



# **US ROCKIES REGION PLANNING**

**KERR MCGEE OIL & GAS ONSHORE LP**

**WELD\_VOGL 4 PAD**

**P\_VOGL 23-36**

**P\_VOGL 23-36**

**Plan: PLAN #1 09-16-09 RHS**

## **Standard Planning Report**

**16 September, 2009**





P\_VOGL 23-36  
KERR MCGEE OIL & GAS ONSHORE LP  
SECTION 36 T6N R68W  
706 FSL 728 FWL  
LAT: 40° 10' 37.560 N  
LONG: 104° 57' 29.052 W



Azimuths to True North  
Magnetic North: 9.15°  
Magnetic Field  
Strength: 53197.6nT  
Dip Angle: 66.90°  
Date: 9/10/2009  
Model: IGRF200510

WELL DETAILS: P\_VOGL 23-36

+N/-S	+E/-W	Northing	Easting	Ground Level:	Latitude	Longitude	Slot
0.00	0.00	1307823.11	3151428.42	4817.00	40° 10' 37.560 N	104° 57' 29.052 W	

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3634.00	3837.81	PARKMAN TOP
4100.00	4351.04	SUSSEX TOP
4624.00	4928.15	SHANNON TOP
7044.00	7439.66	NIO A TOP
7304.00	7699.66	CODELL TOP
7380.00	7775.66	GREENHORN TOP
7739.00	8134.66	JSAND TOP

SECTION DETAILS

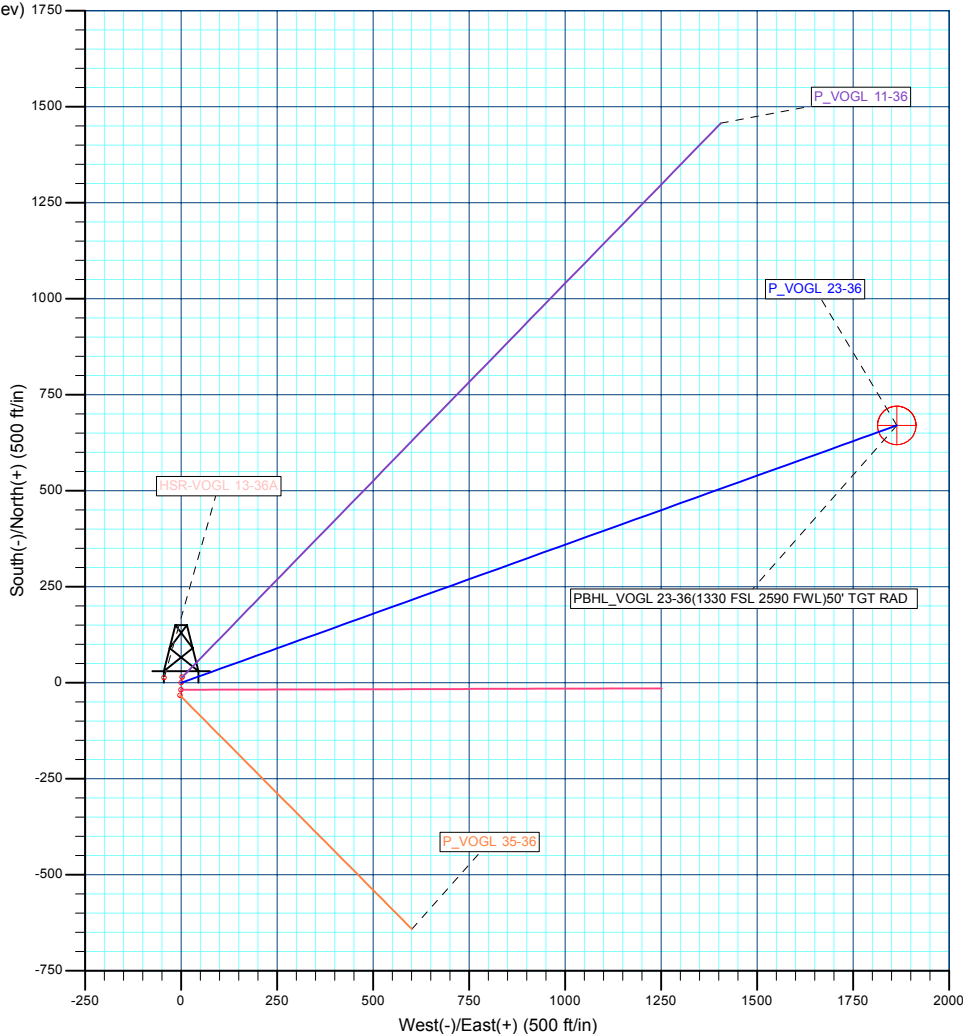
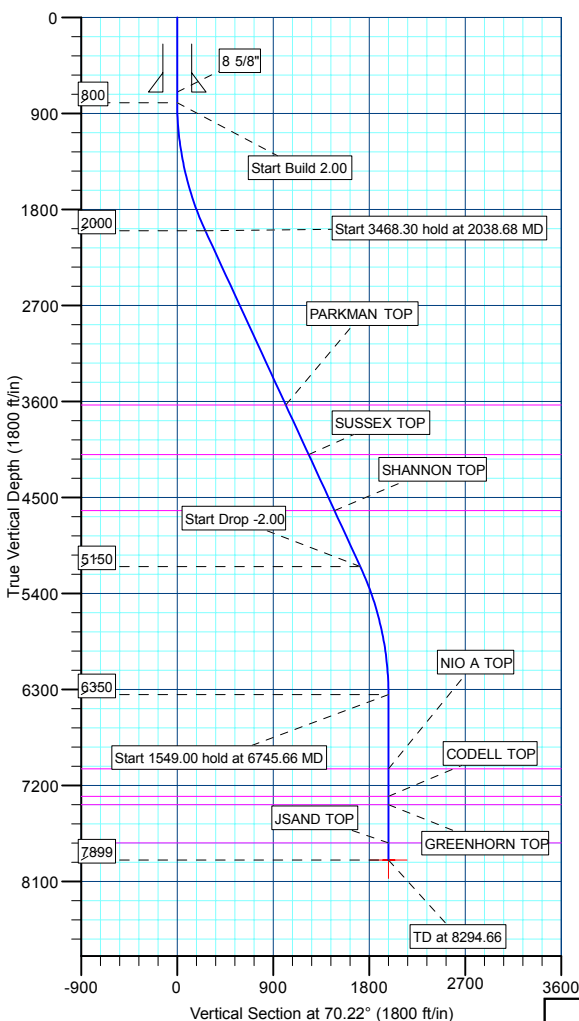
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	
2038.68	24.77	70.22	2000.44	89.23	248.08	2.00	70.22	263.64	
5506.98	24.77	70.22	5149.56	581.13	1615.64	0.00	0.00	1716.98	
6745.66	0.00	0.00	6350.00	670.36	1863.73	2.00	180.00	1980.62	
8294.66	0.00	0.00	7899.00	670.36	1863.73	0.00	0.00	1980.62	PBHL_VOGL 23-36(1330 FSL 2590 FWL)50' TGT RAD

CASING DETAILS

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



KB ELEV: WELL @ 4832.00ft (Original Well Elev) 1750  
GRD ELEV: 4817.00



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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	7899.00	670.36	1863.73	1308504.84	3153288.0140	40° 10' 44.184 N	104° 57' 5.040 W	Circle (Radius: 50.00)

Plan: PLAN #1 09-16-09 RHS (P\_VOGL 23-36/P\_VOGL 23-36)

Created By: Robert H. Scott



<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_VOGL 23-36
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Project:</b>	KERR MCGEE OIL & GAS ONSHORE LP	<b>MD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Site:</b>	WELD_VOGL 4 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_VOGL 23-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_VOGL 23-36		
<b>Design:</b>	PLAN #1 09-16-09 RHS		

<b>Project</b>	KERR MCGEE OIL & GAS ONSHORE LP, KERR MCGEE OIL & GAS ONSHORE LP		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		WELD_VOGL 4 PAD, SECTION 36 T6N R68W			
Site Position:		Northing:	1,307,837.70 ft	Latitude:	40° 10' 37.704 N
From:	Lat/Long	Easting:	3,151,431.13 ft	Longitude:	104° 57' 29.016 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	0.35 °

Well	P_VOGL 23-36					
Well Position	+N/-S	-14.58 ft	Northing:	1,307,823.11 ft	Latitude:	40° 10' 37.560 N
	+E/-W	-2.79 ft	Easting:	3,151,428.42 ft	Longitude:	104° 57' 29.052 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,817.00 ft

<b>Wellbore</b>	P_VOGL 23-36				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	9/10/2009	9.15	66.91	53,198

<b>Design</b>	PLAN #1 09-16-09 RHS			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	70.22

<b>Plan Sections</b>										
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	
2,038.68	24.77	70.22	2,000.44	89.23	248.08	2.00	2.00	0.00	70.22	
5,506.98	24.77	70.22	5,149.56	581.13	1,615.64	0.00	0.00	0.00	0.00	
6,745.66	0.00	0.00	6,350.00	670.36	1,863.73	2.00	-2.00	0.00	180.00	
8,294.66	0.00	0.00	7,899.00	670.36	1,863.73	0.00	0.00	0.00	0.00	PBHL_VOGL 23-36



<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_VOGL 23-36
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Project:</b>	KERR MCGEE OIL & GAS ONSHORE LP	<b>MD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Site:</b>	WELD_VOGL 4 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_VOGL 23-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_VOGL 23-36		
<b>Design:</b>	PLAN #1 09-16-09 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)
<b>Start Build 2.00</b>									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	2.00	70.22	899.98	0.59	1.64	1.75	2.00	2.00	0.00
1,000.00	4.00	70.22	999.84	2.36	6.57	6.98	2.00	2.00	0.00
1,100.00	6.00	70.22	1,099.45	5.31	14.77	15.69	2.00	2.00	0.00
1,200.00	8.00	70.22	1,198.70	9.44	26.23	27.88	2.00	2.00	0.00
1,300.00	10.00	70.22	1,297.47	14.73	40.95	43.52	2.00	2.00	0.00
1,400.00	12.00	70.22	1,395.62	21.19	58.91	62.60	2.00	2.00	0.00
1,500.00	14.00	70.22	1,493.06	28.80	80.07	85.10	2.00	2.00	0.00
1,600.00	16.00	70.22	1,589.64	37.56	104.43	110.98	2.00	2.00	0.00
1,700.00	18.00	70.22	1,685.27	47.46	131.94	140.21	2.00	2.00	0.00
1,800.00	20.00	70.22	1,779.82	58.47	162.57	172.77	2.00	2.00	0.00
1,900.00	22.00	70.22	1,873.17	70.60	196.29	208.60	2.00	2.00	0.00
2,000.00	24.00	70.22	1,965.21	83.83	233.06	247.67	2.00	2.00	0.00
<b>Start 3468.30 hold at 2038.68 MD</b>									
2,038.68	24.77	70.22	2,000.44	89.23	248.08	263.64	2.00	2.00	0.00
2,100.00	24.77	70.22	2,056.12	97.93	272.26	289.34	0.00	0.00	0.00
2,200.00	24.77	70.22	2,146.92	112.11	311.69	331.24	0.00	0.00	0.00
2,300.00	24.77	70.22	2,237.71	126.29	351.12	373.15	0.00	0.00	0.00
2,400.00	24.77	70.22	2,328.51	140.48	390.55	415.05	0.00	0.00	0.00
2,500.00	24.77	70.22	2,419.31	154.66	429.98	456.95	0.00	0.00	0.00
2,600.00	24.77	70.22	2,510.11	168.84	469.41	498.86	0.00	0.00	0.00
2,700.00	24.77	70.22	2,600.90	183.02	508.84	540.76	0.00	0.00	0.00
2,800.00	24.77	70.22	2,691.70	197.21	548.27	582.66	0.00	0.00	0.00
2,900.00	24.77	70.22	2,782.50	211.39	587.70	624.57	0.00	0.00	0.00
3,000.00	24.77	70.22	2,873.29	225.57	627.13	666.47	0.00	0.00	0.00
3,100.00	24.77	70.22	2,964.09	239.76	666.57	708.37	0.00	0.00	0.00
3,200.00	24.77	70.22	3,054.89	253.94	706.00	750.28	0.00	0.00	0.00
3,300.00	24.77	70.22	3,145.69	268.12	745.43	792.18	0.00	0.00	0.00
3,400.00	24.77	70.22	3,236.48	282.30	784.86	834.08	0.00	0.00	0.00
3,500.00	24.77	70.22	3,327.28	296.49	824.29	875.99	0.00	0.00	0.00
3,600.00	24.77	70.22	3,418.08	310.67	863.72	917.89	0.00	0.00	0.00
3,700.00	24.77	70.22	3,508.87	324.85	903.15	959.79	0.00	0.00	0.00
3,800.00	24.77	70.22	3,599.67	339.03	942.58	1,001.70	0.00	0.00	0.00
<b>PARKMAN TOP</b>									
3,837.81	24.77	70.22	3,634.00	344.40	957.48	1,017.54	0.00	0.00	0.00
3,900.00	24.77	70.22	3,690.47	353.22	982.01	1,043.60	0.00	0.00	0.00
4,000.00	24.77	70.22	3,781.27	367.40	1,021.44	1,085.50	0.00	0.00	0.00
4,100.00	24.77	70.22	3,872.06	381.58	1,060.87	1,127.41	0.00	0.00	0.00
4,200.00	24.77	70.22	3,962.86	395.76	1,100.30	1,169.31	0.00	0.00	0.00
4,300.00	24.77	70.22	4,053.66	409.95	1,139.73	1,211.21	0.00	0.00	0.00
<b>SUSSEX TOP</b>									
4,351.04	24.77	70.22	4,100.00	417.18	1,159.85	1,232.60	0.00	0.00	0.00
4,400.00	24.77	70.22	4,144.45	424.13	1,179.16	1,253.11	0.00	0.00	0.00
4,500.00	24.77	70.22	4,235.25	438.31	1,218.59	1,295.02	0.00	0.00	0.00
4,600.00	24.77	70.22	4,326.05	452.49	1,258.02	1,336.92	0.00	0.00	0.00
4,700.00	24.77	70.22	4,416.85	466.68	1,297.45	1,378.82	0.00	0.00	0.00
4,800.00	24.77	70.22	4,507.64	480.86	1,336.88	1,420.73	0.00	0.00	0.00
4,900.00	24.77	70.22	4,598.44	495.04	1,376.31	1,462.63	0.00	0.00	0.00
<b>SHANNON TOP</b>									
4,928.15	24.77	70.22	4,624.00	499.03	1,387.41	1,474.43	0.00	0.00	0.00
5,000.00	24.77	70.22	4,689.24	509.22	1,415.74	1,504.53	0.00	0.00	0.00
5,100.00	24.77	70.22	4,780.03	523.41	1,455.17	1,546.44	0.00	0.00	0.00



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<b>Project:</b>	KERR MCGEE OIL & GAS ONSHORE LP	<b>MD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Site:</b>	WELD_VOGL 4 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_VOGL 23-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_VOGL 23-36		
<b>Design:</b>	PLAN #1 09-16-09 RHS		

**Planned Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,200.00	24.77	70.22	4,870.83	537.59	1,494.60	1,588.34	0.00	0.00	0.00
5,300.00	24.77	70.22	4,961.63	551.77	1,534.03	1,630.24	0.00	0.00	0.00
5,400.00	24.77	70.22	5,052.42	565.95	1,573.46	1,672.15	0.00	0.00	0.00
5,500.00	24.77	70.22	5,143.22	580.14	1,612.89	1,714.05	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,506.98	24.77	70.22	5,149.56	581.13	1,615.64	1,716.98	0.00	0.00	0.00
5,600.00	22.91	70.22	5,234.64	593.85	1,651.02	1,754.58	2.00	-2.00	0.00
5,700.00	20.91	70.22	5,327.41	606.48	1,686.14	1,791.89	2.00	-2.00	0.00
5,800.00	18.91	70.22	5,421.42	618.01	1,718.19	1,825.95	2.00	-2.00	0.00
5,900.00	16.91	70.22	5,516.57	628.42	1,747.13	1,856.71	2.00	-2.00	0.00
6,000.00	14.91	70.22	5,612.73	637.70	1,772.93	1,884.12	2.00	-2.00	0.00
6,100.00	12.91	70.22	5,709.80	645.84	1,795.55	1,908.17	2.00	-2.00	0.00
6,200.00	10.91	70.22	5,807.64	652.82	1,814.97	1,928.81	2.00	-2.00	0.00
6,300.00	8.91	70.22	5,906.14	658.65	1,831.17	1,946.02	2.00	-2.00	0.00
6,400.00	6.91	70.22	6,005.18	663.31	1,844.13	1,959.79	2.00	-2.00	0.00
6,500.00	4.91	70.22	6,104.64	666.80	1,853.82	1,970.09	2.00	-2.00	0.00
6,600.00	2.91	70.22	6,204.41	669.11	1,860.24	1,976.92	2.00	-2.00	0.00
6,700.00	0.91	70.22	6,304.35	670.24	1,863.38	1,980.26	2.00	-2.00	0.00
<b>Start 1549.00 hold at 6745.66 MD</b>									
6,745.66	0.00	0.00	6,350.00	670.36	1,863.73	1,980.62	2.00	-2.00	0.00
6,800.00	0.00	0.00	6,404.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
6,900.00	0.00	0.00	6,504.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
7,000.00	0.00	0.00	6,604.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
7,100.00	0.00	0.00	6,704.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
7,200.00	0.00	0.00	6,804.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
7,300.00	0.00	0.00	6,904.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
7,400.00	0.00	0.00	7,004.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
<b>NIO A TOP</b>									
7,439.66	0.00	0.00	7,044.00	670.36	1,863.73	1,980.62	0.00	0.00	0.00
7,500.00	0.00	0.00	7,104.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
7,600.00	0.00	0.00	7,204.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
<b>CODELL TOP</b>									
7,699.66	0.00	0.00	7,304.00	670.36	1,863.73	1,980.62	0.00	0.00	0.00
7,700.00	0.00	0.00	7,304.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
<b>GREENHORN TOP</b>									
7,775.66	0.00	0.00	7,380.00	670.36	1,863.73	1,980.62	0.00	0.00	0.00
7,800.00	0.00	0.00	7,404.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
7,900.00	0.00	0.00	7,504.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
8,000.00	0.00	0.00	7,604.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
8,100.00	0.00	0.00	7,704.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
<b>JSAND TOP</b>									
8,134.66	0.00	0.00	7,739.00	670.36	1,863.73	1,980.62	0.00	0.00	0.00
8,200.00	0.00	0.00	7,804.34	670.36	1,863.73	1,980.62	0.00	0.00	0.00
<b>PBHL_VOGL 23-36(1330 FSL 2590 FWL)50' TGT RAD</b>									
8,294.66	0.00	0.00	7,899.00	670.36	1,863.73	1,980.62	0.00	0.00	0.00



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<b>Project:</b>	KERR MCGEE OIL & GAS ONSHORE LP	<b>MD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Site:</b>	WELD_VOGL 4 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_VOGL 23-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_VOGL 23-36		
<b>Design:</b>	PLAN #1 09-16-09 RHS		

#### Design Targets

##### Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
PBHL_VOGL 23-36(1 - plan hits target center - Circle (radius 50.00)	0.00	0.00	7,899.00	670.36	1,863.73	1,308,504.84	3,153,288.01	40° 10' 44.184 N	104° 57' 5.040 W

#### 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 (°)
3,837.81	3,634.00	PARKMAN TOP			
4,351.04	4,100.00	SUSSEX TOP			
4,928.15	4,624.00	SHANNON TOP			
7,439.66	7,044.00	NIO A TOP		0.00	
7,699.66	7,304.00	CODELL TOP			
7,775.66	7,380.00	GREENHORN TOP			
8,134.66	7,739.00	JSAND TOP			

#### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
800.00	800.00	0.00	0.00	Start Build 2.00
2,038.68	2,000.44	89.23	248.08	Start 3468.30 hold at 2038.68 MD
5,506.98	5,149.56	581.13	1,615.64	Start Drop -2.00
6,745.66	6,350.00	670.36	1,863.73	Start 1549.00 hold at 6745.66 MD
8,294.66	7,899.00	670.36	1,863.73	TD at 8294.66



# **US ROCKIES REGION PLANNING**

**KERR MCGEE OIL & GAS ONSHORE LP  
WELD\_VOGL 4 PAD  
P\_VOGL 23-36**

**P\_VOGL 23-36  
PLAN #1 09-16-09 RHS**

## **Anticollision Report**

**16 September, 2009**









# Weatherford International Ltd.

## Anticollision Report



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_VOGL 23-36
<b>Project:</b>	KERR MCGEE OIL & GAS ONSHORE LP	<b>TVD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_VOGL 4 PAD	<b>MD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_VOGL 23-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_VOGL 23-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 09-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design WELD_VOGL 4 PAD - HSR-VOGL 13-36A - HSR-VOGL 13-36A EXISTING - HSR-VOGL 13-36A EXIS												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												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	
1,800.00	1,779.82	1,779.82	1,779.82	5.05	68.89	-172.12	13.12	-44.20	211.69	142.94	68.75	3.079	
1,900.00	1,873.17	1,873.17	1,873.17	5.69	72.63	-173.17	13.12	-44.20	247.27	175.65	71.61	3.453	
2,000.00	1,965.21	1,965.21	1,965.21	6.40	76.31	-174.01	13.12	-44.20	286.13	211.87	74.26	3.853	
2,038.68	2,000.44	2,000.44	2,000.44	6.69	77.72	-174.29	13.12	-44.20	302.03	226.81	75.22	4.015	
2,100.00	2,056.12	2,056.12	2,056.12	7.17	79.94	-174.74	13.12	-44.20	327.63	250.20	77.43	4.231	
2,200.00	2,146.92	2,146.92	2,146.92	7.96	83.58	-175.33	13.12	-44.20	369.40	288.37	81.04	4.559	
2,300.00	2,237.71	2,237.71	2,237.71	8.77	87.21	-175.81	13.12	-44.20	411.20	326.55	84.65	4.858	
2,400.00	2,328.51	2,328.51	2,328.51	9.59	90.84	-176.20	13.12	-44.20	453.02	364.75	88.28	5.132	
2,500.00	2,419.31	2,419.31	2,419.31	10.42	94.47	-176.52	13.12	-44.20	494.86	402.95	91.91	5.384	
2,600.00	2,510.11	2,510.11	2,510.11	11.26	98.10	-176.79	13.12	-44.20	536.70	441.16	95.54	5.617	
2,700.00	2,600.90	2,600.90	2,600.90	12.10	101.74	-177.02	13.12	-44.20	578.55	479.37	99.18	5.833	
2,800.00	2,691.70	2,691.70	2,691.70	12.94	105.37	-177.22	13.12	-44.20	620.41	517.59	102.82	6.034	
2,900.00	2,782.50	2,782.50	2,782.50	13.79	109.00	-177.40	13.12	-44.20	662.28	555.81	106.47	6.220	
3,000.00	2,873.29	2,873.29	2,873.29	14.63	112.63	-177.55	13.12	-44.20	704.15	594.03	110.12	6.394	
3,100.00	2,964.09	2,964.09	2,964.09	15.49	116.26	-177.69	13.12	-44.20	746.02	632.25	113.77	6.557	
3,200.00	3,054.89	3,054.89	3,054.89	16.34	119.90	-177.81	13.12	-44.20	787.90	670.48	117.42	6.710	
3,300.00	3,145.69	3,145.69	3,145.69	17.20	123.53	-177.92	13.12	-44.20	829.78	708.70	121.07	6.853	
3,400.00	3,236.48	3,236.48	3,236.48	18.05	127.16	-178.02	13.12	-44.20	871.66	746.93	124.73	6.988	
3,500.00	3,327.28	3,327.28	3,327.28	18.91	130.79	-178.11	13.12	-44.20	913.54	785.16	128.39	7.116	
3,600.00	3,418.08	3,418.08	3,418.08	19.77	134.42	-178.20	13.12	-44.20	955.43	823.39	132.04	7.236	
3,700.00	3,508.87	3,508.87	3,508.87	20.63	138.05	-178.27	13.12	-44.20	997.32	861.62	135.70	7.349	
3,800.00	3,599.67	3,599.67	3,599.67	21.49	141.69	-178.34	13.12	-44.20	1,039.20	899.84	139.36	7.457	
3,900.00	3,690.47	3,690.47	3,690.47	22.35	145.32	-178.41	13.12	-44.20	1,081.09	938.07	143.02	7.559	
4,000.00	3,781.27	3,781.27	3,781.27	23.21	148.95	-178.47	13.12	-44.20	1,122.98	976.30	146.68	7.656	
4,100.00	3,872.06	3,872.06	3,872.06	24.08	152.58	-178.52	13.12	-44.20	1,164.88	1,014.53	150.34	7.748	
4,200.00	3,962.86	3,962.86	3,962.86	24.94	156.21	-178.57	13.12	-44.20	1,206.77	1,052.76	154.00	7.836	
4,300.00	4,053.66	4,053.66	4,053.66	25.80	159.85	-178.62	13.12	-44.20	1,248.66	1,090.99	157.67	7.920	
4,400.00	4,144.45	4,144.45	4,144.45	26.67	163.48	-178.66	13.12	-44.20	1,290.55	1,129.22	161.33	7.999	
4,500.00	4,235.25	4,235.25	4,235.25	27.53	167.11	-178.71	13.12	-44.20	1,332.45	1,167.46	164.99	8.076	
4,600.00	4,326.05	4,326.05	4,326.05	28.40	170.74	-178.75	13.12	-44.20	1,374.34	1,205.69	168.66	8.149	
4,700.00	4,416.85	4,416.85	4,416.85	29.26	174.37	-178.78	13.12	-44.20	1,416.24	1,243.92	172.32	8.219	
4,800.00	4,507.64	4,507.64	4,507.64	30.13	178.01	-178.82	13.12	-44.20	1,458.13	1,282.15	175.99	8.286	
4,900.00	4,598.44	4,598.44	4,598.44	30.99	181.64	-178.85	13.12	-44.20	1,500.03	1,320.38	179.65	8.350	
5,000.00	4,689.24	4,689.24	4,689.24	31.86	185.27	-178.88	13.12	-44.20	1,541.93	1,358.61	183.32	8.411	
5,100.00	4,780.03	4,780.03	4,780.03	32.72	188.90	-178.91	13.12	-44.20	1,583.82	1,396.84	186.98	8.471	
5,200.00	4,870.83	4,870.83	4,870.83	33.59	192.53	-178.94	13.12	-44.20	1,625.72	1,435.08	190.65	8.527	
5,300.00	4,961.63	4,961.63	4,961.63	34.46	196.17	-178.97	13.12	-44.20	1,667.62	1,473.31	194.31	8.582	
5,400.00	5,052.42	5,052.42	5,052.42	35.32	199.80	-178.99	13.12	-44.20	1,709.52	1,511.54	197.98	8.635	
5,506.98	5,149.56	5,149.56	5,149.56	36.25	203.68	-179.02	13.12	-44.20	1,754.34	1,552.44	201.90	8.689	
5,600.00	5,234.64	5,234.64	5,234.64	36.95	207.09	-179.05	13.12	-44.20	1,791.94	1,583.95	207.99	8.616	
5,700.00	5,327.41	5,327.41	5,327.41	37.57	210.80	-179.08	13.12	-44.20	1,829.25	1,614.78	214.47	8.529	
5,800.00	5,421.42	5,421.42	5,421.42	38.14	214.56	-179.11	13.12	-44.20	1,863.30	1,642.48	220.82	8.438	
5,900.00	5,516.57	5,516.57	5,516.57	38.66	218.36	-179.14	13.12	-44.20	1,894.06	1,667.05	227.01	8.344	
6,000.00	5,612.73	5,612.73	5,612.73	39.12	222.21	-179.16	13.12	-44.20	1,921.47	1,688.45	233.02	8.246	
6,100.00	5,709.80	5,709.80	5,709.80	39.53	226.09	-179.17	13.12	-44.20	1,945.51	1,706.67	238.84	8.146	
6,200.00	5,807.64	5,807.64	5,807.64	39.89	230.01	-179.19	13.12	-44.20	1,966.15	1,721.71	244.44	8.043	
6,300.00	5,906.14	5,906.14	5,906.14	40.20	233.95	-179.20	13.12	-44.20	1,983.36	1,733.56	249.81	7.940	
6,400.00	6,005.18	6,005.18	6,005.18	40.45	237.91	-179.21	13.12	-44.20	1,997.13	1,742.22	254.91	7.835	
6,500.00	6,104.64	6,104.64	6,104.64	40.66	241.89	-179.22	13.12	-44.20	2,007.43	1,747.68	259.74	7.728	
6,600.00	6,204.41	6,204.41	6,204.41	40.81	245.88	-179.22	13.12	-44.20	2,014.25	1,749.97	264.28	7.622	
6,700.00	6,304.35	6,304.35	6,304.35	40.92	249.87	-179.22	13.12	-44.20	2,017.59	1,749.10	268.49	7.514	
6,745.66	6,350.00	6,350.00	6,350.00	40.95	251.70	-109.01	13.12	-44.20	2,017.95	1,747.64	270.31	7.465	

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



# Weatherford International Ltd.

## Anticollision Report



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_VOGL 23-36
<b>Project:</b>	KERR MCGEE OIL & GAS ONSHORE LP	<b>TVD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_VOGL 4 PAD	<b>MD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_VOGL 23-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_VOGL 23-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 09-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> WELD_VOGL 4 PAD - HSR-VOGL 13-36A - HSR-VOGL 13-36A EXISTING - HSR-VOGL 13-36A EXIS												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-UNKNOWN												<b>Offset Well Error:</b>	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,800.00	6,404.34	6,404.34	6,404.34	40.99	253.87	-109.01	13.12	-44.20	2,017.95	1,745.39	272.56	7.404	
6,900.00	6,504.34	6,504.34	6,504.34	41.07	257.87	-109.01	13.12	-44.20	2,017.95	1,741.25	276.71	7.293	
7,000.00	6,604.34	6,604.34	6,604.34	41.14	261.87	-109.01	13.12	-44.20	2,017.95	1,737.10	280.86	7.185	
7,100.00	6,704.34	6,704.34	6,704.34	41.22	265.87	-109.01	13.12	-44.20	2,017.95	1,732.95	285.01	7.080	
7,200.00	6,804.34	6,804.34	6,804.34	41.30	269.87	-109.01	13.12	-44.20	2,017.95	1,728.80	289.16	6.979	
7,300.00	6,904.34	6,904.34	6,904.34	41.38	273.87	-109.01	13.12	-44.20	2,017.95	1,724.64	293.31	6.880	
7,400.00	7,004.34	7,004.34	7,004.34	41.46	277.87	-109.01	13.12	-44.20	2,017.95	1,720.49	297.47	6.784	
7,500.00	7,104.34	7,104.34	7,104.34	41.54	281.87	-109.01	13.12	-44.20	2,017.95	1,716.33	301.62	6.690	
7,600.00	7,204.34	7,204.34	7,204.34	41.62	285.87	-109.01	13.12	-44.20	2,017.95	1,712.17	305.78	6.599	
7,700.00	7,304.34	7,304.34	7,304.34	41.70	289.87	-109.01	13.12	-44.20	2,017.95	1,708.02	309.94	6.511	
7,800.00	7,404.34	7,404.34	7,404.34	41.79	293.87	-109.01	13.12	-44.20	2,017.95	1,703.86	314.10	6.425	
7,900.00	7,504.34	7,504.34	7,504.34	41.87	297.87	-109.01	13.12	-44.20	2,017.95	1,699.70	318.26	6.341	
8,000.00	7,604.34	7,604.34	7,604.34	41.96	301.87	-109.01	13.12	-44.20	2,017.95	1,695.53	322.42	6.259	
8,100.00	7,704.34	7,704.34	7,704.34	42.05	305.87	-109.01	13.12	-44.20	2,017.95	1,691.37	326.59	6.179	
8,200.00	7,804.34	7,804.34	7,804.34	42.14	309.87	-109.01	13.12	-44.20	2,017.95	1,687.20	330.75	6.101	
8,294.66	7,899.00	7,899.00	7,899.00	42.22	313.66	-109.01	13.12	-44.20	2,017.95	1,683.26	334.69	6.029	



# Weatherford International Ltd.

## Anticollision Report



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_VOGL 23-36
<b>Project:</b>	KERR MCGEE OIL & GAS ONSHORE LP	<b>TVD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_VOGL 4 PAD	<b>MD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_VOGL 23-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_VOGL 23-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 09-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design WELD_VOGL 4 PAD - P_VOGL 11-36 - P_VOGL 11-36 - PLAN #1 09-16-09 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis 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	10.85	14.58	2.79	14.84				
100.00	100.00	100.00	100.00	0.10	0.10	10.85	14.58	2.79	14.84	14.65	0.19	77.702	
200.00	200.00	200.00	200.00	0.32	0.32	10.85	14.58	2.79	14.84	14.20	0.64	23.174	
300.00	300.00	300.00	300.00	0.55	0.55	10.85	14.58	2.79	14.84	13.75	1.09	13.618	
400.00	400.00	400.00	400.00	0.77	0.77	10.85	14.58	2.79	14.84	13.31	1.54	9.642	
500.00	500.00	500.00	500.00	0.99	0.99	10.85	14.58	2.79	14.84	12.86	1.99	7.463	
600.00	600.00	600.00	600.00	1.22	1.22	10.85	14.58	2.79	14.84	12.41	2.44	6.087	
700.00	700.00	700.00	700.00	1.44	1.44	10.85	14.58	2.79	14.84	11.96	2.89	5.140	
800.00	800.00	800.00	800.00	1.67	1.67	10.85	14.58	2.79	14.84	11.51	3.34	4.448 CC, ES	
900.00	899.98	899.56	899.54	1.89	1.89	-61.38	15.82	4.00	15.42	11.64	3.77	4.085 SF	
1,000.00	999.84	999.09	998.93	2.10	2.11	-66.58	19.54	7.61	17.23	13.02	4.21	4.095	
1,100.00	1,099.45	1,098.54	1,098.00	2.33	2.34	-73.09	25.72	13.63	20.49	15.83	4.66	4.394	
1,200.00	1,198.70	1,197.89	1,196.61	2.58	2.59	-79.25	34.36	22.03	25.36	20.20	5.16	4.916	
1,300.00	1,297.47	1,297.10	1,294.61	2.86	2.87	-84.31	45.42	32.78	31.89	26.18	5.71	5.584	
1,400.00	1,395.62	1,396.13	1,391.83	3.19	3.18	-88.17	58.89	45.88	40.07	33.73	6.34	6.320	
1,500.00	1,493.06	1,494.95	1,488.15	3.56	3.54	-91.05	74.72	61.27	49.86	42.80	7.06	7.061	
1,600.00	1,589.64	1,593.53	1,583.42	3.99	3.96	-93.17	92.87	78.92	61.23	53.34	7.89	7.762	
1,700.00	1,685.27	1,691.85	1,677.51	4.49	4.43	-94.74	113.31	98.79	74.13	65.30	8.83	8.395	
1,800.00	1,779.82	1,789.87	1,770.29	5.05	4.96	-95.90	135.98	120.83	88.54	78.65	9.90	8.947	
1,900.00	1,873.17	1,887.57	1,861.63	5.69	5.55	-96.77	160.82	144.98	104.42	93.34	11.09	9.418	
2,000.00	1,965.21	1,984.92	1,951.43	6.40	6.21	-97.40	187.78	171.20	121.75	109.34	12.41	9.812	
2,038.68	2,000.44	2,022.48	1,985.72	6.69	6.48	-97.60	198.77	181.88	128.83	115.88	12.95	9.947	
2,100.00	2,056.12	2,082.43	2,040.13	7.17	6.92	-97.93	216.81	199.42	140.33	126.48	13.85	10.132	
2,200.00	2,146.92	2,180.64	2,129.21	7.96	7.67	-98.31	246.45	228.24	159.14	143.78	15.35	10.366	
2,300.00	2,237.71	2,278.85	2,218.30	8.77	8.44	-98.62	276.09	257.06	177.94	161.06	16.88	10.542	
2,400.00	2,328.51	2,377.07	2,307.38	9.59	9.22	-98.87	305.74	285.89	196.76	178.32	18.43	10.676	
2,500.00	2,419.31	2,475.28	2,396.47	10.42	10.00	-99.07	335.38	314.71	215.57	195.57	20.00	10.780	
2,600.00	2,510.11	2,573.49	2,485.55	11.26	10.79	-99.24	365.03	343.53	234.39	212.81	21.58	10.863	
2,700.00	2,600.90	2,671.70	2,574.63	12.10	11.58	-99.39	394.67	372.36	253.21	230.04	23.17	10.930	
2,800.00	2,691.70	2,769.91	2,663.72	12.94	12.38	-99.51	424.32	401.18	272.03	247.26	24.76	10.985	
2,900.00	2,782.50	2,868.12	2,752.80	13.79	13.19	-99.62	453.96	430.00	290.85	264.48	26.37	11.030	
3,000.00	2,873.29	2,966.33	2,841.89	14.63	13.99	-99.72	483.60	458.83	309.67	281.69	27.98	11.068	
3,100.00	2,964.09	3,064.55	2,930.97	15.49	14.80	-99.80	513.25	487.65	328.49	298.90	29.59	11.100	
3,200.00	3,054.89	3,162.76	3,020.05	16.34	15.61	-99.88	542.89	516.47	347.31	316.10	31.21	11.127	
3,300.00	3,145.69	3,260.97	3,109.14	17.20	16.42	-99.95	572.54	545.30	366.14	333.30	32.83	11.151	
3,400.00	3,236.48	3,359.18	3,198.22	18.05	17.23	-100.01	602.18	574.12	384.96	350.50	34.46	11.172	
3,500.00	3,327.28	3,457.39	3,287.31	18.91	18.05	-100.07	631.82	602.94	403.79	367.70	36.09	11.189	
3,600.00	3,418.08	3,555.60	3,376.39	19.77	18.86	-100.12	661.47	631.76	422.61	384.90	37.72	11.205	
3,700.00	3,508.87	3,653.81	3,465.47	20.63	19.68	-100.16	691.11	660.59	441.44	402.09	39.35	11.219	
3,800.00	3,599.67	3,752.03	3,554.56	21.49	20.49	-100.21	720.76	689.41	460.26	419.28	40.98	11.231	
3,900.00	3,690.47	3,850.24	3,643.64	22.35	21.31	-100.24	750.40	718.23	479.09	436.47	42.62	11.242	
4,000.00	3,781.27	3,948.45	3,732.73	23.21	22.13	-100.28	780.05	747.06	497.91	453.66	44.25	11.252	
4,100.00	3,872.06	4,046.66	3,821.81	24.08	22.95	-100.31	809.69	775.88	516.74	470.85	45.89	11.261	
4,200.00	3,962.86	4,144.87	3,910.89	24.94	23.77	-100.35	839.33	804.70	535.57	488.04	47.53	11.269	
4,300.00	4,053.66	4,243.08	3,999.98	25.80	24.59	-100.37	868.98	833.53	554.39	505.23	49.17	11.276	
4,400.00	4,144.45	4,341.29	4,089.06	26.67	25.41	-100.40	898.62	862.35	573.22	522.41	50.81	11.283	
4,500.00	4,235.25	4,439.51	4,178.14	27.53	26.23	-100.43	928.27	891.17	592.05	539.60	52.45	11.289	
4,600.00	4,326.05	4,537.72	4,267.23	28.40	27.05	-100.45	957.91	920.00	610.87	556.79	54.09	11.294	
4,700.00	4,416.85	4,635.93	4,356.31	29.26	27.87	-100.47	987.56	948.82	629.70	573.97	55.73	11.299	
4,800.00	4,507.64	4,734.14	4,445.40	30.13	28.69	-100.50	1,017.20	977.64	648.53	591.16	57.37	11.304	
4,900.00	4,598.44	4,832.35	4,534.48	30.99	29.51	-100.52	1,046.84	1,006.46	667.35	608.34	59.02	11.308	
5,000.00	4,689.24	4,930.56	4,623.56	31.86	30.34	-100.53	1,076.49	1,035.29	686.18	625.52	60.66	11.312	

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



# Weatherford International Ltd.

## Anticollision Report



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_VOGL 23-36
<b>Project:</b>	KERR MCGEE OIL & GAS ONSHORE LP	<b>TVD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_VOGL 4 PAD	<b>MD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_VOGL 23-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_VOGL 23-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 09-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design WELD_VOGL 4 PAD - P_VOGL 11-36 - P_VOGL 11-36 - PLAN #1 09-16-09 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance								Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,100.00	4,780.03	5,028.77	4,712.65	32.72	31.16	-100.55	1,106.13	1,064.11	705.01	642.71	62.30	11.316	
5,200.00	4,870.83	5,126.99	4,801.73	33.59	31.98	-100.57	1,135.78	1,092.93	723.84	659.89	63.95	11.319	
5,300.00	4,961.63	5,225.20	4,890.82	34.46	32.80	-100.59	1,165.42	1,121.76	742.66	677.07	65.59	11.322	
5,400.00	5,052.42	5,323.41	4,979.90	35.32	33.63	-100.60	1,195.06	1,150.58	761.49	694.25	67.24	11.325	
5,506.98	5,149.56	5,428.48	5,075.20	36.25	34.51	-100.62	1,226.78	1,181.41	781.63	712.63	69.00	11.328	
5,600.00	5,234.64	5,519.87	5,158.10	36.95	35.27	-100.87	1,254.37	1,208.24	798.87	728.40	70.47	11.337	
5,700.00	5,327.41	5,622.31	5,251.31	37.57	36.04	-100.92	1,284.83	1,237.86	816.64	744.78	71.86	11.364	
5,800.00	5,421.42	5,728.03	5,348.91	38.14	36.68	-100.93	1,313.94	1,266.16	833.01	759.93	73.08	11.399	
5,900.00	5,516.57	5,834.31	5,448.48	38.66	37.28	-100.94	1,340.57	1,292.06	847.87	773.67	74.20	11.427	
6,000.00	5,612.73	5,941.12	5,549.87	39.12	37.82	-100.93	1,364.66	1,315.47	861.21	785.99	75.22	11.450	
6,100.00	5,709.80	6,048.41	5,652.90	39.53	38.32	-100.91	1,386.10	1,336.33	872.99	796.86	76.13	11.467	
6,200.00	5,807.64	6,156.15	5,757.41	39.89	38.76	-100.88	1,404.84	1,354.55	883.20	806.27	76.94	11.479	
6,300.00	5,906.14	6,264.28	5,863.22	40.20	39.14	-100.84	1,420.80	1,370.06	891.82	814.18	77.64	11.487	
6,400.00	6,005.18	6,372.75	5,970.13	40.45	39.47	-100.78	1,433.92	1,382.82	898.82	820.59	78.23	11.489	
6,500.00	6,104.64	6,481.52	6,077.95	40.66	39.75	-100.71	1,444.16	1,392.77	904.20	825.48	78.72	11.487	
6,600.00	6,204.41	6,590.52	6,186.47	40.81	39.96	-100.62	1,451.47	1,399.88	907.93	828.84	79.09	11.479	
6,700.00	6,304.35	6,699.70	6,295.47	40.92	40.12	-100.52	1,455.81	1,404.10	910.02	830.66	79.36	11.467	
6,745.66	6,350.00	6,749.59	6,345.34	40.95	40.17	-30.25	1,456.80	1,405.07	910.43	830.99	79.44	11.460	
6,800.00	6,404.34	6,808.59	6,404.34	40.99	40.22	-30.22	1,457.18	1,405.43	910.56	831.03	79.53	11.449	
6,900.00	6,504.34	6,908.59	6,504.34	41.07	40.29	-30.22	1,457.18	1,405.43	910.56	830.88	79.68	11.428	
7,000.00	6,604.34	7,008.59	6,604.34	41.14	40.37	-30.22	1,457.18	1,405.43	910.56	830.73	79.83	11.406	
7,100.00	6,704.34	7,108.59	6,704.34	41.22	40.44	-30.22	1,457.18	1,405.43	910.56	830.57	79.99	11.384	
7,200.00	6,804.34	7,208.59	6,804.34	41.30	40.52	-30.22	1,457.18	1,405.43	910.56	830.41	80.15	11.361	
7,300.00	6,904.34	7,308.59	6,904.34	41.38	40.60	-30.22	1,457.18	1,405.43	910.56	830.25	80.31	11.338	
7,400.00	7,004.34	7,408.59	7,004.34	41.46	40.68	-30.22	1,457.18	1,405.43	910.56	830.09	80.47	11.316	
7,500.00	7,104.34	7,508.59	7,104.34	41.54	40.76	-30.22	1,457.18	1,405.43	910.56	829.92	80.63	11.292	
7,600.00	7,204.34	7,608.59	7,204.34	41.62	40.84	-30.22	1,457.18	1,405.43	910.56	829.76	80.80	11.269	
7,700.00	7,304.34	7,708.59	7,304.34	41.70	40.92	-30.22	1,457.18	1,405.43	910.56	829.59	80.97	11.246	
7,800.00	7,404.34	7,808.59	7,404.34	41.79	41.00	-30.22	1,457.18	1,405.43	910.56	829.42	81.14	11.222	
7,900.00	7,504.34	7,908.59	7,504.34	41.87	41.09	-30.22	1,457.18	1,405.43	910.56	829.24	81.32	11.198	
8,000.00	7,604.34	8,008.59	7,604.34	41.96	41.17	-30.22	1,457.18	1,405.43	910.56	829.07	81.49	11.174	
8,100.00	7,704.34	8,108.59	7,704.34	42.05	41.26	-30.22	1,457.18	1,405.43	910.56	828.89	81.67	11.149	
8,200.00	7,804.34	8,208.59	7,804.34	42.14	41.35	-30.22	1,457.18	1,405.43	910.56	828.71	81.85	11.125	
8,251.78	7,856.12	8,260.37	7,856.12	42.18	41.39	-30.22	1,457.18	1,405.43	910.56	828.62	81.94	11.112	
8,294.66	7,899.00	8,278.25	7,874.00	42.22	41.41	-30.22	1,457.18	1,405.43	910.90	828.91	82.00	11.109	



# Weatherford International Ltd.

## Anticollision Report



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_VOGL 23-36
<b>Project:</b>	KERR MCGEE OIL & GAS ONSHORE LP	<b>TVD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_VOGL 4 PAD	<b>MD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_VOGL 23-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_VOGL 23-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 09-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design WELD_VOGL 4 PAD - P_VOGL 14-36 - P_VOGL 14-36 - PLAN #1 09-16-09 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-180.00	-18.21	0.00	18.21				
100.00	100.00	100.00	100.00	0.10	0.10	-180.00	-18.21	0.00	18.21	18.02	0.19	95.336	
200.00	200.00	200.00	200.00	0.32	0.32	-180.00	-18.21	0.00	18.21	17.57	0.64	28.434	
300.00	300.00	300.00	300.00	0.55	0.55	-180.00	-18.21	0.00	18.21	17.12	1.09	16.708	
400.00	400.00	400.00	400.00	0.77	0.77	-180.00	-18.21	0.00	18.21	16.67	1.54	11.830	
500.00	500.00	500.00	500.00	0.99	0.99	-180.00	-18.21	0.00	18.21	16.22	1.99	9.157	
600.00	600.00	600.00	600.00	1.22	1.22	-180.00	-18.21	0.00	18.21	15.78	2.44	7.469	
700.00	700.00	700.00	700.00	1.44	1.44	-180.00	-18.21	0.00	18.21	15.33	2.89	6.306	
800.00	800.00	800.00	800.00	1.67	1.67	-180.00	-18.21	0.00	18.21	14.88	3.34	5.457 CC, ES	
900.00	899.98	900.00	899.98	1.89	1.88	109.46	-18.21	1.75	18.80	15.03	3.77	4.992	
1,000.00	999.84	999.98	999.81	2.10	2.09	108.59	-18.19	6.98	20.56	16.37	4.19	4.909 SF	
1,100.00	1,099.45	1,099.91	1,099.36	2.33	2.31	107.44	-18.17	15.68	23.50	18.86	4.64	5.066	
1,200.00	1,198.70	1,199.78	1,198.49	2.58	2.56	106.22	-18.13	27.85	27.62	22.48	5.13	5.379	
1,300.00	1,297.47	1,299.57	1,297.04	2.86	2.84	105.09	-18.09	43.45	32.91	27.22	5.69	5.781	
1,400.00	1,395.62	1,399.26	1,394.90	3.19	3.17	104.11	-18.03	62.45	39.38	33.05	6.34	6.216	
1,500.00	1,493.06	1,498.82	1,491.91	3.56	3.54	103.27	-17.96	84.81	47.02	39.94	7.08	6.644	
1,600.00	1,589.64	1,598.27	1,587.99	3.99	3.98	102.59	-17.89	110.47	55.80	47.87	7.93	7.036	
1,700.00	1,685.27	1,697.78	1,683.78	4.49	4.45	103.88	-17.81	137.43	65.51	56.63	8.88	7.376	
1,800.00	1,779.82	1,797.10	1,779.38	5.05	4.94	107.30	-17.73	164.34	76.23	66.33	9.89	7.704	
1,900.00	1,873.17	1,896.11	1,874.69	5.69	5.45	111.93	-17.65	191.16	88.42	77.48	10.93	8.088	
2,000.00	1,965.21	1,994.68	1,969.57	6.40	5.97	117.09	-17.57	217.86	102.63	90.67	11.95	8.586	
2,038.68	2,000.44	2,032.66	2,006.14	6.69	6.17	119.13	-17.54	228.15	108.77	96.43	12.34	8.818	
2,100.00	2,056.12	2,092.82	2,064.04	7.17	6.49	122.24	-17.49	244.45	118.99	106.05	12.94	9.192	
2,200.00	2,146.92	2,190.91	2,158.47	7.96	7.02	126.29	-17.42	271.03	136.25	122.33	13.92	9.788	
2,300.00	2,237.71	2,289.01	2,252.90	8.77	7.55	129.43	-17.34	297.60	154.03	139.15	14.88	10.349	
2,400.00	2,328.51	2,387.10	2,347.32	9.59	8.09	131.91	-17.26	324.17	172.17	156.33	15.84	10.869	
2,500.00	2,419.31	2,485.20	2,441.75	10.42	8.63	133.92	-17.18	350.75	190.56	173.76	16.79	11.347	
2,600.00	2,510.11	2,583.29	2,536.18	11.26	9.17	135.58	-17.10	377.32	209.13	191.39	17.75	11.785	
2,700.00	2,600.90	2,681.39	2,630.60	12.10	9.71	136.97	-17.03	403.90	227.85	209.15	18.70	12.185	
2,800.00	2,691.70	2,779.48	2,725.03	12.94	10.26	138.14	-16.95	430.47	246.68	227.03	19.65	12.552	
2,900.00	2,782.50	2,877.58	2,819.46	13.79	10.81	139.15	-16.87	457.05	265.59	244.99	20.61	12.888	
3,000.00	2,873.29	2,975.67	2,913.88	14.63	11.36	140.03	-16.79	483.62	284.58	263.01	21.56	13.197	
3,100.00	2,964.09	3,073.77	3,008.31	15.49	11.91	140.79	-16.71	510.20	303.62	281.10	22.52	13.482	
3,200.00	3,054.89	3,171.86	3,102.74	16.34	12.46	141.47	-16.64	536.77	322.70	299.22	23.48	13.745	
3,300.00	3,145.69	3,269.96	3,197.16	17.20	13.01	142.07	-16.56	563.34	341.83	317.39	24.44	13.989	
3,400.00	3,236.48	3,368.05	3,291.59	18.05	13.57	142.60	-16.48	589.92	360.98	335.59	25.39	14.215	
3,500.00	3,327.28	3,466.15	3,386.02	18.91	14.12	143.09	-16.40	616.49	380.17	353.81	26.35	14.425	
3,600.00	3,418.08	3,564.24	3,480.44	19.77	14.68	143.52	-16.32	643.07	399.37	372.06	27.32	14.621	
3,700.00	3,508.87	3,662.34	3,574.87	20.63	15.23	143.92	-16.24	669.64	418.60	390.32	28.28	14.804	
3,800.00	3,599.67	3,760.43	3,669.30	21.49	15.79	144.28	-16.17	696.22	437.84	408.61	29.24	14.976	
3,900.00	3,690.47	3,858.53	3,763.72	22.35	16.34	144.61	-16.09	722.79	457.10	426.91	30.20	15.136	
4,000.00	3,781.27	3,956.62	3,858.15	23.21	16.90	144.91	-16.01	749.37	476.38	445.22	31.16	15.288	
4,100.00	3,872.06	4,054.72	3,952.58	24.08	17.46	145.19	-15.93	775.94	495.66	463.54	32.12	15.430	
4,200.00	3,962.86	4,152.81	4,047.01	24.94	18.02	145.45	-15.85	802.51	514.96	481.87	33.08	15.565	
4,300.00	4,053.66	4,250.91	4,141.43	25.80	18.57	145.69	-15.78	829.09	534.26	500.21	34.05	15.690	
4,400.00	4,144.45	4,349.00	4,235.86	26.67	19.13	145.92	-15.70	855.66	553.58	518.56	35.02	15.807	
4,500.00	4,235.25	4,447.10	4,330.29	27.53	19.69	146.13	-15.62	882.24	572.90	536.91	35.99	15.917	
4,600.00	4,326.05	4,545.19	4,424.71	28.40	20.25	146.32	-15.54	908.81	592.23	555.26	36.96	16.022	
4,700.00	4,416.85	4,643.29	4,519.14	29.26	20.81	146.50	-15.46	935.39	611.56	573.63	37.94	16.121	
4,800.00	4,507.64	4,741.38	4,613.57	30.13	21.37	146.68	-15.38	961.96	630.90	591.99	38.91	16.215	
4,900.00	4,598.44	4,839.48	4,707.99	30.99	21.93	146.84	-15.31	988.54	650.25	610.37	39.88	16.304	
5,000.00	4,689.24	4,937.57	4,802.42	31.86	22.49	146.99	-15.23	1,015.11	669.60	628.74	40.86	16.389	

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



# Weatherford International Ltd.

## Anticollision Report



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_VOGL 23-36
<b>Project:</b>	KERR MCGEE OIL & GAS ONSHORE LP	<b>TVD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_VOGL 4 PAD	<b>MD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_VOGL 23-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_VOGL 23-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 09-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design WELD_VOGL 4 PAD - P_VOGL 14-36 - P_VOGL 14-36 - PLAN #1 09-16-09 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.00	4,780.03	5,035.67	4,896.85	32.72	23.05	147.13	-15.15	1,041.68	688.95	647.12	41.83	16.471	
5,200.00	4,870.83	5,133.76	4,991.27	33.59	23.60	147.27	-15.07	1,068.26	708.31	665.51	42.80	16.548	
5,300.00	4,961.63	5,231.86	5,085.70	34.46	24.16	147.40	-14.99	1,094.83	727.67	683.90	43.78	16.622	
5,400.00	5,052.42	5,329.95	5,180.13	35.32	24.72	147.52	-14.92	1,121.41	747.04	702.29	44.75	16.693	
5,506.98	5,149.56	5,432.15	5,278.51	36.25	25.29	147.64	-14.83	1,149.05	767.79	722.02	45.77	16.775	
5,600.00	5,234.64	5,510.03	5,353.87	36.95	25.66	147.96	-14.78	1,168.70	785.67	739.17	46.50	16.897	
5,700.00	5,327.41	5,600.00	5,441.55	37.57	26.00	148.31	-14.72	1,188.84	803.88	756.76	47.12	17.060	
5,800.00	5,421.42	5,677.00	5,517.06	38.14	26.25	148.65	-14.67	1,203.89	820.94	773.31	47.63	17.235	
5,900.00	5,516.57	5,760.23	5,599.11	38.66	26.50	148.99	-14.63	1,217.86	836.93	788.86	48.08	17.409	
6,000.00	5,612.73	5,843.29	5,681.36	39.12	26.72	149.34	-14.60	1,229.42	851.82	803.38	48.44	17.586	
6,100.00	5,709.80	5,926.18	5,763.75	39.53	26.91	149.70	-14.57	1,238.58	865.60	816.89	48.72	17.769	
6,200.00	5,807.64	6,008.91	5,846.19	39.89	27.07	150.05	-14.55	1,245.34	878.27	829.36	48.91	17.957	
6,300.00	5,906.14	6,091.47	5,928.63	40.20	27.19	150.42	-14.54	1,249.71	889.83	840.81	49.02	18.152	
6,400.00	6,005.18	6,173.86	6,010.99	40.45	27.29	150.78	-14.53	1,251.70	900.27	851.22	49.05	18.355	
6,500.00	6,104.64	6,267.51	6,104.64	40.66	27.38	151.16	-14.53	1,251.83	909.17	860.16	49.02	18.548	
6,600.00	6,204.41	6,367.27	6,204.41	40.81	27.48	151.42	-14.53	1,251.83	915.16	866.16	49.00	18.676	
6,700.00	6,304.35	6,467.21	6,304.35	40.92	27.59	151.55	-14.53	1,251.83	918.10	869.08	49.01	18.732	
6,745.66	6,350.00	6,512.86	6,350.00	40.95	27.64	-138.22	-14.53	1,251.83	918.42	869.39	49.02	18.734	
6,800.00	6,404.34	6,567.21	6,404.34	40.99	27.70	-138.22	-14.53	1,251.83	918.42	869.27	49.15	18.687	
6,900.00	6,504.34	6,667.21	6,504.34	41.07	27.81	-138.22	-14.53	1,251.83	918.42	869.03	49.39	18.597	
7,000.00	6,604.34	6,767.21	6,604.34	41.14	27.92	-138.22	-14.53	1,251.83	918.42	868.79	49.63	18.507	
7,100.00	6,704.34	6,867.21	6,704.34	41.22	28.03	-138.22	-14.53	1,251.83	918.42	868.55	49.87	18.416	
7,200.00	6,804.34	6,967.21	6,804.34	41.30	28.14	-138.22	-14.53	1,251.83	918.42	868.30	50.12	18.326	
7,300.00	6,904.34	7,067.21	6,904.34	41.38	28.26	-138.22	-14.53	1,251.83	918.42	868.05	50.37	18.235	
7,400.00	7,004.34	7,167.21	7,004.34	41.46	28.38	-138.22	-14.53	1,251.83	918.42	867.80	50.62	18.144	
7,500.00	7,104.34	7,267.21	7,104.34	41.54	28.49	-138.22	-14.53	1,251.83	918.42	867.54	50.87	18.053	
7,600.00	7,204.34	7,367.21	7,204.34	41.62	28.61	-138.22	-14.53	1,251.83	918.42	867.29	51.13	17.963	
7,700.00	7,304.34	7,467.21	7,304.34	41.70	28.73	-138.22	-14.53	1,251.83	918.42	867.03	51.39	17.872	
7,800.00	7,404.34	7,567.21	7,404.34	41.79	28.85	-138.22	-14.53	1,251.83	918.42	866.76	51.65	17.781	
7,900.00	7,504.34	7,667.21	7,504.34	41.87	28.97	-138.22	-14.53	1,251.83	918.42	866.50	51.92	17.690	
8,000.00	7,604.34	7,767.21	7,604.34	41.96	29.10	-138.22	-14.53	1,251.83	918.42	866.23	52.18	17.599	
8,100.00	7,704.34	7,867.21	7,704.34	42.05	29.22	-138.22	-14.53	1,251.83	918.42	865.96	52.45	17.509	
8,200.00	7,804.34	7,967.21	7,804.34	42.14	29.35	-138.22	-14.53	1,251.83	918.42	865.69	52.73	17.418	
8,257.16	7,861.51	8,024.37	7,861.51	42.19	29.42	-138.22	-14.53	1,251.83	918.42	865.53	52.88	17.366	
8,294.66	7,899.00	8,046.86	7,884.00	42.22	29.45	-138.22	-14.53	1,251.83	918.54	865.57	52.97	17.342	





# Weatherford International Ltd.

## Anticollision Report



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_VOGL 23-36
<b>Project:</b>	KERR MCGEE OIL & GAS ONSHORE LP	<b>TVD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_VOGL 4 PAD	<b>MD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_VOGL 23-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_VOGL 23-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 09-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design WELD_VOGL 4 PAD - P_VOGL 35-36 - P_VOGL 35-36 - PLAN #1 09-10-09 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-MWMD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis 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	-175.13	-32.79	-2.79	32.91				
100.00	100.00	100.00	100.00	0.10	0.10	-175.13	-32.79	-2.79	32.91	32.72	0.19	172.249	
200.00	200.00	200.00	200.00	0.32	0.32	-175.13	-32.79	-2.79	32.91	32.27	0.64	51.373	
300.00	300.00	300.00	300.00	0.55	0.55	-175.13	-32.79	-2.79	32.91	31.82	1.09	30.188	
400.00	400.00	400.00	400.00	0.77	0.77	-175.13	-32.79	-2.79	32.91	31.37	1.54	21.374	
500.00	500.00	500.00	500.00	0.99	0.99	-175.13	-32.79	-2.79	32.91	30.92	1.99	16.544	
600.00	600.00	600.00	600.00	1.22	1.22	-175.13	-32.79	-2.79	32.91	30.47	2.44	13.494	
700.00	700.00	700.00	700.00	1.44	1.44	-175.13	-32.79	-2.79	32.91	30.02	2.89	11.394	
800.00	800.00	800.00	800.00	1.67	1.67	-175.13	-32.79	-2.79	32.91	29.57	3.34	9.859 CC, ES	
900.00	899.98	899.23	899.21	1.89	1.87	-115.06	-34.01	-1.58	34.76	31.00	3.75	9.259 SF	
1,000.00	999.84	998.25	998.09	2.10	2.06	116.03	-37.66	2.04	40.31	36.16	4.15	9.706	
1,100.00	1,099.45	1,096.86	1,096.33	2.33	2.26	117.15	-43.70	8.03	49.57	44.99	4.58	10.829	
1,200.00	1,198.70	1,194.86	1,193.61	2.58	2.49	118.11	-52.08	16.34	62.51	57.47	5.04	12.410	
1,300.00	1,297.47	1,292.06	1,289.65	2.86	2.75	118.82	-62.71	26.90	79.10	73.55	5.54	14.266	
1,400.00	1,395.62	1,388.28	1,384.16	3.19	3.06	119.30	-75.52	39.60	99.28	93.17	6.11	16.244	
1,500.00	1,493.06	1,483.35	1,476.89	3.56	3.41	119.59	-90.37	54.34	122.99	116.24	6.75	18.222	
1,600.00	1,589.64	1,577.12	1,567.62	3.99	3.81	119.71	-107.15	70.99	150.15	142.69	7.47	20.114	
1,700.00	1,685.27	1,671.96	1,658.85	4.49	4.26	120.02	-125.56	89.25	180.15	171.88	8.27	21.796	
1,800.00	1,779.82	1,766.66	1,749.93	5.05	4.73	120.90	-143.97	107.52	211.92	202.79	9.13	23.209	
1,900.00	1,873.17	1,860.59	1,840.27	5.69	5.22	122.09	-162.23	125.64	245.54	235.48	10.05	24.428	
2,000.00	1,965.21	1,953.64	1,929.76	6.40	5.71	123.44	-180.33	143.59	281.14	270.11	11.03	25.481	
2,038.68	2,000.44	1,989.36	1,964.12	6.69	5.90	123.99	-187.27	150.48	295.47	284.04	11.43	25.857	
2,100.00	2,056.12	2,045.89	2,018.48	7.17	6.21	125.18	-198.26	161.39	318.50	306.42	12.08	26.370	
2,200.00	2,146.92	2,138.06	2,107.13	7.96	6.71	126.79	-216.19	179.17	356.27	343.12	13.15	27.096	
2,300.00	2,237.71	2,230.24	2,195.78	8.77	7.22	128.09	-234.11	196.95	394.23	380.00	14.23	27.710	
2,400.00	2,328.51	2,322.41	2,284.43	9.59	7.73	129.16	-252.03	214.73	432.34	417.03	15.31	28.234	
2,500.00	2,419.31	2,414.58	2,373.08	10.42	8.24	130.07	-269.95	232.51	470.56	454.16	16.40	28.687	
2,600.00	2,510.11	2,506.76	2,461.72	11.26	8.76	130.83	-287.87	250.30	508.86	491.37	17.50	29.082	
2,700.00	2,600.90	2,598.93	2,550.37	12.10	9.28	131.49	-305.80	268.08	547.24	528.64	18.59	29.430	
2,800.00	2,691.70	2,691.11	2,639.02	12.94	9.81	132.06	-323.72	285.86	585.66	565.97	19.69	29.738	
2,900.00	2,782.50	2,783.28	2,727.67	13.79	10.33	132.57	-341.64	303.64	624.13	603.34	20.80	30.013	
3,000.00	2,873.29	2,875.45	2,816.32	14.63	10.85	133.01	-359.56	321.42	662.64	640.74	21.90	30.260	
3,100.00	2,964.09	2,967.63	2,904.97	15.49	11.38	133.41	-377.48	339.21	701.17	678.17	23.00	30.484	
3,200.00	3,054.89	3,059.80	2,993.62	16.34	11.91	133.76	-395.41	356.99	739.73	715.63	24.11	30.687	
3,300.00	3,145.69	3,151.97	3,082.27	17.20	12.44	134.08	-413.33	374.77	778.32	753.11	25.21	30.872	
3,400.00	3,236.48	3,244.15	3,170.92	18.05	12.97	134.37	-431.25	392.55	816.92	790.60	26.32	31.043	
3,500.00	3,327.28	3,336.32	3,259.56	18.91	13.50	134.64	-449.17	410.33	855.54	828.12	27.42	31.199	
3,600.00	3,418.08	3,428.50	3,348.21	19.77	14.03	134.88	-467.09	428.12	894.17	865.64	28.53	31.345	
3,700.00	3,508.87	3,520.67	3,436.86	20.63	14.56	135.10	-485.02	445.90	932.82	903.18	29.63	31.479	
3,800.00	3,599.67	3,612.84	3,525.51	21.49	15.09	135.30	-502.94	463.68	971.47	940.73	30.74	31.605	
3,900.00	3,690.47	3,705.02	3,614.16	22.35	15.62	135.49	-520.86	481.46	1,010.14	978.29	31.84	31.722	
4,000.00	3,781.27	3,797.19	3,702.81	23.21	16.16	135.66	-538.78	499.24	1,048.81	1,015.86	32.95	31.832	
4,100.00	3,872.06	3,889.37	3,791.46	24.08	16.69	135.82	-556.70	517.03	1,087.49	1,053.44	34.05	31.935	
4,200.00	3,962.86	3,988.37	3,886.87	24.94	17.20	136.02	-575.45	535.63	1,126.00	1,090.87	35.13	32.053	
4,300.00	4,053.66	4,091.74	3,987.35	25.80	17.61	136.39	-592.67	552.71	1,163.71	1,127.63	36.08	32.254	
4,400.00	4,144.45	4,195.31	4,088.84	26.67	17.96	136.92	-607.32	567.24	1,200.59	1,163.64	36.95	32.493	
4,500.00	4,235.25	4,298.80	4,190.93	27.53	18.27	137.59	-619.35	579.18	1,236.71	1,198.97	37.74	32.768	
4,600.00	4,326.05	4,401.95	4,293.22	28.40	18.53	138.40	-628.73	588.49	1,272.16	1,233.71	38.45	33.082	
4,700.00	4,416.85	4,504.50	4,395.32	29.26	18.74	139.31	-635.46	595.16	1,307.04	1,267.94	39.10	33.427	
4,800.00	4,507.64	4,606.18	4,496.83	30.13	18.91	140.32	-639.56	599.24	1,341.48	1,301.82	39.66	33.821	
4,900.00	4,598.44	4,706.76	4,597.38	30.99	19.03	141.43	-641.10	600.77	1,375.61	1,335.46	40.14	34.267	
5,000.00	4,689.24	4,798.61	4,689.24	31.86	19.13	142.46	-641.12	600.78	1,409.77	1,369.18	40.59	34.732	

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



# Weatherford International Ltd.

## Anticollision Report



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_VOGL 23-36
<b>Project:</b>	KERR MCGEE OIL & GAS ONSHORE LP	<b>TVD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_VOGL 4 PAD	<b>MD Reference:</b>	WELL @ 4832.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_VOGL 23-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_VOGL 23-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 09-16-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

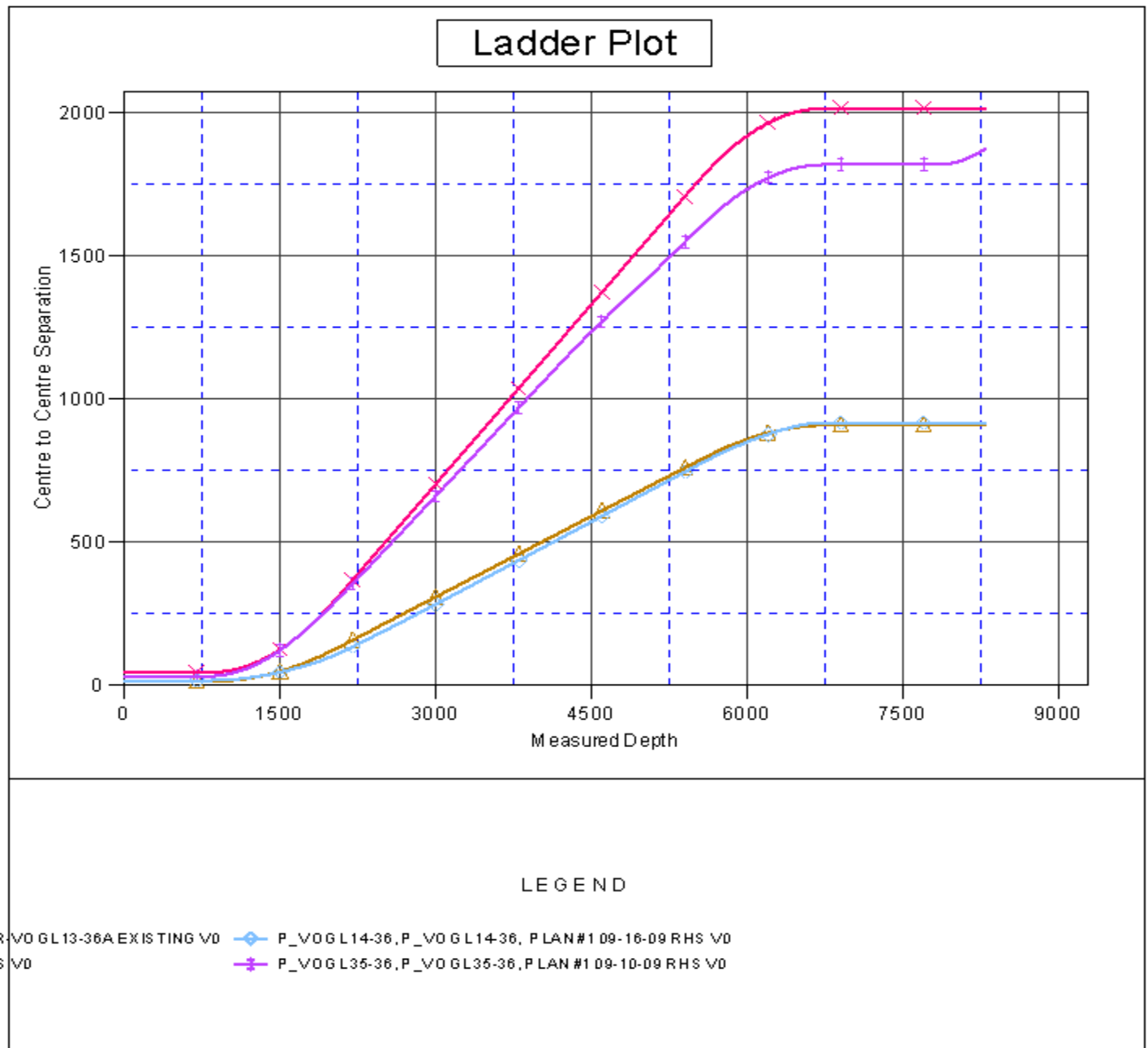
Offset Design WELD_VOGL 4 PAD - P_VOGL 35-36 - P_VOGL 35-36 - PLAN #1 09-10-09 RHS												Offset Site Error: 0.00 ft	
Survey Program: 0-MWD												Offset Well Error: 0.00 ft	
Reference		Offset		Semi Major Axis		Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,100.00	4,780.03	4,889.41	4,780.03	32.72	19.23	143.44	-641.12	600.78	1,444.33	1,403.30	41.03	35.202	
5,200.00	4,870.83	4,980.20	4,870.83	33.59	19.32	144.38	-641.12	600.78	1,479.28	1,437.82	41.46	35.679	
5,300.00	4,961.63	5,071.00	4,961.63	34.46	19.42	145.28	-641.12	600.78	1,514.58	1,472.69	41.89	36.159	
5,400.00	5,052.42	5,161.80	5,052.42	35.32	19.52	146.14	-641.12	600.78	1,550.20	1,507.90	42.31	36.643	
5,506.98	5,149.56	5,258.93	5,149.56	36.25	19.63	147.01	-641.12	600.78	1,588.66	1,545.91	42.75	37.161	
5,600.00	5,234.64	5,344.01	5,234.64	36.95	19.73	148.09	-641.12	600.78	1,621.16	1,578.00	43.16	37.559	
5,700.00	5,327.41	5,436.78	5,327.41	37.57	19.84	149.11	-641.12	600.78	1,653.64	1,610.10	43.54	37.982	
5,800.00	5,421.42	5,530.80	5,421.42	38.14	19.95	150.01	-641.12	600.78	1,683.45	1,639.56	43.89	38.354	
5,900.00	5,516.57	5,625.94	5,516.57	38.66	20.06	150.80	-641.12	600.78	1,710.51	1,666.28	44.23	38.676	
6,000.00	5,612.73	5,722.11	5,612.73	39.12	20.18	151.47	-641.12	600.78	1,734.73	1,690.20	44.54	38.951	
6,100.00	5,709.80	5,819.17	5,709.80	39.53	20.29	152.05	-641.12	600.78	1,756.06	1,711.23	44.82	39.178	
6,200.00	5,807.64	5,917.01	5,807.64	39.89	20.42	152.54	-641.12	600.78	1,774.42	1,729.34	45.08	39.361	
6,300.00	5,906.14	6,015.51	5,906.14	40.20	20.54	152.93	-641.12	600.78	1,789.77	1,744.46	45.31	39.500	
6,400.00	6,005.18	6,114.55	6,005.18	40.45	20.67	153.24	-641.12	600.78	1,802.07	1,756.56	45.51	39.596	
6,500.00	6,104.64	6,214.02	6,104.64	40.66	20.80	153.47	-641.12	600.78	1,811.28	1,765.60	45.68	39.649	
6,600.00	6,204.41	6,313.78	6,204.41	40.81	20.93	153.62	-641.12	600.78	1,817.40	1,771.57	45.82	39.660	
6,700.00	6,304.35	6,413.72	6,304.35	40.92	21.06	153.69	-641.12	600.78	1,820.39	1,774.45	45.94	39.628	
6,745.66	6,350.00	6,459.37	6,350.00	40.95	21.12	-136.08	-641.12	600.78	1,820.72	1,774.74	45.98	39.599	
6,800.00	6,404.34	6,513.72	6,404.34	40.99	21.19	-136.08	-641.12	600.78	1,820.72	1,774.61	46.11	39.487	
6,900.00	6,504.34	6,613.72	6,504.34	41.07	21.33	-136.08	-641.12	600.78	1,820.72	1,774.35	46.36	39.273	
7,000.00	6,604.34	6,713.72	6,604.34	41.14	21.46	-136.08	-641.12	600.78	1,820.72	1,774.10	46.61	39.059	
7,100.00	6,704.34	6,813.72	6,704.34	41.22	21.60	-136.08	-641.12	600.78	1,820.72	1,773.84	46.87	38.844	
7,200.00	6,804.34	6,913.72	6,804.34	41.30	21.74	-136.08	-641.12	600.78	1,820.72	1,773.58	47.13	38.630	
7,300.00	6,904.34	7,013.72	6,904.34	41.38	21.88	-136.08	-641.12	600.78	1,820.72	1,773.32	47.39	38.416	
7,400.00	7,004.34	7,113.72	7,004.34	41.46	22.03	-136.08	-641.12	600.78	1,820.72	1,773.05	47.66	38.202	
7,500.00	7,104.34	7,213.72	7,104.34	41.54	22.17	-136.08	-641.12	600.78	1,820.72	1,772.79	47.93	37.988	
7,600.00	7,204.34	7,313.72	7,204.34	41.62	22.32	-136.08	-641.12	600.78	1,820.72	1,772.52	48.20	37.774	
7,700.00	7,304.34	7,413.72	7,304.34	41.70	22.46	-136.08	-641.12	600.78	1,820.72	1,772.24	48.47	37.561	
7,800.00	7,404.34	7,513.72	7,404.34	41.79	22.61	-136.08	-641.12	600.78	1,820.72	1,771.97	48.75	37.348	
7,825.35	7,429.69	7,539.07	7,429.69	41.81	22.65	-136.08	-641.12	600.78	1,820.72	1,771.90	48.82	37.294	
7,900.00	7,504.34	7,558.37	7,449.00	41.87	22.68	-136.08	-641.12	600.78	1,821.56	1,772.61	48.95	37.216	
8,000.00	7,604.34	7,558.37	7,449.00	41.96	22.68	-136.08	-641.12	600.78	1,827.33	1,778.25	49.08	37.235	
8,100.00	7,704.34	7,558.37	7,449.00	42.05	22.68	-136.08	-641.12	600.78	1,838.53	1,789.32	49.21	37.362	
8,200.00	7,804.34	7,558.37	7,449.00	42.14	22.68	-136.08	-641.12	600.78	1,855.07	1,805.73	49.34	37.597	
8,294.66	7,899.00	7,558.37	7,449.00	42.22	22.68	-136.08	-641.12	600.78	1,875.50	1,826.03	49.47	37.913	





Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VOGL 23-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 4832.00ft (Original Well Elev)
Reference Site:	WELD_VOGL 4 PAD	MD Reference:	WELL @ 4832.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VOGL 23-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VOGL 23-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 09-16-09 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4832.00ft (Original Well Elev)Coordinates are relative to: P\_VOGL 23-36  
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: 0.35°

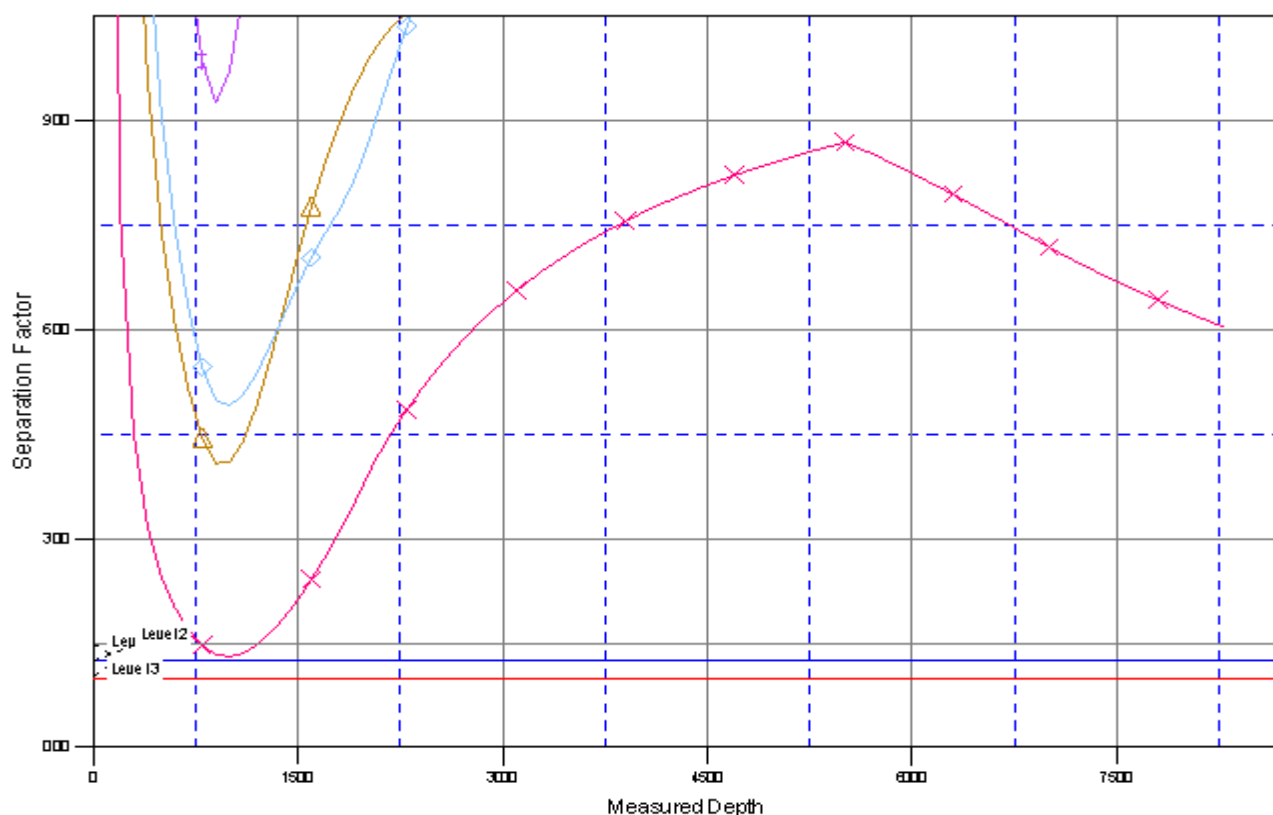




Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_VOGL 23-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 4832.00ft (Original Well Elev)
Reference Site:	WELD_VOGL 4 PAD	MD Reference:	WELL @ 4832.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_VOGL 23-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_VOGL 23-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 09-16-09 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4832.00ft (Original Well Elev) Coordinates are relative to: P\_VOGL 23-36  
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: 0.35°

## Separation Factor Plot



### LEGEND

R\_VOGL13-36A EXISTING VO ◆ P\_VOGL14-36, P\_VOGL14-36, PLAN#1 09-16-09 RHS VO  
IS VO ✕ P\_VOGL35-36, P\_VOGL35-36, PLAN#1 09-10-09 RHS VO