



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_VONDERLAGE 19-31 PAD

P_VONDERLAGE 35-31

P_VONDERLAGE 35-31

Plan: PLAN #1 4-6-10 RHS

Standard Planning Report

06 April, 2010

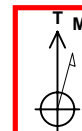




Project: COLORADO NORTHERN ZONE - 83
 Site: WELD_VONDERLAGE 19-31 PAD
 Well: P_VONDERLAGE 35-31
 Wellbore: P_VONDERLAGE 35-31
 Section: SECTION 31 T3N R66W
 SHL: 966 FSL 1056 FWL
 Design: PLAN #1 4-6-10 RHS
 Latitude: 40° 10' 35.900 N
 Longitude: 104° 49' 32.718 W
 GL: 4831.00
 KB: WELL @ 4846.00ft (Original Well Elev)



Weatherford®



Azimuths to True North
 Magnetic North: 9.04°
 Magnetic Field
 Strength: 53132.8snT
 Dip Angle: 66.90°
 Date: 4/6/2010
 Model: IGRF2010

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3830.00	3873.86	PARKMAN
4265.00	4315.96	SUSSEX
7053.00	7127.55	NIO A
7337.00	7411.55	CODELL
7746.00	7820.55	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
1314.10	10.28	148.89	1311.35	-39.39	23.77	2.00	148.89	46.01	Start 4299.35 hold at 1314.10 MD
5613.45	10.28	148.89	5541.65	-696.44	420.26	0.00	0.00	813.41	Start Drop -2.00
6127.55	0.00	0.00	6053.00	-735.83	444.03	2.00	180.00	859.42	Start 1842.00 hold at 6127.55 MD
7969.55	0.00	0.00	7895.00	-735.83	444.03	0.00	0.00	859.42	TD at 7969.55

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

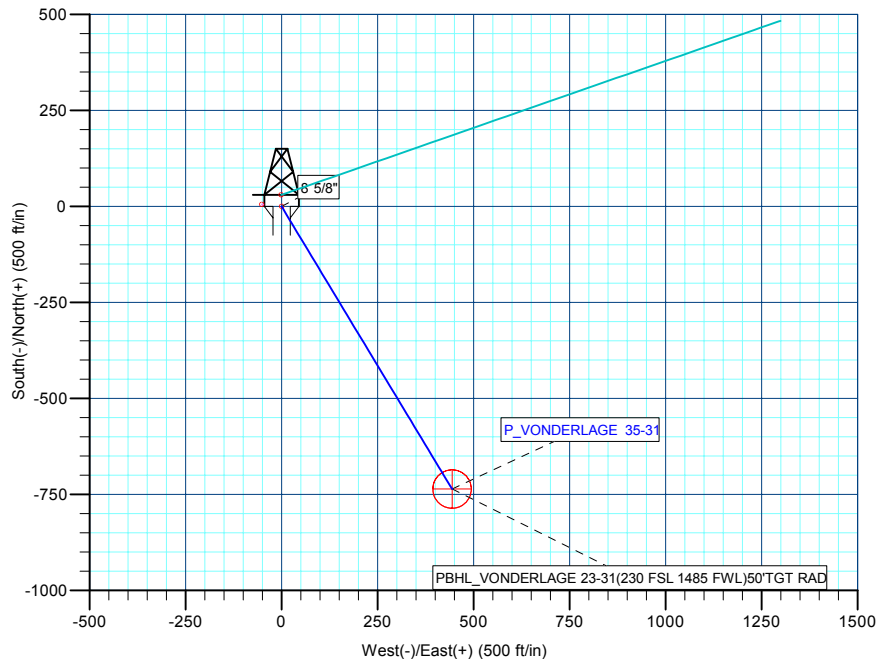
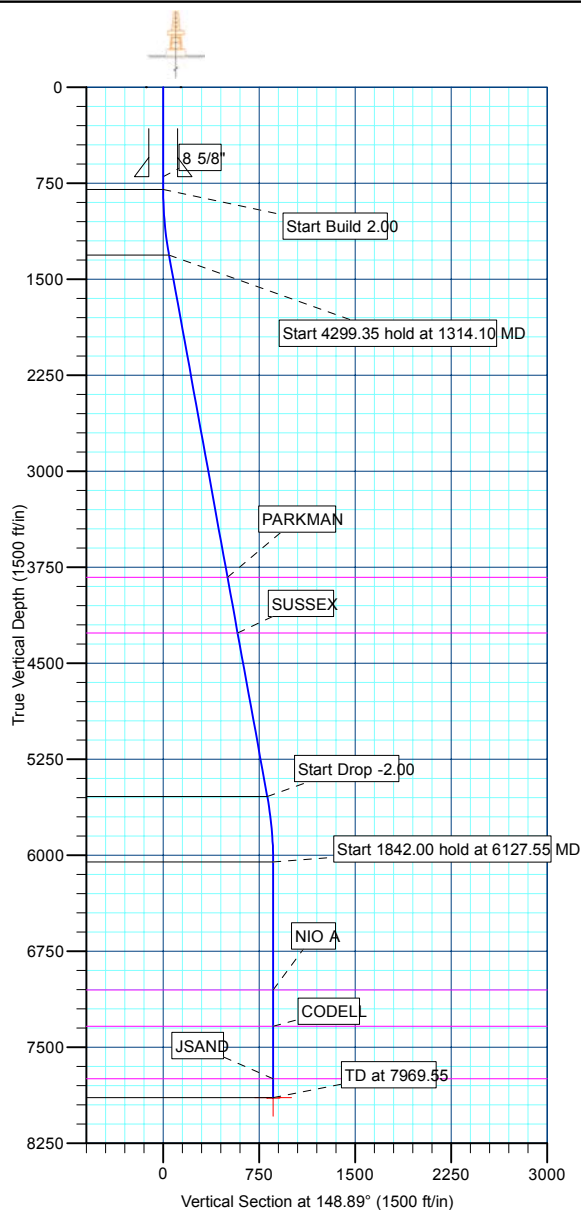
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
PBHL	7895.00	-735.83	444.03	40° 10' 28.628 N	104° 49' 26.998 W	Circle (Radius: 50.00)

WELL DETAILS: P_VONDERLAGE 35-31

+N/-S	+E/-W	Northing	Ground Level: Easting	4831.00 Latitude	Longitude	Slot
0.00	0.00	1307908.70	3188401.09	40° 10' 35.900 N	104° 49' 32.718 W	

LEGEND

JAMES T CALHOUN UNIT #1 EXISTING, JAMES T CALHOUN UNIT #1 EXISTING, JAMES T CALHOUN UNIT #1 EXISTING V0
 P_VONDERLAGE 23-31, P_VONDERLAGE 23-31, PLAN #1 4-6-10 RHS V0
 PLAN #1 4-6-10 RHS



Plan: PLAN #1 4-6-10 RHS (P_VONDERLAGE 35-31/P_VONDERLAGE 35-31)

Created By: Robert H. Scott Date: 9:00, April 06 2010

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_VONDERLAGE 35-31
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4846.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4846.00ft (Original Well Elev)
Site:	WELD_VONDERLAGE 19-31 PAD	North Reference:	True
Well:	P_VONDERLAGE 35-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_VONDERLAGE 35-31		
Design:	PLAN #1 4-6-10 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_VONDERLAGE 19-31 PAD, SECTION 31 T3N R66W											
Site Position:			Northing:			1,307,938.95 ft			Latitude:			40° 10' 36.199 N					
From:			Lat/Long			Easting:			3,188,400.30 ft			Longitude:			104° 49' 32.725 W		
Position Uncertainty:			0.00 ft			Slot Radius:			in			Grid Convergence:			0.44 °		

Well	P_VONDERLAGE 35-31					
Well Position	+N/-S	-30.25 ft	Northing:	1,307,908.70 ft	Latitude:	40° 10' 35.900 N
	+E/-W	0.56 ft	Easting:	3,188,401.09 ft	Longitude:	104° 49' 32.718 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,831.00 ft

Wellbore	P_VONDERLAGE 35-31				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/6/2010	9.04	66.90	53,133

Design	PLAN #1 4-6-10 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	148.89

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	
1,314.10	10.28	148.89	1,311.35	-39.39	23.77	2.00	2.00	0.00	148.89	
5,613.45	10.28	148.89	5,541.65	-696.44	420.26	0.00	0.00	0.00	0.00	
6,127.55	0.00	0.00	6,053.00	-735.83	444.03	2.00	-2.00	0.00	180.00	
7,969.55	0.00	0.00	7,895.00	-735.83	444.03	0.00	0.00	0.00	0.00	PBHL_VONDERLA

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4846.00ft (Original Well Elev)
Site:	WELD_VONDERLAGE 19-31 PAD	North Reference:	True
Well:	P_VONDERLAGE 35-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_VONDERLAGE 35-31		
Design:	PLAN #1 4-6-10 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	148.89	899.98	-1.49	0.90	1.75	2.00	2.00	0.00
1,000.00	4.00	148.89	999.84	-5.97	3.61	6.98	2.00	2.00	0.00
1,100.00	6.00	148.89	1,099.45	-13.44	8.11	15.69	2.00	2.00	0.00
1,200.00	8.00	148.89	1,198.70	-23.87	14.40	27.88	2.00	2.00	0.00
1,300.00	10.00	148.89	1,297.47	-37.26	22.49	43.52	2.00	2.00	0.00
Start 4299.35 hold at 1314.10 MD									
1,314.10	10.28	148.89	1,311.35	-39.39	23.77	46.01	2.00	2.00	0.00
1,400.00	10.28	148.89	1,395.87	-52.52	31.69	61.34	0.00	0.00	0.00
1,500.00	10.28	148.89	1,494.26	-67.80	40.91	79.19	0.00	0.00	0.00
1,600.00	10.28	148.89	1,592.65	-83.08	50.13	97.04	0.00	0.00	0.00
1,700.00	10.28	148.89	1,691.05	-98.36	59.36	114.89	0.00	0.00	0.00
1,800.00	10.28	148.89	1,789.44	-113.65	68.58	132.74	0.00	0.00	0.00
1,900.00	10.28	148.89	1,887.84	-128.93	77.80	150.59	0.00	0.00	0.00
2,000.00	10.28	148.89	1,986.23	-144.21	87.02	168.43	0.00	0.00	0.00
2,100.00	10.28	148.89	2,084.62	-159.49	96.24	186.28	0.00	0.00	0.00
2,200.00	10.28	148.89	2,183.02	-174.78	105.47	204.13	0.00	0.00	0.00
2,300.00	10.28	148.89	2,281.41	-190.06	114.69	221.98	0.00	0.00	0.00
2,400.00	10.28	148.89	2,379.81	-205.34	123.91	239.83	0.00	0.00	0.00
2,500.00	10.28	148.89	2,478.20	-220.63	133.13	257.68	0.00	0.00	0.00
2,600.00	10.28	148.89	2,576.59	-235.91	142.35	275.53	0.00	0.00	0.00
2,700.00	10.28	148.89	2,674.99	-251.19	151.58	293.38	0.00	0.00	0.00
2,800.00	10.28	148.89	2,773.38	-266.47	160.80	311.23	0.00	0.00	0.00
2,900.00	10.28	148.89	2,871.78	-281.76	170.02	329.08	0.00	0.00	0.00
3,000.00	10.28	148.89	2,970.17	-297.04	179.24	346.93	0.00	0.00	0.00
3,100.00	10.28	148.89	3,068.57	-312.32	188.46	364.78	0.00	0.00	0.00
3,200.00	10.28	148.89	3,166.96	-327.60	197.69	382.63	0.00	0.00	0.00
3,300.00	10.28	148.89	3,265.35	-342.89	206.91	400.48	0.00	0.00	0.00
3,400.00	10.28	148.89	3,363.75	-358.17	216.13	418.33	0.00	0.00	0.00
3,500.00	10.28	148.89	3,462.14	-373.45	225.35	436.18	0.00	0.00	0.00
3,600.00	10.28	148.89	3,560.54	-388.73	234.58	454.03	0.00	0.00	0.00
3,700.00	10.28	148.89	3,658.93	-404.02	243.80	471.87	0.00	0.00	0.00
3,800.00	10.28	148.89	3,757.32	-419.30	253.02	489.72	0.00	0.00	0.00
PARKMAN									
3,873.86	10.28	148.89	3,830.00	-430.59	259.83	502.91	0.00	0.00	0.00
3,900.00	10.28	148.89	3,855.72	-434.58	262.24	507.57	0.00	0.00	0.00
4,000.00	10.28	148.89	3,954.11	-449.86	271.46	525.42	0.00	0.00	0.00
4,100.00	10.28	148.89	4,052.51	-465.15	280.69	543.27	0.00	0.00	0.00
4,200.00	10.28	148.89	4,150.90	-480.43	289.91	561.12	0.00	0.00	0.00
4,300.00	10.28	148.89	4,249.29	-495.71	299.13	578.97	0.00	0.00	0.00
SUSSEX									
4,315.96	10.28	148.89	4,265.00	-498.15	300.60	581.82	0.00	0.00	0.00
4,400.00	10.28	148.89	4,347.69	-510.99	308.35	596.82	0.00	0.00	0.00
4,500.00	10.28	148.89	4,446.08	-526.28	317.57	614.67	0.00	0.00	0.00
4,600.00	10.28	148.89	4,544.48	-541.56	326.80	632.52	0.00	0.00	0.00
4,700.00	10.28	148.89	4,642.87	-556.84	336.02	650.37	0.00	0.00	0.00
4,800.00	10.28	148.89	4,741.26	-572.12	345.24	668.22	0.00	0.00	0.00
4,900.00	10.28	148.89	4,839.66	-587.41	354.46	686.07	0.00	0.00	0.00
5,000.00	10.28	148.89	4,938.05	-602.69	363.68	703.92	0.00	0.00	0.00
5,100.00	10.28	148.89	5,036.45	-617.97	372.91	721.77	0.00	0.00	0.00
5,200.00	10.28	148.89	5,134.84	-633.25	382.13	739.62	0.00	0.00	0.00
5,300.00	10.28	148.89	5,233.24	-648.54	391.35	757.47	0.00	0.00	0.00

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4846.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4846.00ft (Original Well Elev)
Site:	WELD_VONDERLAGE 19-31 PAD	North Reference:	True
Well:	P_VONDERLAGE 35-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_VONDERLAGE 35-31		
Design:	PLAN #1 4-6-10 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)
5,400.00	10.28	148.89	5,331.63	-663.82	400.57	775.32	0.00	0.00	0.00
5,500.00	10.28	148.89	5,430.02	-679.10	409.79	793.16	0.00	0.00	0.00
5,600.00	10.28	148.89	5,528.42	-694.38	419.02	811.01	0.00	0.00	0.00
Start Drop -2.00									
5,613.45	10.28	148.89	5,541.65	-696.44	420.26	813.41	0.00	0.00	0.00
5,700.00	8.55	148.89	5,627.03	-708.56	427.57	827.58	2.00	-2.00	0.00
5,800.00	6.55	148.89	5,726.16	-719.81	434.36	840.72	2.00	-2.00	0.00
5,900.00	4.55	148.89	5,825.69	-728.10	439.36	850.39	2.00	-2.00	0.00
6,000.00	2.55	148.89	5,925.49	-733.40	442.56	856.58	2.00	-2.00	0.00
6,100.00	0.55	148.89	6,025.45	-735.72	443.96	859.29	2.00	-2.00	0.00
Start 1842.00 hold at 6127.55 MD									
6,127.55	0.00	0.00	6,053.00	-735.83	444.03	859.42	2.00	-2.00	-540.37
6,200.00	0.00	0.00	6,125.45	-735.83	444.03	859.42	0.00	0.00	0.00
6,300.00	0.00	0.00	6,225.45	-735.83	444.03	859.42	0.00	0.00	0.00
6,400.00	0.00	0.00	6,325.45	-735.83	444.03	859.42	0.00	0.00	0.00
6,500.00	0.00	0.00	6,425.45	-735.83	444.03	859.42	0.00	0.00	0.00
6,600.00	0.00	0.00	6,525.45	-735.83	444.03	859.42	0.00	0.00	0.00
6,700.00	0.00	0.00	6,625.45	-735.83	444.03	859.42	0.00	0.00	0.00
6,800.00	0.00	0.00	6,725.45	-735.83	444.03	859.42	0.00	0.00	0.00
6,900.00	0.00	0.00	6,825.45	-735.83	444.03	859.42	0.00	0.00	0.00
7,000.00	0.00	0.00	6,925.45	-735.83	444.03	859.42	0.00	0.00	0.00
7,100.00	0.00	0.00	7,025.45	-735.83	444.03	859.42	0.00	0.00	0.00
NIO A									
7,127.55	0.00	0.00	7,053.00	-735.83	444.03	859.42	0.00	0.00	0.00
7,200.00	0.00	0.00	7,125.45	-735.83	444.03	859.42	0.00	0.00	0.00
7,300.00	0.00	0.00	7,225.45	-735.83	444.03	859.42	0.00	0.00	0.00
7,400.00	0.00	0.00	7,325.45	-735.83	444.03	859.42	0.00	0.00	0.00
CODELL									
7,411.55	0.00	0.00	7,337.00	-735.83	444.03	859.42	0.00	0.00	0.00
7,500.00	0.00	0.00	7,425.45	-735.83	444.03	859.42	0.00	0.00	0.00
7,600.00	0.00	0.00	7,525.45	-735.83	444.03	859.42	0.00	0.00	0.00
7,700.00	0.00	0.00	7,625.45	-735.83	444.03	859.42	0.00	0.00	0.00
7,800.00	0.00	0.00	7,725.45	-735.83	444.03	859.42	0.00	0.00	0.00
JSAND									
7,820.55	0.00	0.00	7,746.00	-735.83	444.03	859.42	0.00	0.00	0.00
7,900.00	0.00	0.00	7,825.45	-735.83	444.03	859.42	0.00	0.00	0.00
PBHL_VONDERLAGE 23-31(230 FSL 1485 FWL)50'TGT RAD									
7,969.55	0.00	0.00	7,895.00	-735.83	444.03	859.42	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL_VONDERLAGE	0.00	0.00	7,895.00	-735.83	444.03	1,307,176.27	3,188,850.69	40° 10' 28.628 N	104° 49' 26.998 W
- plan hits target center									
- Circle (radius 50.00)									

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4846.00ft (Original Well Elev)
Site:	WELD_VONDERLAGE 19-31 PAD	North Reference:	True
Well:	P_VONDERLAGE 35-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_VONDERLAGE 35-31		
Design:	PLAN #1 4-6-10 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 (°)	
3,873.86	3,830.00	PARKMAN				
4,315.96	4,265.00	SUSSEX				
7,127.55	7,053.00	NIO A				
7,411.55	7,337.00	CODELL				
7,820.55	7,746.00	JSAND				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
800.00	800.00	0.00	0.00	Start Build 2.00	
1,314.10	1,311.35	-39.39	23.77	Start 4299.35 hold at 1314.10 MD	
5,613.45	5,541.65	-696.44	420.26	Start Drop -2.00	
6,127.55	6,053.00	-735.83	444.03	Start 1842.00 hold at 6127.55 MD	
7,969.55	7,895.00	-735.83	444.03	TD at 7969.55	



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_VONDERLAGE 19-31 PAD
P_VONDERLAGE 35-31**

**P_VONDERLAGE 35-31
PLAN #1 4-6-10 RHS**

Anticollision Report

06 April, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VONDERLAGE 35-31
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4846.00ft (Original Well Elev)
Reference Site:	WELD_VONDERLAGE 19-31 PAD	MD Reference:	WELL @ 4846.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VONDERLAGE 35-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VONDERLAGE 35-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-6-10 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 4-6-10 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 4/6/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	7,969.55	PLAN #1 4-6-10 RHS (P_VONDERLAGE	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
WELD_VONDERLAGE 19-31 PAD						
JAMES T CALHOUN UNIT #1 EXISTING - JAMES T C.	300.00	288.00	51.61	46.08	9.327	CC
JAMES T CALHOUN UNIT #1 EXISTING - JAMES T C.	900.00	887.97	52.80	31.25	2.450	ES
JAMES T CALHOUN UNIT #1 EXISTING - JAMES T C.	1,000.00	987.83	56.26	31.90	2.310	SF
P_VONDERLAGE 23-31 - P_VONDERLAGE 23-31 - PL	800.00	800.00	30.26	26.92	9.065	CC, ES
P_VONDERLAGE 23-31 - P_VONDERLAGE 23-31 - PL	900.00	899.62	32.32	28.57	8.616	SF

Offset Design WELD_VONDERLAGE 19-31 PAD - JAMES T CALHOUN UNIT #1 EXISTING - JAMES T CALHOUN												
Survey Program: 575-INC												
Offset Site Error: 0.00 ft												
Offset Well Error: 0.00 ft												
Reference	Offset	Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
0.00	0.00	0.00	0.00	0.00	0.00	-84.33	5.10	-51.41	53.04			
100.00	100.00	88.02	88.02	0.10	1.68	-84.69	4.78	-51.41	51.64	50.02	1.62	31.924
200.00	200.00	188.01	188.01	0.32	3.59	-84.94	4.55	-51.41	51.62	48.04	3.58	14.437
300.00	300.00	288.00	288.00	0.55	5.50	-85.02	4.48	-51.41	51.61	46.08	5.53	9.327 CC
311.25	311.25	299.25	299.25	0.57	5.72	-85.02	4.48	-51.41	51.61	45.86	5.75	8.970
400.00	400.00	387.99	387.99	0.77	7.41	-84.94	4.55	-51.41	51.62	44.13	7.49	6.894
500.00	500.00	487.98	487.98	0.99	9.32	-84.69	4.78	-51.41	51.64	42.21	9.43	5.475
600.00	600.00	588.00	587.99	1.22	11.35	-84.30	5.13	-51.41	51.67	40.20	11.47	4.505
700.00	700.00	688.00	687.99	1.44	14.16	-84.08	5.33	-51.41	51.69	37.49	14.20	3.639
800.00	800.00	788.00	787.99	1.67	16.97	-83.89	5.51	-51.41	51.71	34.77	16.93	3.053
900.00	899.98	887.97	887.96	1.87	19.78	128.87	5.65	-51.41	52.80	31.25	21.55	2.450 ES
1,000.00	999.84	987.83	987.82	2.05	22.59	133.09	5.78	-51.41	56.26	31.90	24.36	2.310 SF
1,100.00	1,099.45	1,087.44	1,087.43	2.26	25.39	138.92	5.87	-51.41	62.58	35.64	26.94	2.323
1,200.00	1,198.70	1,186.69	1,186.68	2.49	28.18	145.21	5.93	-51.41	72.25	43.04	29.21	2.473
1,300.00	1,297.47	1,285.46	1,285.45	2.76	30.95	151.07	5.97	-51.41	85.62	54.39	31.23	2.742
1,314.10	1,311.35	1,299.35	1,299.33	2.80	31.34	151.83	5.98	-51.41	87.81	56.32	31.49	2.788
1,400.00	1,395.87	1,383.88	1,383.86	3.06	33.72	155.91	5.99	-51.41	101.63	68.41	33.22	3.060
1,500.00	1,494.26	1,482.29	1,482.28	3.40	36.48	159.43	5.97	-51.41	118.18	82.90	35.28	3.350
1,600.00	1,592.65	1,580.72	1,580.70	3.74	39.25	162.08	5.93	-51.41	135.04	97.64	37.40	3.611
1,700.00	1,691.05	1,679.15	1,679.13	4.10	42.01	164.13	5.87	-51.41	152.10	112.53	39.57	3.844
1,800.00	1,789.44	1,777.59	1,777.57	4.47	44.78	165.75	5.78	-51.41	169.29	127.52	41.77	4.053
1,900.00	1,887.84	1,876.04	1,876.02	4.85	47.55	167.08	5.66	-51.41	186.58	142.57	44.00	4.240

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VONDERLAGE 35-31
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4846.00ft (Original Well Elev)
Reference Site:	WELD_VONDERLAGE 19-31 PAD	MD Reference:	WELL @ 4846.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VONDERLAGE 35-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VONDERLAGE 35-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_VONDERLAGE 19-31 PAD - JAMES T CALHOUN UNIT #1 EXISTING - JAMES T CALHOUN												Offset Site Error:	0.00 ft
Survey Program: 575-INC												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,000.00	1,986.23	1,974.50	1,974.48	5.23	50.31	168.17	5.52	-51.41	203.92	157.66	46.26	4.408	
2,100.00	2,084.62	2,072.97	2,072.95	5.62	53.08	169.09	5.35	-51.41	221.31	172.77	48.53	4.560	
2,200.00	2,183.02	2,171.45	2,171.42	6.01	55.85	169.87	5.15	-51.41	238.72	187.90	50.82	4.697	
2,300.00	2,281.41	2,270.70	2,270.65	6.40	59.52	170.49	4.61	-51.41	255.90	202.27	53.63	4.771	
2,400.00	2,379.81	2,369.13	2,369.08	6.80	63.40	171.03	4.00	-51.41	273.07	216.51	56.55	4.828	
2,500.00	2,478.20	2,467.56	2,467.51	7.19	67.28	171.50	3.43	-51.41	290.27	230.81	59.46	4.881	
2,600.00	2,576.59	2,565.98	2,565.92	7.59	71.17	171.93	2.88	-51.41	307.52	245.16	62.37	4.931	
2,700.00	2,674.99	2,664.38	2,664.32	7.99	75.05	172.31	2.37	-51.41	324.81	259.55	65.27	4.977	
2,800.00	2,773.38	2,762.78	2,762.72	8.40	78.93	172.66	1.89	-51.41	342.14	273.98	68.16	5.020	
2,900.00	2,871.78	2,861.16	2,861.10	8.80	82.81	172.98	1.44	-51.41	359.50	288.45	71.04	5.060	
3,000.00	2,970.17	2,959.54	2,959.47	9.20	86.69	173.27	1.02	-51.41	376.89	302.97	73.92	5.098	
3,100.00	3,068.57	3,057.90	3,057.84	9.61	90.57	173.54	0.64	-51.41	394.32	317.52	76.80	5.134	
3,200.00	3,166.96	3,156.26	3,156.19	10.01	94.45	173.79	0.28	-51.41	411.78	332.10	79.67	5.168	
3,300.00	3,265.35	3,254.60	3,254.53	10.42	98.33	174.02	-0.05	-51.41	429.27	346.72	82.54	5.200	
3,400.00	3,363.75	3,352.93	3,352.86	10.83	102.21	174.23	-0.34	-51.41	446.79	361.38	85.41	5.231	
3,500.00	3,462.14	3,451.26	3,451.18	11.23	106.09	174.43	-0.61	-51.41	464.34	376.07	88.27	5.260	
3,600.00	3,560.54	3,549.57	3,549.50	11.64	109.97	174.62	-0.84	-51.41	481.92	390.79	91.13	5.288	
3,700.00	3,658.93	3,647.87	3,647.80	12.05	113.84	174.80	-1.05	-51.41	499.54	405.55	93.99	5.315	
3,800.00	3,757.32	3,746.16	3,746.09	12.46	117.72	174.97	-1.22	-51.41	517.18	420.33	96.84	5.340	
3,900.00	3,855.72	3,844.44	3,844.37	12.87	121.60	175.13	-1.36	-51.41	534.85	435.15	99.69	5.365	
4,000.00	3,954.11	3,942.71	3,942.64	13.27	125.48	175.28	-1.47	-51.41	552.55	450.01	102.54	5.389	
4,100.00	4,052.51	4,040.97	4,040.90	13.68	129.35	175.42	-1.55	-51.41	570.27	464.89	105.39	5.411	
4,200.00	4,150.90	4,139.22	4,139.15	14.09	133.23	175.56	-1.60	-51.41	588.03	479.80	108.23	5.433	
4,300.00	4,249.29	4,237.46	4,237.38	14.50	137.10	175.68	-1.62	-51.41	605.81	494.75	111.07	5.454	
4,400.00	4,347.69	4,335.69	4,335.61	14.91	140.98	175.81	-1.61	-51.41	623.62	509.72	113.91	5.475	
4,500.00	4,446.08	4,433.90	4,433.83	15.32	144.85	175.93	-1.56	-51.41	641.46	524.72	116.74	5.495	
4,600.00	4,544.48	4,532.11	4,532.04	15.73	148.73	176.04	-1.49	-51.41	659.33	539.76	119.57	5.514	
4,700.00	4,642.87	4,630.30	4,630.23	16.14	152.60	176.15	-1.38	-51.41	677.23	554.82	122.40	5.533	
4,800.00	4,741.26	4,728.49	4,728.42	16.56	156.47	176.26	-1.25	-51.41	695.15	569.92	125.23	5.551	
4,900.00	4,839.66	4,826.66	4,826.59	16.97	160.35	176.36	-1.08	-51.41	713.10	585.04	128.06	5.569	
5,000.00	4,938.05	4,924.82	4,924.76	17.38	164.22	176.45	-0.89	-51.41	731.08	600.20	130.88	5.586	
5,100.00	5,036.45	5,022.98	5,022.91	17.79	168.09	176.55	-0.66	-51.41	749.08	615.38	133.70	5.603	
5,200.00	5,134.84	5,121.12	5,121.05	18.20	171.96	176.64	-0.40	-51.41	767.11	630.60	136.52	5.619	
5,300.00	5,233.24	5,219.25	5,219.18	18.61	175.83	176.73	-0.11	-51.41	785.17	645.84	139.33	5.635	
5,400.00	5,331.63	5,317.37	5,317.30	19.02	179.70	176.81	0.21	-51.41	803.26	661.11	142.15	5.651	
5,500.00	5,430.02	5,415.48	5,415.41	19.43	183.57	176.90	0.55	-51.41	821.37	676.41	144.96	5.666	
5,600.00	5,528.42	5,513.58	5,513.51	19.85	187.44	176.98	0.94	-51.41	839.51	691.74	147.77	5.681	
5,613.45	5,541.65	5,526.77	5,526.71	19.90	187.96	176.99	0.99	-51.41	841.96	693.81	148.15	5.683	
5,700.00	5,627.03	5,611.89	5,611.82	20.19	191.32	177.07	1.35	-51.41	856.39	705.22	151.18	5.665	
5,800.00	5,726.16	5,710.71	5,710.65	20.44	195.22	177.14	1.79	-51.41	869.89	715.29	154.60	5.627	
5,900.00	5,825.69	5,809.94	5,809.88	20.65	199.13	177.20	2.27	-51.41	879.95	722.06	157.89	5.573	
6,000.00	5,925.49	5,909.46	5,909.40	20.83	203.06	177.24	2.78	-51.41	886.56	725.53	161.03	5.506	
6,100.00	6,025.45	6,009.14	6,009.08	20.96	206.99	177.27	3.33	-51.41	889.72	725.72	163.99	5.425	
6,127.55	6,053.00	6,036.62	6,036.56	21.00	208.08	-33.83	3.48	-51.41	889.98	725.19	164.78	5.401	
6,200.00	6,125.45	6,108.88	6,108.82	21.09	210.93	-33.81	3.90	-51.41	890.33	723.45	166.88	5.335	
6,300.00	6,225.45	6,208.61	6,208.55	21.21	214.86	-33.79	4.51	-51.41	890.83	721.07	169.76	5.248	
6,400.00	6,325.45	6,302.00	6,301.68	21.32	218.55	-33.77	5.10	-51.41	891.39	718.93	172.47	5.168	
6,500.00	6,425.45	6,409.83	6,409.51	21.44	222.82	-33.75	5.74	-51.41	891.86	716.27	175.58	5.079	
6,600.00	6,525.45	6,510.69	6,510.36	21.56	226.82	-33.73	6.22	-51.41	892.25	713.74	178.51	4.998	
6,700.00	6,625.45	6,611.56	6,611.23	21.69	230.83	-33.72	6.57	-51.41	892.54	711.09	181.45	4.919	
6,800.00	6,725.45	6,712.43	6,712.09	21.81	234.83	-33.71	6.81	-51.41	892.74	708.34	184.40	4.841	
6,900.00	6,825.45	6,813.30	6,812.97	21.94	238.83	-33.70	6.93	-51.41	892.84	705.48	187.35	4.765	

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VONDERLAGE 35-31
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4846.00ft (Original Well Elev)
Reference Site:	WELD_VONDERLAGE 19-31 PAD	MD Reference:	WELL @ 4846.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VONDERLAGE 35-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VONDERLAGE 35-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_VONDERLAGE 19-31 PAD - JAMES T CALHOUN UNIT #1 EXISTING - JAMES T CALHOUN												Offset Site Error:	0.00 ft
Survey Program: 575-INC												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,000.00	6,925.45	6,914.18	6,913.84	22.06	242.83	-33.70	6.94	-51.41	892.84	702.52	190.32	4.691	
7,100.00	7,025.45	7,015.07	7,014.72	22.19	246.83	-33.71	6.82	-51.41	892.75	699.45	193.30	4.619	
7,200.00	7,125.45	7,115.95	7,115.60	22.32	250.84	-33.72	6.59	-51.41	892.55	696.27	196.28	4.547	
7,300.00	7,225.45	7,216.85	7,216.49	22.46	254.84	-33.73	6.24	-51.41	892.27	692.99	199.28	4.478	
7,400.00	7,325.45	7,317.74	7,317.38	22.59	258.84	-33.75	5.77	-51.41	891.88	689.60	202.28	4.409	
7,500.00	7,425.45	7,418.64	7,418.27	22.73	262.85	-33.77	5.18	-51.41	891.40	686.10	205.30	4.342	
7,513.32	7,438.77	7,432.08	7,431.71	22.74	263.38	-33.77	5.10	-51.41	891.32	685.62	205.70	4.333	
7,600.00	7,525.45	7,431.00	7,430.61	22.86	263.34	-33.77	5.10	-51.41	895.16	689.33	205.83	4.349	
7,700.00	7,625.45	7,431.00	7,430.61	23.00	263.34	-33.77	5.10	-51.41	909.88	703.86	206.02	4.416	
7,800.00	7,725.45	7,431.00	7,430.61	23.14	263.34	-33.77	5.10	-51.41	935.12	728.91	206.21	4.535	
7,900.00	7,825.45	7,431.00	7,430.61	23.28	263.34	-33.77	5.10	-51.41	970.06	763.66	206.39	4.700	
7,969.55	7,895.00	7,431.00	7,430.61	23.38	263.34	-33.77	5.10	-51.41	999.55	793.03	206.53	4.840	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VONDERLAGE 35-31
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4846.00ft (Original Well Elev)
Reference Site:	WELD_VONDERLAGE 19-31 PAD	MD Reference:	WELL @ 4846.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VONDERLAGE 35-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VONDERLAGE 35-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-1.06	30.25	-0.56	30.26				
100.00	100.00	100.00	100.00	0.10	0.10	-1.06	30.25	-0.56	30.26	30.07	0.19	158.372	
200.00	200.00	200.00	200.00	0.32	0.32	-1.06	30.25	-0.56	30.26	29.62	0.64	47.234	
300.00	300.00	300.00	300.00	0.55	0.55	-1.06	30.25	-0.56	30.26	29.17	1.09	27.756	
400.00	400.00	400.00	400.00	0.77	0.77	-1.06	30.25	-0.56	30.26	28.72	1.54	19.652	
500.00	500.00	500.00	500.00	0.99	0.99	-1.06	30.25	-0.56	30.26	28.27	1.99	15.211	
600.00	600.00	600.00	600.00	1.22	1.22	-1.06	30.25	-0.56	30.26	27.82	2.44	12.407	
700.00	700.00	700.00	700.00	1.44	1.44	-1.06	30.25	-0.56	30.26	27.37	2.89	10.476	
800.00	800.00	800.00	800.00	1.67	1.67	-1.06	30.25	-0.56	30.26	26.92	3.34	9.065 CC, ES	
900.00	899.98	899.62	899.60	1.87	1.88	-148.55	30.82	1.08	32.32	28.57	3.75	8.616 SF	
1,000.00	999.84	998.96	998.80	2.05	2.10	-145.26	32.53	5.96	38.59	34.45	4.14	9.316	
1,100.00	1,099.45	1,097.73	1,097.19	2.26	2.32	-141.64	35.34	14.04	49.19	44.64	4.55	10.801	
1,200.00	1,198.70	1,195.65	1,194.40	2.49	2.57	-138.55	39.23	25.20	64.17	59.17	5.00	12.842	
1,300.00	1,297.47	1,292.47	1,290.05	2.76	2.84	-136.16	44.16	39.31	83.47	77.99	5.48	15.233	
1,314.10	1,311.35	1,306.03	1,303.40	2.80	2.88	-135.87	44.93	41.53	86.54	80.98	5.55	15.588	
1,400.00	1,395.87	1,388.13	1,384.00	3.06	3.15	-134.13	50.06	56.24	106.14	100.12	6.02	17.618	
1,500.00	1,494.26	1,482.70	1,476.26	3.40	3.50	-131.69	56.91	75.89	130.77	124.15	6.62	19.760	
1,600.00	1,592.65	1,576.03	1,566.57	3.74	3.89	-129.11	64.65	98.08	157.49	150.24	7.25	21.716	
1,700.00	1,691.05	1,667.93	1,654.71	4.10	4.33	-126.55	73.21	122.64	186.45	178.53	7.92	23.548	
1,800.00	1,789.44	1,762.53	1,744.93	4.47	4.82	-124.25	82.59	149.51	216.88	208.26	8.63	25.142	
1,900.00	1,887.84	1,857.47	1,835.47	4.85	5.34	-122.51	91.99	176.49	247.57	238.22	9.35	26.485	
2,000.00	1,986.23	1,952.41	1,926.01	5.23	5.87	-121.15	101.40	203.47	278.41	268.33	10.08	27.622	
2,100.00	2,084.62	2,047.35	2,016.55	5.62	6.41	-120.06	110.81	230.45	309.37	298.55	10.82	28.595	
2,200.00	2,183.02	2,142.29	2,107.08	6.01	6.96	-119.17	120.22	257.42	340.41	328.84	11.57	29.432	
2,300.00	2,281.41	2,237.23	2,197.62	6.40	7.52	-118.43	129.63	284.40	371.51	359.20	12.32	30.160	
2,400.00	2,379.81	2,332.17	2,288.16	6.80	8.08	-117.80	139.03	311.38	402.66	389.59	13.08	30.796	
2,500.00	2,478.20	2,427.11	2,378.70	7.19	8.65	-117.27	148.44	338.36	433.85	420.02	13.84	31.357	
2,600.00	2,576.59	2,522.04	2,469.23	7.59	9.22	-116.80	157.85	365.34	465.07	450.47	14.60	31.854	
2,700.00	2,674.99	2,616.98	2,559.77	7.99	9.79	-116.39	167.26	392.32	496.31	480.95	15.37	32.298	
2,800.00	2,773.38	2,711.92	2,650.31	8.40	10.37	-116.03	176.66	419.29	527.58	511.44	16.14	32.696	
2,900.00	2,871.78	2,806.86	2,740.85	8.80	10.94	-115.72	186.07	446.27	558.86	541.95	16.91	33.054	
3,000.00	2,970.17	2,901.80	2,831.39	9.20	11.52	-115.43	195.48	473.25	590.15	572.47	17.68	33.379	
3,100.00	3,068.57	2,996.74	2,921.92	9.61	12.10	-115.17	204.89	500.23	621.45	603.00	18.45	33.674	
3,200.00	3,166.96	3,091.68	3,012.46	10.01	12.69	-114.94	214.30	527.21	652.77	633.54	19.23	33.944	
3,300.00	3,265.35	3,186.62	3,103.00	10.42	13.27	-114.73	223.70	554.18	684.09	664.09	20.01	34.190	
3,400.00	3,363.75	3,281.55	3,193.54	10.83	13.85	-114.54	233.11	581.16	715.43	694.64	20.79	34.417	
3,500.00	3,462.14	3,376.49	3,284.07	11.23	14.44	-114.36	242.52	608.14	746.76	725.20	21.57	34.627	
3,600.00	3,560.54	3,471.43	3,374.61	11.64	15.02	-114.20	251.93	635.12	778.11	755.76	22.35	34.820	
3,700.00	3,658.93	3,566.37	3,465.15	12.05	15.61	-114.05	261.34	662.10	809.46	786.33	23.13	35.000	
3,800.00	3,757.32	3,661.31	3,555.69	12.46	16.19	-113.91	270.74	689.07	840.81	816.90	23.91	35.167	
3,900.00	3,855.72	3,756.25	3,646.22	12.87	16.78	-113.79	280.15	716.05	872.17	847.48	24.69	35.323	
4,000.00	3,954.11	3,851.19	3,736.76	13.27	17.37	-113.67	289.56	743.03	903.53	878.06	25.47	35.468	
4,100.00	4,052.51	3,946.13	3,827.30	13.68	17.96	-113.56	298.97	770.01	934.89	908.64	26.26	35.605	
4,200.00	4,150.90	4,041.06	3,917.84	14.09	18.54	-113.45	308.38	796.99	966.26	939.22	27.04	35.732	
4,300.00	4,249.29	4,136.00	4,008.37	14.50	19.13	-113.35	317.78	823.97	997.63	969.81	27.83	35.853	
4,400.00	4,347.69	4,230.94	4,098.91	14.91	19.72	-113.26	327.19	850.94	1,029.01	1,000.39	28.61	35.966	
4,500.00	4,446.08	4,325.88	4,189.45	15.32	20.31	-113.18	336.60	877.92	1,060.38	1,030.98	29.40	36.072	
4,600.00	4,544.48	4,420.82	4,279.99	15.73	20.90	-113.10	346.01	904.90	1,091.76	1,061.58	30.18	36.173	
4,700.00	4,642.87	4,515.76	4,370.52	16.14	21.49	-113.02	355.42	931.88	1,123.14	1,092.17	30.97	36.268	
4,800.00	4,741.26	4,610.70	4,461.06	16.56	22.08	-112.95	364.82	958.86	1,154.52	1,122.76	31.75	36.359	
4,900.00	4,839.66	4,705.64	4,551.60	16.97	22.67	-112.88	374.23	985.83	1,185.90	1,153.36	32.54	36.445	
5,000.00	4,938.05	4,800.58	4,642.14	17.38	23.26	-112.81	383.64	1,012.81	1,217.28	1,183.96	33.33	36.526	

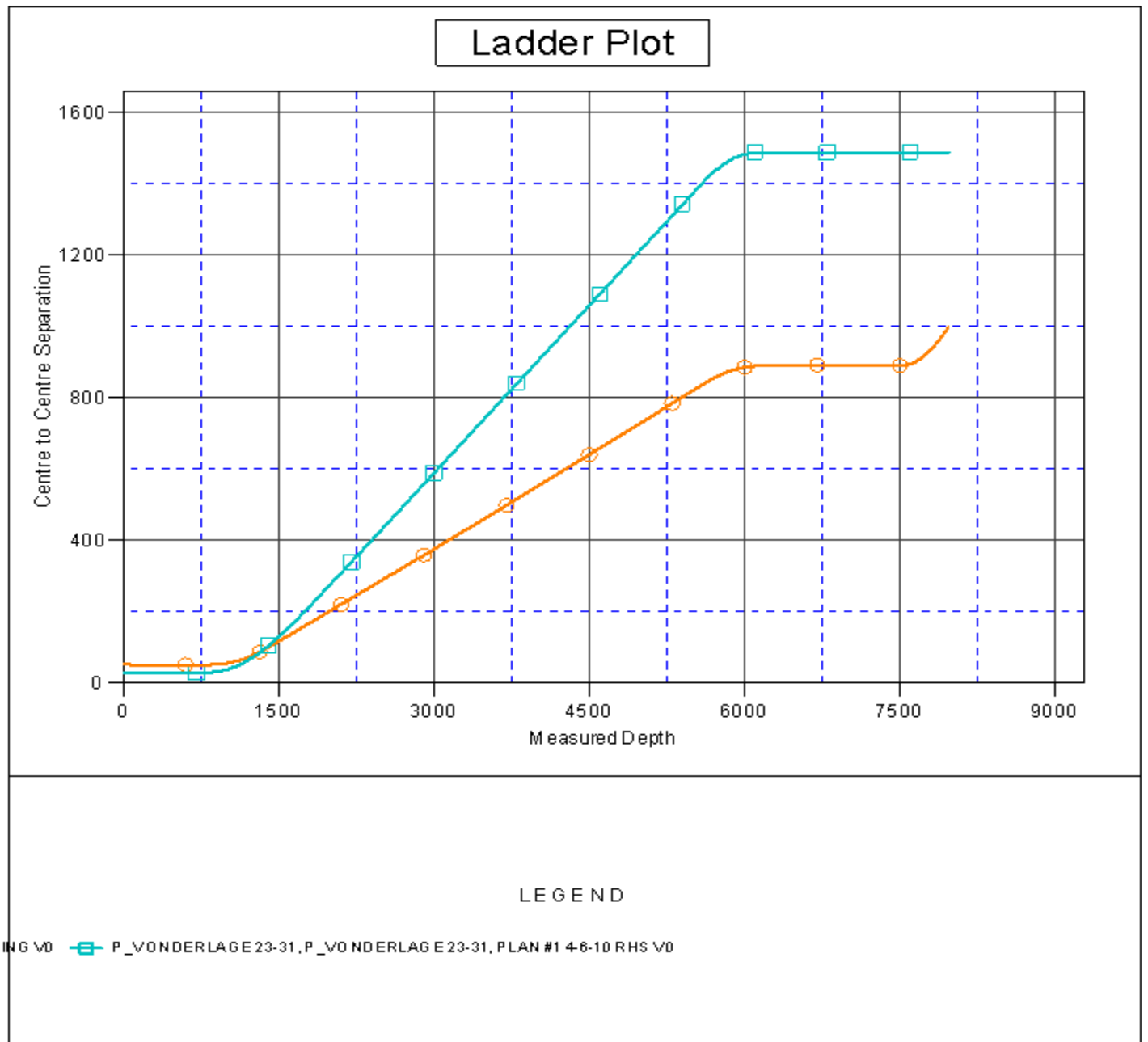
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VONDERLAGE 35-31
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4846.00ft (Original Well Elev)
Reference Site:	WELD_VONDERLAGE 19-31 PAD	MD Reference:	WELL @ 4846.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VONDERLAGE 35-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VONDERLAGE 35-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-6-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,100.00	5,036.45	4,895.51	4,732.67	17.79	23.85	-112.75	393.05	1,039.79	1,248.67	1,214.56	34.11	36.603	
5,200.00	5,134.84	4,990.45	4,823.21	18.20	24.44	-112.69	402.46	1,066.77	1,280.06	1,245.16	34.90	36.677	
5,300.00	5,233.24	5,085.39	4,913.75	18.61	25.03	-112.64	411.86	1,093.75	1,311.44	1,275.76	35.69	36.748	
5,400.00	5,331.63	5,180.33	5,004.29	19.02	25.62	-112.58	421.27	1,120.72	1,342.83	1,306.36	36.48	36.815	
5,500.00	5,430.02	5,275.27	5,094.82	19.43	26.21	-112.53	430.68	1,147.70	1,374.22	1,336.96	37.26	36.879	
5,600.00	5,528.42	5,372.64	5,187.68	19.85	26.82	-112.48	440.33	1,175.37	1,405.61	1,367.55	38.06	36.933	
5,613.45	5,541.65	5,393.90	5,208.00	19.90	26.93	-112.47	442.39	1,181.30	1,409.77	1,371.58	38.19	36.915	
5,700.00	5,627.03	5,532.90	5,341.88	20.19	27.54	-112.91	454.68	1,216.54	1,434.20	1,395.17	39.03	36.750	
5,800.00	5,726.16	5,697.77	5,502.79	20.44	28.16	-113.30	466.47	1,250.33	1,457.04	1,417.19	39.85	36.567	
5,900.00	5,825.69	5,866.32	5,669.15	20.65	28.65	-113.58	475.34	1,275.78	1,473.90	1,433.36	40.54	36.357	
6,000.00	5,925.49	6,037.51	5,839.43	20.83	29.02	-113.76	481.05	1,292.13	1,484.61	1,443.50	41.11	36.116	
6,100.00	6,025.45	6,210.16	6,011.91	20.96	29.26	-113.85	483.39	1,298.87	1,489.06	1,447.52	41.54	35.848	
6,127.55	6,053.00	6,251.25	6,053.00	21.00	29.29	35.04	483.45	1,299.04	1,489.19	1,447.56	41.63	35.772	
6,200.00	6,125.45	6,323.70	6,125.45	21.09	29.36	35.04	483.45	1,299.04	1,489.19	1,447.38	41.81	35.614	
6,300.00	6,225.45	6,423.70	6,225.45	21.21	29.46	35.04	483.45	1,299.04	1,489.19	1,447.12	42.07	35.398	
6,400.00	6,325.45	6,523.70	6,325.45	21.32	29.56	35.04	483.45	1,299.04	1,489.19	1,446.87	42.33	35.182	
6,500.00	6,425.45	6,623.70	6,425.45	21.44	29.66	35.04	483.45	1,299.04	1,489.19	1,446.60	42.59	34.966	
6,600.00	6,525.45	6,723.70	6,525.45	21.56	29.77	35.04	483.45	1,299.04	1,489.19	1,446.34	42.85	34.750	
6,700.00	6,625.45	6,823.70	6,625.45	21.69	29.87	35.04	483.45	1,299.04	1,489.19	1,446.07	43.12	34.535	
6,800.00	6,725.45	6,923.70	6,725.45	21.81	29.98	35.04	483.45	1,299.04	1,489.19	1,445.80	43.39	34.319	
6,900.00	6,825.45	7,023.70	6,825.45	21.94	30.09	35.04	483.45	1,299.04	1,489.19	1,445.53	43.67	34.104	
7,000.00	6,925.45	7,123.70	6,925.45	22.06	30.20	35.04	483.45	1,299.04	1,489.19	1,445.25	43.94	33.890	
7,100.00	7,025.45	7,223.70	7,025.45	22.19	30.31	35.04	483.45	1,299.04	1,489.19	1,444.97	44.22	33.676	
7,200.00	7,125.45	7,323.70	7,125.45	22.32	30.42	35.04	483.45	1,299.04	1,489.19	1,444.69	44.50	33.462	
7,300.00	7,225.45	7,423.70	7,225.45	22.46	30.53	35.04	483.45	1,299.04	1,489.19	1,444.41	44.79	33.249	
7,400.00	7,325.45	7,523.70	7,325.45	22.59	30.64	35.04	483.45	1,299.04	1,489.19	1,444.12	45.08	33.037	
7,500.00	7,425.45	7,623.70	7,425.45	22.73	30.76	35.04	483.45	1,299.04	1,489.19	1,443.83	45.37	32.826	
7,600.00	7,525.45	7,723.70	7,525.45	22.86	30.88	35.04	483.45	1,299.04	1,489.19	1,443.54	45.66	32.615	
7,700.00	7,625.45	7,823.70	7,625.45	23.00	30.99	35.04	483.45	1,299.04	1,489.19	1,443.24	45.95	32.406	
7,800.00	7,725.45	7,923.70	7,725.45	23.14	31.11	35.04	483.45	1,299.04	1,489.19	1,442.94	46.25	32.197	
7,900.00	7,825.45	8,023.70	7,825.45	23.28	31.23	35.04	483.45	1,299.04	1,489.19	1,442.64	46.55	31.990	
7,942.48	7,867.92	8,066.17	7,867.92	23.34	31.28	35.04	483.45	1,299.04	1,489.19	1,442.51	46.68	31.902	
7,969.55	7,895.00	8,083.25	7,885.00	23.38	31.30	35.04	483.45	1,299.04	1,489.23	1,442.48	46.75	31.857	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VONDERLAGE 35-31
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4846.00ft (Original Well Elev)
Reference Site:	WELD_VONDERLAGE 19-31 PAD	MD Reference:	WELL @ 4846.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VONDERLAGE 35-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VONDERLAGE 35-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-6-10 RHS	Offset TVD Reference:	Offset Datum

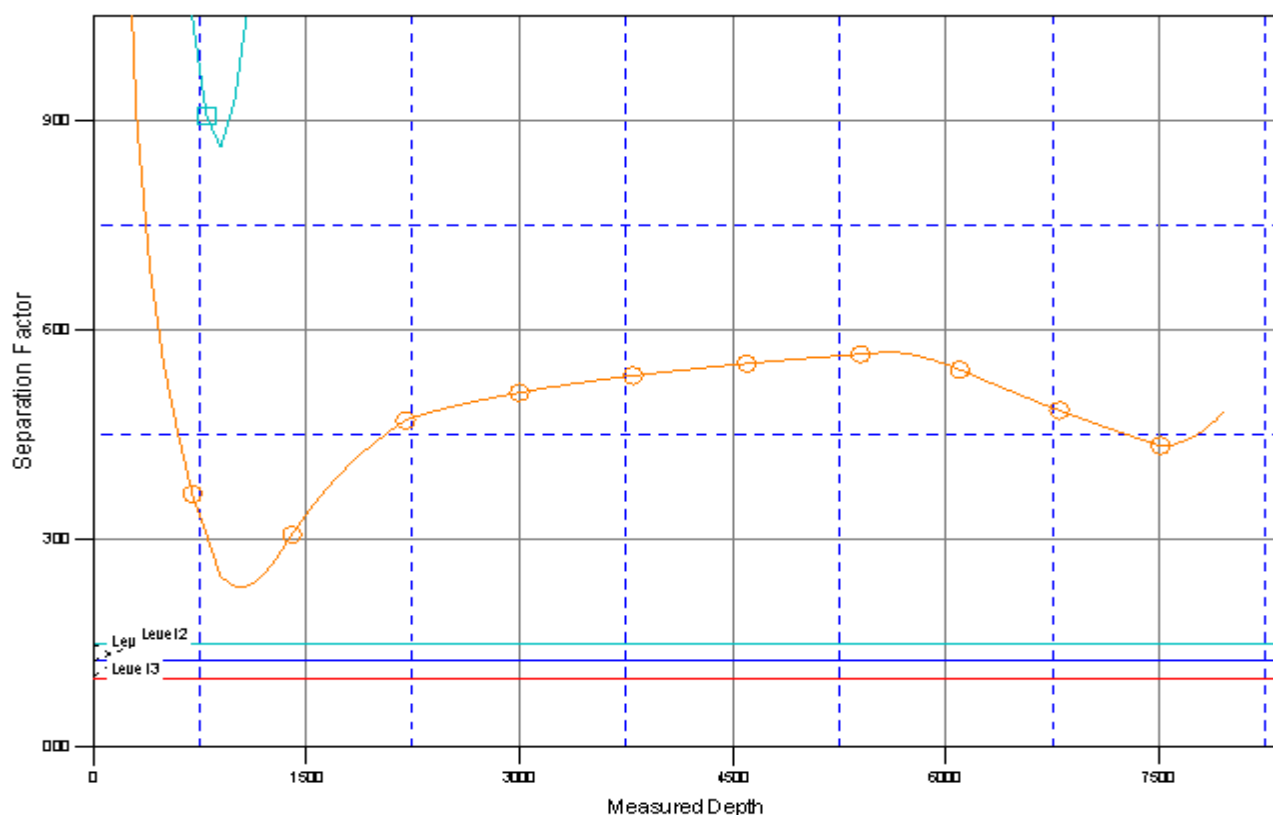
Reference Depths are relative to WELL @ 4846.00ft (Original Well Elev) Coordinates are relative to: P_VONDERLAGE 35-31
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.44°




Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VONDERLAGE 35-31
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4846.00ft (Original Well Elev)
Reference Site:	WELD_VONDERLAGE 19-31 PAD	MD Reference:	WELL @ 4846.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VONDERLAGE 35-31	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VONDERLAGE 35-31	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 4-6-10 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4846.00ft (Original Well Elev) Coordinates are relative to: P_VONDERLAGE 35-31
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.44°

Separation Factor Plot



LEGEND

TING V0  P_VONDERLAGE 23-31, P_VONDERLAGE 23-31, PLAN #1 4-6-10 RHS V0