US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83
WELD_VARRA 18-28 PAD
P_VARRA 31-28

P_VARRA 31-28

Plan: PLAN #1 4-5-10 RHS

Standard Planning Report

05 April, 2010

KerrMcGee

Weatherford

Project: COLORADO NORTHERN ZONE - 83
Site: WELD_VARRA 18-28 PAD
Well: P_VARRA 31-28
Wellbore: P_VARRA 31-28
Section: SECTION 28 T3N R67W
SHL: 1577 FNL 1571 FWL
Design: PLAN #1 4-5-10 RHS
Latitude: 40° 11' 58.887 N
Longitude: 104° 53' 55.882 W
GL: 4735.00
KB: WELL @ 4750.00ft (Original Well Elev)

T M

Azimuths to True North
Magnetic North: 9.08°

Magnetic Field
Strength: 53138.0snT
Dip Angle: 66.91°
Date: 4/5/2010
Model: IGRF2010

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3600.00	3751.20	PARKMAN
4025.00	4206.84	SUSSEX
4550.00	4769.69	SHANNON
6822.00	7082.72	NIO A
7077.00	7337.72	CODELL
7507.00	7767.72	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
1856.59	21.13	281.25	1832.80	37.58	-188.95	2.00	281.25	192.65	Start 3169.55 hold at 1856.59 MD
5026.14	21.13	281.25	4789.20	260.46	-1309.66	0.00	0.00	1335.31	Start Drop -2.00
6082.72	0.00	0.00	5822.00	298.04	-1498.61	2.00	180.00	1527.96	Start 1838.00 hold at 6082.72 MD
7920.72	0.00	0.00	7660.00	298.04	-1498.61	0.00	0.00	1527.96	TD at 7920.72

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

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
PBHL	7660.00	298.04	-1498.61	40° 12' 1.832 N	104° 54' 15.196 W	Circle (Radius: 50.00)

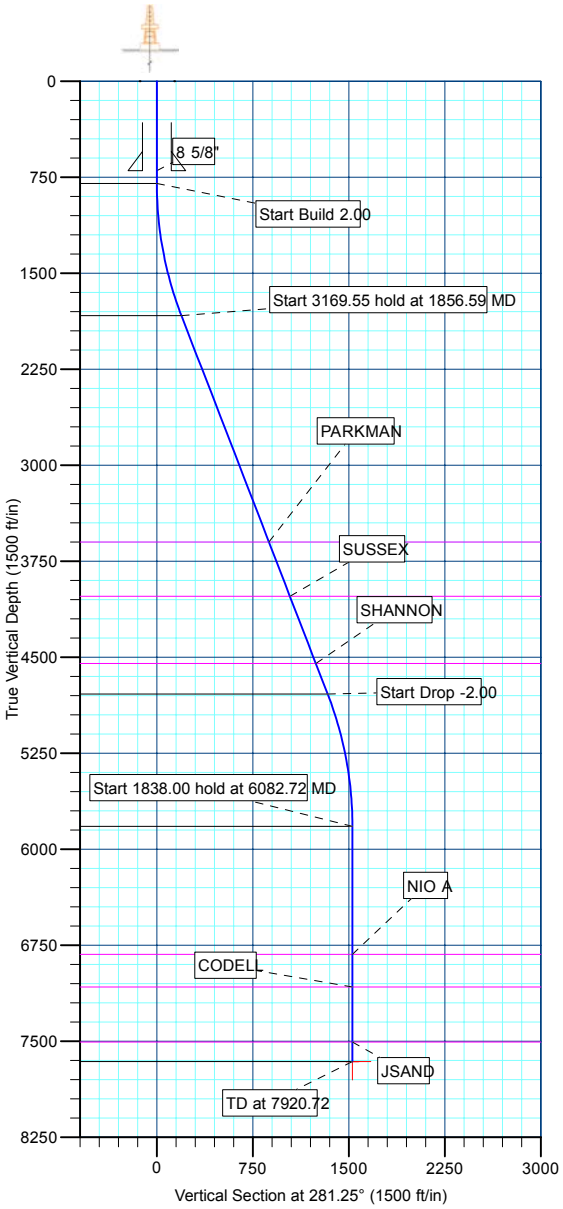
WELL DETAILS: P_VARRA 31-28

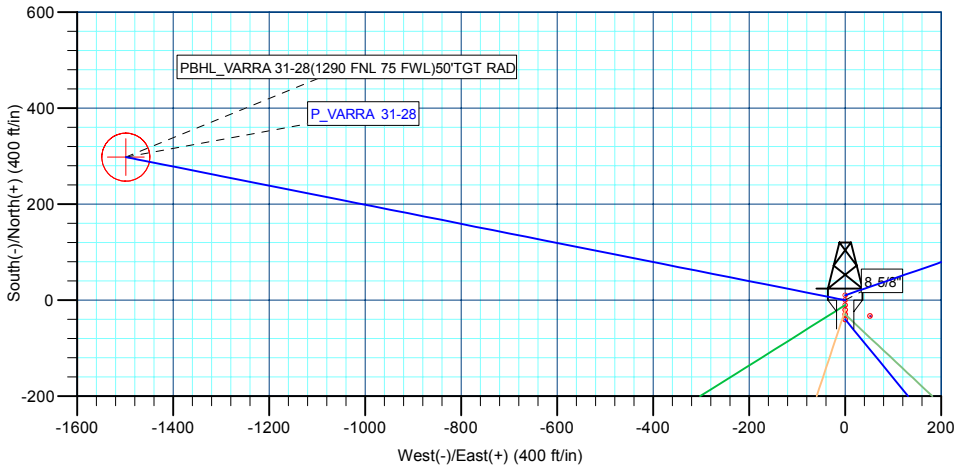
Ground Level: 4735.00

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.00	0.00	1316159.07	3167918.23	40° 11' 58.887 N	104° 53' 55.882 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 22-28, P_VARRA 22-28, PLAN #1 4-5-10 RHS V0
- P_VARRA 25-28, P_VARRA 25-28, PLAN #1 4-5-10 RHS V0
- P_VARRA 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 31-28/P_VARRA 31-28)

Created By: Robert H. Scott Date: 11:14, April 05 2010

Database:	EDM 2003.21 Single User Db	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	P_VARRA 31-28		
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:**	3,167,918.16 ft	**Longitude:**	104° 53' 55.882 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	in	**Grid Convergence:**	0.39 °

Well P_VARRA 31-28

Well Position	**+N/-S**	-10.21 ft	**Northing:**	1,316,159.07 ft	**Latitude:**	40° 11' 58.887 N
	+E/-W	0.00 ft	**Easting:**	3,167,918.23 ft	**Longitude:**	104° 53' 55.882 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,735.00 ft

Wellbore P_VARRA 31-28

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	281.25

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	
1,856.59	21.13	281.25	1,832.80	37.58	-188.95	2.00	2.00	0.00	281.25	
5,026.14	21.13	281.25	4,789.20	260.46	-1,309.66	0.00	0.00	0.00	0.00	
6,082.72	0.00	0.00	5,822.00	298.04	-1,498.61	2.00	-2.00	0.00	180.00	
7,920.72	0.00	0.00	7,660.00	298.04	-1,498.61	0.00	0.00	0.00	0.00	PBHL_VARRA 31-2

Database:	EDM 2003.21 Single User Db	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	P_VARRA 31-28		
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	281.25	899.98	0.34	-1.71	1.75	2.00	2.00	0.00
1,000.00	4.00	281.25	999.84	1.36	-6.84	6.98	2.00	2.00	0.00
1,100.00	6.00	281.25	1,099.45	3.06	-15.39	15.69	2.00	2.00	0.00
1,200.00	8.00	281.25	1,198.70	5.44	-27.34	27.88	2.00	2.00	0.00
1,300.00	10.00	281.25	1,297.47	8.49	-42.69	43.52	2.00	2.00	0.00
1,400.00	12.00	281.25	1,395.62	12.21	-61.40	62.60	2.00	2.00	0.00
1,500.00	14.00	281.25	1,493.06	16.60	-83.46	85.10	2.00	2.00	0.00
1,600.00	16.00	281.25	1,589.64	21.65	-108.85	110.98	2.00	2.00	0.00
1,700.00	18.00	281.25	1,685.27	27.35	-137.52	140.21	2.00	2.00	0.00
1,800.00	20.00	281.25	1,779.82	33.70	-169.45	172.77	2.00	2.00	0.00
Start 3169.55 hold at 1856.59 MD									
1,856.59	21.13	281.25	1,832.80	37.58	-188.95	192.65	2.00	2.00	0.00
1,900.00	21.13	281.25	1,873.29	40.63	-204.30	208.30	0.00	0.00	0.00
2,000.00	21.13	281.25	1,966.56	47.66	-239.65	244.35	0.00	0.00	0.00
2,100.00	21.13	281.25	2,059.84	54.69	-275.01	280.40	0.00	0.00	0.00
2,200.00	21.13	281.25	2,153.12	61.73	-310.37	316.45	0.00	0.00	0.00
2,300.00	21.13	281.25	2,246.39	68.76	-345.73	352.50	0.00	0.00	0.00
2,400.00	21.13	281.25	2,339.67	75.79	-381.09	388.55	0.00	0.00	0.00
2,500.00	21.13	281.25	2,432.94	82.82	-416.45	424.60	0.00	0.00	0.00
2,600.00	21.13	281.25	2,526.22	89.85	-451.81	460.66	0.00	0.00	0.00
2,700.00	21.13	281.25	2,619.49	96.89	-487.17	496.71	0.00	0.00	0.00
2,800.00	21.13	281.25	2,712.77	103.92	-522.53	532.76	0.00	0.00	0.00
2,900.00	21.13	281.25	2,806.04	110.95	-557.88	568.81	0.00	0.00	0.00
3,000.00	21.13	281.25	2,899.32	117.98	-593.24	604.86	0.00	0.00	0.00
3,100.00	21.13	281.25	2,992.59	125.01	-628.60	640.91	0.00	0.00	0.00
3,200.00	21.13	281.25	3,085.87	132.05	-663.96	676.96	0.00	0.00	0.00
3,300.00	21.13	281.25	3,179.14	139.08	-699.32	713.02	0.00	0.00	0.00
3,400.00	21.13	281.25	3,272.42	146.11	-734.68	749.07	0.00	0.00	0.00
3,500.00	21.13	281.25	3,365.70	153.14	-770.04	785.12	0.00	0.00	0.00
3,600.00	21.13	281.25	3,458.97	160.17	-805.40	821.17	0.00	0.00	0.00
3,700.00	21.13	281.25	3,552.25	167.21	-840.76	857.22	0.00	0.00	0.00
PARKMAN									
3,751.20	21.13	281.25	3,600.00	170.81	-858.86	875.68	0.00	0.00	0.00
3,800.00	21.13	281.25	3,645.52	174.24	-876.11	893.27	0.00	0.00	0.00
3,900.00	21.13	281.25	3,738.80	181.27	-911.47	929.32	0.00	0.00	0.00
4,000.00	21.13	281.25	3,832.07	188.30	-946.83	965.38	0.00	0.00	0.00
4,100.00	21.13	281.25	3,925.35	195.33	-982.19	1,001.43	0.00	0.00	0.00
4,200.00	21.13	281.25	4,018.62	202.37	-1,017.55	1,037.48	0.00	0.00	0.00
SUSSEX									
4,206.84	21.13	281.25	4,025.00	202.85	-1,019.97	1,039.94	0.00	0.00	0.00
4,300.00	21.13	281.25	4,111.90	209.40	-1,052.91	1,073.53	0.00	0.00	0.00
4,400.00	21.13	281.25	4,205.17	216.43	-1,088.27	1,109.58	0.00	0.00	0.00
4,500.00	21.13	281.25	4,298.45	223.46	-1,123.63	1,145.63	0.00	0.00	0.00
4,600.00	21.13	281.25	4,391.72	230.49	-1,158.99	1,181.68	0.00	0.00	0.00
4,700.00	21.13	281.25	4,485.00	237.53	-1,194.34	1,217.73	0.00	0.00	0.00
SHANNON									
4,769.69	21.13	281.25	4,550.00	242.43	-1,218.98	1,242.86	0.00	0.00	0.00
4,800.00	21.13	281.25	4,578.28	244.56	-1,229.70	1,253.79	0.00	0.00	0.00
4,900.00	21.13	281.25	4,671.55	251.59	-1,265.06	1,289.84	0.00	0.00	0.00
5,000.00	21.13	281.25	4,764.83	258.62	-1,300.42	1,325.89	0.00	0.00	0.00
Start Drop -2.00									

Database:	EDM 2003.21 Single User Db	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	P_VARRA 31-28		
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)
5,026.14	21.13	281.25	4,789.20	260.46	-1,309.66	1,335.31	0.00	0.00	0.00
5,100.00	19.65	281.25	4,858.44	265.48	-1,334.91	1,361.05	2.00	-2.00	0.00
5,200.00	17.65	281.25	4,953.18	271.72	-1,366.28	1,393.03	2.00	-2.00	0.00
5,300.00	15.65	281.25	5,048.98	277.31	-1,394.38	1,421.69	2.00	-2.00	0.00
5,400.00	13.65	281.25	5,145.72	282.24	-1,419.20	1,446.99	2.00	-2.00	0.00
5,500.00	11.65	281.25	5,243.29	286.52	-1,440.68	1,468.90	2.00	-2.00	0.00
5,600.00	9.65	281.25	5,341.56	290.12	-1,458.81	1,487.38	2.00	-2.00	0.00
5,700.00	7.65	281.25	5,440.41	293.06	-1,473.57	1,502.43	2.00	-2.00	0.00
5,800.00	5.65	281.25	5,539.74	295.32	-1,484.94	1,514.02	2.00	-2.00	0.00
5,900.00	3.65	281.25	5,639.40	296.90	-1,492.89	1,522.13	2.00	-2.00	0.00
6,000.00	1.65	281.25	5,739.29	297.80	-1,497.44	1,526.76	2.00	-2.00	0.00
Start 1838.00 hold at 6082.72 MD									
6,082.72	0.00	0.00	5,822.00	298.04	-1,498.61	1,527.96	2.00	-2.00	0.00
6,100.00	0.00	0.00	5,839.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
6,200.00	0.00	0.00	5,939.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
6,300.00	0.00	0.00	6,039.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
6,400.00	0.00	0.00	6,139.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
6,500.00	0.00	0.00	6,239.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
6,600.00	0.00	0.00	6,339.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
6,700.00	0.00	0.00	6,439.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
6,800.00	0.00	0.00	6,539.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
6,900.00	0.00	0.00	6,639.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
7,000.00	0.00	0.00	6,739.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
NIO A									
7,082.72	0.00	0.00	6,822.00	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
7,100.00	0.00	0.00	6,839.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
7,200.00	0.00	0.00	6,939.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
7,300.00	0.00	0.00	7,039.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
CODELL									
7,337.72	0.00	0.00	7,077.00	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
7,400.00	0.00	0.00	7,139.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
7,500.00	0.00	0.00	7,239.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
7,600.00	0.00	0.00	7,339.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
7,700.00	0.00	0.00	7,439.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
JSAND									
7,767.72	0.00	0.00	7,507.00	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
7,800.00	0.00	0.00	7,539.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
7,900.00	0.00	0.00	7,639.28	298.04	-1,498.61	1,527.96	0.00	0.00	0.00
PBHL_VARRA 31-28(1290 FNL 75 FWL)50'TGT RAD									
7,920.72	0.00	0.00	7,660.00	298.04	-1,498.61	1,527.96	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL_VARRA 31-28(	0.00	0.00	7,660.00	298.04	-1,498.61	1,316,446.94	3,166,417.63	40° 12' 1.832 N	104° 54' 15.196 W
- plan hits target center									
- Circle (radius 50.00)									

Database:	EDM 2003.21 Single User Db	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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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 31-28	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	P_VARRA 31-28		
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 (°)
3,751.20	3,600.00	PARKMAN			
4,206.84	4,025.00	SUSSEX			
4,769.69	4,550.00	SHANNON			
7,082.72	6,822.00	NIO A			
7,337.72	7,077.00	CODELL			
7,767.72	7,507.00	JSAND			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
800.00	800.00	0.00	0.00	Start Build 2.00
1,856.59	1,832.80	37.58	-188.95	Start 3169.55 hold at 1856.59 MD
5,026.14	4,789.20	260.46	-1,309.66	Start Drop -2.00
6,082.72	5,822.00	298.04	-1,498.61	Start 1838.00 hold at 6082.72 MD
7,920.72	7,660.00	298.04	-1,498.61	TD at 7920.72

KerrMcGee

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83
WELD_VARRA 18-28 PAD
P_VARRA 31-28

P_VARRA 31-28
PLAN #1 4-5-10 RHS

Anticollision Report

05 April, 2010

Weatherford®

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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	7,920.72	PLAN #1 4-5-10 RHS (P_VARRA 31-28)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
WELD_VARRA 18-28 PAD						
HSR-MCGREGOR #6-28 EXISTING - HSR-MCGREGOI	443.42	482.43	61.55	52.42	6.736	CC
HSR-MCGREGOR #6-28 EXISTING - HSR-MCGREGOI	900.00	938.98	63.55	33.55	2.119	ES
HSR-MCGREGOR #6-28 EXISTING - HSR-MCGREGOI	1,100.00	1,138.48	76.82	38.67	2.014	SF
HSR-SHERRY #5-28 EXISTING - HSR-SHERRY #5-28 I	3,579.51	3,483.12	596.76	501.35	6.255	CC
HSR-SHERRY #5-28 EXISTING - HSR-SHERRY #5-28 I	3,600.00	3,503.55	596.80	501.32	6.251	ES
HSR-SHERRY #5-28 EXISTING - HSR-SHERRY #5-28 I	7,520.97	7,309.71	930.70	651.88	3.338	SF
P_VARRA 21-28 - P_VARRA 21-28 - PLAN #1 4-5-10 RI	800.00	800.00	10.21	6.87	3.058	CC
P_VARRA 21-28 - P_VARRA 21-28 - PLAN #1 4-5-10 RI	809.82	809.81	10.21	6.83	3.021	ES
P_VARRA 21-28 - P_VARRA 21-28 - PLAN #1 4-5-10 RI	900.00	899.77	10.96	7.19	2.909	SF
P_VARRA 22-28 - P_VARRA 22-28 - PLAN #1 4-5-10 RI	800.00	800.00	20.05	16.71	6.006	CC, ES
P_VARRA 22-28 - P_VARRA 22-28 - PLAN #1 4-5-10 RI	900.00	899.29	22.08	18.33	5.889	SF
P_VARRA 25-28 - P_VARRA 25-28 - PLAN #1 4-5-10 RI	800.00	800.00	40.08	36.74	12.008	CC, ES
P_VARRA 25-28 - P_VARRA 25-28 - PLAN #1 4-5-10 RI	900.00	898.82	41.87	38.12	11.163	SF
P_VARRA 32-28 - P_VARRA 32-28 - PLAN #1 4-5-10 RI	800.00	800.00	10.20	6.86	3.055	CC, ES
P_VARRA 32-28 - P_VARRA 32-28 - PLAN #1 4-5-10 RI	900.00	899.79	11.47	7.71	3.052	SF
P_VARRA 6-28 - P_VARRA 6-28 - PLAN #1 4-5-10 RHS	800.00	800.00	29.88	12.57	1.726	CC, ES, SF

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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	38.84	38.83	0.00	0.95	122.73	-33.39	51.96	61.76				
100.00	100.00	138.97	138.96	0.10	3.40	122.97	-33.70	51.96	61.93	59.70	2.23	27.813	
200.00	200.00	239.09	239.09	0.32	5.86	122.91	-33.63	51.96	61.89	57.90	3.98	15.533	
300.00	300.00	339.20	339.20	0.55	8.31	122.55	-33.17	51.96	61.64	55.92	5.72	10.770	
400.00	400.00	439.03	439.02	0.77	12.15	122.44	-33.02	51.96	61.56	53.46	8.10	7.600	
443.42	443.42	482.43	482.42	0.87	13.82	122.43	-33.01	51.96	61.55	52.42	9.14	6.736	CC
500.00	500.00	538.99	538.97	0.99	16.00	122.45	-33.03	51.96	61.57	51.07	10.50	5.866	
600.00	600.00	638.96	638.93	1.22	19.87	122.57	-33.19	51.96	61.65	48.72	12.93	4.767	
700.00	700.00	738.97	738.94	1.44	23.84	122.73	-33.39	51.96	61.76	46.23	15.53	3.977	
800.00	800.00	838.99	838.96	1.67	27.80	122.86	-33.56	51.96	61.85	43.72	18.13	3.411	
900.00	899.98	938.98	938.95	1.88	31.76	-158.85	-33.70	51.96	63.55	33.55	30.00	2.119	ES
1,000.00	999.84	1,038.85	1,038.82	2.10	35.71	-160.32	-33.81	51.96	68.52	34.52	34.00	2.015	

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

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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 EXISTINC

Offset Site Error: 0.00 ft

Survey Program: 340-INC

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,100.00	1,099.45	1,138.48	1,138.44	2.32	39.66	-162.41	-33.89	51.96	76.82	38.67	38.15	2.014	SF
1,200.00	1,198.70	1,237.74	1,237.70	2.58	43.59	-164.70	-33.94	51.96	88.54	46.21	42.33	2.092	
1,300.00	1,297.47	1,336.51	1,336.47	2.86	47.51	-166.90	-33.96	51.96	103.73	57.27	46.45	2.233	
1,400.00	1,395.62	1,434.68	1,434.64	3.19	51.39	-168.85	-33.95	51.96	122.39	71.96	50.43	2.427	
1,500.00	1,493.06	1,532.13	1,532.08	3.57	55.25	-170.52	-33.91	51.96	144.53	90.29	54.24	2.665	
1,600.00	1,589.64	1,628.73	1,628.69	4.01	59.08	-171.90	-33.85	51.96	170.11	112.25	57.85	2.940	
1,700.00	1,685.27	1,724.37	1,724.33	4.51	62.87	-173.04	-33.75	51.96	199.08	137.82	61.26	3.250	
1,800.00	1,779.82	1,818.94	1,818.90	5.09	66.61	-173.97	-33.64	51.96	231.42	166.97	64.45	3.591	
1,856.59	1,832.80	1,871.93	1,871.89	5.45	68.71	-174.42	-33.56	51.96	251.18	185.03	66.16	3.797	
1,900.00	1,873.29	1,912.44	1,912.39	5.73	70.32	-174.77	-33.49	51.96	266.76	198.94	67.82	3.933	
2,000.00	1,966.56	2,005.74	2,005.69	6.41	74.01	-175.42	-33.32	51.96	302.65	231.03	71.62	4.226	
2,100.00	2,059.84	2,099.14	2,099.03	7.10	77.72	-175.94	-33.13	51.96	338.56	263.15	75.41	4.489	
2,200.00	2,153.12	2,192.40	2,192.29	7.81	81.42	-176.36	-32.94	51.96	374.49	295.30	79.19	4.729	
2,300.00	2,246.39	2,285.66	2,285.54	8.52	85.12	-176.70	-32.78	51.96	410.45	327.48	82.96	4.947	
2,400.00	2,339.67	2,378.92	2,378.79	9.24	88.83	-176.99	-32.65	51.96	446.42	359.69	86.73	5.147	
2,500.00	2,432.94	2,472.17	2,472.05	9.97	92.53	-177.23	-32.55	51.96	482.40	391.92	90.49	5.331	
2,600.00	2,526.22	2,565.42	2,565.29	10.70	96.23	-177.43	-32.47	51.96	518.40	424.16	94.24	5.501	
2,700.00	2,619.49	2,658.66	2,658.54	11.44	99.94	-177.60	-32.41	51.96	554.41	456.41	98.00	5.657	
2,800.00	2,712.77	2,751.91	2,751.78	12.18	103.64	-177.75	-32.39	51.96	590.43	488.68	101.75	5.803	
2,900.00	2,806.04	2,845.15	2,845.01	12.92	107.34	-177.88	-32.39	51.96	626.46	520.96	105.50	5.938	
3,000.00	2,899.32	2,938.39	2,938.25	13.66	111.05	-177.99	-32.42	51.96	662.50	553.25	109.24	6.064	
3,100.00	2,992.59	3,031.62	3,031.48	14.40	114.75	-178.09	-32.47	51.96	698.54	585.55	112.99	6.182	
3,200.00	3,085.87	3,124.85	3,124.71	15.15	118.45	-178.18	-32.55	51.96	734.59	617.86	116.73	6.293	
3,300.00	3,179.14	3,218.08	3,217.93	15.90	122.15	-178.25	-32.66	51.96	770.65	650.18	120.48	6.397	
3,400.00	3,272.42	3,311.30	3,311.16	16.65	125.86	-178.32	-32.79	51.96	806.72	682.50	124.22	6.494	
3,500.00	3,365.70	3,404.53	3,404.37	17.40	129.56	-178.38	-32.95	51.96	842.80	714.83	127.96	6.586	
3,600.00	3,458.97	3,497.74	3,497.59	18.15	133.26	-178.44	-33.14	51.96	878.88	747.17	131.70	6.673	
3,700.00	3,552.25	3,588.93	3,588.71	18.90	139.77	-178.42	-34.27	51.96	915.17	777.21	137.96	6.634	
3,800.00	3,645.52	3,682.76	3,682.53	19.65	146.92	-178.42	-35.34	51.96	951.44	806.64	144.80	6.571	
3,900.00	3,738.80	3,776.62	3,776.38	20.40	154.08	-178.43	-36.13	51.96	987.66	836.00	151.65	6.513	
4,000.00	3,832.07	3,870.50	3,870.26	21.15	161.24	-178.45	-36.66	51.96	1,023.81	865.30	158.51	6.459	
4,100.00	3,925.35	3,964.40	3,964.16	21.91	168.40	-178.49	-36.91	51.96	1,059.91	894.52	165.39	6.409	
4,200.00	4,018.62	4,058.32	4,058.09	22.66	175.56	-178.54	-36.89	51.96	1,095.94	923.67	172.27	6.362	
4,300.00	4,111.90	4,152.26	4,152.03	23.42	182.73	-178.60	-36.60	51.96	1,131.92	952.76	179.16	6.318	
4,400.00	4,205.17	4,246.22	4,246.00	24.17	189.89	-178.67	-36.03	51.96	1,167.84	981.78	186.06	6.277	
4,500.00	4,298.45	4,340.20	4,339.97	24.93	197.06	-178.76	-35.19	51.96	1,203.70	1,010.73	192.97	6.238	
4,600.00	4,391.72	4,434.18	4,433.97	25.68	204.23	-178.85	-34.08	51.96	1,239.51	1,039.62	199.90	6.201	
4,700.00	4,485.00	4,521.74	4,521.21	26.44	212.70	-178.91	-33.40	51.96	1,275.41	1,067.43	207.99	6.132	
4,800.00	4,578.28	4,615.63	4,615.06	27.19	227.26	-178.90	-34.28	51.96	1,311.64	1,090.07	221.57	5.920	
4,900.00	4,671.55	4,709.52	4,708.91	27.95	241.83	-178.90	-34.97	51.96	1,347.83	1,112.67	235.16	5.731	
5,000.00	4,764.83	4,803.41	4,802.77	28.70	256.39	-178.91	-35.46	51.96	1,383.98	1,135.22	248.77	5.563	
5,026.14	4,789.20	4,827.95	4,827.30	28.90	260.20	-178.91	-35.56	51.96	1,393.43	1,141.10	252.32	5.522	
5,100.00	4,858.44	4,897.63	4,896.96	29.38	271.01	-178.93	-35.76	51.96	1,419.20	1,154.47	264.73	5.361	
5,200.00	4,953.18	4,992.99	4,992.30	29.91	285.80	-178.96	-35.87	51.96	1,451.20	1,169.48	281.73	5.151	
5,300.00	5,048.98	5,089.41	5,088.69	30.39	300.76	-179.00	-35.77	51.96	1,479.84	1,180.95	298.89	4.951	
5,400.00	5,145.72	5,186.76	5,186.02	30.82	315.86	-179.03	-35.47	51.96	1,505.07	1,188.98	316.09	4.762	
5,500.00	5,243.29	5,284.92	5,284.17	31.20	331.08	-179.08	-34.95	51.96	1,526.86	1,193.60	333.26	4.582	
5,600.00	5,341.56	5,383.76	5,383.00	31.52	346.42	-179.12	-34.21	51.96	1,545.19	1,194.86	350.33	4.411	
5,700.00	5,440.41	5,493.00	5,491.21	31.80	363.36	-179.17	-33.16	51.96	1,560.06	1,191.34	368.72	4.231	
5,800.00	5,539.74	5,581.90	5,580.06	32.03	378.47	-179.20	-32.69	51.96	1,571.50	1,186.53	384.97	4.082	
5,900.00	5,639.40	5,680.75	5,678.85	32.20	395.27	-179.21	-32.40	51.96	1,579.56	1,177.07	402.48	3.925	
6,000.00	5,739.29	5,779.86	5,777.90	32.34	412.11	-179.22	-32.38	51.96	1,584.18	1,164.59	419.59	3.776	

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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 EXISTINC

Offset Site Error: 0.00 ft

Survey Program: 340-INC

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,082.72	5,822.00	5,861.96	5,859.95	32.41	426.07	102.04	-32.56	51.96	1,585.42	1,152.03	433.39	3.658	
6,100.00	5,839.28	5,879.12	5,877.09	32.42	428.98	102.04	-32.62	51.96	1,585.43	1,149.17	436.26	3.634	
6,200.00	5,939.28	5,985.00	5,982.47	32.51	446.98	102.06	-33.16	51.96	1,585.55	1,131.56	453.99	3.493	
6,300.00	6,039.28	6,082.67	6,080.11	32.60	459.81	102.04	-32.56	51.96	1,585.42	1,118.68	466.74	3.397	
6,400.00	6,139.28	6,182.38	6,179.79	32.69	472.92	102.02	-32.04	51.96	1,585.31	1,105.56	479.75	3.304	
6,500.00	6,239.28	6,282.10	6,279.47	32.78	486.03	102.00	-31.60	51.96	1,585.22	1,092.45	492.77	3.217	
6,600.00	6,339.28	6,381.83	6,379.17	32.87	499.14	101.99	-31.25	51.96	1,585.14	1,079.36	505.78	3.134	
6,700.00	6,439.28	6,481.57	6,478.88	32.96	512.25	101.98	-30.98	51.96	1,585.09	1,066.30	518.79	3.055	
6,800.00	6,539.28	6,581.33	6,578.60	33.06	525.36	101.97	-30.80	51.96	1,585.05	1,053.25	531.80	2.981	
6,900.00	6,639.28	6,681.10	6,678.34	33.15	538.48	101.97	-30.70	51.96	1,585.03	1,040.22	544.81	2.909	
6,966.28	6,705.55	6,747.23	6,744.44	33.22	547.17	101.97	-30.68	51.96	1,585.03	1,031.60	553.43	2.864	
7,000.00	6,739.28	6,780.88	6,778.08	33.25	551.59	101.97	-30.69	51.96	1,585.03	1,027.21	557.82	2.841	
7,100.00	6,839.28	6,880.67	6,877.83	33.35	564.71	101.97	-30.77	51.96	1,585.04	1,014.22	570.82	2.777	
7,200.00	6,939.28	6,980.47	6,977.60	33.45	577.83	101.98	-30.93	51.96	1,585.08	1,001.26	583.82	2.715	
7,300.00	7,039.28	7,080.29	7,077.37	33.55	590.95	101.99	-31.17	51.96	1,585.13	988.31	596.82	2.656	
7,400.00	7,139.28	7,180.12	7,177.15	33.65	604.07	102.00	-31.51	51.96	1,585.20	975.39	609.81	2.600	
7,500.00	7,239.28	7,279.95	7,276.95	33.75	617.20	102.01	-31.93	51.96	1,585.28	962.49	622.80	2.545	
7,600.00	7,339.28	7,379.80	7,376.75	33.86	630.32	102.03	-32.43	51.96	1,585.39	949.61	635.78	2.494	
7,700.00	7,439.28	7,479.66	7,476.56	33.96	643.45	102.05	-33.02	51.96	1,585.51	936.76	648.75	2.444	
7,800.00	7,539.28	7,583.04	7,579.18	34.07	653.78	102.04	-32.78	51.96	1,585.46	926.40	659.06	2.406	
7,860.81	7,600.08	7,642.94	7,639.07	34.13	659.25	102.04	-32.70	51.96	1,585.45	920.91	664.53	2.386	
7,900.00	7,639.28	7,681.56	7,677.68	34.18	662.77	102.04	-32.74	51.96	1,585.45	917.40	668.05	2.373	
7,920.72	7,660.00	7,701.98	7,698.10	34.20	664.64	102.04	-32.78	51.96	1,585.46	915.55	669.91	2.367	

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	41.38	41.38	0.00	0.79	-115.01	-426.73	-914.55	1,009.21				
100.00	100.00	141.96	141.95	0.10	2.71	-115.03	-427.05	-914.55	1,009.35	1,007.04	2.31	437.192	
200.00	200.00	242.53	242.53	0.32	4.63	-115.04	-427.23	-914.55	1,009.42	1,005.32	4.10	246.104	
300.00	300.00	343.11	343.11	0.55	6.56	-115.04	-427.27	-914.55	1,009.44	1,003.55	5.89	171.253	
400.00	400.00	443.68	443.68	0.77	8.48	-115.04	-427.18	-914.55	1,009.40	1,001.71	7.69	131.313	
500.00	500.00	544.25	544.25	0.99	10.40	-115.03	-426.95	-914.55	1,009.31	999.83	9.48	106.478	
600.00	600.00	644.82	644.82	1.22	12.32	-115.01	-426.59	-914.55	1,009.15	997.88	11.27	89.541	
616.77	616.77	658.86	658.85	1.26	12.79	-115.01	-426.58	-914.55	1,009.15	997.49	11.66	86.545	
700.00	700.00	742.29	742.27	1.44	16.23	-115.01	-426.74	-914.55	1,009.22	994.81	14.41	70.044	
800.00	800.00	842.51	842.50	1.67	20.37	-115.02	-426.89	-914.55	1,009.28	991.56	17.71	56.975	
900.00	899.98	942.71	942.70	1.88	24.51	-36.35	-426.98	-914.55	1,007.91	982.90	25.01	40.297	
1,000.00	999.84	1,042.79	1,042.77	2.10	28.64	-36.58	-427.02	-914.55	1,003.72	974.70	29.02	34.591	
1,100.00	1,099.45	1,142.62	1,142.60	2.32	32.76	-36.96	-427.02	-914.55	996.72	963.78	32.95	30.253	
1,200.00	1,198.70	1,242.09	1,242.07	2.58	36.87	-37.50	-426.96	-914.55	986.97	950.19	36.78	26.834	
1,300.00	1,297.47	1,341.07	1,341.05	2.86	40.95	-38.21	-426.85	-914.55	974.51	934.01	40.50	24.063	
1,400.00	1,395.62	1,439.45	1,439.43	3.19	45.01	-39.10	-426.69	-914.55	959.43	915.34	44.09	21.763	
1,500.00	1,493.06	1,535.20	1,535.14	3.57	49.36	-40.16	-426.64	-914.55	941.90	894.13	47.77	19.716	
1,600.00	1,589.64	1,631.91	1,631.84	4.01	54.43	-41.46	-426.83	-914.55	922.11	870.24	51.87	17.776	
1,700.00	1,685.27	1,727.66	1,727.59	4.51	59.46	-42.98	-426.98	-914.55	900.11	844.38	55.73	16.151	
1,800.00	1,779.82	1,822.33	1,822.26	5.09	64.43	-44.75	-427.12	-914.55	876.09	816.76	59.33	14.767	
1,856.59	1,832.80	1,875.38	1,875.30	5.45	67.21	-45.87	-427.18	-914.55	861.69	800.46	61.23	14.072	
1,900.00	1,873.29	1,915.93	1,915.85	5.73	69.34	-46.61	-427.22	-914.55	850.50	787.56	62.94	13.513	
2,000.00	1,966.56	2,009.33	2,009.25	6.41	74.24	-48.36	-427.30	-914.55	825.27	758.51	66.77	12.360	
2,100.00	2,059.84	2,102.73	2,102.65	7.10	79.14	-50.22	-427.35	-914.55	800.86	730.42	70.44	11.369	
2,200.00	2,153.12	2,196.14	2,196.05	7.81	84.04	-52.19	-427.38	-914.55	777.34	703.40	73.94	10.514	
2,300.00	2,246.39	2,289.54	2,289.46	8.52	88.94	-54.26	-427.38	-914.55	754.79	677.57	77.22	9.774	
2,400.00	2,339.67	2,382.96	2,382.87	9.24	93.84	-56.44	-427.36	-914.55	733.31	653.03	80.28	9.135	
2,500.00	2,432.94	2,476.37	2,476.28	9.97	98.75	-58.74	-427.31	-914.55	712.98	629.91	83.07	8.582	
2,600.00	2,526.22	2,569.79	2,569.69	10.70	103.65	-61.15	-427.23	-914.55	693.91	608.32	85.59	8.107	
2,700.00	2,619.49	2,663.20	2,663.11	11.44	108.55	-63.68	-427.13	-914.55	676.21	588.39	87.81	7.700	
2,800.00	2,712.77	2,756.63	2,756.53	12.18	113.45	-66.33	-427.01	-914.55	659.98	570.25	89.73	7.356	
2,900.00	2,806.04	2,850.05	2,849.95	12.92	118.35	-69.09	-426.86	-914.55	645.33	554.01	91.32	7.066	
3,000.00	2,899.32	2,943.48	2,943.37	13.66	123.26	-71.95	-426.68	-914.55	632.38	539.76	92.62	6.828	
3,100.00	2,992.59	3,035.83	3,035.59	14.40	128.27	-74.88	-426.56	-914.55	621.29	527.69	93.60	6.637	
3,200.00	3,085.87	3,129.11	3,128.87	15.15	133.61	-77.93	-426.56	-914.55	612.24	517.99	94.26	6.495	
3,300.00	3,179.14	3,222.39	3,222.14	15.90	138.95	-81.05	-426.56	-914.55	605.21	510.54	94.66	6.393	
3,400.00	3,272.42	3,315.67	3,315.42	16.65	144.29	-84.22	-426.56	-914.55	600.26	505.34	94.92	6.324	
3,500.00	3,365.70	3,408.95	3,408.70	17.40	149.62	-87.43	-426.56	-914.55	597.45	502.30	95.15	6.279	
3,579.51	3,439.86	3,483.12	3,482.86	17.99	153.87	-90.00	-426.56	-914.55	596.76	501.35	95.41	6.255	CC
3,600.00	3,458.97	3,503.55	3,503.24	18.15	155.02	-90.71	-426.56	-914.55	596.80	501.32	95.48	6.251	ES
3,700.00	3,552.25	3,596.60	3,596.29	18.90	159.78	-93.92	-426.37	-914.55	598.15	502.12	96.03	6.229	
3,800.00	3,645.52	3,689.65	3,689.33	19.65	164.54	-97.11	-426.23	-914.55	601.70	504.67	97.02	6.202	
3,900.00	3,738.80	3,782.69	3,782.36	20.40	169.30	-100.26	-426.12	-914.55	607.40	508.81	98.59	6.161	
4,000.00	3,832.07	3,875.72	3,875.39	21.15	174.05	-103.34	-426.05	-914.55	615.20	514.40	100.81	6.103	
4,100.00	3,925.35	3,968.76	3,968.42	21.91	178.81	-106.35	-426.02	-914.55	625.03	521.31	103.71	6.026	
4,200.00	4,018.62	4,061.79	4,061.45	22.66	183.57	-109.27	-426.03	-914.55	636.78	529.47	107.30	5.934	
4,300.00	4,111.90	4,154.81	4,154.47	23.42	188.33	-112.09	-426.07	-914.55	650.36	538.83	111.53	5.831	
4,400.00	4,205.17	4,247.83	4,247.49	24.17	193.09	-114.80	-426.15	-914.55	665.65	549.35	116.30	5.723	
4,500.00	4,298.45	4,340.85	4,340.50	24.93	197.85	-117.40	-426.27	-914.55	682.54	561.00	121.55	5.616	
4,600.00	4,391.72	4,433.86	4,433.51	25.68	202.61	-119.87	-426.43	-914.55	700.93	573.77	127.16	5.512	
4,700.00	4,485.00	4,529.71	4,529.28	26.44	207.16	-122.30	-426.50	-914.55	720.57	587.39	133.18	5.411	
4,800.00	4,578.28	4,622.45	4,622.02	27.19	210.82	-124.54	-426.36	-914.55	741.25	602.15	139.10	5.329	

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.00	4,671.55	4,715.19	4,714.75	27.95	214.48	-126.67	-426.30	-914.55	763.14	618.07	145.07	5.261	
5,000.00	4,764.83	4,807.92	4,807.48	28.70	218.13	-128.68	-426.31	-914.55	786.14	635.09	151.05	5.205	
5,026.14	4,789.20	4,832.15	4,831.71	28.90	219.09	-129.18	-426.32	-914.55	792.33	639.72	152.61	5.192	
5,100.00	4,858.44	4,900.97	4,900.53	29.38	221.80	-130.80	-426.39	-914.55	809.56	651.27	158.29	5.114	
5,200.00	4,953.18	5,000.00	4,999.54	29.91	225.71	-132.82	-426.56	-914.55	831.66	665.73	165.94	5.012	
5,300.00	5,048.98	5,086.79	5,086.32	30.39	230.73	-134.35	-427.29	-914.55	852.49	679.31	173.18	4.923	
5,400.00	5,145.72	5,184.03	5,183.56	30.82	236.36	-135.76	-428.04	-914.55	871.32	690.62	180.70	4.822	
5,500.00	5,243.29	5,282.12	5,281.64	31.20	242.04	-136.95	-428.72	-914.55	887.92	700.05	187.87	4.726	
5,600.00	5,341.56	5,380.92	5,380.44	31.52	247.76	-137.92	-429.34	-914.55	902.14	707.51	194.64	4.635	
5,700.00	5,440.41	5,480.32	5,479.83	31.80	253.51	-138.69	-429.88	-914.55	913.87	712.93	200.94	4.548	
5,800.00	5,539.74	5,580.19	5,579.69	32.03	259.29	-139.27	-430.35	-914.55	923.01	716.27	206.74	4.465	
5,900.00	5,639.40	5,680.41	5,679.91	32.20	265.09	-139.66	-430.75	-914.55	929.50	717.50	211.99	4.385	
6,000.00	5,739.29	5,780.85	5,780.35	32.34	270.90	-139.88	-431.07	-914.55	933.28	716.64	216.64	4.308	
6,082.72	5,822.00	5,864.01	5,863.51	32.41	275.72	141.31	-431.28	-914.55	934.36	714.35	220.01	4.247	
6,100.00	5,839.28	5,881.39	5,880.88	32.42	276.72	141.31	-431.32	-914.55	934.39	713.68	220.71	4.234	
6,200.00	5,939.28	5,981.93	5,981.43	32.51	282.54	141.32	-431.49	-914.55	934.52	709.80	224.72	4.159	
6,300.00	6,039.28	6,082.48	6,081.98	32.60	288.36	141.32	-431.58	-914.55	934.59	705.84	228.75	4.086	
6,400.00	6,139.28	6,183.02	6,182.52	32.69	294.18	141.32	-431.60	-914.55	934.61	701.82	232.79	4.015	
6,500.00	6,239.28	6,283.55	6,283.05	32.78	300.00	141.32	-431.54	-914.55	934.56	697.73	236.83	3.946	
6,600.00	6,339.28	6,384.08	6,383.58	32.87	305.82	141.32	-431.40	-914.55	934.45	693.56	240.89	3.879	
6,700.00	6,439.28	6,484.61	6,484.11	32.96	311.64	141.31	-431.19	-914.55	934.29	689.33	244.96	3.814	
6,800.00	6,539.28	6,585.13	6,584.63	33.06	317.46	141.30	-430.90	-914.55	934.07	685.03	249.04	3.751	
6,900.00	6,639.28	6,685.65	6,685.15	33.15	323.27	141.28	-430.54	-914.55	933.78	680.66	253.13	3.689	
7,000.00	6,739.28	6,786.16	6,785.66	33.25	329.09	141.27	-430.10	-914.55	933.44	676.21	257.23	3.629	
7,100.00	6,839.28	6,886.67	6,886.17	33.35	334.91	141.25	-429.58	-914.55	933.04	671.69	261.34	3.570	
7,200.00	6,939.28	6,987.17	6,986.67	33.45	340.72	141.22	-428.98	-914.55	932.58	667.10	265.47	3.513	
7,300.00	7,039.28	7,087.66	7,087.17	33.55	346.54	141.20	-428.31	-914.55	932.06	662.44	269.61	3.457	
7,400.00	7,139.28	7,188.15	7,187.66	33.65	352.36	141.17	-427.57	-914.55	931.48	657.71	273.77	3.402	
7,500.00	7,239.28	7,288.64	7,288.15	33.75	358.17	141.14	-426.75	-914.55	930.84	652.90	277.94	3.349	
7,520.97	7,260.25	7,309.71	7,309.22	33.78	359.39	141.13	-426.56	-914.55	930.70	651.88	278.82	3.338 SF	
7,600.00	7,339.28	7,310.00	7,309.16	33.86	359.41	141.13	-426.56	-914.55	933.55	654.61	278.94	3.347	
7,700.00	7,439.28	7,310.00	7,309.16	33.96	359.41	141.13	-426.56	-914.55	946.64	667.58	279.07	3.392	
7,800.00	7,539.28	7,310.00	7,309.16	34.07	359.41	141.13	-426.56	-914.55	969.93	690.73	279.20	3.474	
7,900.00	7,639.28	7,310.00	7,309.16	34.18	359.41	141.13	-426.56	-914.55	1,002.69	723.36	279.33	3.590	
7,920.72	7,660.00	7,310.00	7,309.16	34.20	359.41	141.13	-426.56	-914.55	1,010.58	731.22	279.36	3.618	

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.21	0.00	10.21				
100.00	100.00	100.00	100.00	0.10	0.10	0.00	10.21	0.00	10.21	10.02	0.19	53.432	
200.00	200.00	200.00	200.00	0.32	0.32	0.00	10.21	0.00	10.21	9.57	0.64	15.936	
300.00	300.00	300.00	300.00	0.55	0.55	0.00	10.21	0.00	10.21	9.12	1.09	9.364	
400.00	400.00	400.00	400.00	0.77	0.77	0.00	10.21	0.00	10.21	8.67	1.54	6.630	
500.00	500.00	500.00	500.00	0.99	0.99	0.00	10.21	0.00	10.21	8.22	1.99	5.132	
600.00	600.00	600.00	600.00	1.22	1.22	0.00	10.21	0.00	10.21	7.77	2.44	4.186	
700.00	700.00	700.00	700.00	1.44	1.44	0.00	10.21	0.00	10.21	7.32	2.89	3.534	
800.00	800.00	800.00	800.00	1.67	1.67	0.00	10.21	0.00	10.21	6.87	3.34	3.058	CC
809.82	809.82	809.81	809.81	1.69	1.69	78.93	10.21	0.02	10.21	6.83	3.38	3.021	ES
900.00	899.98	899.77	899.75	1.88	1.88	96.53	10.77	1.64	10.96	7.19	3.77	2.909	SF
1,000.00	999.84	998.87	998.71	2.10	2.10	128.79	12.45	6.52	17.41	13.23	4.18	4.164	
1,100.00	1,099.45	1,096.63	1,096.10	2.32	2.32	146.16	15.20	14.51	32.44	27.86	4.59	7.075	
1,200.00	1,198.70	1,192.45	1,191.22	2.58	2.56	153.67	18.95	25.38	54.94	49.95	4.99	11.013	
1,300.00	1,297.47	1,285.75	1,283.43	2.86	2.82	157.30	23.58	38.84	84.10	78.71	5.39	15.606	
1,400.00	1,395.62	1,376.03	1,372.16	3.19	3.11	159.25	29.00	54.57	119.51	113.72	5.79	20.649	
1,500.00	1,493.06	1,462.86	1,456.97	3.57	3.42	160.37	35.07	72.19	160.84	154.66	6.18	26.005	
1,600.00	1,589.64	1,550.37	1,542.01	4.01	3.77	161.13	41.77	91.65	207.05	200.46	6.59	31.413	
1,700.00	1,685.27	1,637.33	1,626.52	4.51	4.13	161.75	48.45	111.05	256.29	249.29	7.00	36.597	
1,800.00	1,779.82	1,722.57	1,709.36	5.09	4.50	162.27	55.00	130.07	308.44	301.02	7.42	41.580	
1,856.59	1,832.80	1,770.01	1,755.45	5.45	4.71	162.52	58.64	140.66	339.21	331.56	7.65	44.317	
1,900.00	1,873.29	1,806.16	1,790.59	5.73	4.87	162.86	61.42	148.73	363.18	355.31	7.87	46.144	
2,000.00	1,966.56	1,889.46	1,871.52	6.41	5.25	163.48	67.82	167.31	418.40	410.02	8.38	49.942	
2,100.00	2,059.84	1,972.75	1,952.46	7.10	5.63	163.96	74.22	185.90	473.65	464.76	8.89	53.250	
2,200.00	2,153.12	2,056.04	2,033.40	7.81	6.02	164.34	80.62	204.48	528.93	519.51	9.42	56.149	
2,300.00	2,246.39	2,139.33	2,114.34	8.52	6.41	164.65	87.02	223.07	584.21	574.26	9.95	58.706	
2,400.00	2,339.67	2,222.62	2,195.28	9.24	6.81	164.91	93.42	241.65	639.50	629.01	10.49	60.972	
2,500.00	2,432.94	2,305.91	2,276.22	9.97	7.21	165.12	99.82	260.24	694.80	683.77	11.03	62.993	
2,600.00	2,526.22	2,389.21	2,357.16	10.70	7.61	165.30	106.22	278.82	750.11	738.54	11.58	64.801	
2,700.00	2,619.49	2,472.50	2,438.10	11.44	8.01	165.46	112.62	297.41	805.42	793.30	12.12	66.428	
2,800.00	2,712.77	2,555.79	2,519.04	12.18	8.42	165.60	119.02	315.99	860.74	848.06	12.68	67.899	
2,900.00	2,806.04	2,639.08	2,599.97	12.92	8.82	165.72	125.42	334.58	916.06	902.82	13.23	69.234	
3,000.00	2,899.32	2,722.37	2,680.91	13.66	9.23	165.82	131.82	353.16	971.38	957.59	13.79	70.451	
3,100.00	2,992.59	2,805.66	2,761.85	14.40	9.64	165.92	138.22	371.75	1,026.70	1,012.35	14.35	71.563	
3,200.00	3,085.87	2,888.95	2,842.79	15.15	10.04	166.01	144.62	390.33	1,082.02	1,067.12	14.91	72.584	
3,300.00	3,179.14	2,972.25	2,923.73	15.90	10.45	166.08	151.01	408.92	1,137.35	1,121.88	15.47	73.523	
3,400.00	3,272.42	3,055.54	3,004.67	16.65	10.87	166.15	157.41	427.50	1,192.68	1,176.64	16.03	74.389	
3,500.00	3,365.70	3,138.83	3,085.61	17.40	11.28	166.22	163.81	446.09	1,248.01	1,231.41	16.60	75.192	
3,600.00	3,458.97	3,222.12	3,166.55	18.15	11.69	166.28	170.21	464.67	1,303.34	1,286.17	17.16	75.937	
3,700.00	3,552.25	3,305.41	3,247.49	18.90	12.10	166.33	176.61	483.26	1,358.67	1,340.94	17.73	76.630	
3,800.00	3,645.52	3,388.70	3,328.43	19.65	12.51	166.38	183.01	501.84	1,414.00	1,395.70	18.30	77.276	
3,900.00	3,738.80	3,471.99	3,409.36	20.40	12.93	166.42	189.41	520.43	1,469.33	1,450.46	18.87	77.879	
4,000.00	3,832.07	3,555.29	3,490.30	21.15	13.34	166.47	195.81	539.01	1,524.66	1,505.22	19.44	78.445	
4,100.00	3,925.35	3,638.58	3,571.24	21.91	13.75	166.51	202.21	557.60	1,579.99	1,559.99	20.01	78.975	
4,200.00	4,018.62	3,721.87	3,652.18	22.66	14.17	166.54	208.61	576.18	1,635.33	1,614.75	20.58	79.474	
4,300.00	4,111.90	3,805.16	3,733.12	23.42	14.58	166.58	215.01	594.77	1,690.66	1,669.51	21.15	79.943	
4,400.00	4,205.17	3,888.45	3,814.06	24.17	15.00	166.61	221.41	613.35	1,746.00	1,724.28	21.72	80.386	
4,500.00	4,298.45	3,971.74	3,895.00	24.93	15.41	166.64	227.81	631.94	1,801.33	1,779.04	22.29	80.805	
4,600.00	4,391.72	4,055.04	3,975.94	25.68	15.83	166.67	234.21	650.52	1,856.66	1,833.80	22.87	81.200	
4,700.00	4,485.00	4,138.33	4,056.88	26.44	16.24	166.70	240.61	669.11	1,912.00	1,888.56	23.44	81.575	
4,800.00	4,578.28	4,221.62	4,137.82	27.19	16.66	166.72	247.01	687.69	1,967.34	1,943.32	24.01	81.931	
4,900.00	4,671.55	4,304.91	4,218.75	27.95	17.07	166.74	253.41	706.28	2,022.67	1,998.09	24.59	82.269	

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

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.00	4,764.83	4,388.20	4,299.69	28.70	17.49	166.77	259.81	724.86	2,078.01	2,052.85	25.16	82.590	
5,026.14	4,789.20	4,409.97	4,320.85	28.90	17.60	166.77	261.48	729.72	2,092.47	2,067.16	25.31	82.671	
5,100.00	4,858.44	4,472.00	4,381.13	29.38	17.91	167.00	266.25	743.56	2,132.57	2,106.70	25.86	82.453	
5,200.00	4,953.18	4,557.55	4,464.26	29.91	18.34	167.26	272.82	762.65	2,184.34	2,157.77	26.57	82.203	
5,300.00	5,048.98	4,644.80	4,549.04	30.39	18.77	167.47	279.52	782.11	2,233.18	2,205.93	27.25	81.945	
5,400.00	5,145.72	4,733.65	4,635.39	30.82	19.22	167.64	286.35	801.94	2,279.01	2,251.11	27.90	81.685	
5,500.00	5,243.29	4,823.99	4,723.18	31.20	19.67	167.77	293.29	822.10	2,321.80	2,293.28	28.51	81.427	
5,600.00	5,341.56	4,915.72	4,812.31	31.52	20.13	167.87	300.34	842.57	2,361.47	2,332.38	29.09	81.173	
5,700.00	5,440.41	5,008.72	4,902.68	31.80	20.59	167.93	307.48	863.32	2,398.00	2,368.37	29.63	80.927	
5,800.00	5,539.74	5,102.87	4,994.18	32.03	21.06	167.95	314.72	884.33	2,431.34	2,401.21	30.13	80.690	
5,900.00	5,639.40	5,198.07	5,086.69	32.20	21.54	167.95	322.03	905.57	2,461.45	2,430.86	30.59	80.463	
6,000.00	5,739.29	5,665.45	5,547.38	32.34	22.98	167.59	346.66	977.09	2,482.44	2,450.64	31.80	78.067	
6,082.72	5,822.00	5,940.32	5,822.00	32.41	23.38	88.81	349.74	986.03	2,485.18	2,452.84	32.34	76.846	
6,100.00	5,839.28	5,957.60	5,839.28	32.42	23.40	88.81	349.74	986.03	2,485.18	2,452.79	32.39	76.718	
6,200.00	5,939.28	6,057.60	5,939.28	32.51	23.52	88.81	349.74	986.03	2,485.18	2,452.47	32.71	75.970	
6,300.00	6,039.28	6,157.60	6,039.28	32.60	23.64	88.81	349.74	986.03	2,485.18	2,452.15	33.03	75.229	
6,400.00	6,139.28	6,257.60	6,139.28	32.69	23.76	88.81	349.74	986.03	2,485.18	2,451.82	33.36	74.496	
6,500.00	6,239.28	6,357.60	6,239.28	32.78	23.88	88.81	349.74	986.03	2,485.18	2,451.49	33.69	73.771	
6,600.00	6,339.28	6,457.60	6,339.28	32.87	24.01	88.81	349.74	986.03	2,485.18	2,451.16	34.02	73.055	
6,700.00	6,439.28	6,557.60	6,439.28	32.96	24.14	88.81	349.74	986.03	2,485.18	2,450.83	34.35	72.346	
6,800.00	6,539.28	6,657.60	6,539.28	33.06	24.26	88.81	349.74	986.03	2,485.18	2,450.49	34.69	71.646	
6,900.00	6,639.28	6,757.60	6,639.28	33.15	24.39	88.81	349.74	986.03	2,485.18	2,450.15	35.03	70.953	
7,000.00	6,739.28	6,857.60	6,739.28	33.25	24.52	88.81	349.74	986.03	2,485.18	2,449.81	35.37	70.270	
7,100.00	6,839.28	6,957.60	6,839.28	33.35	24.66	88.81	349.74	986.03	2,485.18	2,449.47	35.71	69.594	
7,200.00	6,939.28	7,057.60	6,939.28	33.45	24.79	88.81	349.74	986.03	2,485.18	2,449.13	36.06	68.927	
7,300.00	7,039.28	7,157.60	7,039.28	33.55	24.92	88.81	349.74	986.03	2,485.18	2,448.78	36.40	68.269	
7,400.00	7,139.28	7,257.60	7,139.28	33.65	25.06	88.81	349.74	986.03	2,485.18	2,448.43	36.75	67.619	
7,500.00	7,239.28	7,357.60	7,239.28	33.75	25.20	88.81	349.74	986.03	2,485.18	2,448.08	37.10	66.977	
7,600.00	7,339.28	7,457.60	7,339.28	33.86	25.33	88.81	349.74	986.03	2,485.18	2,447.72	37.46	66.344	
7,700.00	7,439.28	7,557.60	7,439.28	33.96	25.47	88.81	349.74	986.03	2,485.18	2,447.37	37.82	65.719	
7,800.00	7,539.28	7,657.60	7,539.28	34.07	25.62	88.81	349.74	986.03	2,485.18	2,447.01	38.17	65.103	
7,863.26	7,602.54	7,720.86	7,602.54	34.14	25.70	88.81	349.74	986.03	2,485.18	2,446.78	38.40	64.717	
7,900.00	7,639.28	7,748.32	7,630.00	34.18	25.74	88.81	349.74	986.03	2,485.20	2,446.68	38.52	64.524	
7,920.72	7,660.00	7,748.32	7,630.00	34.20	25.74	88.81	349.74	986.03	2,485.36	2,446.81	38.55	64.469	

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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 22-28 - P_VARRA 22-28 - PLAN #1 4-5-10 RHS — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	179.20	-20.04	0.28	20.05				
100.00	100.00	100.00	100.00	0.10	0.10	179.20	-20.04	0.28	20.05	19.85	0.19	104.924	
200.00	200.00	200.00	200.00	0.32	0.32	179.20	-20.04	0.28	20.05	19.41	0.64	31.293	
300.00	300.00	300.00	300.00	0.55	0.55	179.20	-20.04	0.28	20.05	18.96	1.09	18.389	
400.00	400.00	400.00	400.00	0.77	0.77	179.20	-20.04	0.28	20.05	18.51	1.54	13.020	
500.00	500.00	500.00	500.00	0.99	0.99	179.20	-20.04	0.28	20.05	18.06	1.99	10.077	
600.00	600.00	600.00	600.00	1.22	1.22	179.20	-20.04	0.28	20.05	17.61	2.44	8.220	
700.00	700.00	700.00	700.00	1.44	1.44	179.20	-20.04	0.28	20.05	17.16	2.89	6.941	
800.00	800.00	800.00	800.00	1.67	1.67	179.20	-20.04	0.28	20.05	16.71	3.34	6.006	CC, ES
900.00	899.98	899.29	899.27	1.88	1.86	-104.95	-21.68	-0.26	22.08	18.33	3.75	5.889	SF
1,000.00	999.84	998.27	998.11	2.10	2.04	-111.07	-26.55	-1.88	28.41	24.27	4.14	6.868	
1,100.00	1,099.45	1,096.62	1,096.09	2.32	2.24	-116.73	-34.61	-4.54	39.35	34.80	4.55	8.655	
1,200.00	1,198.70	1,194.05	1,192.81	2.58	2.46	-120.75	-45.73	-8.22	54.94	49.96	4.99	11.019	
1,300.00	1,297.47	1,290.27	1,287.88	2.86	2.71	-123.36	-59.77	-12.87	75.11	69.64	5.47	13.738	
1,400.00	1,395.62	1,385.02	1,380.97	3.19	3.00	-125.01	-76.56	-18.42	99.71	93.71	6.00	16.624	
1,500.00	1,493.06	1,479.33	1,473.05	3.57	3.33	-126.16	-95.88	-24.82	128.41	121.82	6.59	19.490	
1,600.00	1,589.64	1,574.24	1,565.61	4.01	3.70	-127.60	-115.77	-31.40	159.56	152.32	7.24	22.041	
1,700.00	1,685.27	1,668.30	1,657.35	4.51	4.08	-129.22	-135.49	-37.93	192.91	184.97	7.94	24.298	
1,800.00	1,779.82	1,761.39	1,748.15	5.09	4.46	-130.86	-155.01	-44.39	228.59	219.91	8.69	26.320	
1,856.59	1,832.80	1,813.61	1,799.07	5.45	4.69	-131.78	-165.95	-48.01	249.85	240.72	9.12	27.381	
1,900.00	1,873.29	1,853.52	1,838.01	5.73	4.86	-132.69	-174.32	-50.78	266.49	257.01	9.48	28.100	
2,000.00	1,966.56	1,945.48	1,927.69	6.41	5.26	-134.40	-193.60	-57.16	305.00	294.68	10.32	29.555	
2,100.00	2,059.84	2,037.43	2,017.37	7.10	5.66	-135.72	-212.88	-63.54	343.68	332.52	11.17	30.774	
2,200.00	2,153.12	2,129.38	2,107.05	7.81	6.08	-136.78	-232.15	-69.92	382.50	370.47	12.03	31.807	
2,300.00	2,246.39	2,221.33	2,196.73	8.52	6.49	-137.65	-251.43	-76.30	421.40	408.51	12.89	32.691	
2,400.00	2,339.67	2,313.28	2,286.41	9.24	6.91	-138.37	-270.71	-82.68	460.38	446.61	13.76	33.455	
2,500.00	2,432.94	2,405.24	2,376.10	9.97	7.33	-138.97	-289.99	-89.06	499.40	484.76	14.64	34.122	
2,600.00	2,526.22	2,497.19	2,465.78	10.70	7.75	-139.49	-309.26	-95.44	538.47	522.95	15.51	34.708	
2,700.00	2,619.49	2,589.14	2,555.46	11.44	8.18	-139.94	-328.54	-101.82	577.56	561.17	16.40	35.227	
2,800.00	2,712.77	2,681.09	2,645.14	12.18	8.60	-140.33	-347.82	-108.20	616.69	599.41	17.28	35.690	
2,900.00	2,806.04	2,773.04	2,734.82	12.92	9.03	-140.68	-367.09	-114.58	655.83	637.67	18.16	36.106	
3,000.00	2,899.32	2,864.99	2,824.51	13.66	9.46	-140.99	-386.37	-120.96	695.00	675.95	19.05	36.481	
3,100.00	2,992.59	2,956.95	2,914.19	14.40	9.89	-141.26	-405.65	-127.34	734.18	714.24	19.94	36.822	
3,200.00	3,085.87	3,048.90	3,003.87	15.15	10.32	-141.51	-424.93	-133.72	773.37	752.54	20.83	37.132	
3,300.00	3,179.14	3,140.85	3,093.55	15.90	10.75	-141.73	-444.20	-140.10	812.57	790.85	21.72	37.417	
3,400.00	3,272.42	3,232.80	3,183.23	16.65	11.19	-141.93	-463.48	-146.48	851.78	829.18	22.61	37.679	
3,500.00	3,365.70	3,324.75	3,272.91	17.40	11.62	-142.11	-482.76	-152.86	891.00	867.51	23.50	37.921	
3,600.00	3,458.97	3,416.71	3,362.60	18.15	12.05	-142.28	-502.03	-159.24	930.23	905.84	24.39	38.145	
3,700.00	3,552.25	3,508.66	3,452.28	18.90	12.49	-142.44	-521.31	-165.62	969.46	944.19	25.28	38.354	
3,800.00	3,645.52	3,600.61	3,541.96	19.65	12.92	-142.58	-540.59	-172.00	1,008.70	982.54	26.17	38.548	
3,900.00	3,738.80	3,692.56	3,631.64	20.40	13.36	-142.71	-559.87	-178.38	1,047.95	1,020.89	27.06	38.731	
4,000.00	3,832.07	3,784.51	3,721.32	21.15	13.79	-142.84	-579.14	-184.76	1,087.20	1,059.25	27.95	38.902	
4,100.00	3,925.35	3,876.46	3,811.00	21.91	14.23	-142.95	-598.42	-191.14	1,126.45	1,097.61	28.84	39.063	
4,200.00	4,018.62	3,968.42	3,900.69	22.66	14.66	-143.06	-617.70	-197.52	1,165.70	1,135.98	29.73	39.215	
4,300.00	4,111.90	4,060.37	3,990.37	23.42	15.10	-143.16	-636.97	-203.90	1,204.96	1,174.35	30.62	39.358	
4,400.00	4,205.17	4,152.32	4,080.05	24.17	15.53	-143.25	-656.25	-210.28	1,244.22	1,212.72	31.50	39.494	
4,500.00	4,298.45	4,244.27	4,169.73	24.93	15.97	-143.34	-675.53	-216.66	1,283.49	1,251.10	32.39	39.623	
4,600.00	4,391.72	4,336.22	4,259.41	25.68	16.41	-143.42	-694.81	-223.04	1,322.76	1,289.48	33.28	39.746	
4,700.00	4,485.00	4,428.17	4,349.10	26.44	16.85	-143.50	-714.08	-229.42	1,362.03	1,327.86	34.17	39.864	
4,800.00	4,578.28	4,520.13	4,438.78	27.19	17.28	-143.57	-733.36	-235.80	1,401.30	1,366.24	35.05	39.975	
4,900.00	4,671.55	4,612.08	4,528.46	27.95	17.72	-143.64	-752.64	-242.18	1,440.57	1,404.63	35.94	40.083	
5,000.00	4,764.83	4,704.03	4,618.14	28.70	18.16	-143.71	-771.91	-248.56	1,479.84	1,443.02	36.83	40.185	

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

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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 22-28 - P_VARRA 22-28 - PLAN #1 4-5-10 RHS

Offset Site Error: 0.00 ft

Survey Program: 0-MWD

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,026.14	4,789.20	4,728.06	4,641.58	28.90	18.27	-143.72	-776.95	-250.23	1,490.11	1,453.05	37.06	40.211	
5,100.00	4,858.44	4,796.29	4,708.12	29.38	18.60	-144.11	-791.26	-254.96	1,518.41	1,480.69	37.72	40.258	
5,200.00	4,953.18	4,889.56	4,799.09	29.91	19.04	-144.52	-810.81	-261.43	1,554.44	1,515.91	38.54	40.337	
5,300.00	5,048.98	4,983.77	4,890.97	30.39	19.49	-144.81	-830.56	-267.97	1,587.81	1,548.48	39.33	40.368	
5,400.00	5,145.72	5,078.81	4,983.67	30.82	19.94	-144.99	-850.49	-274.56	1,618.49	1,578.39	40.11	40.355	
5,500.00	5,243.29	5,174.56	5,077.06	31.20	20.40	-145.07	-870.56	-281.21	1,646.46	1,605.61	40.85	40.303	
5,600.00	5,341.56	5,270.91	5,171.03	31.52	20.86	-145.06	-890.76	-287.89	1,671.71	1,630.14	41.57	40.216	
5,700.00	5,440.41	5,381.87	5,279.35	31.80	21.34	-144.90	-913.60	-295.45	1,694.09	1,651.80	42.28	40.064	
5,800.00	5,539.74	5,517.80	5,413.04	32.03	21.75	-144.68	-936.84	-303.14	1,711.99	1,669.09	42.90	39.906	
5,900.00	5,639.40	5,656.03	5,550.03	32.20	22.09	-144.50	-954.27	-308.91	1,724.89	1,681.49	43.40	39.746	
6,000.00	5,739.29	5,795.87	5,689.36	32.34	22.36	-144.37	-965.50	-312.63	1,732.69	1,688.90	43.79	39.572	
6,082.72	5,822.00	5,912.25	5,805.64	32.41	22.53	136.95	-969.92	-314.09	1,735.24	1,691.22	44.02	39.419	
6,100.00	5,839.28	5,936.60	5,829.98	32.42	22.56	136.96	-970.27	-314.21	1,735.37	1,691.30	44.07	39.375	
6,200.00	5,939.28	6,045.90	5,939.28	32.51	22.68	136.96	-970.44	-314.26	1,735.43	1,691.11	44.32	39.158	
6,300.00	6,039.28	6,145.90	6,039.28	32.60	22.78	136.96	-970.44	-314.26	1,735.43	1,690.88	44.54	38.959	
6,400.00	6,139.28	6,245.90	6,139.28	32.69	22.88	136.96	-970.44	-314.26	1,735.43	1,690.65	44.77	38.759	
6,500.00	6,239.28	6,345.90	6,239.28	32.78	22.99	136.96	-970.44	-314.26	1,735.43	1,690.42	45.01	38.558	
6,600.00	6,339.28	6,445.90	6,339.28	32.87	23.09	136.96	-970.44	-314.26	1,735.43	1,690.18	45.24	38.357	
6,700.00	6,439.28	6,545.90	6,439.28	32.96	23.20	136.96	-970.44	-314.26	1,735.43	1,689.94	45.48	38.154	
6,800.00	6,539.28	6,645.90	6,539.28	33.06	23.31	136.96	-970.44	-314.26	1,735.43	1,689.70	45.73	37.952	
6,900.00	6,639.28	6,745.90	6,639.28	33.15	23.42	136.96	-970.44	-314.26	1,735.43	1,689.46	45.97	37.749	
7,000.00	6,739.28	6,845.90	6,739.28	33.25	23.53	136.96	-970.44	-314.26	1,735.43	1,689.21	46.22	37.545	
7,100.00	6,839.28	6,945.90	6,839.28	33.35	23.65	136.96	-970.44	-314.26	1,735.43	1,688.95	46.47	37.341	
7,200.00	6,939.28	7,045.90	6,939.28	33.45	23.77	136.96	-970.44	-314.26	1,735.43	1,688.70	46.73	37.137	
7,300.00	7,039.28	7,145.90	7,039.28	33.55	23.88	136.96	-970.44	-314.26	1,735.43	1,688.44	46.99	36.934	
7,400.00	7,139.28	7,245.90	7,139.28	33.65	24.00	136.96	-970.44	-314.26	1,735.43	1,688.18	47.25	36.730	
7,500.00	7,239.28	7,345.90	7,239.28	33.75	24.12	136.96	-970.44	-314.26	1,735.43	1,687.92	47.51	36.526	
7,600.00	7,339.28	7,445.90	7,339.28	33.86	24.24	136.96	-970.44	-314.26	1,735.43	1,687.65	47.78	36.322	
7,700.00	7,439.28	7,545.90	7,439.28	33.96	24.37	136.96	-970.44	-314.26	1,735.43	1,687.38	48.05	36.118	
7,800.00	7,539.28	7,645.90	7,539.28	34.07	24.49	136.96	-970.44	-314.26	1,735.43	1,687.11	48.32	35.915	
7,900.00	7,639.28	7,745.90	7,639.28	34.18	24.62	136.96	-970.44	-314.26	1,735.43	1,686.83	48.60	35.712	
7,920.72	7,660.00	7,766.62	7,660.00	34.20	24.65	136.96	-970.44	-314.26	1,735.43	1,686.78	48.65	35.670	

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	179.60	-40.08	0.28	40.08				
100.00	100.00	100.00	100.00	0.10	0.10	179.60	-40.08	0.28	40.08	39.89	0.19	209.789	
200.00	200.00	200.00	200.00	0.32	0.32	179.60	-40.08	0.28	40.08	39.44	0.64	62.569	
300.00	300.00	300.00	300.00	0.55	0.55	179.60	-40.08	0.28	40.08	38.99	1.09	36.767	
400.00	400.00	400.00	400.00	0.77	0.77	179.60	-40.08	0.28	40.08	38.54	1.54	26.032	
500.00	500.00	500.00	500.00	0.99	0.99	179.60	-40.08	0.28	40.08	38.09	1.99	20.149	
600.00	600.00	600.00	600.00	1.22	1.22	179.60	-40.08	0.28	40.08	37.64	2.44	16.435	
700.00	700.00	700.00	700.00	1.44	1.44	179.60	-40.08	0.28	40.08	37.19	2.89	13.877	
800.00	800.00	800.00	800.00	1.67	1.67	179.60	-40.08	0.28	40.08	36.74	3.34	12.008	CC, ES
900.00	899.98	898.82	898.80	1.88	1.87	-105.39	-41.40	1.36	41.87	38.12	3.75	11.163	SF
1,000.00	999.84	997.01	996.85	2.10	2.05	-114.71	-45.32	4.57	48.15	44.01	4.14	11.626	
1,100.00	1,099.45	1,093.96	1,093.44	2.32	2.25	-125.33	-51.73	9.83	60.62	56.08	4.54	13.345	
1,200.00	1,198.70	1,189.09	1,187.89	2.58	2.47	-134.11	-60.49	17.00	80.18	75.23	4.95	16.206	
1,300.00	1,297.47	1,281.87	1,279.60	2.86	2.72	-140.40	-71.35	25.90	106.76	101.41	5.36	19.932	
1,400.00	1,395.62	1,371.82	1,368.03	3.19	3.00	-144.68	-84.07	36.33	139.94	134.17	5.77	24.251	
1,500.00	1,493.06	1,458.53	1,452.74	3.57	3.31	-147.58	-98.37	48.04	179.26	173.07	6.20	28.933	
1,600.00	1,589.64	1,541.66	1,533.40	4.01	3.65	-149.54	-113.92	60.79	224.32	217.68	6.63	33.813	
1,700.00	1,685.27	1,620.93	1,609.74	4.51	4.01	-150.87	-130.44	74.32	274.73	267.65	7.09	38.771	
1,800.00	1,779.82	1,700.00	1,685.27	5.09	4.41	-151.81	-148.53	89.15	330.18	322.62	7.56	43.674	
1,856.59	1,832.80	1,736.85	1,720.24	5.45	4.62	-152.08	-157.52	96.51	363.61	355.78	7.83	46.440	
1,900.00	1,873.29	1,767.32	1,749.05	5.73	4.79	-152.57	-165.21	102.81	390.02	381.96	8.06	48.361	
2,000.00	1,966.56	1,845.38	1,822.65	6.41	5.26	-153.57	-185.30	119.27	451.45	442.82	8.64	52.274	
2,100.00	2,059.84	1,924.07	1,896.85	7.10	5.74	-154.34	-205.56	135.87	512.96	503.74	9.22	55.636	
2,200.00	2,153.12	2,002.75	1,971.05	7.81	6.24	-154.94	-225.82	152.47	574.51	564.69	9.81	58.537	
2,300.00	2,246.39	2,081.44	2,045.25	8.52	6.74	-155.43	-246.08	169.08	636.09	625.67	10.42	61.045	
2,400.00	2,339.67	2,160.12	2,119.45	9.24	7.25	-155.83	-266.34	185.68	697.69	686.66	11.03	63.239	
2,500.00	2,432.94	2,238.81	2,193.65	9.97	7.77	-156.17	-286.60	202.28	759.31	747.66	11.65	65.171	
2,600.00	2,526.22	2,317.50	2,267.85	10.70	8.29	-156.45	-306.86	218.88	820.95	808.67	12.27	66.883	
2,700.00	2,619.49	2,396.18	2,342.04	11.44	8.81	-156.70	-327.11	235.48	882.59	869.69	12.90	68.407	
2,800.00	2,712.77	2,474.87	2,416.24	12.18	9.34	-156.91	-347.37	252.08	944.25	930.71	13.53	69.769	
2,900.00	2,806.04	2,553.55	2,490.44	12.92	9.87	-157.10	-367.63	268.68	1,005.91	991.74	14.17	70.996	
3,000.00	2,899.32	2,632.24	2,564.64	13.66	10.40	-157.26	-387.89	285.28	1,067.58	1,052.77	14.81	72.107	
3,100.00	2,992.59	2,710.93	2,638.84	14.40	10.93	-157.41	-408.15	301.88	1,129.25	1,113.81	15.44	73.118	
3,200.00	3,085.87	2,789.61	2,713.04	15.15	11.46	-157.54	-428.41	318.48	1,190.93	1,174.84	16.08	74.040	
3,300.00	3,179.14	2,868.30	2,787.24	15.90	12.00	-157.66	-448.67	335.08	1,252.61	1,235.88	16.73	74.885	
3,400.00	3,272.42	2,946.98	2,861.44	16.65	12.54	-157.77	-468.93	351.68	1,314.29	1,296.92	17.37	75.663	
3,500.00	3,365.70	3,025.67	2,935.63	17.40	13.07	-157.87	-489.19	368.28	1,375.98	1,357.96	18.01	76.382	
3,600.00	3,458.97	3,104.35	3,009.83	18.15	13.61	-157.96	-509.45	384.88	1,437.67	1,419.01	18.66	77.048	
3,700.00	3,552.25	3,183.04	3,084.03	18.90	14.15	-158.04	-529.71	401.48	1,499.36	1,480.05	19.30	77.668	
3,800.00	3,645.52	3,261.73	3,158.23	19.65	14.69	-158.12	-549.97	418.08	1,561.05	1,541.10	19.95	78.246	
3,900.00	3,738.80	3,340.41	3,232.43	20.40	15.23	-158.19	-570.23	434.68	1,622.74	1,602.15	20.60	78.787	
4,000.00	3,832.07	3,419.10	3,306.63	21.15	15.77	-158.26	-590.49	451.29	1,684.44	1,663.20	21.24	79.295	
4,100.00	3,925.35	3,497.78	3,380.83	21.91	16.31	-158.32	-610.74	467.89	1,746.14	1,724.25	21.89	79.772	
4,200.00	4,018.62	3,576.47	3,455.03	22.66	16.86	-158.37	-631.00	484.49	1,807.83	1,785.30	22.54	80.222	
4,300.00	4,111.90	3,655.16	3,529.22	23.42	17.40	-158.42	-651.26	501.09	1,869.53	1,846.35	23.18	80.648	
4,400.00	4,205.17	3,733.84	3,603.42	24.17	17.94	-158.47	-671.52	517.69	1,931.23	1,907.40	23.83	81.051	
4,500.00	4,298.45	3,812.53	3,677.62	24.93	18.48	-158.52	-691.78	534.29	1,992.93	1,968.46	24.47	81.433	
4,600.00	4,391.72	3,891.21	3,751.82	25.68	19.03	-158.56	-712.04	550.89	2,054.63	2,029.52	25.12	81.797	
4,700.00	4,485.00	3,969.90	3,826.02	26.44	19.57	-158.61	-732.30	567.49	2,116.34	2,090.57	25.76	82.144	
4,800.00	4,578.28	4,048.59	3,900.22	27.19	20.11	-158.64	-752.56	584.09	2,178.04	2,151.63	26.41	82.476	
4,900.00	4,671.55	4,127.27	3,974.42	27.95	20.66	-158.68	-772.82	600.69	2,239.74	2,212.69	27.05	82.792	
5,000.00	4,764.83	4,205.96	4,048.62	28.70	21.20	-158.71	-793.08	617.29	2,301.45	2,273.75	27.70	83.095	

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

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,026.14	4,789.20	4,226.52	4,068.01	28.90	21.34	-158.72	-798.37	621.63	2,317.57	2,289.71	27.86	83.173	
5,100.00	4,858.44	4,285.19	4,123.33	29.38	21.75	-159.14	-813.48	634.01	2,362.45	2,334.02	28.43	83.094	
5,200.00	4,953.18	4,366.30	4,199.82	29.91	22.31	-159.64	-834.36	651.12	2,420.92	2,391.72	29.21	82.893	
5,300.00	5,048.98	4,449.27	4,278.05	30.39	22.89	-160.05	-855.72	668.62	2,476.71	2,446.75	29.96	82.669	
5,400.00	5,145.72	4,533.99	4,357.94	30.82	23.47	-160.40	-877.54	686.50	2,529.75	2,499.06	30.69	82.433	
5,500.00	5,243.29	4,620.36	4,439.39	31.20	24.07	-160.68	-899.77	704.72	2,579.98	2,548.59	31.39	82.194	
5,600.00	5,341.56	4,708.27	4,522.29	31.52	24.68	-160.90	-922.41	723.27	2,627.34	2,595.28	32.06	81.958	
5,700.00	5,440.41	4,797.62	4,606.54	31.80	25.30	-161.07	-945.41	742.12	2,671.78	2,639.09	32.69	81.731	
5,800.00	5,539.74	4,888.30	4,692.05	32.03	25.93	-161.19	-968.76	761.25	2,713.27	2,679.98	33.28	81.517	
5,900.00	5,639.40	4,980.20	4,778.70	32.20	26.57	-161.27	-992.42	780.63	2,751.74	2,717.90	33.84	81.319	
6,000.00	5,739.29	5,164.85	4,953.39	32.34	27.68	-161.10	-1,038.68	818.54	2,787.04	2,752.41	34.63	80.470	
6,082.72	5,822.00	6,046.86	5,822.00	32.41	30.09	120.93	-1,140.55	902.01	2,798.66	2,762.04	36.62	76.422	
6,100.00	5,839.28	6,064.14	5,839.28	32.42	30.10	120.93	-1,140.55	902.01	2,798.66	2,761.99	36.67	76.326	
6,200.00	5,939.28	6,164.14	5,939.28	32.51	30.19	120.93	-1,140.55	902.01	2,798.66	2,761.72	36.94	75.769	
6,300.00	6,039.28	6,264.14	6,039.28	32.60	30.27	120.93	-1,140.55	902.01	2,798.66	2,761.45	37.21	75.220	
6,400.00	6,139.28	6,364.14	6,139.28	32.69	30.35	120.93	-1,140.55	902.01	2,798.66	2,761.18	37.48	74.672	
6,500.00	6,239.28	6,464.14	6,239.28	32.78	30.44	120.93	-1,140.55	902.01	2,798.66	2,760.90	37.76	74.125	
6,600.00	6,339.28	6,564.14	6,339.28	32.87	30.52	120.93	-1,140.55	902.01	2,798.66	2,760.62	38.04	73.580	
6,700.00	6,439.28	6,664.14	6,439.28	32.96	30.61	120.93	-1,140.55	902.01	2,798.66	2,760.34	38.32	73.037	
6,800.00	6,539.28	6,764.14	6,539.28	33.06	30.70	120.93	-1,140.55	902.01	2,798.66	2,760.06	38.60	72.496	
6,900.00	6,639.28	6,864.14	6,639.28	33.15	30.79	120.93	-1,140.55	902.01	2,798.66	2,759.77	38.89	71.956	
7,000.00	6,739.28	6,964.14	6,739.28	33.25	30.89	120.93	-1,140.55	902.01	2,798.66	2,759.47	39.19	71.420	
7,100.00	6,839.28	7,064.14	6,839.28	33.35	30.98	120.93	-1,140.55	902.01	2,798.66	2,759.18	39.48	70.886	
7,200.00	6,939.28	7,164.14	6,939.28	33.45	31.07	120.93	-1,140.55	902.01	2,798.66	2,758.88	39.78	70.355	
7,300.00	7,039.28	7,264.14	7,039.28	33.55	31.17	120.93	-1,140.55	902.01	2,798.66	2,758.58	40.08	69.826	
7,400.00	7,139.28	7,364.14	7,139.28	33.65	31.27	120.93	-1,140.55	902.01	2,798.66	2,758.28	40.38	69.301	
7,463.26	7,202.54	7,427.40	7,202.54	33.72	31.33	120.93	-1,140.55	902.01	2,798.66	2,758.08	40.58	68.971	
7,500.00	7,239.28	7,454.86	7,230.00	33.75	31.36	120.93	-1,140.55	902.01	2,798.68	2,758.00	40.68	68.804	
7,600.00	7,339.28	7,454.86	7,230.00	33.86	31.36	120.93	-1,140.55	902.01	2,800.79	2,759.96	40.83	68.591	
7,700.00	7,439.28	7,454.86	7,230.00	33.96	31.36	120.93	-1,140.55	902.01	2,806.47	2,765.48	40.99	68.464	
7,800.00	7,539.28	7,454.86	7,230.00	34.07	31.36	120.93	-1,140.55	902.01	2,815.70	2,774.55	41.15	68.422	
7,900.00	7,639.28	7,454.86	7,230.00	34.18	31.36	120.93	-1,140.55	902.01	2,828.43	2,787.12	41.31	68.464	
7,920.72	7,660.00	7,454.86	7,230.00	34.20	31.36	120.93	-1,140.55	902.01	2,831.50	2,790.15	41.35	68.483	

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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-MWD

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	180.00	-10.20	0.00	10.20				
100.00	100.00	100.00	100.00	0.10	0.10	180.00	-10.20	0.00	10.20	10.00	0.19	53.367	
200.00	200.00	200.00	200.00	0.32	0.32	180.00	-10.20	0.00	10.20	9.56	0.64	15.916	
300.00	300.00	300.00	300.00	0.55	0.55	180.00	-10.20	0.00	10.20	9.11	1.09	9.353	
400.00	400.00	400.00	400.00	0.77	0.77	180.00	-10.20	0.00	10.20	8.66	1.54	6.622	
500.00	500.00	500.00	500.00	0.99	0.99	180.00	-10.20	0.00	10.20	8.21	1.99	5.126	
600.00	600.00	600.00	600.00	1.22	1.22	180.00	-10.20	0.00	10.20	7.76	2.44	4.181	
700.00	700.00	700.00	700.00	1.44	1.44	180.00	-10.20	0.00	10.20	7.31	2.89	3.530	
800.00	800.00	800.00	800.00	1.67	1.67	180.00	-10.20	0.00	10.20	6.86	3.34	3.055	CC, ES
900.00	899.98	899.79	899.77	1.88	1.87	-102.41	-11.12	-1.47	11.47	7.71	3.76	3.052	SF
1,000.00	999.84	999.49	999.33	2.10	2.07	-104.71	-13.89	-5.88	15.29	11.13	4.16	3.676	
1,100.00	1,099.45	1,098.99	1,098.44	2.32	2.28	-106.71	-18.50	-13.19	21.69	17.10	4.59	4.721	
1,200.00	1,198.70	1,198.19	1,196.91	2.58	2.51	-108.07	-24.91	-23.39	30.65	25.58	5.07	6.042	
1,300.00	1,297.47	1,297.01	1,294.52	2.86	2.79	-108.90	-33.09	-36.40	42.16	36.55	5.61	7.512	
1,400.00	1,395.62	1,395.35	1,391.07	3.19	3.10	-109.40	-43.01	-52.18	56.18	49.95	6.23	9.022	
1,500.00	1,493.06	1,493.12	1,486.38	3.57	3.47	-109.67	-54.62	-70.63	72.68	65.74	6.93	10.483	
1,600.00	1,589.64	1,590.25	1,580.27	4.01	3.89	-109.79	-67.86	-91.68	91.62	83.88	7.74	11.833	
1,700.00	1,685.27	1,686.66	1,672.57	4.51	4.38	-109.80	-82.67	-115.22	112.97	104.31	8.66	13.040	
1,800.00	1,779.82	1,782.28	1,763.15	5.09	4.92	-109.73	-98.98	-141.16	136.69	126.98	9.70	14.088	
1,856.59	1,832.80	1,836.01	1,813.58	5.45	5.25	-109.66	-108.86	-156.85	151.14	140.79	10.35	14.609	
1,900.00	1,873.29	1,877.08	1,851.88	5.73	5.52	-109.71	-116.74	-169.38	162.61	151.75	10.86	14.970	
2,000.00	1,966.56	1,971.18	1,938.83	6.41	6.18	-109.15	-135.90	-199.84	189.86	177.76	12.11	15.683	
2,100.00	2,059.84	2,065.09	2,024.41	7.10	6.90	-107.97	-156.48	-232.56	218.29	204.88	13.41	16.281	
2,200.00	2,153.12	2,160.74	2,111.20	7.81	7.66	-106.84	-177.88	-266.58	247.15	232.39	14.76	16.747	
2,300.00	2,246.39	2,256.38	2,197.99	8.52	8.44	-105.95	-199.28	-300.60	276.08	259.96	16.12	17.122	
2,400.00	2,339.67	2,352.03	2,284.78	9.24	9.23	-105.22	-220.68	-334.62	305.06	287.56	17.50	17.428	
2,500.00	2,432.94	2,447.67	2,371.57	9.97	10.03	-104.63	-242.08	-368.64	334.08	315.19	18.89	17.682	
2,600.00	2,526.22	2,543.31	2,458.36	10.70	10.83	-104.12	-263.48	-402.66	363.13	342.84	20.29	17.895	
2,700.00	2,619.49	2,638.96	2,545.15	11.44	11.64	-103.69	-284.88	-436.69	392.20	370.50	21.70	18.076	
2,800.00	2,712.77	2,734.60	2,631.94	12.18	12.45	-103.33	-306.28	-470.71	421.28	398.17	23.11	18.232	
2,900.00	2,806.04	2,830.25	2,718.73	12.92	13.27	-103.00	-327.67	-504.73	450.38	425.86	24.52	18.368	
3,000.00	2,899.32	2,925.89	2,805.52	13.66	14.09	-102.72	-349.07	-538.75	479.49	453.55	25.94	18.487	
3,100.00	2,992.59	3,021.53	2,892.31	14.40	14.91	-102.47	-370.47	-572.77	508.61	481.25	27.36	18.590	
3,200.00	3,085.87	3,117.18	2,979.10	15.15	15.73	-102.25	-391.87	-606.79	537.74	508.95	28.79	18.679	
3,300.00	3,179.14	3,212.82	3,065.89	15.90	16.55	-102.05	-413.27	-640.81	566.87	536.65	30.22	18.758	
3,400.00	3,272.42	3,308.47	3,152.68	16.65	17.38	-101.87	-434.67	-674.83	596.01	564.36	31.65	18.829	
3,500.00	3,365.70	3,404.11	3,239.47	17.40	18.21	-101.70	-456.07	-708.85	625.15	592.07	33.09	18.893	
3,600.00	3,458.97	3,499.76	3,326.26	18.15	19.03	-101.55	-477.47	-742.87	654.30	619.78	34.53	18.951	
3,700.00	3,552.25	3,595.40	3,413.05	18.90	19.86	-101.42	-498.87	-776.89	683.46	647.49	35.97	19.003	
3,800.00	3,645.52	3,691.04	3,499.84	19.65	20.69	-101.29	-520.27	-810.91	712.61	675.21	37.40	19.051	
3,900.00	3,738.80	3,786.69	3,586.63	20.40	21.52	-101.18	-541.67	-844.94	741.77	702.93	38.85	19.095	
4,000.00	3,832.07	3,882.33	3,673.42	21.15	22.35	-101.07	-563.07	-878.96	770.93	730.65	40.29	19.136	
4,100.00	3,925.35	3,977.98	3,760.21	21.91	23.18	-100.97	-584.47	-912.98	800.10	758.37	41.73	19.173	
4,200.00	4,018.62	4,073.62	3,846.99	22.66	24.01	-100.88	-605.87	-947.00	829.26	786.09	43.17	19.207	
4,300.00	4,111.90	4,169.26	3,933.78	23.42	24.85	-100.79	-627.27	-981.02	858.43	813.81	44.62	19.239	
4,400.00	4,205.17	4,264.91	4,020.57	24.17	25.68	-100.71	-648.67	-1,015.04	887.60	841.54	46.06	19.269	
4,500.00	4,298.45	4,360.55	4,107.36	24.93	26.51	-100.64	-670.07	-1,049.06	916.77	869.26	47.51	19.297	
4,600.00	4,391.72	4,456.20	4,194.15	25.68	27.34	-100.57	-691.47	-1,083.08	945.94	896.99	48.96	19.322	
4,700.00	4,485.00	4,551.84	4,280.94	26.44	28.18	-100.50	-712.86	-1,117.10	975.12	924.71	50.40	19.347	
4,800.00	4,578.28	4,647.48	4,367.73	27.19	29.01	-100.44	-734.26	-1,151.12	1,004.29	952.44	51.85	19.369	
4,900.00	4,671.55	4,743.13	4,454.52	27.95	29.84	-100.38	-755.66	-1,185.14	1,033.47	980.17	53.30	19.391	
5,000.00	4,764.83	4,838.77	4,541.31	28.70	30.68	-100.33	-777.06	-1,219.17	1,062.64	1,007.90	54.74	19.411	

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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-MWD

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,026.14	4,789.20	4,863.77	4,564.00	28.90	30.90	-100.31	-782.66	-1,228.06	1,070.27	1,015.14	55.12	19.416	
5,100.00	4,858.44	4,934.45	4,628.13	29.38	31.51	-100.66	-798.47	-1,253.20	1,091.65	1,035.44	56.21	19.421	
5,200.00	4,953.18	5,045.61	4,729.44	29.91	32.33	-100.96	-822.83	-1,291.92	1,119.65	1,062.12	57.53	19.461	
5,300.00	5,048.98	5,166.44	4,841.40	30.39	33.06	-101.19	-847.01	-1,330.36	1,145.11	1,086.38	58.73	19.499	
5,400.00	5,145.72	5,288.99	4,956.81	30.82	33.73	-101.38	-868.94	-1,365.23	1,167.83	1,108.02	59.81	19.524	
5,500.00	5,243.29	5,413.11	5,075.38	31.20	34.34	-101.52	-888.46	-1,396.26	1,187.74	1,126.96	60.79	19.539	
5,600.00	5,341.56	5,538.64	5,196.80	31.52	34.87	-101.64	-905.40	-1,423.19	1,204.78	1,143.14	61.64	19.546	
5,700.00	5,440.41	5,665.39	5,320.70	31.80	35.33	-101.71	-919.61	-1,445.78	1,218.88	1,156.51	62.37	19.543	
5,800.00	5,539.74	5,793.18	5,446.68	32.03	35.71	-101.76	-930.97	-1,463.85	1,230.00	1,167.02	62.98	19.530	
5,900.00	5,639.40	5,921.78	5,574.30	32.20	36.01	-101.76	-939.37	-1,477.21	1,238.09	1,174.63	63.46	19.511	
6,000.00	5,739.29	6,050.97	5,703.08	32.34	36.22	-101.74	-944.74	-1,485.73	1,243.12	1,179.32	63.81	19.483	
6,082.72	5,822.00	6,158.11	5,810.15	32.41	36.34	179.56	-946.83	-1,489.07	1,244.97	1,180.96	64.00	19.451	
6,100.00	5,839.28	6,180.50	5,832.54	32.42	36.36	179.57	-947.00	-1,489.34	1,245.09	1,181.06	64.04	19.443	
6,200.00	5,939.28	6,287.24	5,939.28	32.51	36.45	179.58	-947.08	-1,489.46	1,245.16	1,180.94	64.21	19.391	
6,300.00	6,039.28	6,387.24	6,039.28	32.60	36.52	179.58	-947.08	-1,489.46	1,245.16	1,180.77	64.38	19.340	
6,400.00	6,139.28	6,487.24	6,139.28	32.69	36.59	179.58	-947.08	-1,489.46	1,245.16	1,180.60	64.56	19.288	
6,500.00	6,239.28	6,587.24	6,239.28	32.78	36.66	179.58	-947.08	-1,489.46	1,245.16	1,180.42	64.73	19.235	
6,600.00	6,339.28	6,687.24	6,339.28	32.87	36.74	179.58	-947.08	-1,489.46	1,245.16	1,180.24	64.91	19.182	
6,700.00	6,439.28	6,787.24	6,439.28	32.96	36.81	179.58	-947.08	-1,489.46	1,245.16	1,180.06	65.09	19.128	
6,800.00	6,539.28	6,887.24	6,539.28	33.06	36.89	179.58	-947.08	-1,489.46	1,245.16	1,179.88	65.28	19.074	
6,900.00	6,639.28	6,987.24	6,639.28	33.15	36.97	179.58	-947.08	-1,489.46	1,245.16	1,179.69	65.47	19.020	
7,000.00	6,739.28	7,087.24	6,739.28	33.25	37.05	179.58	-947.08	-1,489.46	1,245.16	1,179.50	65.66	18.965	
7,100.00	6,839.28	7,187.24	6,839.28	33.35	37.13	179.58	-947.08	-1,489.46	1,245.16	1,179.31	65.85	18.910	
7,200.00	6,939.28	7,287.24	6,939.28	33.45	37.21	179.58	-947.08	-1,489.46	1,245.16	1,179.11	66.04	18.854	
7,300.00	7,039.28	7,387.24	7,039.28	33.55	37.30	179.58	-947.08	-1,489.46	1,245.16	1,178.92	66.24	18.798	
7,400.00	7,139.28	7,487.24	7,139.28	33.65	37.38	179.58	-947.08	-1,489.46	1,245.16	1,178.72	66.44	18.742	
7,500.00	7,239.28	7,587.24	7,239.28	33.75	37.47	179.58	-947.08	-1,489.46	1,245.16	1,178.52	66.64	18.685	
7,600.00	7,339.28	7,687.24	7,339.28	33.86	37.55	179.58	-947.08	-1,489.46	1,245.16	1,178.31	66.84	18.628	
7,700.00	7,439.28	7,787.24	7,439.28	33.96	37.64	179.58	-947.08	-1,489.46	1,245.16	1,178.11	67.05	18.571	
7,800.00	7,539.28	7,887.24	7,539.28	34.07	37.73	179.58	-947.08	-1,489.46	1,245.16	1,177.90	67.26	18.513	
7,900.00	7,639.28	7,987.24	7,639.28	34.18	37.82	179.58	-947.08	-1,489.46	1,245.16	1,177.69	67.47	18.455	
7,920.72	7,660.00	8,007.96	7,660.00	34.20	37.84	179.58	-947.08	-1,489.46	1,245.16	1,177.64	67.51	18.443	

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	179.46	-29.88	0.28	29.88				
100.00	100.00	100.00	100.00	0.10	1.13	179.46	-29.88	0.28	29.88	28.65	1.23	24.349	
200.00	200.00	200.00	200.00	0.32	3.44	179.46	-29.88	0.28	29.88	26.12	3.76	7.954	
300.00	300.00	300.00	300.00	0.55	5.52	179.46	-29.88	0.28	29.88	23.82	6.06	4.930	
400.00	400.00	400.00	400.00	0.77	7.56	179.46	-29.88	0.28	29.88	21.55	8.33	3.588	
500.00	500.00	500.00	500.00	0.99	9.59	179.46	-29.88	0.28	29.88	19.30	10.58	2.824	
600.00	600.00	600.00	600.00	1.22	11.61	179.46	-29.88	0.28	29.88	17.05	12.83	2.329	
700.00	700.00	700.00	700.00	1.44	13.63	179.46	-29.88	0.28	29.88	14.81	15.07	1.982	
800.00	800.00	800.00	800.00	1.67	15.65	179.46	-29.88	0.28	29.88	12.57	17.32	1.726	CC, ES, SF
900.00	899.98	899.17	899.15	1.88	16.90	-107.09	-31.05	1.53	31.57	13.29	18.28	1.727	
1,000.00	999.84	997.69	997.53	2.10	26.30	-119.60	-34.54	5.25	37.96	17.59	20.37	1.863	
1,100.00	1,099.45	1,094.90	1,094.38	2.32	50.02	-132.34	-40.25	11.35	51.15	29.34	21.81	2.346	
1,200.00	1,198.70	1,190.20	1,188.99	2.58	84.97	-141.61	-48.02	19.64	71.83	52.29	19.55	3.675	
1,300.00	1,297.47	1,283.11	1,280.83	2.86	128.36	-147.61	-57.66	29.94	99.63	83.43	16.21	6.148	
1,400.00	1,395.62	1,377.19	1,373.58	3.19	177.53	-151.66	-68.41	41.40	132.49	113.34	19.14	6.920	
1,500.00	1,493.06	1,470.06	1,465.15	3.57	226.16	-154.51	-79.01	52.72	168.72	139.78	28.94	5.830	
1,600.00	1,589.64	1,561.62	1,555.42	4.01	274.15	-156.63	-89.47	63.88	208.21	166.74	41.47	5.021	
1,700.00	1,685.27	1,651.76	1,644.29	4.51	321.42	-158.29	-99.76	74.87	250.88	196.10	54.79	4.579	
1,800.00	1,779.82	1,740.36	1,731.65	5.09	367.90	-159.61	-109.88	85.66	296.68	228.59	68.09	4.357	
1,856.59	1,832.80	1,789.78	1,780.37	5.45	393.83	-160.25	-115.52	91.69	323.95	248.52	75.43	4.295	
1,900.00	1,873.29	1,827.48	1,817.55	5.73	413.61	-160.83	-119.83	96.28	345.25	262.17	83.08	4.156	
2,000.00	1,966.56	1,914.34	1,903.18	6.41	459.19	-161.95	-129.74	106.87	394.42	294.04	100.38	3.929	
2,100.00	2,059.84	2,001.19	1,988.82	7.10	504.77	-162.81	-139.66	117.45	443.68	326.33	117.34	3.781	
2,200.00	2,153.12	2,088.04	2,074.45	7.81	550.36	-163.51	-149.58	128.04	492.99	358.93	134.06	3.677	
2,300.00	2,246.39	2,174.89	2,160.08	8.52	595.95	-164.08	-159.50	138.62	542.36	391.76	150.59	3.602	
2,400.00	2,339.67	2,261.75	2,245.71	9.24	641.54	-164.55	-169.41	149.21	591.75	424.77	166.98	3.544	
2,500.00	2,432.94	2,348.60	2,331.35	9.97	687.14	-164.95	-179.33	159.80	641.17	457.91	183.26	3.499	
2,600.00	2,526.22	2,435.45	2,416.98	10.70	732.73	-165.29	-189.25	170.38	690.62	491.16	199.45	3.463	
2,700.00	2,619.49	2,522.30	2,502.61	11.44	778.33	-165.59	-199.17	180.97	740.07	524.50	215.57	3.433	
2,800.00	2,712.77	2,609.16	2,588.25	12.18	823.92	-165.85	-209.08	191.55	789.55	557.91	231.64	3.409	
2,900.00	2,806.04	2,696.01	2,673.88	12.92	869.52	-166.08	-219.00	202.14	839.03	591.37	247.66	3.388	
3,000.00	2,899.32	2,782.86	2,759.51	13.66	915.12	-166.29	-228.92	212.72	888.52	624.89	263.63	3.370	
3,100.00	2,992.59	2,869.72	2,845.15	14.40	960.72	-166.47	-238.84	223.31	938.02	658.44	279.58	3.355	
3,200.00	3,085.87	2,956.57	2,930.78	15.15	1,006.32	-166.63	-248.75	233.89	987.53	692.03	295.50	3.342	
3,300.00	3,179.14	3,043.42	3,016.41	15.90	1,051.91	-166.78	-258.67	244.48	1,037.04	725.65	311.39	3.330	
3,400.00	3,272.42	3,130.27	3,102.04	16.65	1,097.51	-166.92	-268.59	255.06	1,086.55	759.29	327.26	3.320	
3,500.00	3,365.70	3,217.13	3,187.68	17.40	1,143.11	-167.04	-278.51	265.65	1,136.07	792.96	343.11	3.311	
3,600.00	3,458.97	3,303.98	3,273.31	18.15	1,188.72	-167.15	-288.43	276.24	1,185.60	826.65	358.95	3.303	
3,700.00	3,552.25	3,390.83	3,358.94	18.90	1,234.32	-167.26	-298.34	286.82	1,235.12	860.35	374.77	3.296	
3,800.00	3,645.52	3,477.69	3,444.58	19.65	1,279.92	-167.35	-308.26	297.41	1,284.65	894.07	390.59	3.289	
3,900.00	3,738.80	3,564.54	3,530.21	20.40	1,325.52	-167.44	-318.18	307.99	1,334.19	927.80	406.39	3.283	
4,000.00	3,832.07	3,651.39	3,615.84	21.15	1,371.12	-167.53	-328.10	318.58	1,383.72	961.55	422.17	3.278	
4,100.00	3,925.35	3,738.24	3,701.47	21.91	1,416.72	-167.60	-338.01	329.16	1,433.26	995.30	437.96	3.273	
4,200.00	4,018.62	3,825.10	3,787.11	22.66	1,462.32	-167.67	-347.93	339.75	1,482.80	1,029.07	453.73	3.268	
4,300.00	4,111.90	3,911.95	3,872.74	23.42	1,507.93	-167.74	-357.85	350.33	1,532.34	1,062.84	469.50	3.264	
4,400.00	4,205.17	3,998.80	3,958.37	24.17	1,553.53	-167.80	-367.77	360.92	1,581.88	1,096.62	485.25	3.260	
4,500.00	4,298.45	4,085.66	4,044.01	24.93	1,599.13	-167.86	-377.68	371.51	1,631.42	1,130.41	501.01	3.256	
4,600.00	4,391.72	4,172.51	4,129.64	25.68	1,644.73	-167.92	-387.60	382.09	1,680.97	1,164.21	516.76	3.253	
4,700.00	4,485.00	4,259.36	4,215.27	26.44	1,690.33	-167.97	-397.52	392.68	1,730.51	1,198.01	532.50	3.250	
4,800.00	4,578.28	4,346.21	4,300.91	27.19	1,735.94	-168.02	-407.44	403.26	1,780.06	1,231.82	548.24	3.247	
4,900.00	4,671.55	4,433.07	4,386.54	27.95	1,781.54	-168.07	-417.35	413.85	1,829.61	1,265.63	563.97	3.244	
5,000.00	4,764.83	4,519.92	4,472.17	28.70	1,827.14	-168.11	-427.27	424.43	1,879.15	1,299.45	579.70	3.242	

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,026.14	4,789.20	4,542.62	4,494.55	28.90	1,839.06	-168.12	-429.86	427.20	1,892.10	1,308.29	583.81	3.241	
5,100.00	4,858.44	4,607.23	4,558.25	29.38	1,872.99	-168.31	-437.24	435.07	1,927.89	1,318.91	608.98	3.166	
5,200.00	4,953.18	4,696.11	4,645.88	29.91	1,919.65	-168.53	-447.39	445.91	1,973.72	1,331.90	641.82	3.075	
5,300.00	5,048.98	4,786.50	4,735.00	30.39	1,967.11	-168.71	-457.71	456.92	2,016.48	1,343.24	673.23	2.995	
5,400.00	5,145.72	4,878.29	4,825.51	30.82	2,015.31	-168.84	-468.19	468.11	2,056.12	1,352.98	703.14	2.924	
5,500.00	5,243.29	4,971.38	4,917.29	31.20	2,064.19	-168.94	-478.82	479.46	2,092.59	1,361.16	731.43	2.861	
5,600.00	5,341.56	5,065.65	5,010.24	31.52	2,113.68	-169.01	-489.59	490.95	2,125.86	1,367.78	758.08	2.804	
5,700.00	5,440.41	5,160.98	5,104.23	31.80	2,163.74	-169.05	-500.47	502.57	2,155.88	1,372.95	782.94	2.754	
5,800.00	5,539.74	5,257.27	5,199.16	32.03	2,214.29	-169.05	-511.47	514.30	2,182.62	1,376.82	805.80	2.709	
5,900.00	5,639.40	5,354.38	5,294.91	32.20	2,265.29	-169.03	-522.56	526.14	2,206.05	1,379.53	826.52	2.669	
6,000.00	5,739.29	5,551.65	5,489.91	32.34	2,357.37	-168.86	-542.88	547.82	2,225.32	1,369.98	855.33	2.602	
6,082.72	5,822.00	5,854.96	5,792.39	32.41	2,421.52	112.52	-556.78	562.66	2,231.68	1,358.15	873.53	2.555	
6,100.00	5,839.28	5,901.85	5,839.28	32.42	2,423.65	112.53	-556.98	562.87	2,231.76	1,357.54	874.21	2.553	
6,200.00	5,939.28	6,001.85	5,939.28	32.51	2,423.61	112.53	-556.98	562.87	2,231.76	1,357.51	874.25	2.553	
6,300.00	6,039.28	6,101.85	6,039.28	32.60	2,423.57	112.53	-556.98	562.87	2,231.76	1,357.46	874.29	2.553	
6,400.00	6,139.28	6,201.85	6,139.28	32.69	2,423.53	112.53	-556.98	562.87	2,231.76	1,357.41	874.34	2.552	
6,500.00	6,239.28	6,301.85	6,239.28	32.78	2,423.50	112.53	-556.98	562.87	2,231.76	1,357.36	874.40	2.552	
6,600.00	6,339.28	6,401.85	6,339.28	32.87	2,423.46	112.53	-556.98	562.87	2,231.76	1,357.29	874.46	2.552	
6,700.00	6,439.28	6,501.85	6,439.28	32.96	2,423.43	112.53	-556.98	562.87	2,231.76	1,357.22	874.53	2.552	
6,800.00	6,539.28	6,601.85	6,539.28	33.06	2,423.40	112.53	-556.98	562.87	2,231.76	1,357.15	874.61	2.552	
6,900.00	6,639.28	6,701.85	6,639.28	33.15	2,423.37	112.53	-556.98	562.87	2,231.76	1,357.07	874.69	2.551	
7,000.00	6,739.28	6,801.85	6,739.28	33.25	2,423.35	112.53	-556.98	562.87	2,231.76	1,356.98	874.78	2.551	
7,100.00	6,839.28	6,901.85	6,839.28	33.35	2,423.32	112.53	-556.98	562.87	2,231.76	1,356.89	874.87	2.551	
7,200.00	6,939.28	7,001.85	6,939.28	33.45	2,423.30	112.53	-556.98	562.87	2,231.76	1,356.79	874.97	2.551	
7,300.00	7,039.28	7,101.85	7,039.28	33.55	2,423.28	112.53	-556.98	562.87	2,231.76	1,356.68	875.07	2.550	
7,400.00	7,139.28	7,201.85	7,139.28	33.65	2,423.26	112.53	-556.98	562.87	2,231.76	1,356.57	875.18	2.550	
7,500.00	7,239.28	7,301.85	7,239.28	33.75	2,423.24	112.53	-556.98	562.87	2,231.76	1,356.46	875.30	2.550	
7,600.00	7,339.28	7,312.57	7,250.00	33.86	2,423.24	112.53	-556.98	562.87	2,233.54	1,358.08	875.46	2.551	
7,700.00	7,439.28	7,312.57	7,250.00	33.96	2,423.24	112.53	-556.98	562.87	2,239.77	1,364.13	875.63	2.558	
7,800.00	7,539.28	7,312.57	7,250.00	34.07	2,423.24	112.53	-556.98	562.87	2,250.43	1,374.62	875.81	2.570	
7,900.00	7,639.28	7,312.57	7,250.00	34.18	2,423.24	112.53	-556.98	562.87	2,265.45	1,389.48	875.98	2.586	
7,920.72	7,660.00	7,312.57	7,250.00	34.20	2,423.24	112.53	-556.98	562.87	2,269.11	1,393.09	876.01	2.590	

Company:	US ROCKIES REGION PLANNING	**Local Co-ordinate Reference:**	Well P_VARRA 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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 Ele\Coordinates are relative to: P_VARRA 31-28
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 31-28
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 31-28	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00ft	**Output errors are at**	2.00 sigma
Reference Wellbore	P_VARRA 31-28	**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 Ele\Coordinates are relative to: P_VARRA 31-28
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°