
Design:	PLAN #1 4-5-10 RHS		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
700.00	700.00	8 5/8"	8.62	11.00	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,660.12	3,600.00	PARKMAN				
4,111.26	4,040.00	SUSSEX				
4,649.54	4,565.00	SHANNON				
6,968.62	6,862.00	NIO A				
7,223.62	7,117.00	CODELL				
7,663.62	7,557.00	JSAND				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
800.00	800.00	0.00	0.00	Start Build 2.00	
1,437.88	1,432.62	-67.14	-22.22	Start 3892.86 hold at 1437.88 MD	
5,330.74	5,229.38	-883.26	-292.32	Start Drop -2.00	
5,968.62	5,862.00	-950.40	-314.54	Start 1848.00 hold at 5968.62 MD	
7,816.62	7,710.00	-950.40	-314.54	TD at 7816.62	



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_VARRA 18-28 PAD
P_VARRA 22-28**

**P_VARRA 22-28
PLAN #1 4-5-10 RHS**

Anticollision Report

05 April, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 4-5-10 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 4/5/2010				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	7,816.62	PLAN #1 4-5-10 RHS (P_VARRA 22-28)	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_VARRA 18-28 PAD						
HSR-MCGREGOR #6-28 EXISTING - HSR-MCGREGOR #6-28 EXISTING	443.42	482.43	53.28	38.62	3.634	CC
HSR-MCGREGOR #6-28 EXISTING - HSR-MCGREGOR #6-28 EXISTING	1,100.00	1,138.50	56.62	14.74	1.352	Level 3, ES, SF
HSR-SHERRY #5-28 EXISTING - HSR-SHERRY #5-28	4,167.58	4,138.42	740.94	545.46	3.790	CC
HSR-SHERRY #5-28 EXISTING - HSR-SHERRY #5-28	7,400.00	7,310.00	810.49	503.94	2.644	ES, SF
P_VARRA 21-28 - P_VARRA 21-28 - PLAN #1 4-5-10 RI	800.00	800.00	30.25	26.92	9.064	CC, ES
P_VARRA 21-28 - P_VARRA 21-28 - PLAN #1 4-5-10 RI	900.00	899.57	32.53	28.78	8.678	SF
P_VARRA 25-28 - P_VARRA 25-28 - PLAN #1 4-5-10 RI	949.99	949.09	19.68	15.77	5.030	CC, ES
P_VARRA 25-28 - P_VARRA 25-28 - PLAN #1 4-5-10 RI	1,000.00	998.70	19.90	15.80	4.863	SF
P_VARRA 31-28 - P_VARRA 31-28 - PLAN #1 4-5-10 RI	800.00	800.00	20.05	16.71	6.006	CC, ES
P_VARRA 31-28 - P_VARRA 31-28 - PLAN #1 4-5-10 RI	900.00	899.80	22.09	18.34	5.893	SF
P_VARRA 32-28 - P_VARRA 32-28 - PLAN #1 4-5-10 RI	800.00	800.00	9.85	6.51	2.952	CC, ES
P_VARRA 32-28 - P_VARRA 32-28 - PLAN #1 4-5-10 RI	900.00	900.16	10.64	6.91	2.847	SF
P_VARRA 6-28 - P_VARRA 6-28 - PLAN #1 4-5-10 RHS	914.24	913.92	9.53	-9.17	0.510	Level 1, CC
P_VARRA 6-28 - P_VARRA 6-28 - PLAN #1 4-5-10 RHS	7,341.12	7,297.07	969.70	-1,304.00	0.426	Level 1, ES, SF

WELD_VARRA 18-28 PAD - HSR-MCGREGOR #6-28 EXISTING - HSR-MCGREGOR #6-28 EXISTING										Offset Site Error:		0.00 ft	
Survey Program: 340-INC										Offset Well Error:		0.00 ft	
Reference		Offset		Semi Major Axis			Distance						
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
0.00	0.00	38.94	38.94	0.00	0.95	104.48	-13.34	51.68	53.37				
100.00	100.00	138.99	138.99	0.10	3.40	104.80	-13.66	51.68	53.45	49.96	3.50	15.290	
200.00	200.00	239.04	239.03	0.32	5.86	104.73	-13.58	51.68	53.43	47.26	6.17	8.663	
300.00	300.00	339.07	339.07	0.55	8.31	104.25	-13.12	51.68	53.32	44.48	8.84	6.034	
400.00	400.00	439.02	439.01	0.77	12.15	104.10	-12.98	51.68	53.28	40.39	12.89	4.132	
443.42	443.42	482.43	482.41	0.87	13.82	104.08	-12.96	51.68	53.28	38.62	14.66	3.634	CC
500.00	500.00	539.00	538.99	0.99	16.00	104.11	-12.99	51.68	53.28	36.32	16.97	3.140	
600.00	600.00	639.00	638.97	1.22	19.88	104.28	-13.15	51.68	53.32	32.26	21.06	2.532	
700.00	700.00	739.01	738.98	1.44	23.84	104.48	-13.35	51.68	53.37	28.13	25.24	2.114	
800.00	800.00	839.02	838.99	1.67	27.80	104.66	-13.52	51.68	53.42	23.99	29.43	1.815	
900.00	899.98	939.01	938.97	1.87	31.76	-95.37	-13.66	51.68	53.59	20.56	33.02	1.623	
1,000.00	999.84	1,038.88	1,038.84	2.05	35.72	-100.74	-13.77	51.68	54.34	16.82	37.52	1.448	Level 3
1,100.00	1,099.45	1,138.50	1,138.46	2.24	39.66	-109.28	-13.84	51.68	56.62	14.74	41.88	1.352	Level 3, ES, SF
1,200.00	1,198.70	1,237.75	1,237.72	2.47	43.59	-119.82	-13.89	51.68	61.73	16.40	45.33	1.362	Level 3

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_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 340-INC												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
1,300.00	1,297.47	1,336.51	1,336.48	2.74	47.51	-130.63	-13.91	51.68	70.87	23.50	47.37	1.496	Level 3
1,400.00	1,395.62	1,434.66	1,434.62	3.05	51.39	-140.23	-13.90	51.68	84.64	36.40	48.24	1.755	
1,437.88	1,432.62	1,471.65	1,471.61	3.18	52.86	-143.40	-13.89	51.68	91.08	42.70	48.38	1.883	
1,500.00	1,493.21	1,532.22	1,532.18	3.41	55.26	-147.96	-13.87	51.68	102.53	53.85	48.67	2.106	
1,600.00	1,590.74	1,629.71	1,629.67	3.80	59.12	-153.47	-13.80	51.68	121.97	72.55	49.42	2.468	
1,700.00	1,688.27	1,727.19	1,727.14	4.21	62.98	-157.45	-13.71	51.68	142.22	91.73	50.49	2.817	
1,800.00	1,785.80	1,824.65	1,824.61	4.63	66.84	-160.45	-13.58	51.68	163.00	111.16	51.84	3.144	
1,900.00	1,883.33	1,922.10	1,922.06	5.06	70.70	-162.77	-13.43	51.68	184.13	130.73	53.40	3.448	
2,000.00	1,980.87	2,019.54	2,019.49	5.50	74.56	-164.62	-13.25	51.68	205.52	150.41	55.11	3.729	
2,100.00	2,078.40	2,117.11	2,116.99	5.94	78.43	-166.13	-13.05	51.68	227.10	170.14	56.96	3.987	
2,200.00	2,175.93	2,214.66	2,214.54	6.39	82.30	-167.37	-12.86	51.68	248.78	189.88	58.90	4.223	
2,300.00	2,273.46	2,312.22	2,312.10	6.85	86.18	-168.41	-12.70	51.68	270.54	209.60	60.93	4.440	
2,400.00	2,370.99	2,409.80	2,409.68	7.31	90.05	-169.29	-12.57	51.68	292.34	229.32	63.02	4.639	
2,500.00	2,468.52	2,507.39	2,507.26	7.77	93.93	-170.05	-12.47	51.68	314.17	249.01	65.15	4.822	
2,600.00	2,566.05	2,604.99	2,604.87	8.23	97.81	-170.71	-12.40	51.68	336.02	268.69	67.33	4.991	
2,700.00	2,663.58	2,702.61	2,702.48	8.69	101.68	-171.28	-12.35	51.68	357.88	288.34	69.54	5.146	
2,800.00	2,761.12	2,800.24	2,800.11	9.16	105.56	-171.79	-12.34	51.68	379.75	307.97	71.78	5.290	
2,900.00	2,858.65	2,897.89	2,897.75	9.62	109.44	-172.24	-12.36	51.68	401.61	327.57	74.04	5.424	
3,000.00	2,956.18	2,995.55	2,995.41	10.09	113.32	-172.64	-12.40	51.68	423.47	347.15	76.32	5.548	
3,100.00	3,053.71	3,093.22	3,093.08	10.56	117.20	-173.00	-12.47	51.68	445.32	366.70	78.62	5.664	
3,200.00	3,151.24	3,190.90	3,190.76	11.03	121.08	-173.32	-12.58	51.68	467.16	386.22	80.94	5.772	
3,300.00	3,248.77	3,288.60	3,288.46	11.50	124.96	-173.62	-12.71	51.68	488.99	405.72	83.27	5.873	
3,400.00	3,346.30	3,386.32	3,386.17	11.97	128.84	-173.88	-12.87	51.68	510.80	425.19	85.61	5.967	
3,500.00	3,443.83	3,484.04	3,483.89	12.45	132.72	-174.13	-13.06	51.68	532.59	444.64	87.96	6.055	
3,600.00	3,541.37	3,581.75	3,581.60	12.92	136.63	-174.33	-14.20	51.68	553.56	462.34	91.22	6.068	
3,700.00	3,638.90	3,683.43	3,683.20	13.39	140.97	-174.50	-15.30	51.68	574.53	480.00	94.53	6.078	
3,800.00	3,736.43	3,779.57	3,779.34	13.86	145.31	-174.66	-16.11	51.68	595.76	497.95	97.81	6.091	
3,900.00	3,833.96	3,875.57	3,875.33	14.34	149.63	-174.83	-16.64	51.68	617.27	516.20	101.06	6.108	
4,000.00	3,931.49	3,971.43	3,971.19	14.81	153.94	-175.00	-16.88	51.68	639.04	534.75	104.30	6.127	
4,100.00	4,029.02	4,067.14	4,066.91	15.29	158.24	-175.16	-16.83	51.68	661.09	553.59	107.50	6.150	
4,200.00	4,126.55	4,162.71	4,162.48	15.76	162.52	-175.33	-16.51	51.68	683.41	572.72	110.68	6.175	
4,300.00	4,224.08	4,258.13	4,257.91	16.24	166.80	-175.49	-15.90	51.68	705.99	592.16	113.84	6.202	
4,400.00	4,321.62	4,353.41	4,353.19	16.71	171.07	-175.65	-15.01	51.68	728.85	611.88	116.97	6.231	
4,500.00	4,419.15	4,448.53	4,448.31	17.19	175.32	-175.81	-13.85	51.68	751.98	631.91	120.07	6.263	
4,600.00	4,516.68	4,563.09	4,562.54	17.66	179.51	-175.95	-13.77	51.68	774.04	648.82	125.22	6.182	
4,700.00	4,614.21	4,659.37	4,658.77	18.14	183.05	-176.04	-14.58	51.68	795.31	664.73	130.58	6.090	
4,800.00	4,711.74	4,755.53	4,754.90	18.61	186.96	-176.13	-15.19	51.68	816.77	680.82	135.95	6.008	
4,900.00	4,809.27	4,851.57	4,850.91	19.09	190.86	-176.22	-15.59	51.68	838.43	697.12	141.31	5.933	
5,000.00	4,906.80	4,947.49	4,946.81	19.57	194.74	-176.31	-15.80	51.68	860.28	713.61	146.66	5.866	
5,100.00	5,004.34	5,043.29	5,042.59	20.04	198.60	-176.40	-15.80	51.68	882.31	730.32	152.00	5.805	
5,200.00	5,101.87	5,138.97	5,138.25	20.52	202.44	-176.49	-15.60	51.68	904.55	747.23	157.31	5.750	
5,300.00	5,199.40	5,234.53	5,233.79	21.00	206.27	-176.58	-15.20	51.68	926.97	764.37	162.61	5.701	
5,330.74	5,229.38	5,263.88	5,263.13	21.14	207.82	-176.61	-15.03	51.68	933.90	769.68	164.23	5.687	
5,400.00	5,297.11	5,330.15	5,329.39	21.41	209.38	-176.69	-14.59	51.68	948.77	780.25	168.53	5.630	
5,500.00	5,395.47	5,426.32	5,425.55	21.71	210.93	-176.79	-13.79	51.68	967.52	792.78	174.73	5.537	
5,600.00	5,494.40	5,493.00	5,491.21	21.97	212.48	-176.85	-13.12	51.68	983.54	804.30	179.24	5.487	
5,700.00	5,593.77	5,631.96	5,630.09	22.19	214.03	-176.93	-12.47	51.68	994.33	806.22	188.11	5.286	
5,800.00	5,693.48	5,734.25	5,732.32	22.37	215.58	-176.97	-12.32	51.68	1,002.08	807.31	194.77	5.145	
5,900.00	5,793.39	5,836.84	5,834.84	22.51	217.13	-176.98	-12.44	51.68	1,006.10	804.73	201.37	4.996	
5,968.62	5,862.00	5,907.32	5,905.28	22.60	218.68	-176.98	-12.69	51.68	1,006.69	800.84	205.85	4.890	
6,000.00	5,893.38	5,939.57	5,937.50	22.63	219.73	-176.98	-12.85	51.68	1,006.55	798.64	207.91	4.841	
6,049.74	5,943.12	5,990.68	5,988.58	22.68	220.78	-176.98	-13.16	51.68	1,006.27	795.10	211.17	4.765	

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_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design		WELD_VARRA 18-28 PAD - HSR-MCGREGOR #6-28 EXISTING - HSR-MCGREGOR #6-28 EXISTING										Offset Site Error:	0.00 ft
Survey Program: 340-INC												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	
6,100.00	5,993.38	6,029.13	6,026.58	22.73	452.78	21.34	-12.84	51.68	1,006.56	793.46	213.10	4.723	
6,200.00	6,093.38	6,129.93	6,127.35	22.84	466.03	21.32	-12.26	51.68	1,007.10	788.77	218.33	4.613	
6,300.00	6,193.38	6,230.74	6,228.13	22.94	479.28	21.31	-11.77	51.68	1,007.55	783.99	223.56	4.507	
6,400.00	6,293.38	6,331.57	6,328.92	23.04	492.53	21.31	-11.37	51.68	1,007.92	779.11	228.81	4.405	
6,500.00	6,393.38	6,432.40	6,429.73	23.15	505.79	21.30	-11.06	51.68	1,008.21	774.14	234.07	4.307	
6,600.00	6,493.38	6,533.26	6,530.54	23.26	519.04	21.29	-10.83	51.68	1,008.42	769.07	239.35	4.213	
6,700.00	6,593.38	6,634.12	6,631.37	23.37	532.30	21.29	-10.69	51.68	1,008.55	763.90	244.65	4.122	
6,800.00	6,693.38	6,734.99	6,732.21	23.48	545.56	21.29	-10.64	51.68	1,008.59	758.63	249.96	4.035	
6,900.00	6,793.38	6,835.88	6,833.06	23.60	558.82	21.29	-10.68	51.68	1,008.56	753.27	255.29	3.951	
7,000.00	6,893.38	6,936.78	6,933.92	23.71	572.09	21.29	-10.80	51.68	1,008.44	747.80	260.64	3.869	
7,100.00	6,993.38	7,037.70	7,034.79	23.83	585.35	21.30	-11.01	51.68	1,008.25	742.24	266.01	3.790	
7,200.00	7,093.38	7,138.62	7,135.67	23.95	598.62	21.30	-11.32	51.68	1,007.97	736.57	271.40	3.714	
7,300.00	7,193.38	7,239.55	7,236.56	24.07	611.88	21.31	-11.70	51.68	1,007.61	730.80	276.81	3.640	
7,400.00	7,293.38	7,340.50	7,337.47	24.19	625.15	21.32	-12.18	51.68	1,007.17	724.93	282.24	3.569	
7,500.00	7,393.38	7,441.46	7,438.38	24.31	638.42	21.33	-12.74	51.68	1,006.65	718.96	287.69	3.499	
7,565.72	7,459.10	7,507.81	7,504.70	24.39	647.15	21.34	-13.16	51.68	1,006.27	714.97	291.29	3.454	
7,600.00	7,493.38	7,531.36	7,527.52	24.44	649.06	21.34	-12.95	51.68	1,006.46	714.32	292.14	3.445	
7,700.00	7,593.38	7,635.93	7,632.06	24.56	658.61	21.33	-12.66	51.68	1,006.71	710.47	296.25	3.398	
7,800.00	7,693.38	7,740.54	7,736.65	24.69	668.16	21.34	-12.88	51.68	1,006.52	706.07	300.45	3.350	
7,816.62	7,710.00	7,757.93	7,754.04	24.71	669.74	21.34	-12.96	51.68	1,006.44	705.28	301.16	3.342	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 650-INC													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	41.45	41.45	0.00	0.79	-113.97	-406.69	-914.83	1,001.16					
100.00	100.00	142.00	142.00	0.10	2.71	-113.98	-407.00	-914.83	1,001.29	998.81	2.47	405.034		
200.00	200.00	242.55	242.55	0.32	4.64	-113.99	-407.18	-914.83	1,001.36	996.98	4.38	228.657		
300.00	300.00	343.10	343.10	0.55	6.56	-114.00	-407.23	-914.83	1,001.38	995.09	6.29	159.290		
400.00	400.00	443.65	443.65	0.77	8.48	-113.99	-407.13	-914.83	1,001.34	993.15	8.19	122.204		
500.00	500.00	544.19	544.19	0.99	10.40	-113.98	-406.91	-914.83	1,001.25	991.15	10.10	99.115		
600.00	600.00	644.73	644.73	1.22	12.32	-113.96	-406.54	-914.83	1,001.10	989.09	12.01	83.353		
616.77	616.77	658.91	658.90	1.26	12.79	-113.96	-406.54	-914.83	1,001.10	988.66	12.44	80.468		
700.00	700.00	742.32	742.31	1.44	16.23	-113.97	-406.70	-914.83	1,001.16	985.68	15.48	64.663		
800.00	800.00	842.53	842.52	1.67	20.37	-113.98	-406.84	-914.83	1,001.22	982.08	19.14	52.308		
900.00	899.98	942.72	942.71	1.87	24.51	47.80	-406.94	-914.83	1,000.09	974.96	25.13	39.802		
1,000.00	999.84	1,042.79	1,042.78	2.05	28.64	48.07	-406.98	-914.83	996.59	967.38	29.21	34.117		
1,100.00	1,099.45	1,142.61	1,142.59	2.24	32.76	48.53	-406.97	-914.83	990.78	957.46	33.32	29.736		
1,200.00	1,198.70	1,242.04	1,242.03	2.47	36.86	49.19	-406.91	-914.83	982.70	945.24	37.46	26.233		
1,300.00	1,297.47	1,340.98	1,340.96	2.74	40.95	50.05	-406.80	-914.83	972.45	930.81	41.64	23.352		
1,400.00	1,395.62	1,439.28	1,439.26	3.05	45.01	51.11	-406.64	-914.83	960.14	914.27	45.88	20.929		
1,437.88	1,432.62	1,476.32	1,476.31	3.18	46.54	51.57	-406.57	-914.83	954.97	907.48	47.50	20.106		
1,500.00	1,493.21	1,535.59	1,535.53	3.41	49.38	52.20	-406.60	-914.83	946.38	895.87	50.51	18.736		
1,600.00	1,590.74	1,633.26	1,633.20	3.80	54.51	53.24	-406.78	-914.83	932.86	876.93	55.93	16.679		
1,700.00	1,688.27	1,730.92	1,730.85	4.21	59.63	54.32	-406.95	-914.83	919.65	858.24	61.42	14.974		
1,800.00	1,785.80	1,828.57	1,828.49	4.63	64.75	55.43	-407.08	-914.83	906.78	839.81	66.96	13.541		
1,900.00	1,883.33	1,926.20	1,926.12	5.06	69.88	56.57	-407.19	-914.83	894.24	821.68	72.57	12.323		
2,000.00	1,980.87	2,023.81	2,023.74	5.50	75.00	57.74	-407.26	-914.83	882.08	803.86	78.22	11.277		
2,100.00	2,078.40	2,121.42	2,121.34	5.94	80.12	58.95	-407.31	-914.83	870.29	786.38	83.91	10.371		
2,200.00	2,175.93	2,219.01	2,218.92	6.39	85.24	60.18	-407.34	-914.83	858.90	769.26	89.64	9.581		
2,300.00	2,273.46	2,316.59	2,316.50	6.85	90.36	61.45	-407.33	-914.83	847.92	752.53	95.40	8.888		
2,400.00	2,370.99	2,414.15	2,414.06	7.31	95.48	62.76	-407.30	-914.83	837.38	736.21	101.17	8.277		
2,500.00	2,468.52	2,511.70	2,511.61	7.77	100.60	64.10	-407.24	-914.83	827.30	720.34	106.96	7.735		
2,600.00	2,566.05	2,609.24	2,609.15	8.23	105.72	65.47	-407.15	-914.83	817.68	704.94	112.75	7.252		
2,700.00	2,663.58	2,706.76	2,706.67	8.69	110.83	66.87	-407.03	-914.83	808.56	690.04	118.52	6.822		
2,800.00	2,761.12	2,804.27	2,804.18	9.16	115.95	68.30	-406.89	-914.83	799.94	675.67	124.28	6.437		
2,900.00	2,858.65	2,901.77	2,901.67	9.62	121.07	69.76	-406.72	-914.83	791.86	661.86	130.00	6.091		
3,000.00	2,956.18	2,999.26	2,999.15	10.09	126.18	71.26	-406.52	-914.83	784.32	648.64	135.67	5.781		
3,100.00	3,053.71	3,096.95	3,096.71	10.56	131.77	72.77	-406.52	-914.83	777.34	635.58	141.76	5.483		
3,200.00	3,151.24	3,194.49	3,194.24	11.03	137.35	74.30	-406.52	-914.83	770.94	623.16	147.77	5.217		
3,300.00	3,248.77	3,292.02	3,291.77	11.50	142.93	75.85	-406.52	-914.83	765.11	611.42	153.69	4.978		
3,400.00	3,346.30	3,389.56	3,389.30	11.97	148.51	77.43	-406.52	-914.83	759.89	600.38	159.51	4.764		
3,500.00	3,443.83	3,487.09	3,486.83	12.45	154.10	79.03	-406.52	-914.83	755.28	590.06	165.22	4.571		
3,600.00	3,541.37	3,584.47	3,584.15	12.92	159.15	80.65	-406.35	-914.83	751.31	581.04	170.27	4.413		
3,700.00	3,638.90	3,682.02	3,681.70	13.39	164.15	82.29	-406.19	-914.83	747.98	572.87	175.10	4.272		
3,800.00	3,736.43	3,779.59	3,779.27	13.86	169.14	83.94	-406.08	-914.83	745.29	565.50	179.78	4.145		
3,900.00	3,833.96	3,877.18	3,876.85	14.34	174.13	85.60	-406.01	-914.83	743.24	558.94	184.30	4.033		
4,000.00	3,931.49	3,974.79	3,974.46	14.81	179.12	87.26	-405.98	-914.83	741.84	553.21	188.63	3.933		
4,100.00	4,029.02	4,072.42	4,072.09	15.29	184.12	88.92	-405.99	-914.83	741.08	548.30	192.78	3.844		
4,167.58	4,094.94	4,138.42	4,138.07	15.61	187.49	90.05	-406.02	-914.83	740.94	545.46	195.47	3.790 CC		
4,200.00	4,126.55	4,170.08	4,169.73	15.76	189.11	90.59	-406.04	-914.83	740.97	544.24	196.73	3.766		
4,300.00	4,224.08	4,267.75	4,267.40	16.24	194.11	92.25	-406.13	-914.83	741.50	541.02	200.48	3.699		
4,400.00	4,321.62	4,365.44	4,365.08	16.71	199.11	93.90	-406.27	-914.83	742.66	538.64	204.02	3.640		
4,500.00	4,419.15	4,463.15	4,462.79	17.19	204.11	95.55	-406.44	-914.83	744.45	537.10	207.35	3.590		
4,600.00	4,516.68	4,559.57	4,559.14	17.66	208.34	97.18	-406.41	-914.83	746.97	537.17	209.81	3.560		
4,700.00	4,614.21	4,657.36	4,656.93	18.14	212.20	98.82	-406.28	-914.83	750.18	538.47	211.71	3.543		
4,800.00	4,711.74	4,755.19	4,754.75	18.61	216.06	100.45	-406.25	-914.83	753.99	540.55	213.43	3.533		

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_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design		WELD_VARRA 18-28 PAD - HSR-SHERRY #5-28 EXISTING - HSR-SHERRY #5-28 EXISTING - HSR-										Offset Site Error:	0.00 ft
Survey Program: 650-INC												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
4,900.00	4,809.27	4,853.06	4,852.62	19.09	219.91	102.05	-406.29	-914.83	758.37	543.38	214.99	3.527	
5,000.00	4,906.80	4,950.97	4,950.53	19.57	223.78	103.63	-406.42	-914.83	763.33	546.94	216.39	3.528	
5,100.00	5,004.34	5,051.38	5,050.92	20.04	228.68	105.21	-406.96	-914.83	768.66	550.22	218.45	3.519	
5,200.00	5,101.87	5,148.78	5,148.31	20.52	234.32	106.70	-407.73	-914.83	774.41	553.43	220.98	3.504	
5,300.00	5,199.40	5,246.15	5,245.68	21.00	239.96	108.17	-408.44	-914.83	780.75	557.44	223.31	3.496	
5,330.74	5,229.38	5,276.08	5,275.60	21.14	241.69	108.62	-408.64	-914.83	782.81	558.83	223.98	3.495	
5,400.00	5,297.11	5,343.66	5,343.18	21.41	245.60	109.66	-409.07	-914.83	787.38	562.14	225.24	3.496	
5,500.00	5,395.47	5,441.77	5,441.28	21.71	251.28	110.94	-409.64	-914.83	793.35	566.09	227.26	3.491	
5,600.00	5,494.40	5,540.40	5,539.91	21.97	256.99	111.97	-410.13	-914.83	798.40	568.75	229.66	3.477	
5,700.00	5,593.77	5,639.44	5,638.94	22.19	262.72	112.75	-410.55	-914.83	802.37	569.87	232.50	3.451	
5,800.00	5,693.48	5,738.78	5,738.28	22.37	268.47	113.28	-410.90	-914.83	805.12	569.29	235.84	3.414	
5,900.00	5,793.39	5,838.29	5,837.79	22.51	274.23	113.56	-411.18	-914.83	806.58	566.86	239.73	3.365	
5,968.62	5,862.00	5,906.63	5,906.12	22.60	278.18	-48.08	-411.32	-914.83	806.82	564.07	242.75	3.324	
6,000.00	5,893.38	5,937.88	5,937.38	22.63	279.99	-48.08	-411.38	-914.83	806.78	562.58	244.20	3.304	
6,100.00	5,993.38	6,037.47	6,036.96	22.73	285.76	-48.09	-411.51	-914.83	806.69	557.91	248.79	3.242	
6,200.00	6,093.38	6,137.05	6,136.54	22.84	291.52	-48.09	-411.56	-914.83	806.66	553.29	253.37	3.184	
6,218.06	6,111.44	6,155.03	6,154.52	22.85	292.56	-48.09	-411.56	-914.83	806.66	552.46	254.20	3.173	
6,300.00	6,193.38	6,236.63	6,236.12	22.94	297.28	-48.09	-411.53	-914.83	806.68	548.73	257.95	3.127	
6,400.00	6,293.38	6,336.20	6,335.70	23.04	303.05	-48.08	-411.43	-914.83	806.74	544.23	262.51	3.073	
6,500.00	6,393.38	6,435.77	6,435.27	23.15	308.81	-48.07	-411.26	-914.83	806.86	539.79	267.07	3.021	
6,600.00	6,493.38	6,535.33	6,534.83	23.26	314.57	-48.06	-411.01	-914.83	807.03	535.42	271.61	2.971	
6,700.00	6,593.38	6,634.89	6,634.39	23.37	320.34	-48.04	-410.69	-914.83	807.24	531.10	276.14	2.923	
6,800.00	6,693.38	6,734.45	6,733.95	23.48	326.10	-48.02	-410.29	-914.83	807.51	526.85	280.66	2.877	
6,900.00	6,793.38	6,834.00	6,833.50	23.60	331.86	-48.00	-409.82	-914.83	807.83	522.66	285.17	2.833	
7,000.00	6,893.38	6,933.54	6,933.05	23.71	337.62	-47.97	-409.27	-914.83	808.20	518.53	289.66	2.790	
7,100.00	6,993.38	7,033.08	7,032.59	23.83	343.38	-47.93	-408.64	-914.83	808.62	514.47	294.14	2.749	
7,200.00	7,093.38	7,132.61	7,132.12	23.95	349.14	-47.90	-407.95	-914.83	809.09	510.48	298.61	2.710	
7,300.00	7,193.38	7,232.14	7,231.65	24.07	354.90	-47.86	-407.17	-914.83	809.61	506.55	303.06	2.671	
7,400.00	7,293.38	7,310.00	7,309.16	24.19	359.41	-47.82	-406.52	-914.83	810.49	503.94	306.55	2.644 ES, SF	
7,500.00	7,393.38	7,310.00	7,309.16	24.31	359.41	-47.82	-406.52	-914.83	819.96	513.28	306.68	2.674	
7,600.00	7,493.38	7,310.00	7,309.16	24.44	359.41	-47.82	-406.52	-914.83	841.30	534.48	306.81	2.742	
7,700.00	7,593.38	7,310.00	7,309.16	24.56	359.41	-47.82	-406.52	-914.83	873.63	566.68	306.95	2.846	
7,800.00	7,693.38	7,310.00	7,309.16	24.69	359.41	-47.82	-406.52	-914.83	915.79	608.71	307.08	2.982	
7,816.62	7,710.00	7,310.00	7,309.16	24.71	359.41	-47.82	-406.52	-914.83	923.66	616.56	307.10	3.008	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_VARRA 18-28 PAD - P_VARRA 21-28 - P_VARRA 21-28 - PLAN #1 4-5-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWMD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-0.53	30.25	-0.28	30.25				
100.00	100.00	100.00	100.00	0.10	0.10	-0.53	30.25	-0.28	30.25	30.06	0.19	158.353	
200.00	200.00	200.00	200.00	0.32	0.32	-0.53	30.25	-0.28	30.25	29.61	0.64	47.228	
300.00	300.00	300.00	300.00	0.55	0.55	-0.53	30.25	-0.28	30.25	29.16	1.09	27.753	
400.00	400.00	400.00	400.00	0.77	0.77	-0.53	30.25	-0.28	30.25	28.71	1.54	19.650	
500.00	500.00	500.00	500.00	0.99	0.99	-0.53	30.25	-0.28	30.25	28.26	1.99	15.209	
600.00	600.00	600.00	600.00	1.22	1.22	-0.53	30.25	-0.28	30.25	27.81	2.44	12.406	
700.00	700.00	700.00	700.00	1.44	1.44	-0.53	30.25	-0.28	30.25	27.37	2.89	10.475	
800.00	800.00	800.00	800.00	1.67	1.67	-0.53	30.25	-0.28	30.25	26.92	3.34	9.064 CC, ES	
900.00	899.98	899.57	899.55	1.87	1.88	165.03	30.82	1.36	32.53	28.78	3.75	8.678 SF	
1,000.00	999.84	998.56	998.40	2.05	2.10	173.80	32.49	6.22	40.04	35.91	4.13	9.691	
1,100.00	1,099.45	1,096.41	1,095.88	2.24	2.32	-177.39	35.24	14.21	53.79	49.26	4.52	11.891	
1,200.00	1,198.70	1,192.57	1,191.35	2.47	2.56	-170.74	39.00	25.11	74.07	69.15	4.92	15.048	
1,300.00	1,297.47	1,286.56	1,284.23	2.74	2.82	-166.15	43.67	38.70	100.70	95.37	5.33	18.887	
1,400.00	1,395.62	1,377.93	1,374.02	3.05	3.11	-163.00	49.17	54.65	133.36	127.61	5.75	23.180	
1,437.88	1,432.62	1,411.78	1,407.14	3.18	3.23	-162.07	51.44	61.25	147.24	141.32	5.91	24.893	
1,500.00	1,493.21	1,466.52	1,460.52	3.41	3.43	-160.86	55.38	72.70	171.14	164.93	6.21	27.549	
1,600.00	1,590.74	1,557.34	1,548.79	3.80	3.79	-159.22	62.35	92.93	210.86	204.14	6.72	31.391	
1,700.00	1,688.27	1,648.96	1,637.82	4.21	4.18	-158.08	69.39	113.37	250.71	243.47	7.24	34.628	
1,800.00	1,785.80	1,740.58	1,726.85	4.63	4.58	-157.25	76.43	133.81	290.63	282.85	7.78	37.371	
1,900.00	1,883.33	1,832.20	1,815.88	5.06	4.99	-156.63	83.46	154.26	330.59	322.26	8.32	39.712	
2,000.00	1,980.87	1,923.81	1,904.91	5.50	5.41	-156.13	90.50	174.70	370.57	361.69	8.88	41.724	
2,100.00	2,078.40	2,015.43	1,993.94	5.94	5.83	-155.74	97.54	195.14	410.57	401.13	9.45	43.467	
2,200.00	2,175.93	2,107.05	2,082.97	6.39	6.26	-155.41	104.58	215.58	450.59	440.57	10.02	44.986	
2,300.00	2,273.46	2,198.67	2,172.00	6.85	6.70	-155.14	111.62	236.03	490.61	480.02	10.59	46.320	
2,400.00	2,370.99	2,290.28	2,261.03	7.31	7.13	-154.91	118.66	256.47	530.64	519.47	11.17	47.498	
2,500.00	2,468.52	2,381.90	2,350.06	7.77	7.57	-154.71	125.70	276.91	570.68	558.93	11.76	48.545	
2,600.00	2,566.05	2,473.52	2,439.09	8.23	8.02	-154.54	132.74	297.35	610.73	598.39	12.34	49.480	
2,700.00	2,663.58	2,565.14	2,528.12	8.69	8.46	-154.39	139.78	317.80	650.78	637.84	12.93	50.321	
2,800.00	2,761.12	2,656.76	2,617.15	9.16	8.91	-154.25	146.82	338.24	690.83	677.30	13.52	51.079	
2,900.00	2,858.65	2,748.37	2,706.18	9.62	9.36	-154.13	153.86	358.68	730.88	716.76	14.12	51.766	
3,000.00	2,956.18	2,839.99	2,795.21	10.09	9.80	-154.03	160.90	379.13	770.94	756.22	14.71	52.391	
3,100.00	3,053.71	2,931.61	2,884.24	10.56	10.25	-153.93	167.94	399.57	811.00	795.69	15.31	52.963	
3,200.00	3,151.24	3,023.23	2,973.27	11.03	10.71	-153.84	174.98	420.01	851.06	835.15	15.91	53.486	
3,300.00	3,248.77	3,114.84	3,062.30	11.50	11.16	-153.76	182.01	440.45	891.12	874.61	16.51	53.968	
3,400.00	3,346.30	3,206.46	3,151.33	11.97	11.61	-153.69	189.05	460.90	931.19	914.07	17.11	54.412	
3,500.00	3,443.83	3,298.08	3,240.36	12.45	12.06	-153.62	196.09	481.34	971.25	953.53	17.72	54.823	
3,600.00	3,541.37	3,389.70	3,329.39	12.92	12.52	-153.56	203.13	501.78	1,011.32	993.00	18.32	55.204	
3,700.00	3,638.90	3,481.31	3,418.42	13.39	12.97	-153.51	210.17	522.23	1,051.38	1,032.46	18.92	55.558	
3,800.00	3,736.43	3,572.93	3,507.45	13.86	13.43	-153.45	217.21	542.67	1,091.45	1,071.92	19.53	55.888	
3,900.00	3,833.96	3,664.55	3,596.48	14.34	13.88	-153.40	224.25	563.11	1,131.52	1,111.38	20.14	56.197	
4,000.00	3,931.49	3,756.17	3,685.51	14.81	14.34	-153.36	231.29	583.55	1,171.59	1,150.85	20.74	56.485	
4,100.00	4,029.02	3,847.78	3,774.54	15.29	14.79	-153.32	238.33	604.00	1,211.66	1,190.31	21.35	56.756	
4,200.00	4,126.55	3,939.40	3,863.57	15.76	15.25	-153.28	245.37	624.44	1,251.73	1,229.77	21.96	57.011	
4,300.00	4,224.08	4,031.02	3,952.60	16.24	15.71	-153.24	252.41	644.88	1,291.80	1,269.23	22.56	57.250	
4,400.00	4,321.62	4,122.64	4,041.63	16.71	16.16	-153.20	259.45	665.33	1,331.87	1,308.69	23.17	57.476	
4,500.00	4,419.15	4,214.26	4,130.66	17.19	16.62	-153.17	266.49	685.77	1,371.94	1,348.16	23.78	57.690	
4,600.00	4,516.68	4,305.87	4,219.69	17.66	17.08	-153.14	273.53	706.21	1,412.01	1,387.62	24.39	57.892	
4,700.00	4,614.21	4,397.49	4,308.72	18.14	17.54	-153.11	280.57	726.65	1,452.08	1,427.08	25.00	58.083	
4,800.00	4,711.74	4,489.11	4,397.75	18.61	17.99	-153.08	287.60	747.10	1,492.15	1,466.54	25.61	58.264	
4,900.00	4,809.27	4,580.73	4,486.78	19.09	18.45	-153.06	294.64	767.54	1,532.23	1,506.01	26.22	58.436	
5,000.00	4,906.80	4,672.34	4,575.81	19.57	18.91	-153.03	301.68	787.98	1,572.30	1,545.47	26.83	58.600	

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_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_VARRA 18-28 PAD - P_VARRA 21-28 - P_VARRA 21-28 - PLAN #1 4-5-10 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	5,004.34	4,763.96	4,664.84	20.04	19.37	-153.01	308.72	808.42	1,612.37	1,584.93	27.44	58.756	
5,200.00	5,101.87	4,855.58	4,753.87	20.52	19.83	-152.98	315.76	828.87	1,652.45	1,624.39	28.05	58.905	
5,300.00	5,199.40	4,947.20	4,842.90	21.00	20.28	-152.96	322.80	849.31	1,692.52	1,663.85	28.66	59.046	
5,330.74	5,229.38	4,975.36	4,870.27	21.14	20.43	-152.96	324.96	855.59	1,704.84	1,675.98	28.85	59.089	
5,400.00	5,297.11	5,039.10	4,932.21	21.41	20.74	-153.20	329.86	869.82	1,731.91	1,702.54	29.37	58.977	
5,500.00	5,395.47	5,132.11	5,022.59	21.71	21.21	-153.46	337.01	890.57	1,768.55	1,738.50	30.05	58.860	
5,600.00	5,494.40	5,239.47	5,126.94	21.97	21.73	-153.63	345.23	914.44	1,802.24	1,771.51	30.73	58.656	
5,700.00	5,593.77	5,461.96	5,345.33	22.19	22.50	-153.61	358.99	954.39	1,829.00	1,797.45	31.55	57.963	
5,800.00	5,693.48	5,693.57	5,575.42	22.37	23.04	-153.64	367.40	978.84	1,845.79	1,813.54	32.25	57.236	
5,900.00	5,793.39	5,911.71	5,793.39	22.51	23.35	-153.73	369.78	985.76	1,852.28	1,819.49	32.79	56.496	
5,968.62	5,862.00	5,980.32	5,862.00	22.60	23.43	44.57	369.78	985.76	1,853.01	1,820.00	33.02	56.124	
6,000.00	5,893.38	6,011.70	5,893.38	22.63	23.46	44.57	369.78	985.76	1,853.01	1,819.90	33.12	55.956	
6,100.00	5,993.38	6,111.70	5,993.38	22.73	23.58	44.57	369.78	985.76	1,853.01	1,819.59	33.42	55.448	
6,200.00	6,093.38	6,211.70	6,093.38	22.84	23.71	44.57	369.78	985.76	1,853.01	1,819.29	33.73	54.945	
6,300.00	6,193.38	6,311.70	6,193.38	22.94	23.83	44.57	369.78	985.76	1,853.01	1,818.98	34.03	54.445	
6,400.00	6,293.38	6,411.70	6,293.38	23.04	23.95	44.57	369.78	985.76	1,853.01	1,818.67	34.35	53.950	
6,500.00	6,393.38	6,511.70	6,393.38	23.15	24.08	44.57	369.78	985.76	1,853.01	1,818.35	34.66	53.458	
6,600.00	6,493.38	6,611.70	6,493.38	23.26	24.20	44.57	369.78	985.76	1,853.01	1,818.03	34.98	52.971	
6,700.00	6,593.38	6,711.70	6,593.38	23.37	24.33	44.57	369.78	985.76	1,853.01	1,817.71	35.30	52.489	
6,800.00	6,693.38	6,811.70	6,693.38	23.48	24.46	44.57	369.78	985.76	1,853.01	1,817.39	35.63	52.012	
6,900.00	6,793.38	6,911.70	6,793.38	23.60	24.59	44.57	369.78	985.76	1,853.01	1,817.06	35.95	51.539	
7,000.00	6,893.38	7,011.70	6,893.38	23.71	24.73	44.57	369.78	985.76	1,853.01	1,816.73	36.28	51.071	
7,100.00	6,993.38	7,111.70	6,993.38	23.83	24.86	44.57	369.78	985.76	1,853.01	1,816.40	36.62	50.608	
7,200.00	7,093.38	7,211.70	7,093.38	23.95	25.00	44.57	369.78	985.76	1,853.01	1,816.06	36.95	50.149	
7,300.00	7,193.38	7,311.70	7,193.38	24.07	25.13	44.57	369.78	985.76	1,853.01	1,815.73	37.29	49.696	
7,400.00	7,293.38	7,411.70	7,293.38	24.19	25.27	44.57	369.78	985.76	1,853.01	1,815.39	37.63	49.248	
7,500.00	7,393.38	7,511.70	7,393.38	24.31	25.41	44.57	369.78	985.76	1,853.01	1,815.04	37.97	48.805	
7,600.00	7,493.38	7,611.70	7,493.38	24.44	25.55	44.57	369.78	985.76	1,853.01	1,814.70	38.31	48.367	
7,700.00	7,593.38	7,711.70	7,593.38	24.56	25.69	44.57	369.78	985.76	1,853.01	1,814.35	38.66	47.934	
7,708.96	7,602.34	7,720.66	7,602.34	24.57	25.70	44.57	369.78	985.76	1,853.01	1,814.32	38.69	47.895	
7,800.00	7,693.38	7,748.32	7,630.00	24.69	25.74	44.57	369.78	985.76	1,854.10	1,815.21	38.89	47.674	
7,816.62	7,710.00	7,748.32	7,630.00	24.71	25.74	44.57	369.78	985.76	1,854.74	1,815.82	38.92	47.657	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_VARRA 18-28 PAD - P_VARRA 25-28 - P_VARRA 25-28 - PLAN #1 4-5-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWMD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-180.00	-20.04	0.00	20.04				
100.00	100.00	100.00	100.00	0.10	0.10	-180.00	-20.04	0.00	20.04	19.84	0.19	104.870	
200.00	200.00	200.00	200.00	0.32	0.32	-180.00	-20.04	0.00	20.04	19.40	0.64	31.277	
300.00	300.00	300.00	300.00	0.55	0.55	-180.00	-20.04	0.00	20.04	18.95	1.09	18.379	
400.00	400.00	400.00	400.00	0.77	0.77	-180.00	-20.04	0.00	20.04	18.50	1.54	13.013	
500.00	500.00	500.00	500.00	0.99	0.99	-180.00	-20.04	0.00	20.04	18.05	1.99	10.072	
600.00	600.00	600.00	600.00	1.22	1.22	-180.00	-20.04	0.00	20.04	17.60	2.44	8.216	
700.00	700.00	700.00	700.00	1.44	1.44	-180.00	-20.04	0.00	20.04	17.15	2.89	6.937	
800.00	800.00	800.00	800.00	1.67	1.67	-180.00	-20.04	0.00	20.04	16.70	3.34	6.003	
900.00	899.98	899.43	899.41	1.87	1.87	-23.06	-21.37	1.09	19.79	16.06	3.73	5.301	
949.99	949.92	949.09	949.02	1.96	1.96	-29.10	-23.04	2.46	19.68	15.77	3.91	5.030 CC, ES	
1,000.00	999.84	998.70	998.54	2.05	2.05	-37.51	-25.36	4.37	19.90	15.80	4.09	4.863 SF	
1,100.00	1,099.45	1,097.64	1,097.10	2.24	2.26	-58.67	-31.98	9.79	22.68	18.20	4.48	5.066	
1,200.00	1,198.70	1,196.08	1,194.82	2.47	2.49	-77.98	-41.18	17.33	30.20	25.29	4.91	6.153	
1,300.00	1,297.47	1,293.87	1,291.43	2.74	2.75	-90.95	-52.88	26.91	42.63	37.23	5.41	7.885	
1,400.00	1,395.62	1,390.87	1,386.69	3.05	3.06	-98.87	-67.00	38.48	59.32	53.34	5.98	9.914	
1,437.88	1,432.62	1,427.37	1,422.37	3.18	3.19	-100.99	-72.96	43.37	66.64	60.41	6.23	10.703	
1,500.00	1,493.21	1,486.99	1,480.42	3.41	3.41	-103.54	-83.44	51.96	79.59	72.95	6.64	11.981	
1,600.00	1,590.74	1,582.32	1,572.63	3.80	3.82	-105.12	-102.15	67.28	102.37	95.00	7.37	13.896	
1,700.00	1,688.27	1,676.69	1,663.07	4.21	4.29	-105.01	-122.99	84.36	127.29	119.15	8.14	15.629	
1,800.00	1,785.80	1,769.90	1,751.48	4.63	4.80	-104.05	-145.82	103.07	154.31	145.35	8.96	17.221	
1,900.00	1,883.33	1,865.73	1,841.84	5.06	5.38	-102.96	-170.49	123.29	182.47	172.64	9.83	18.567	
2,000.00	1,980.87	1,961.63	1,932.27	5.50	5.98	-102.16	-195.19	143.52	210.68	199.97	10.71	19.668	
2,100.00	2,078.40	2,057.53	2,022.71	5.94	6.59	-101.55	-219.88	163.75	238.91	227.30	11.61	20.578	
2,200.00	2,175.93	2,153.44	2,113.14	6.39	7.21	-101.06	-244.57	183.99	267.17	254.65	12.52	21.340	
2,300.00	2,273.46	2,249.34	2,203.58	6.85	7.84	-100.67	-269.26	204.22	295.44	282.00	13.44	21.984	
2,400.00	2,370.99	2,345.24	2,294.01	7.31	8.47	-100.35	-293.96	224.45	323.72	309.35	14.36	22.536	
2,500.00	2,468.52	2,441.15	2,384.44	7.77	9.11	-100.08	-318.65	244.68	352.01	336.71	15.30	23.013	
2,600.00	2,566.05	2,537.05	2,474.88	8.23	9.76	-99.85	-343.34	264.92	380.30	364.07	16.23	23.429	
2,700.00	2,663.58	2,632.95	2,565.31	8.69	10.40	-99.65	-368.03	285.15	408.60	391.43	17.17	23.794	
2,800.00	2,761.12	2,728.86	2,655.75	9.16	11.05	-99.48	-392.72	305.38	436.90	418.79	18.12	24.118	
2,900.00	2,858.65	2,824.76	2,746.18	9.62	11.70	-99.33	-417.42	325.62	465.21	446.15	19.06	24.407	
3,000.00	2,956.18	2,920.66	2,836.62	10.09	12.36	-99.20	-442.11	345.85	493.52	473.51	20.01	24.665	
3,100.00	3,053.71	3,016.57	2,927.05	10.56	13.01	-99.08	-466.80	366.08	521.83	500.87	20.96	24.899	
3,200.00	3,151.24	3,112.47	3,017.49	11.03	13.67	-98.97	-491.49	386.32	550.14	528.23	21.91	25.111	
3,300.00	3,248.77	3,208.37	3,107.92	11.50	14.32	-98.87	-516.19	406.55	578.46	555.60	22.86	25.304	
3,400.00	3,346.30	3,304.28	3,198.35	11.97	14.98	-98.78	-540.88	426.78	606.77	582.96	23.81	25.480	
3,500.00	3,443.83	3,400.18	3,288.79	12.45	15.64	-98.70	-565.57	447.01	635.09	610.32	24.77	25.642	
3,600.00	3,541.37	3,496.08	3,379.22	12.92	16.30	-98.63	-590.26	467.25	663.41	637.69	25.72	25.792	
3,700.00	3,638.90	3,591.99	3,469.66	13.39	16.96	-98.56	-614.95	487.48	691.73	665.05	26.68	25.931	
3,800.00	3,736.43	3,687.89	3,560.09	13.86	17.62	-98.50	-639.65	507.71	720.05	692.41	27.63	26.059	
3,900.00	3,833.96	3,783.79	3,650.53	14.34	18.28	-98.45	-664.34	527.95	748.37	719.78	28.59	26.179	
4,000.00	3,931.49	3,879.70	3,740.96	14.81	18.95	-98.39	-689.03	548.18	776.69	747.15	29.54	26.291	
4,100.00	4,029.02	3,975.60	3,831.39	15.29	19.61	-98.34	-713.72	568.41	805.01	774.51	30.50	26.396	
4,200.00	4,126.55	4,071.50	3,921.83	15.76	20.27	-98.30	-738.42	588.65	833.33	801.88	31.45	26.495	
4,300.00	4,224.08	4,167.41	4,012.26	16.24	20.94	-98.25	-763.11	608.88	861.65	829.25	32.41	26.588	
4,400.00	4,321.62	4,263.31	4,102.70	16.71	21.60	-98.21	-787.80	629.11	889.98	856.61	33.36	26.675	
4,500.00	4,419.15	4,359.21	4,193.13	17.19	22.26	-98.18	-812.49	649.34	918.30	883.98	34.32	26.758	
4,600.00	4,516.68	4,455.12	4,283.57	17.66	22.93	-98.14	-837.19	669.58	946.62	911.35	35.27	26.837	
4,700.00	4,614.21	4,551.02	4,374.00	18.14	23.59	-98.11	-861.88	689.81	974.95	938.72	36.23	26.911	
4,800.00	4,711.74	4,646.92	4,464.43	18.61	24.26	-98.08	-886.57	710.04	1,003.27	966.09	37.18	26.982	
4,900.00	4,809.27	4,742.83	4,554.87	19.09	24.92	-98.05	-911.26	730.28	1,031.60	993.46	38.14	27.050	

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_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_VARRA 18-28 PAD - P_VARRA 25-28 - P_VARRA 25-28 - PLAN #1 4-5-10 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	4,906.80	4,838.73	4,645.30	19.57	25.59	-98.02	-935.95	750.51	1,059.92	1,020.83	39.09	27.114	
5,100.00	5,004.34	4,934.63	4,735.74	20.04	26.25	-97.99	-960.65	770.74	1,088.25	1,048.20	40.04	27.176	
5,200.00	5,101.87	5,030.54	4,826.17	20.52	26.92	-97.97	-985.34	790.98	1,116.57	1,075.58	41.00	27.235	
5,300.00	5,199.40	5,152.43	4,941.55	21.00	27.62	-97.98	-1,015.74	815.89	1,144.20	1,102.21	41.99	27.249	
5,330.74	5,229.38	5,194.70	4,981.91	21.14	27.82	-98.03	-1,025.44	823.84	1,152.07	1,109.77	42.30	27.238	
5,400.00	5,297.11	5,290.80	5,074.34	21.41	28.24	-98.48	-1,045.79	840.51	1,168.50	1,125.49	43.00	27.172	
5,500.00	5,395.47	5,431.54	5,211.17	21.71	28.78	-99.04	-1,071.22	861.35	1,188.81	1,144.95	43.86	27.105	
5,600.00	5,494.40	5,574.25	5,351.39	21.97	29.24	-99.49	-1,091.67	878.11	1,204.99	1,160.38	44.60	27.016	
5,700.00	5,593.77	5,718.50	5,494.29	22.19	29.61	-99.85	-1,106.83	890.53	1,216.94	1,171.71	45.23	26.908	
5,800.00	5,693.48	5,863.81	5,639.05	22.37	29.88	-100.12	-1,116.46	898.42	1,224.59	1,178.87	45.73	26.781	
5,900.00	5,793.39	6,009.69	5,784.82	22.51	30.06	-100.30	-1,120.40	901.65	1,227.90	1,181.79	46.11	26.631	
5,968.62	5,862.00	6,086.86	5,862.00	22.60	30.12	97.96	-1,120.50	901.73	1,228.11	1,181.82	46.30	26.527	
6,000.00	5,893.38	6,118.25	5,893.38	22.63	30.15	97.96	-1,120.50	901.73	1,228.11	1,181.75	46.36	26.489	
6,100.00	5,993.38	6,218.25	5,993.38	22.73	30.23	97.96	-1,120.50	901.73	1,228.11	1,181.55	46.56	26.375	
6,200.00	6,093.38	6,318.25	6,093.38	22.84	30.31	97.96	-1,120.50	901.73	1,228.11	1,181.34	46.77	26.260	
6,300.00	6,193.38	6,418.25	6,193.38	22.94	30.40	97.96	-1,120.50	901.73	1,228.11	1,181.14	46.97	26.145	
6,400.00	6,293.38	6,518.25	6,293.38	23.04	30.48	97.96	-1,120.50	901.73	1,228.11	1,180.93	47.18	26.028	
6,500.00	6,393.38	6,618.25	6,393.38	23.15	30.57	97.96	-1,120.50	901.73	1,228.11	1,180.71	47.40	25.911	
6,600.00	6,493.38	6,718.25	6,493.38	23.26	30.66	97.96	-1,120.50	901.73	1,228.11	1,180.50	47.61	25.793	
6,700.00	6,593.38	6,818.25	6,593.38	23.37	30.75	97.96	-1,120.50	901.73	1,228.11	1,180.28	47.83	25.674	
6,800.00	6,693.38	6,918.25	6,693.38	23.48	30.84	97.96	-1,120.50	901.73	1,228.11	1,180.05	48.06	25.555	
6,900.00	6,793.38	7,018.25	6,793.38	23.60	30.94	97.96	-1,120.50	901.73	1,228.11	1,179.83	48.28	25.435	
7,000.00	6,893.38	7,118.25	6,893.38	23.71	31.03	97.96	-1,120.50	901.73	1,228.11	1,179.60	48.51	25.315	
7,100.00	6,993.38	7,218.25	6,993.38	23.83	31.13	97.96	-1,120.50	901.73	1,228.11	1,179.36	48.75	25.194	
7,200.00	7,093.38	7,318.25	7,093.38	23.95	31.22	97.96	-1,120.50	901.73	1,228.11	1,179.13	48.98	25.072	
7,300.00	7,193.38	7,418.25	7,193.38	24.07	31.32	97.96	-1,120.50	901.73	1,228.11	1,178.89	49.22	24.951	
7,308.94	7,202.32	7,427.18	7,202.32	24.08	31.33	97.96	-1,120.50	901.73	1,228.11	1,178.87	49.24	24.940	
7,400.00	7,293.38	7,454.86	7,230.00	24.19	31.36	97.96	-1,120.50	901.73	1,229.75	1,180.36	49.39	24.900	
7,500.00	7,393.38	7,454.86	7,230.00	24.31	31.36	97.96	-1,120.50	901.73	1,238.93	1,189.42	49.51	25.024	
7,600.00	7,493.38	7,454.86	7,230.00	24.44	31.36	97.96	-1,120.50	901.73	1,256.04	1,206.40	49.64	25.305	
7,700.00	7,593.38	7,454.86	7,230.00	24.56	31.36	97.96	-1,120.50	901.73	1,280.74	1,230.98	49.76	25.737	
7,800.00	7,693.38	7,454.86	7,230.00	24.69	31.36	97.96	-1,120.50	901.73	1,312.62	1,262.73	49.89	26.310	
7,816.62	7,710.00	7,454.86	7,230.00	24.71	31.36	97.96	-1,120.50	901.73	1,318.58	1,268.67	49.91	26.419	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_VARRA 18-28 PAD - P_VARRA 31-28 - P_VARRA 31-28 - PLAN #1 4-5-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWMD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-0.80	20.04	-0.28	20.05				
100.00	100.00	100.00	100.00	0.10	0.10	-0.80	20.04	-0.28	20.05	19.85	0.19	104.924	
200.00	200.00	200.00	200.00	0.32	0.32	-0.80	20.04	-0.28	20.05	19.41	0.64	31.293	
300.00	300.00	300.00	300.00	0.55	0.55	-0.80	20.04	-0.28	20.05	18.96	1.09	18.389	
400.00	400.00	400.00	400.00	0.77	0.77	-0.80	20.04	-0.28	20.05	18.51	1.54	13.020	
500.00	500.00	500.00	500.00	0.99	0.99	-0.80	20.04	-0.28	20.05	18.06	1.99	10.077	
600.00	600.00	600.00	600.00	1.22	1.22	-0.80	20.04	-0.28	20.05	17.61	2.44	8.220	
700.00	700.00	700.00	700.00	1.44	1.44	-0.80	20.04	-0.28	20.05	17.16	2.89	6.941	
800.00	800.00	800.00	800.00	1.67	1.67	-0.80	20.04	-0.28	20.05	16.71	3.34	6.006 CC, ES	
900.00	899.98	899.80	899.78	1.87	1.88	157.94	20.38	-1.98	22.09	18.34	3.75	5.893 SF	
1,000.00	999.84	999.28	999.12	2.05	2.09	151.70	21.40	-7.07	28.45	24.32	4.13	6.886	
1,100.00	1,099.45	1,098.14	1,097.60	2.24	2.32	145.85	23.07	-15.48	39.45	34.91	4.54	8.694	
1,200.00	1,198.70	1,196.05	1,194.79	2.47	2.57	141.59	25.38	-27.09	55.13	50.15	4.97	11.085	
1,300.00	1,297.47	1,292.75	1,290.32	2.74	2.84	138.66	28.29	-41.74	75.39	69.94	5.45	13.837	
1,400.00	1,395.62	1,387.96	1,383.84	3.05	3.15	136.62	31.77	-59.25	100.12	94.14	5.97	16.762	
1,437.88	1,432.62	1,423.58	1,418.67	3.18	3.28	136.00	33.23	-66.58	110.62	104.43	6.19	17.879	
1,500.00	1,493.21	1,481.56	1,475.14	3.41	3.50	135.17	35.78	-79.42	128.72	122.15	6.57	19.601	
1,600.00	1,590.74	1,573.82	1,564.45	3.80	3.89	133.51	40.31	-102.16	159.42	152.19	7.22	22.073	
1,700.00	1,688.27	1,664.64	1,651.58	4.21	4.33	131.68	45.30	-127.29	192.14	184.21	7.92	24.245	
1,800.00	1,785.80	1,753.88	1,736.35	4.63	4.82	129.82	50.73	-154.60	226.95	218.28	8.67	26.186	
1,900.00	1,883.33	1,841.39	1,818.61	5.06	5.35	127.99	56.56	-183.89	263.90	254.46	9.44	27.966	
2,000.00	1,980.87	1,932.38	1,903.49	5.50	5.95	126.28	62.95	-216.02	302.36	292.11	10.26	29.480	
2,100.00	2,078.40	2,024.33	1,989.26	5.94	6.58	124.93	69.42	-248.54	341.04	329.95	11.09	30.748	
2,200.00	2,175.93	2,116.28	2,075.03	6.39	7.22	123.85	75.88	-281.05	379.85	367.91	11.93	31.829	
2,300.00	2,273.46	2,208.23	2,160.80	6.85	7.87	122.98	82.35	-313.56	418.75	405.96	12.78	32.758	
2,400.00	2,370.99	2,300.19	2,246.56	7.31	8.52	122.25	88.81	-346.08	457.71	444.08	13.64	33.563	
2,500.00	2,468.52	2,392.14	2,332.33	7.77	9.19	121.64	95.28	-378.59	496.74	482.24	14.50	34.267	
2,600.00	2,566.05	2,484.09	2,418.10	8.23	9.85	121.11	101.75	-411.10	535.80	520.44	15.36	34.887	
2,700.00	2,663.58	2,576.04	2,503.87	8.69	10.53	120.66	108.21	-443.62	574.89	558.67	16.22	35.437	
2,800.00	2,761.12	2,667.99	2,589.64	9.16	11.20	120.26	114.68	-476.13	614.02	596.93	17.09	35.929	
2,900.00	2,858.65	2,759.95	2,675.41	9.62	11.88	119.91	121.15	-508.64	653.16	635.20	17.96	36.372	
3,000.00	2,956.18	2,851.90	2,761.17	10.09	12.56	119.60	127.61	-541.16	692.32	673.50	18.83	36.771	
3,100.00	3,053.71	2,943.85	2,846.94	10.56	13.24	119.33	134.08	-573.67	731.50	711.80	19.70	37.134	
3,200.00	3,151.24	3,035.80	2,932.71	11.03	13.93	119.08	140.54	-606.18	770.69	750.12	20.57	37.466	
3,300.00	3,248.77	3,127.75	3,018.48	11.50	14.61	118.86	147.01	-638.69	809.90	788.45	21.44	37.769	
3,400.00	3,346.30	3,219.70	3,104.25	11.97	15.30	118.65	153.48	-671.21	849.11	826.79	22.32	38.049	
3,500.00	3,443.83	3,311.66	3,190.02	12.45	15.99	118.47	159.94	-703.72	888.33	865.14	23.19	38.307	
3,600.00	3,541.37	3,403.61	3,275.79	12.92	16.67	118.30	166.41	-736.23	927.55	903.49	24.06	38.547	
3,700.00	3,638.90	3,495.56	3,361.55	13.39	17.36	118.14	172.87	-768.75	966.79	941.85	24.94	38.769	
3,800.00	3,736.43	3,587.51	3,447.32	13.86	18.05	118.00	179.34	-801.26	1,006.03	980.21	25.81	38.977	
3,900.00	3,833.96	3,679.46	3,533.09	14.34	18.74	117.87	185.81	-833.77	1,045.27	1,018.58	26.68	39.172	
4,000.00	3,931.49	3,771.42	3,618.86	14.81	19.43	117.74	192.27	-866.29	1,084.52	1,056.96	27.56	39.354	
4,100.00	4,029.02	3,863.37	3,704.63	15.29	20.13	117.63	198.74	-898.80	1,123.77	1,095.34	28.43	39.526	
4,200.00	4,126.55	3,955.32	3,790.40	15.76	20.82	117.52	205.20	-931.31	1,163.03	1,133.72	29.30	39.688	
4,300.00	4,224.08	4,047.27	3,876.16	16.24	21.51	117.42	211.67	-963.83	1,202.28	1,172.11	30.18	39.841	
4,400.00	4,321.62	4,139.22	3,961.93	16.71	22.20	117.33	218.14	-996.34	1,241.55	1,210.50	31.05	39.986	
4,500.00	4,419.15	4,231.17	4,047.70	17.19	22.90	117.24	224.60	-1,028.85	1,280.81	1,248.89	31.92	40.124	
4,600.00	4,516.68	4,323.13	4,133.47	17.66	23.59	117.16	231.07	-1,061.37	1,320.08	1,287.28	32.79	40.255	
4,700.00	4,614.21	4,415.08	4,219.24	18.14	24.28	117.08	237.54	-1,093.88	1,359.35	1,325.68	33.66	40.379	
4,800.00	4,711.74	4,507.03	4,305.01	18.61	24.98	117.00	244.00	-1,126.39	1,398.62	1,364.08	34.54	40.498	
4,900.00	4,809.27	4,598.98	4,390.77	19.09	25.67	116.93	250.47	-1,158.90	1,437.89	1,402.48	35.41	40.612	
5,000.00	4,906.80	4,690.93	4,476.54	19.57	26.37	116.87	256.93	-1,191.42	1,477.16	1,440.89	36.27	40.721	

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_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_VARRA 18-28 PAD - P_VARRA 31-28 - P_VARRA 31-28 - PLAN #1 4-5-10 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	5,004.34	4,782.88	4,562.31	20.04	27.06	116.81	263.40	-1,223.93	1,516.44	1,479.30	37.14	40.826	
5,200.00	5,101.87	4,874.84	4,648.08	20.52	27.76	116.75	269.87	-1,256.44	1,555.72	1,517.71	38.01	40.926	
5,300.00	5,199.40	4,966.79	4,733.85	21.00	28.45	116.69	276.33	-1,288.96	1,595.00	1,556.12	38.88	41.023	
5,330.74	5,229.38	4,995.05	4,760.21	21.14	28.67	116.67	278.32	-1,298.95	1,607.07	1,567.92	39.15	41.052	
5,400.00	5,297.11	5,087.00	4,846.20	21.41	29.30	117.10	284.67	-1,330.87	1,633.65	1,593.68	39.96	40.878	
5,500.00	5,395.47	5,263.70	5,014.09	21.71	30.22	117.58	295.40	-1,384.84	1,667.25	1,626.21	41.04	40.623	
5,600.00	5,494.40	5,447.37	5,191.84	21.97	31.00	117.96	304.40	-1,430.07	1,694.46	1,652.47	41.99	40.357	
5,700.00	5,593.77	5,636.76	5,377.84	22.19	31.63	118.25	311.32	-1,464.91	1,714.94	1,672.16	42.79	40.083	
5,800.00	5,693.48	5,830.36	5,569.96	22.37	32.08	118.47	315.91	-1,487.99	1,728.45	1,685.02	43.43	39.801	
5,900.00	5,793.39	6,026.42	5,765.70	22.51	32.36	118.61	317.97	-1,498.34	1,734.81	1,690.89	43.91	39.506	
5,968.62	5,862.00	6,122.72	5,862.00	22.60	32.44	-43.04	318.08	-1,498.89	1,735.43	1,691.29	44.14	39.315	
6,000.00	5,893.38	6,154.10	5,893.38	22.63	32.47	-43.04	318.08	-1,498.89	1,735.43	1,691.21	44.22	39.249	
6,100.00	5,993.38	6,254.10	5,993.38	22.73	32.56	-43.04	318.08	-1,498.89	1,735.43	1,690.99	44.44	39.051	
6,200.00	6,093.38	6,354.10	6,093.38	22.84	32.65	-43.04	318.08	-1,498.89	1,735.43	1,690.76	44.67	38.851	
6,300.00	6,193.38	6,454.10	6,193.38	22.94	32.74	-43.04	318.08	-1,498.89	1,735.43	1,690.53	44.90	38.651	
6,400.00	6,293.38	6,554.10	6,293.38	23.04	32.83	-43.04	318.08	-1,498.89	1,735.43	1,690.29	45.14	38.449	
6,500.00	6,393.38	6,654.10	6,393.38	23.15	32.92	-43.04	318.08	-1,498.89	1,735.43	1,690.06	45.37	38.247	
6,600.00	6,493.38	6,754.10	6,493.38	23.26	33.01	-43.04	318.08	-1,498.89	1,735.43	1,689.81	45.62	38.045	
6,700.00	6,593.38	6,854.10	6,593.38	23.37	33.11	-43.04	318.08	-1,498.89	1,735.43	1,689.57	45.86	37.842	
6,800.00	6,693.38	6,954.10	6,693.38	23.48	33.21	-43.04	318.08	-1,498.89	1,735.43	1,689.32	46.11	37.638	
6,900.00	6,793.38	7,054.10	6,793.38	23.60	33.30	-43.04	318.08	-1,498.89	1,735.43	1,689.07	46.36	37.435	
7,000.00	6,893.38	7,154.10	6,893.38	23.71	33.40	-43.04	318.08	-1,498.89	1,735.43	1,688.82	46.61	37.231	
7,100.00	6,993.38	7,254.10	6,993.38	23.83	33.50	-43.04	318.08	-1,498.89	1,735.43	1,688.56	46.87	37.027	
7,200.00	7,093.38	7,354.10	7,093.38	23.95	33.60	-43.04	318.08	-1,498.89	1,735.43	1,688.30	47.13	36.823	
7,300.00	7,193.38	7,454.10	7,193.38	24.07	33.71	-43.04	318.08	-1,498.89	1,735.43	1,688.04	47.39	36.619	
7,400.00	7,293.38	7,554.10	7,293.38	24.19	33.81	-43.04	318.08	-1,498.89	1,735.43	1,687.77	47.66	36.415	
7,500.00	7,393.38	7,654.10	7,393.38	24.31	33.91	-43.04	318.08	-1,498.89	1,735.43	1,687.50	47.92	36.212	
7,600.00	7,493.38	7,754.10	7,493.38	24.44	34.02	-43.04	318.08	-1,498.89	1,735.43	1,687.23	48.20	36.008	
7,700.00	7,593.38	7,854.10	7,593.38	24.56	34.13	-43.04	318.08	-1,498.89	1,735.43	1,686.96	48.47	35.805	
7,749.96	7,643.34	7,904.07	7,643.34	24.62	34.18	-43.04	318.08	-1,498.89	1,735.43	1,686.82	48.61	35.704	
7,800.00	7,693.38	7,920.72	7,660.00	24.69	34.20	-43.04	318.08	-1,498.89	1,735.75	1,687.05	48.70	35.643	
7,816.62	7,710.00	7,920.72	7,660.00	24.71	34.20	-43.04	318.08	-1,498.89	1,736.15	1,687.43	48.72	35.634	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_VARRA 18-28 PAD - P_VARRA 32-28 - P_VARRA 32-28 - PLAN #1 4-5-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWMD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-1.62	9.85	-0.28	9.85				
100.00	100.00	100.00	100.00	0.10	0.10	-1.62	9.85	-0.28	9.85	9.66	0.19	51.568	
200.00	200.00	200.00	200.00	0.32	0.32	-1.62	9.85	-0.28	9.85	9.21	0.64	15.380	
300.00	300.00	300.00	300.00	0.55	0.55	-1.62	9.85	-0.28	9.85	8.76	1.09	9.038	
400.00	400.00	400.00	400.00	0.77	0.77	-1.62	9.85	-0.28	9.85	8.31	1.54	6.399	
500.00	500.00	500.00	500.00	0.99	0.99	-1.62	9.85	-0.28	9.85	7.86	1.99	4.953	
600.00	600.00	600.00	600.00	1.22	1.22	-1.62	9.85	-0.28	9.85	7.41	2.44	4.040	
700.00	700.00	700.00	700.00	1.44	1.44	-1.62	9.85	-0.28	9.85	6.96	2.89	3.411	
800.00	800.00	800.00	800.00	1.67	1.67	-1.62	9.85	-0.28	9.85	6.51	3.34	2.952 CC, ES	
900.00	899.98	900.16	900.14	1.87	1.87	155.14	8.92	-1.76	10.64	6.91	3.74	2.847 SF	
1,000.00	999.84	1,000.24	1,000.08	2.05	2.07	144.21	6.12	-6.20	13.37	9.26	4.11	3.254	
1,100.00	1,099.45	1,100.15	1,099.60	2.24	2.28	133.74	1.48	-13.58	18.52	14.01	4.51	4.107	
1,200.00	1,198.70	1,199.81	1,198.51	2.47	2.52	126.28	-4.98	-23.86	26.26	21.29	4.97	5.288	
1,300.00	1,297.47	1,299.14	1,296.62	2.74	2.79	121.38	-13.25	-36.99	36.50	31.01	5.49	6.649	
1,400.00	1,395.62	1,398.07	1,393.74	3.05	3.11	118.14	-23.27	-52.93	49.17	43.07	6.10	8.060	
1,437.88	1,432.62	1,435.43	1,430.23	3.18	3.25	117.20	-27.52	-59.69	54.58	48.22	6.36	8.580	
1,500.00	1,493.21	1,496.55	1,489.71	3.41	3.48	115.53	-35.02	-71.61	63.89	57.08	6.81	9.379	
1,600.00	1,590.74	1,594.54	1,584.39	3.80	3.91	111.77	-48.44	-92.95	79.71	72.10	7.61	10.470	
1,700.00	1,688.27	1,691.83	1,677.50	4.21	4.40	107.38	-63.47	-116.84	96.93	88.44	8.48	11.426	
1,800.00	1,785.80	1,788.21	1,768.73	4.63	4.95	102.85	-80.01	-143.13	115.94	106.54	9.40	12.338	
1,900.00	1,883.33	1,883.48	1,857.84	5.06	5.56	98.43	-97.95	-171.66	137.08	126.75	10.34	13.264	
2,000.00	1,980.87	1,977.45	1,944.58	5.50	6.23	94.26	-117.18	-202.23	160.62	149.34	11.28	14.240	
2,100.00	2,078.40	2,071.06	2,029.82	5.94	6.94	90.41	-137.77	-234.96	186.63	174.41	12.22	15.276	
2,200.00	2,175.93	2,166.72	2,116.63	6.39	7.71	87.27	-159.17	-268.99	213.77	200.61	13.16	16.241	
2,300.00	2,273.46	2,262.38	2,203.43	6.85	8.49	84.84	-180.58	-303.01	241.38	227.28	14.10	17.118	
2,400.00	2,370.99	2,358.04	2,290.24	7.31	9.28	82.90	-201.98	-337.04	269.31	254.27	15.04	17.911	
2,500.00	2,468.52	2,453.70	2,377.04	7.77	10.08	81.33	-223.38	-371.07	297.47	281.50	15.97	18.626	
2,600.00	2,566.05	2,549.36	2,463.85	8.23	10.88	80.03	-244.78	-405.09	325.81	308.90	16.91	19.272	
2,700.00	2,663.58	2,645.02	2,550.65	8.69	11.69	78.94	-266.19	-439.12	354.27	336.43	17.84	19.858	
2,800.00	2,761.12	2,740.68	2,637.46	9.16	12.51	78.00	-287.59	-473.15	382.84	364.06	18.78	20.389	
2,900.00	2,858.65	2,836.34	2,724.26	9.62	13.32	77.20	-308.99	-507.17	411.48	391.77	19.71	20.874	
3,000.00	2,956.18	2,932.00	2,811.07	10.09	14.14	76.50	-330.40	-541.20	440.20	419.55	20.65	21.317	
3,100.00	3,053.71	3,027.66	2,897.87	10.56	14.96	75.89	-351.80	-575.23	468.96	447.37	21.59	21.723	
3,200.00	3,151.24	3,123.32	2,984.68	11.03	15.78	75.35	-373.20	-609.26	497.77	475.24	22.53	22.097	
3,300.00	3,248.77	3,218.98	3,071.48	11.50	16.61	74.87	-394.61	-643.28	526.61	503.14	23.47	22.442	
3,400.00	3,346.30	3,314.65	3,158.28	11.97	17.43	74.44	-416.01	-677.31	555.48	531.08	24.41	22.761	
3,500.00	3,443.83	3,410.31	3,245.09	12.45	18.26	74.05	-437.41	-711.34	584.38	559.04	25.34	23.057	
3,600.00	3,541.37	3,505.97	3,331.89	12.92	19.09	73.69	-458.82	-745.36	613.31	587.02	26.28	23.333	
3,700.00	3,638.90	3,601.63	3,418.70	13.39	19.92	73.37	-480.22	-779.39	642.25	615.02	27.23	23.590	
3,800.00	3,736.43	3,697.29	3,505.50	13.86	20.75	73.08	-501.62	-813.42	671.21	643.04	28.17	23.831	
3,900.00	3,833.96	3,792.95	3,592.31	14.34	21.58	72.81	-523.03	-847.44	700.18	671.08	29.11	24.057	
4,000.00	3,931.49	3,888.61	3,679.11	14.81	22.41	72.56	-544.43	-881.47	729.17	699.12	30.05	24.268	
4,100.00	4,029.02	3,984.27	3,765.92	15.29	23.24	72.33	-565.83	-915.50	758.17	727.18	30.99	24.468	
4,200.00	4,126.55	4,079.93	3,852.72	15.76	24.07	72.12	-587.24	-949.52	787.18	755.25	31.93	24.656	
4,300.00	4,224.08	4,175.59	3,939.53	16.24	24.90	71.92	-608.64	-983.55	816.20	783.33	32.87	24.834	
4,400.00	4,321.62	4,271.25	4,026.33	16.71	25.73	71.74	-630.04	-1,017.58	845.22	811.42	33.81	25.002	
4,500.00	4,419.15	4,366.91	4,113.14	17.19	26.57	71.57	-651.45	-1,051.60	874.26	839.51	34.75	25.162	
4,600.00	4,516.68	4,462.57	4,199.94	17.66	27.40	71.41	-672.85	-1,085.63	903.30	867.61	35.69	25.313	
4,700.00	4,614.21	4,558.23	4,286.75	18.14	28.23	71.26	-694.25	-1,119.66	932.35	895.72	36.62	25.457	
4,800.00	4,711.74	4,653.90	4,373.55	18.61	29.07	71.11	-715.65	-1,153.68	961.40	923.83	37.56	25.594	
4,900.00	4,809.27	4,749.56	4,460.35	19.09	29.90	70.98	-737.06	-1,187.71	990.46	951.95	38.50	25.725	
5,000.00	4,906.80	4,845.22	4,547.16	19.57	30.73	70.86	-758.46	-1,221.74	1,019.52	980.08	39.44	25.850	

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_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
WELD_VARRA 18-28 PAD - P_VARRA 32-28 - P_VARRA 32-28 - PLAN #1 4-5-10 RHS												Offset Well Error:	0.00 ft
Survey Program: 0-MWD													
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	5,004.34	4,940.88	4,633.96	20.04	31.57	70.74	-779.86	-1,255.76	1,048.58	1,008.21	40.38	25.970	
5,200.00	5,101.87	5,068.45	4,750.46	20.52	32.48	70.64	-807.55	-1,299.77	1,076.63	1,035.24	41.39	26.013	
5,300.00	5,199.40	5,211.06	4,883.22	21.00	33.32	70.73	-835.25	-1,343.82	1,100.83	1,058.39	42.44	25.936	
5,330.74	5,229.38	5,255.44	4,925.04	21.14	33.56	70.80	-843.15	-1,356.38	1,107.45	1,064.68	42.77	25.890	
5,400.00	5,297.11	5,356.21	5,020.83	21.41	34.07	71.23	-859.81	-1,382.85	1,121.19	1,077.67	43.53	25.760	
5,500.00	5,395.47	5,503.36	5,162.54	21.71	34.73	71.75	-880.88	-1,416.35	1,138.41	1,093.97	44.44	25.618	
5,600.00	5,494.40	5,652.21	5,307.76	21.97	35.28	72.17	-898.22	-1,443.93	1,152.43	1,107.22	45.21	25.490	
5,700.00	5,593.77	5,802.42	5,455.83	22.19	35.73	72.48	-911.63	-1,465.25	1,163.18	1,117.32	45.85	25.367	
5,800.00	5,693.48	5,953.66	5,606.04	22.37	36.06	72.69	-920.94	-1,480.05	1,170.59	1,124.24	46.35	25.254	
5,900.00	5,793.39	6,105.56	5,757.62	22.51	36.29	72.80	-926.03	-1,488.13	1,174.63	1,127.92	46.72	25.144	
5,968.62	5,862.00	6,209.96	5,862.00	22.60	36.39	-88.86	-927.04	-1,489.74	1,175.43	1,128.53	46.90	25.061	
6,000.00	5,893.38	6,241.35	5,893.38	22.63	36.41	-88.86	-927.04	-1,489.74	1,175.43	1,128.46	46.97	25.025	
6,100.00	5,993.38	6,341.35	5,993.38	22.73	36.48	-88.86	-927.04	-1,489.74	1,175.43	1,128.26	47.17	24.918	
6,200.00	6,093.38	6,441.35	6,093.38	22.84	36.56	-88.86	-927.04	-1,489.74	1,175.43	1,128.06	47.37	24.812	
6,300.00	6,193.38	6,541.35	6,193.38	22.94	36.63	-88.86	-927.04	-1,489.74	1,175.43	1,127.86	47.58	24.705	
6,400.00	6,293.38	6,641.35	6,293.38	23.04	36.70	-88.86	-927.04	-1,489.74	1,175.43	1,127.65	47.79	24.597	
6,500.00	6,393.38	6,741.35	6,393.38	23.15	36.78	-88.86	-927.04	-1,489.74	1,175.43	1,127.43	48.00	24.488	
6,600.00	6,493.38	6,841.35	6,493.38	23.26	36.86	-88.86	-927.04	-1,489.74	1,175.43	1,127.22	48.22	24.379	
6,700.00	6,593.38	6,941.35	6,593.38	23.37	36.93	-88.86	-927.04	-1,489.74	1,175.43	1,127.00	48.43	24.269	
6,800.00	6,693.38	7,041.35	6,693.38	23.48	37.01	-88.86	-927.04	-1,489.74	1,175.43	1,126.78	48.66	24.158	
6,900.00	6,793.38	7,141.35	6,793.38	23.60	37.09	-88.86	-927.04	-1,489.74	1,175.43	1,126.55	48.88	24.047	
7,000.00	6,893.38	7,241.35	6,893.38	23.71	37.18	-88.86	-927.04	-1,489.74	1,175.43	1,126.33	49.11	23.935	
7,100.00	6,993.38	7,341.35	6,993.38	23.83	37.26	-88.86	-927.04	-1,489.74	1,175.43	1,126.09	49.34	23.823	
7,200.00	7,093.38	7,441.35	7,093.38	23.95	37.34	-88.86	-927.04	-1,489.74	1,175.43	1,125.86	49.57	23.711	
7,300.00	7,193.38	7,541.35	7,193.38	24.07	37.43	-88.86	-927.04	-1,489.74	1,175.43	1,125.62	49.81	23.598	
7,400.00	7,293.38	7,641.35	7,293.38	24.19	37.51	-88.86	-927.04	-1,489.74	1,175.43	1,125.38	50.05	23.484	
7,500.00	7,393.38	7,741.35	7,393.38	24.31	37.60	-88.86	-927.04	-1,489.74	1,175.43	1,125.14	50.29	23.371	
7,600.00	7,493.38	7,841.35	7,493.38	24.44	37.69	-88.86	-927.04	-1,489.74	1,175.43	1,124.89	50.54	23.257	
7,700.00	7,593.38	7,941.35	7,593.38	24.56	37.78	-88.86	-927.04	-1,489.74	1,175.43	1,124.64	50.79	23.143	
7,800.00	7,693.38	8,041.35	7,693.38	24.69	37.87	-88.86	-927.04	-1,489.74	1,175.43	1,124.39	51.04	23.029	
7,800.71	7,694.09	8,042.05	7,694.09	24.69	37.87	-88.86	-927.04	-1,489.74	1,175.43	1,124.39	51.04	23.029	
7,816.62	7,710.00	8,047.96	7,700.00	24.71	37.88	-88.86	-927.04	-1,489.74	1,175.48	1,124.41	51.07	23.017	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_VARRA 18-28 PAD - P_VARRA 6-28 - P_VARRA 6-28 - PLAN #1 4-5-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-INC												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	180.00	-9.84	0.00	9.84				
100.00	100.00	100.00	100.00	0.10	1.13	180.00	-9.84	0.00	9.84	8.61	1.23	8.015	
200.00	200.00	200.00	200.00	0.32	3.44	180.00	-9.84	0.00	9.84	6.08	3.76	2.618	
300.00	300.00	300.00	300.00	0.55	5.52	180.00	-9.84	0.00	9.84	3.77	6.06	1.623	
400.00	400.00	400.00	400.00	0.77	7.56	180.00	-9.84	0.00	9.84	1.51	8.33	1.181 Level 2	
500.00	500.00	500.00	500.00	0.99	9.59	180.00	-9.84	0.00	9.84	-0.75	10.58	0.929 Level 1	
600.00	600.00	600.00	600.00	1.22	11.61	180.00	-9.84	0.00	9.84	-2.99	12.83	0.767 Level 1	
700.00	700.00	700.00	700.00	1.44	13.63	180.00	-9.84	0.00	9.84	-5.24	15.07	0.653 Level 1	
800.00	800.00	800.00	800.00	1.67	15.65	180.00	-9.84	0.00	9.84	-7.48	17.32	0.568 Level 1	
900.00	899.98	899.73	899.71	1.87	16.91	-29.27	-11.02	1.27	9.54	-8.63	18.18	0.525 Level 1	
914.24	914.21	913.92	913.89	1.89	18.03	-32.69	-11.38	1.65	9.53	-9.17	18.69	0.510 Level 1, CC	
1,000.00	999.84	999.25	999.09	2.05	26.47	-60.50	-14.57	5.05	10.78	-6.38	17.16	0.628 Level 1	
1,100.00	1,099.45	1,098.35	1,097.82	2.24	50.89	-88.90	-20.45	11.33	17.26	-9.27	26.53	0.651 Level 1	
1,200.00	1,198.70	1,196.84	1,195.57	2.47	87.45	-103.11	-28.60	20.03	29.03	-28.10	57.14	0.508 Level 1	
1,300.00	1,297.47	1,294.66	1,292.21	2.74	134.38	-109.96	-38.94	31.06	45.11	-52.13	97.24	0.464 Level 1	
1,400.00	1,395.62	1,392.78	1,388.95	3.05	185.68	-115.09	-50.14	43.02	63.73	-80.06	143.79	0.443 Level 1	
1,437.88	1,432.62	1,429.83	1,425.48	3.18	205.08	-116.94	-54.37	47.54	71.28	-91.09	162.36	0.439 Level 1	
1,500.00	1,493.21	1,490.52	1,485.32	3.41	236.88	-119.67	-61.30	54.93	83.99	-109.71	193.71	0.434 Level 1	
1,600.00	1,590.74	1,588.23	1,581.66	3.80	288.10	-122.66	-72.46	66.84	104.72	-138.53	243.25	0.431 Level 1	
1,700.00	1,688.27	1,685.94	1,678.00	4.21	339.35	-124.67	-83.62	78.75	125.64	-166.51	292.15	0.430 Level 1	
1,800.00	1,785.80	1,783.65	1,774.33	4.63	390.61	-126.10	-94.78	90.66	146.66	-194.01	340.67	0.431 Level 1	
1,900.00	1,883.33	1,881.36	1,870.67	5.06	441.89	-127.17	-105.93	102.57	167.74	-221.21	388.95	0.431 Level 1	
2,000.00	1,980.87	1,979.07	1,967.01	5.50	493.17	-128.00	-117.09	114.48	188.87	-248.21	437.08	0.432 Level 1	
2,100.00	2,078.40	2,076.78	2,063.35	5.94	544.45	-128.66	-128.25	126.39	210.03	-275.08	485.11	0.433 Level 1	
2,200.00	2,175.93	2,174.49	2,159.68	6.39	595.74	-129.21	-139.41	138.30	231.21	-301.84	533.05	0.434 Level 1	
2,300.00	2,273.46	2,272.20	2,256.02	6.85	647.03	-129.66	-150.56	150.20	252.41	-328.53	580.94	0.434 Level 1	
2,400.00	2,370.99	2,369.91	2,352.36	7.31	698.32	-130.04	-161.72	162.11	273.62	-355.17	628.79	0.435 Level 1	
2,500.00	2,468.52	2,467.62	2,448.70	7.77	749.62	-130.37	-172.88	174.02	294.84	-381.76	676.60	0.436 Level 1	
2,600.00	2,566.05	2,565.33	2,545.03	8.23	800.91	-130.65	-184.04	185.93	316.07	-408.31	724.38	0.436 Level 1	
2,700.00	2,663.58	2,663.04	2,641.37	8.69	852.21	-130.90	-195.19	197.84	337.30	-434.84	772.15	0.437 Level 1	
2,800.00	2,761.12	2,760.75	2,737.71	9.16	903.51	-131.11	-206.35	209.75	358.54	-461.35	819.89	0.437 Level 1	
2,900.00	2,858.65	2,858.46	2,834.05	9.62	954.81	-131.31	-217.51	221.66	379.79	-487.83	867.62	0.438 Level 1	
3,000.00	2,956.18	2,956.17	2,930.38	10.09	1,006.10	-131.48	-228.67	233.57	401.04	-514.30	915.34	0.438 Level 1	
3,100.00	3,053.71	3,053.88	3,026.72	10.56	1,057.40	-131.64	-239.82	245.47	422.29	-540.76	963.05	0.438 Level 1	
3,200.00	3,151.24	3,151.59	3,123.06	11.03	1,108.70	-131.78	-250.98	257.38	443.54	-567.20	1,010.75	0.439 Level 1	
3,300.00	3,248.77	3,249.30	3,219.39	11.50	1,160.00	-131.91	-262.14	269.29	464.80	-593.64	1,058.44	0.439 Level 1	
3,400.00	3,346.30	3,347.01	3,315.73	11.97	1,211.31	-132.02	-273.29	281.20	486.06	-620.06	1,106.12	0.439 Level 1	
3,500.00	3,443.83	3,444.72	3,412.07	12.45	1,262.61	-132.13	-284.45	293.11	507.32	-646.48	1,153.80	0.440 Level 1	
3,600.00	3,541.37	3,542.43	3,508.41	12.92	1,313.91	-132.23	-295.61	305.02	528.58	-672.89	1,201.47	0.440 Level 1	
3,700.00	3,638.90	3,640.14	3,604.74	13.39	1,365.21	-132.32	-306.77	316.93	549.84	-699.30	1,249.14	0.440 Level 1	
3,800.00	3,736.43	3,737.85	3,701.08	13.86	1,416.51	-132.40	-317.92	328.84	571.11	-725.70	1,296.80	0.440 Level 1	
3,900.00	3,833.96	3,835.55	3,797.42	14.34	1,467.81	-132.48	-329.08	340.74	592.37	-752.09	1,344.47	0.441 Level 1	
4,000.00	3,931.49	3,933.26	3,893.76	14.81	1,519.12	-132.55	-340.24	352.65	613.64	-778.48	1,392.12	0.441 Level 1	
4,100.00	4,029.02	4,030.97	3,990.09	15.29	1,570.42	-132.62	-351.40	364.56	634.91	-804.87	1,439.78	0.441 Level 1	
4,200.00	4,126.55	4,128.68	4,086.43	15.76	1,621.72	-132.68	-362.55	376.47	656.17	-831.26	1,487.43	0.441 Level 1	
4,300.00	4,224.08	4,226.39	4,182.77	16.24	1,673.02	-132.74	-373.71	388.38	677.44	-857.64	1,535.08	0.441 Level 1	
4,400.00	4,321.62	4,324.10	4,279.10	16.71	1,724.33	-132.80	-384.87	400.29	698.71	-884.02	1,582.73	0.441 Level 1	
4,500.00	4,419.15	4,421.81	4,375.44	17.19	1,775.63	-132.85	-396.03	412.20	719.98	-910.39	1,630.38	0.442 Level 1	
4,600.00	4,516.68	4,519.52	4,471.78	17.66	1,826.93	-132.90	-407.18	424.11	741.25	-936.77	1,678.02	0.442 Level 1	
4,700.00	4,614.21	4,617.23	4,568.12	18.14	1,878.24	-132.95	-418.34	436.01	762.52	-963.14	1,725.66	0.442 Level 1	
4,800.00	4,711.74	4,714.94	4,664.45	18.61	1,929.54	-132.99	-429.50	447.92	783.80	-989.51	1,773.30	0.442 Level 1	
4,900.00	4,809.27	4,812.65	4,760.79	19.09	1,980.84	-133.03	-440.66	459.83	805.07	-1,015.88	1,820.94	0.442 Level 1	

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_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_VARRA 18-28 PAD - P_VARRA 6-28 - P_VARRA 6-28 - PLAN #1 4-5-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-INC												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	4,906.80	4,910.36	4,857.13	19.57	2,032.15	-133.07	-451.81	471.74	826.34	-1,042.24	1,868.58	0.442	Level 1
5,100.00	5,004.34	5,008.07	4,953.47	20.04	2,083.45	-133.11	-462.97	483.65	847.61	-1,068.61	1,916.22	0.442	Level 1
5,200.00	5,101.87	5,105.78	5,049.80	20.52	2,134.75	-133.15	-474.13	495.56	868.89	-1,094.97	1,963.86	0.442	Level 1
5,300.00	5,199.40	5,203.49	5,146.14	21.00	2,186.06	-133.18	-485.28	507.47	890.16	-1,121.33	2,011.49	0.443	Level 1
5,330.74	5,229.38	5,233.52	5,175.75	21.14	2,201.83	-133.19	-488.71	511.13	896.70	-1,129.44	2,026.13	0.443	Level 1
5,400.00	5,297.11	5,301.32	5,242.59	21.41	2,237.42	-133.39	-496.46	519.39	910.87	-1,157.62	2,068.49	0.440	Level 1
5,500.00	5,395.47	5,399.56	5,339.46	21.71	2,289.01	-133.50	-507.67	531.36	929.35	-1,197.19	2,126.54	0.437	Level 1
5,600.00	5,494.40	5,509.52	5,448.11	21.97	2,341.42	-133.47	-519.17	543.64	944.97	-1,237.13	2,182.10	0.433	Level 1
5,700.00	5,593.77	5,622.50	5,560.34	22.19	2,381.73	-133.47	-528.04	553.10	956.82	-1,268.36	2,225.18	0.430	Level 1
5,800.00	5,693.48	5,736.19	5,673.71	22.37	2,408.41	-133.48	-533.90	559.36	964.85	-1,289.47	2,254.32	0.428	Level 1
5,900.00	5,793.39	5,850.31	5,787.74	22.51	2,421.27	-133.52	-536.69	562.33	969.02	-1,300.17	2,269.18	0.427	Level 1
5,968.62	5,862.00	5,924.57	5,862.00	22.60	2,423.64	64.76	-536.93	562.59	969.70	-1,302.65	2,272.35	0.427	Level 1
6,000.00	5,893.38	5,955.95	5,893.38	22.63	2,423.62	64.76	-536.93	562.59	969.70	-1,302.68	2,272.38	0.427	Level 1
6,100.00	5,993.38	6,055.95	5,993.38	22.73	2,423.59	64.76	-536.93	562.59	969.70	-1,302.76	2,272.46	0.427	Level 1
6,200.00	6,093.38	6,155.95	6,093.38	22.84	2,423.55	64.76	-536.93	562.59	969.70	-1,302.84	2,272.54	0.427	Level 1
6,300.00	6,193.38	6,255.95	6,193.38	22.94	2,423.51	64.76	-536.93	562.59	969.70	-1,302.92	2,272.62	0.427	Level 1
6,400.00	6,293.38	6,355.95	6,293.38	23.04	2,423.48	64.76	-536.93	562.59	969.70	-1,303.01	2,272.71	0.427	Level 1
6,500.00	6,393.38	6,455.95	6,393.38	23.15	2,423.45	64.76	-536.93	562.59	969.70	-1,303.10	2,272.80	0.427	Level 1
6,600.00	6,493.38	6,555.95	6,493.38	23.26	2,423.42	64.76	-536.93	562.59	969.70	-1,303.20	2,272.90	0.427	Level 1
6,700.00	6,593.38	6,655.95	6,593.38	23.37	2,423.39	64.76	-536.93	562.59	969.70	-1,303.29	2,272.99	0.427	Level 1
6,800.00	6,693.38	6,755.95	6,693.38	23.48	2,423.36	64.76	-536.93	562.59	969.70	-1,303.40	2,273.10	0.427	Level 1
6,900.00	6,793.38	6,855.95	6,793.38	23.60	2,423.33	64.76	-536.93	562.59	969.70	-1,303.50	2,273.20	0.427	Level 1
7,000.00	6,893.38	6,955.95	6,893.38	23.71	2,423.31	64.76	-536.93	562.59	969.70	-1,303.61	2,273.31	0.427	Level 1
7,100.00	6,993.38	7,055.95	6,993.38	23.83	2,423.29	64.76	-536.93	562.59	969.70	-1,303.72	2,273.42	0.427	Level 1
7,200.00	7,093.38	7,155.95	7,093.38	23.95	2,423.27	64.76	-536.93	562.59	969.70	-1,303.84	2,273.54	0.427	Level 1
7,300.00	7,193.38	7,255.95	7,193.38	24.07	2,423.25	64.76	-536.93	562.59	969.70	-1,303.95	2,273.65	0.426	Level 1
7,341.12	7,234.50	7,297.07	7,234.50	24.12	2,423.24	64.76	-536.93	562.59	969.70	-1,304.00	2,273.70	0.426	Level 1, ES, SF
7,400.00	7,293.38	7,312.57	7,250.00	24.19	2,423.24	64.76	-536.93	562.59	970.67	-1,303.11	2,273.78	0.427	Level 1
7,500.00	7,393.38	7,312.57	7,250.00	24.31	2,423.24	64.76	-536.93	562.59	980.24	-1,293.68	2,273.92	0.431	Level 1
7,600.00	7,493.38	7,312.57	7,250.00	24.44	2,423.24	64.76	-536.93	562.59	999.78	-1,274.29	2,274.07	0.440	Level 1
7,700.00	7,593.38	7,312.57	7,250.00	24.56	2,423.24	64.76	-536.93	562.59	1,028.70	-1,245.51	2,274.21	0.452	Level 1
7,800.00	7,693.38	7,312.57	7,250.00	24.69	2,423.24	64.76	-536.93	562.59	1,066.26	-1,208.10	2,274.36	0.469	Level 1
7,816.62	7,710.00	7,312.57	7,250.00	24.71	2,423.24	64.76	-536.93	562.59	1,073.27	-1,201.11	2,274.38	0.472	Level 1

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

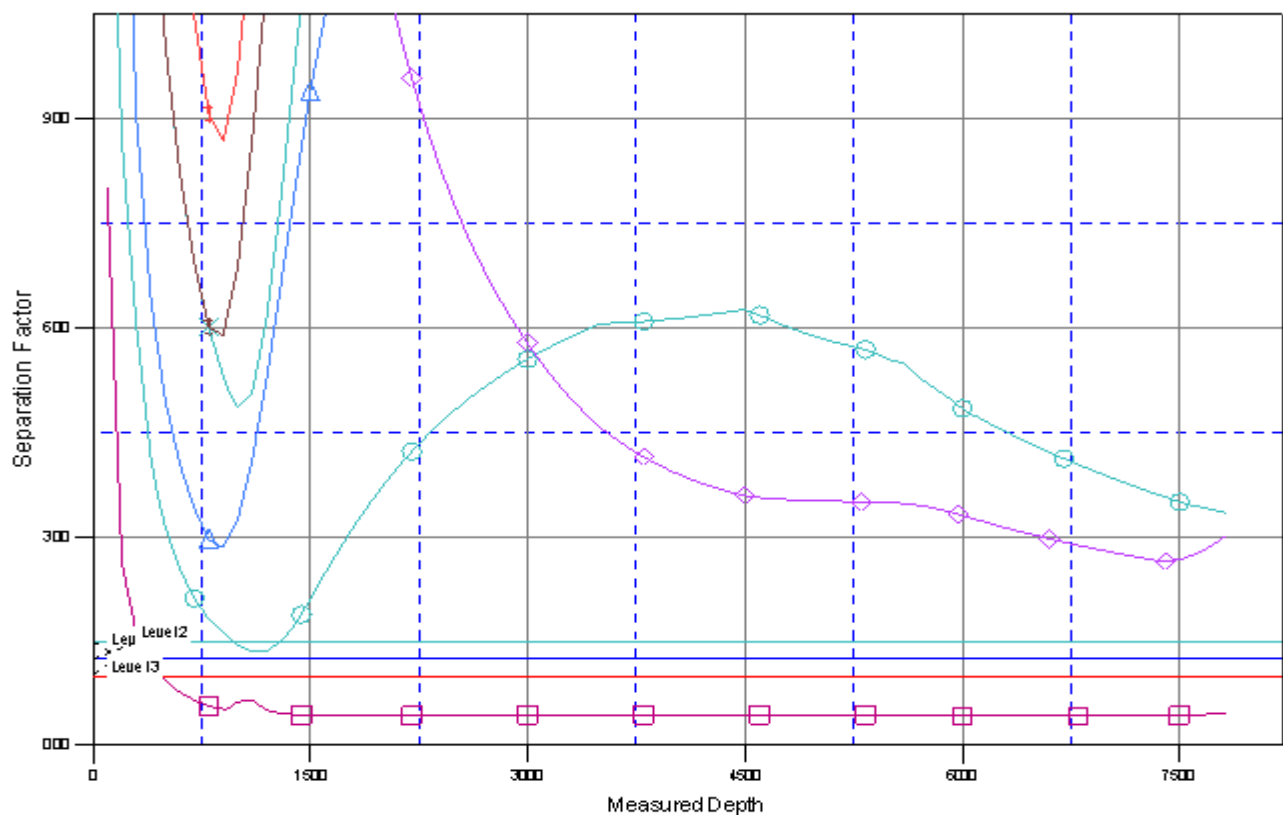
Reference Depths are relative to WELL @ 4750.00ft (Original Well Elev) Coordinates are relative to: P_VARRA 22-28
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.39°







Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VARRA 22-28
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4750.00ft (Original Well Elev)
Reference Site:	WELD_VARRA 18-28 PAD	MD Reference:	WELL @ 4750.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VARRA 22-28	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VARRA 22-28	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-5-10 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4750.00ft (Original Well Elev) Coordinates are relative to: P_VARRA 22-28
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: 0.39°

Separation Factor Plot



LEGEND

-28 EXISTING V/D  P_VARRA25-28, P_VARRA25-28, PLAN #1 4-5-10 RHS V/D  P_VARRA22-28
IG V/D  P_VARRA31-28, P_VARRA31-28, PLAN #1 4-5-10 RHS V/D
  P_VARRA32-28, P_VARRA32-28, PLAN #1 4-5-10 RHS V/D