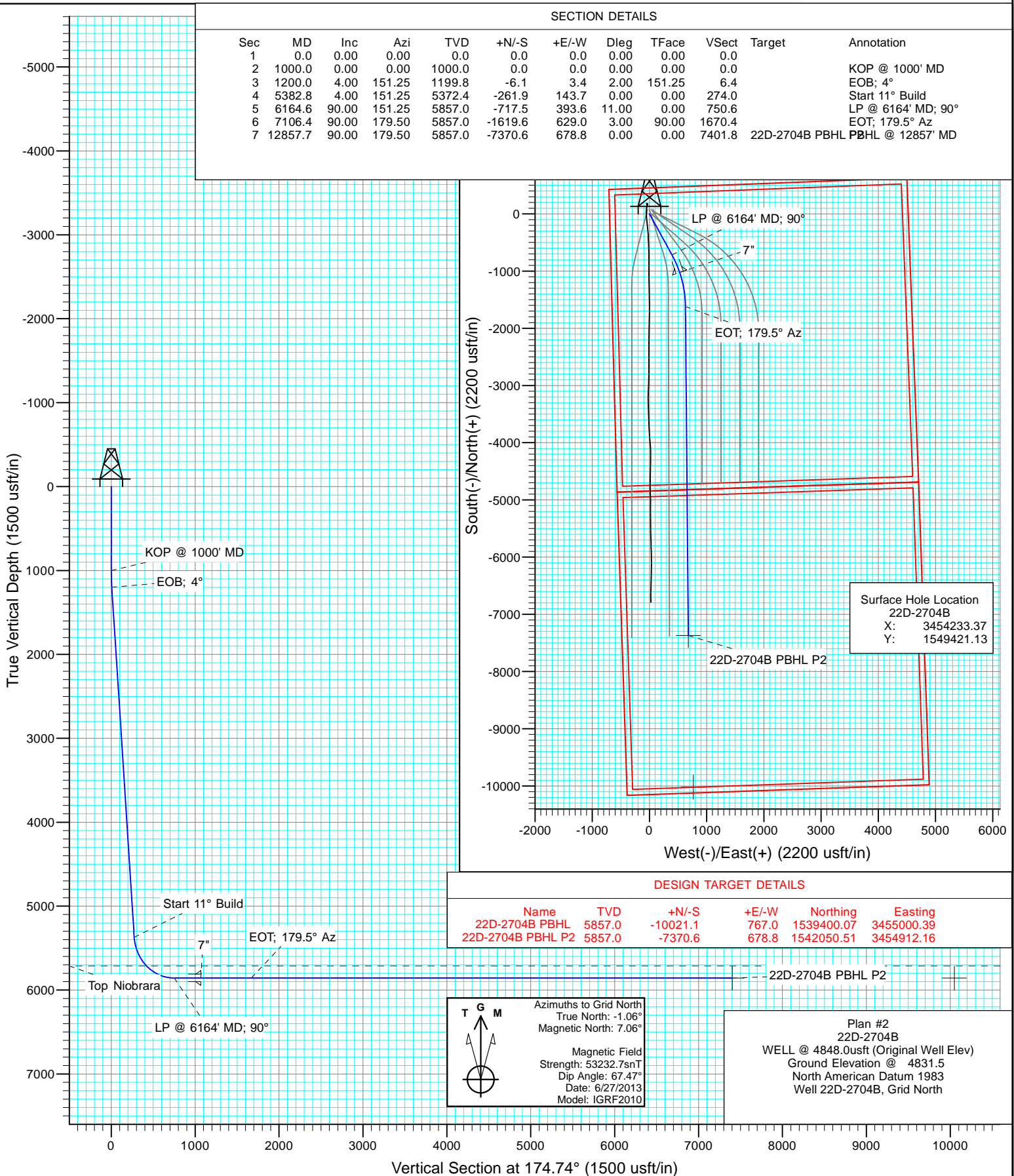


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0		KOP @ 1000' MD
3	1200.0	4.00	151.25	1199.8	-6.1	3.4	2.00	151.25	6.4		EOB; 4°
4	5382.8	4.00	151.25	5372.4	-261.9	143.7	0.00	0.00	274.0		Start 11° Build
5	6164.6	90.00	151.25	5857.0	-717.5	393.6	11.00	0.00	750.6		LP @ 6164' MD; 90°
6	7106.4	90.00	179.50	5857.0	-1619.6	629.0	3.00	90.00	1670.4		EOT; 179.5° Az
7	12857.7	90.00	179.50	5857.0	-7370.6	678.8	0.00	0.00	7401.8	22D-2704B PBHL	PBHL @ 12857' MD



Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well 22D-2704B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site:	S22-T10N-R58W	North Reference:	Grid
Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Project	Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		S22-T10N-R58W			
Site Position:		Northing:	1,549,495.40 usft	Latitude:	40° 49' 48.74 N
From:	Lat/Long	Easting:	3,454,199.06 usft	Longitude:	103° 51' 31.23 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	1.06 °

Well	22D-2704B					
Well Position	+N/-S	0.0 usft	Northing:	1,549,421.13 usft	Latitude:	40° 49' 48.00 N
	+E/-W	0.0 usft	Easting:	3,454,233.37 usft	Longitude:	103° 51' 30.80 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,831.5 usft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/27/2013	8.12	67.47	53,233

Design	Plan #2				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	174.74	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	4.00	151.25	1,199.8	-6.1	3.4	2.00	2.00	0.00	151.25	
5,382.8	4.00	151.25	5,372.4	-261.9	143.7	0.00	0.00	0.00	0.00	
6,164.6	90.00	151.25	5,857.0	-717.5	393.6	11.00	11.00	0.00	0.00	
7,106.4	90.00	179.50	5,857.0	-1,619.6	629.0	3.00	0.00	3.00	90.00	
12,857.7	90.00	179.50	5,857.0	-7,370.6	678.8	0.00	0.00	0.00	0.00	22D-2704B PBHL P2

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well 22D-2704B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site:	S22-T10N-R58W	North Reference:	Grid
Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1000' MD
1,100.0	2.00	151.25	1,100.0	-1.5	0.8	1.6	2.00	2.00	
1,200.0	4.00	151.25	1,199.8	-6.1	3.4	6.4	2.00	2.00	EOB; 4°
1,300.0	4.00	151.25	1,299.6	-12.2	6.7	12.8	0.00	0.00	
1,400.0	4.00	151.25	1,399.4	-18.3	10.1	19.2	0.00	0.00	
1,500.0	4.00	151.25	1,499.1	-24.5	13.4	25.6	0.00	0.00	
1,600.0	4.00	151.25	1,598.9	-30.6	16.8	32.0	0.00	0.00	
1,700.0	4.00	151.25	1,698.6	-36.7	20.1	38.4	0.00	0.00	
1,800.0	4.00	151.25	1,798.4	-42.8	23.5	44.8	0.00	0.00	
1,900.0	4.00	151.25	1,898.1	-48.9	26.8	51.2	0.00	0.00	
2,000.0	4.00	151.25	1,997.9	-55.0	30.2	57.6	0.00	0.00	
2,100.0	4.00	151.25	2,097.6	-61.2	33.6	64.0	0.00	0.00	
2,200.0	4.00	151.25	2,197.4	-67.3	36.9	70.4	0.00	0.00	
2,300.0	4.00	151.25	2,297.2	-73.4	40.3	76.8	0.00	0.00	
2,400.0	4.00	151.25	2,396.9	-79.5	43.6	83.2	0.00	0.00	
2,500.0	4.00	151.25	2,496.7	-85.6	47.0	89.6	0.00	0.00	
2,600.0	4.00	151.25	2,596.4	-91.7	50.3	96.0	0.00	0.00	
2,700.0	4.00	151.25	2,696.2	-97.9	53.7	102.4	0.00	0.00	
2,800.0	4.00	151.25	2,795.9	-104.0	57.0	108.8	0.00	0.00	
2,900.0	4.00	151.25	2,895.7	-110.1	60.4	115.2	0.00	0.00	
3,000.0	4.00	151.25	2,995.5	-116.2	63.8	121.6	0.00	0.00	
3,100.0	4.00	151.25	3,095.2	-122.3	67.1	128.0	0.00	0.00	
3,200.0	4.00	151.25	3,195.0	-128.4	70.5	134.4	0.00	0.00	
3,300.0	4.00	151.25	3,294.7	-134.5	73.8	140.8	0.00	0.00	
3,400.0	4.00	151.25	3,394.5	-140.7	77.2	147.1	0.00	0.00	
3,500.0	4.00	151.25	3,494.2	-146.8	80.5	153.5	0.00	0.00	
3,600.0	4.00	151.25	3,594.0	-152.9	83.9	159.9	0.00	0.00	
3,700.0	4.00	151.25	3,693.7	-159.0	87.2	166.3	0.00	0.00	
3,800.0	4.00	151.25	3,793.5	-165.1	90.6	172.7	0.00	0.00	
3,900.0	4.00	151.25	3,893.3	-171.2	93.9	179.1	0.00	0.00	
4,000.0	4.00	151.25	3,993.0	-177.4	97.3	185.5	0.00	0.00	
4,100.0	4.00	151.25	4,092.8	-183.5	100.7	191.9	0.00	0.00	
4,200.0	4.00	151.25	4,192.5	-189.6	104.0	198.3	0.00	0.00	
4,300.0	4.00	151.25	4,292.3	-195.7	107.4	204.7	0.00	0.00	
4,400.0	4.00	151.25	4,392.0	-201.8	110.7	211.1	0.00	0.00	
4,500.0	4.00	151.25	4,491.8	-207.9	114.1	217.5	0.00	0.00	
4,600.0	4.00	151.25	4,591.6	-214.1	117.4	223.9	0.00	0.00	
4,700.0	4.00	151.25	4,691.3	-220.2	120.8	230.3	0.00	0.00	
4,800.0	4.00	151.25	4,791.1	-226.3	124.1	236.7	0.00	0.00	
4,900.0	4.00	151.25	4,890.8	-232.4	127.5	243.1	0.00	0.00	
5,000.0	4.00	151.25	4,990.6	-238.5	130.9	249.5	0.00	0.00	
5,100.0	4.00	151.25	5,090.3	-244.6	134.2	255.9	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well 22D-2704B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site:	S22-T10N-R58W	North Reference:	Grid
Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
5,200.0	4.00	151.25	5,190.1	-250.7	137.6	262.3	0.00	0.00	
5,300.0	4.00	151.25	5,289.9	-256.9	140.9	268.7	0.00	0.00	
5,382.8	4.00	151.25	5,372.4	-261.9	143.7	274.0	0.00	0.00	Start 11° Build
5,400.0	5.89	151.25	5,389.6	-263.2	144.4	275.4	11.00	11.00	
5,500.0	16.89	151.25	5,487.5	-280.5	153.9	293.4	11.00	11.00	
5,600.0	27.89	151.25	5,579.8	-313.9	172.2	328.3	11.00	11.00	
5,700.0	38.89	151.25	5,663.1	-362.0	198.6	378.7	11.00	11.00	
5,769.2	46.51	151.25	5,714.0	-403.2	221.2	421.8	11.00	11.00	Top Niobrara
5,800.0	49.89	151.25	5,734.5	-423.3	232.2	442.8	11.00	11.00	
5,900.0	60.89	151.25	5,791.2	-495.3	271.7	518.2	11.00	11.00	
6,000.0	71.89	151.25	5,831.2	-575.5	315.8	602.1	11.00	11.00	
6,100.0	82.89	151.25	5,853.0	-661.0	362.6	691.4	11.00	11.00	
6,164.6	90.00	151.25	5,857.0	-717.5	393.6	750.6	11.00	11.00	LP @ 6164' MD; 90°
6,200.0	90.00	152.31	5,857.0	-748.7	410.4	783.1	3.00	0.00	
6,300.0	90.00	155.31	5,857.0	-838.4	454.5	876.5	3.00	0.00	
6,400.0	90.00	158.31	5,857.0	-930.3	493.8	971.7	3.00	0.00	
6,500.0	90.00	161.31	5,857.0	-1,024.1	528.4	1,068.3	3.00	0.00	7"
6,600.0	90.00	164.31	5,857.0	-1,119.7	557.9	1,166.1	3.00	0.00	
6,700.0	90.00	167.31	5,857.0	-1,216.6	582.4	1,264.9	3.00	0.00	
6,800.0	90.00	170.31	5,857.0	-1,314.7	601.8	1,364.3	3.00	0.00	
6,900.0	90.00	173.31	5,857.0	-1,413.7	616.1	1,464.2	3.00	0.00	
7,000.0	90.00	176.31	5,857.0	-1,513.2	625.1	1,564.2	3.00	0.00	
7,100.0	90.00	179.31	5,857.0	-1,613.1	628.9	1,664.0	3.00	0.00	
7,106.4	90.00	179.50	5,857.0	-1,619.5	629.0	1,670.4	3.00	0.00	EOT; 179.5° Az
7,200.0	90.00	179.50	5,857.0	-1,713.1	629.8	1,763.7	0.00	0.00	
7,300.0	90.00	179.50	5,857.0	-1,813.1	630.7	1,863.3	0.00	0.00	
7,400.0	90.00	179.50	5,857.0	-1,913.1	631.5	1,963.0	0.00	0.00	
7,500.0	90.00	179.50	5,857.0	-2,013.1	632.4	2,062.6	0.00	0.00	
7,600.0	90.00	179.50	5,857.0	-2,113.1	633.3	2,162.3	0.00	0.00	
7,700.0	90.00	179.50	5,857.0	-2,213.1	634.1	2,262.0	0.00	0.00	
7,800.0	90.00	179.50	5,857.0	-2,313.1	635.0	2,361.6	0.00	0.00	
7,900.0	90.00	179.50	5,857.0	-2,413.1	635.9	2,461.3	0.00	0.00	
8,000.0	90.00	179.50	5,857.0	-2,513.1	636.7	2,560.9	0.00	0.00	
8,100.0	90.00	179.50	5,857.0	-2,613.1	637.6	2,660.6	0.00	0.00	
8,200.0	90.00	179.50	5,857.0	-2,713.1	638.5	2,760.2	0.00	0.00	
8,300.0	90.00	179.50	5,857.0	-2,813.1	639.3	2,859.9	0.00	0.00	
8,400.0	90.00	179.50	5,857.0	-2,913.1	640.2	2,959.5	0.00	0.00	
8,500.0	90.00	179.50	5,857.0	-3,013.1	641.1	3,059.2	0.00	0.00	
8,600.0	90.00	179.50	5,857.0	-3,113.1	641.9	3,158.8	0.00	0.00	
8,700.0	90.00	179.50	5,857.0	-3,213.1	642.8	3,258.5	0.00	0.00	
8,800.0	90.00	179.50	5,857.0	-3,313.1	643.6	3,358.1	0.00	0.00	
8,900.0	90.00	179.50	5,857.0	-3,413.1	644.5	3,457.8	0.00	0.00	
9,000.0	90.00	179.50	5,857.0	-3,513.1	645.4	3,557.5	0.00	0.00	
9,100.0	90.00	179.50	5,857.0	-3,613.1	646.2	3,657.1	0.00	0.00	
9,200.0	90.00	179.50	5,857.0	-3,713.1	647.1	3,756.8	0.00	0.00	
9,300.0	90.00	179.50	5,857.0	-3,813.1	648.0	3,856.4	0.00	0.00	
9,400.0	90.00	179.50	5,857.0	-3,913.1	648.8	3,956.1	0.00	0.00	
9,500.0	90.00	179.50	5,857.0	-4,013.1	649.7	4,055.7	0.00	0.00	
9,600.0	90.00	179.50	5,857.0	-4,113.1	650.6	4,155.4	0.00	0.00	
9,700.0	90.00	179.50	5,857.0	-4,213.0	651.4	4,255.0	0.00	0.00	
9,800.0	90.00	179.50	5,857.0	-4,313.0	652.3	4,354.7	0.00	0.00	
9,900.0	90.00	179.50	5,857.0	-4,413.0	653.2	4,454.3	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well 22D-2704B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site:	S22-T10N-R58W	North Reference:	Grid
Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
10,000.0	90.00	179.50	5,857.0	-4,513.0	654.0	4,554.0	0.00	0.00	
10,100.0	90.00	179.50	5,857.0	-4,613.0	654.9	4,653.7	0.00	0.00	
10,200.0	90.00	179.50	5,857.0	-4,713.0	655.8	4,753.3	0.00	0.00	
10,300.0	90.00	179.50	5,857.0	-4,813.0	656.6	4,853.0	0.00	0.00	
10,400.0	90.00	179.50	5,857.0	-4,913.0	657.5	4,952.6	0.00	0.00	
10,500.0	90.00	179.50	5,857.0	-5,013.0	658.4	5,052.3	0.00	0.00	
10,600.0	90.00	179.50	5,857.0	-5,113.0	659.2	5,151.9	0.00	0.00	
10,700.0	90.00	179.50	5,857.0	-5,213.0	660.1	5,251.6	0.00	0.00	
10,800.0	90.00	179.50	5,857.0	-5,313.0	661.0	5,351.2	0.00	0.00	
10,900.0	90.00	179.50	5,857.0	-5,413.0	661.8	5,450.9	0.00	0.00	
11,000.0	90.00	179.50	5,857.0	-5,513.0	662.7	5,550.5	0.00	0.00	
11,100.0	90.00	179.50	5,857.0	-5,613.0	663.6	5,650.2	0.00	0.00	
11,200.0	90.00	179.50	5,857.0	-5,713.0	664.4	5,749.9	0.00	0.00	
11,300.0	90.00	179.50	5,857.0	-5,813.0	665.3	5,849.5	0.00	0.00	
11,400.0	90.00	179.50	5,857.0	-5,913.0	666.2	5,949.2	0.00	0.00	
11,500.0	90.00	179.50	5,857.0	-6,013.0	667.0	6,048.8	0.00	0.00	
11,600.0	90.00	179.50	5,857.0	-6,113.0	667.9	6,148.5	0.00	0.00	
11,700.0	90.00	179.50	5,857.0	-6,213.0	668.8	6,248.1	0.00	0.00	
11,800.0	90.00	179.50	5,857.0	-6,313.0	669.6	6,347.8	0.00	0.00	
11,900.0	90.00	179.50	5,857.0	-6,413.0	670.5	6,447.4	0.00	0.00	
12,000.0	90.00	179.50	5,857.0	-6,513.0	671.4	6,547.1	0.00	0.00	
12,100.0	90.00	179.50	5,857.0	-6,613.0	672.2	6,646.7	0.00	0.00	
12,200.0	90.00	179.50	5,857.0	-6,713.0	673.1	6,746.4	0.00	0.00	
12,300.0	90.00	179.50	5,857.0	-6,813.0	674.0	6,846.0	0.00	0.00	
12,400.0	90.00	179.50	5,857.0	-6,912.9	674.8	6,945.7	0.00	0.00	
12,500.0	90.00	179.50	5,857.0	-7,012.9	675.7	7,045.4	0.00	0.00	
12,600.0	90.00	179.50	5,857.0	-7,112.9	676.6	7,145.0	0.00	0.00	
12,700.0	90.00	179.50	5,857.0	-7,212.9	677.4	7,244.7	0.00	0.00	
12,800.0	90.00	179.50	5,857.0	-7,312.9	678.3	7,344.3	0.00	0.00	
12,857.7	90.00	179.50	5,857.0	-7,370.6	678.8	7,401.8	0.00	0.00	PBHL @ 12857' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
22D-2704B PBHL - hit/miss target - Shape - Point	0.00	0.00	5,857.0	-10,021.1	767.0	1,539,400.07	3,455,000.39	40° 48' 8.86 N	103° 51' 23.24 W
- plan misses target center by 2651.9usft at 12857.7usft MD (5857.0 TVD, -7370.6 N, 678.8 E)									
22D-2704B PBHL P2 - plan hits target center - Point	0.00	0.00	5,857.0	-7,370.6	678.8	1,542,050.51	3,454,912.16	40° 48' 35.06 N	103° 51' 23.75 W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
6,500.0	5,857.0	7"	0	0	

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well 22D-2704B
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site:	S22-T10N-R58W	North Reference:	Grid
Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,769.2	5,714.0	Top Niobrara		0.00	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,000.0	1,000.0	0.0	0.0	KOP @ 1000' MD	
1,200.0	1,199.8	-6.1	3.4	EOB; 4°	
5,382.8	5,372.4	-261.9	143.7	Start 11° Build	
6,164.6	5,857.0	-717.5	393.6	LP @ 6164' MD; 90°	
7,106.4	5,857.0	-1,619.5	629.0	EOT; 179.5° Az	
12,857.7	5,857.0	-7,370.6	678.8	PBHL @ 12857' MD	



WHITING PETROLEUM CORPORATION

Whiting Petroleum Corporation

Weld County, CO

S22-T10N-R58W

22D-2704B

HZ

Plan #2

Anticollision Report

05 August, 2013



CATHEDRAL

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 8/5/2013				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	12,857.3	Plan #2 (HZ)	ISCWSA MWD	MWD - ISCWSA	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S22-T10N-R58W						
22D-2205A - HZ - Plan #1	900.5	901.9	70.5	66.7	18.262	CC
22D-2205A - HZ - Plan #1	1,000.0	1,001.1	70.9	66.5	16.396	ES
22D-2205A - HZ - Plan #1	10,200.0	10,247.0	278.4	103.2	1.589	SF
22D-2206B - HZ - Plan #1	1,321.2	1,320.7	29.4	23.8	5.280	CC, ES
22D-2206B - HZ - Plan #1	10,200.0	10,543.8	594.1	411.3	3.250	SF
22D-2207A - HZ - Plan #1	1,134.1	1,135.5	89.5	84.8	18.978	CC, ES
22D-2207A - HZ - Plan #1	10,300.0	10,637.3	935.4	750.3	5.052	SF
22D-2208B - HZ - Plan #1	166.7	166.7	66.1	65.7	135.712	CC
22D-2208B - HZ - Plan #1	200.0	200.0	66.1	65.5	103.799	ES
22D-2208B - HZ - Plan #1	10,300.0	10,897.2	1,260.1	1,075.4	6.822	SF
22D-2701A - HZ - Plan #2	1,051.6	1,054.1	53.3	48.7	11.580	CC, ES
22D-2701A - HZ - Plan #2	12,857.7	12,688.5	993.0	708.9	3.495	SF
22D-2703A - HZ - Plan #2	5,626.0	5,665.9	53.7	26.3	1.958	CC
22D-2703A - HZ - Plan #2	5,650.0	5,689.8	54.2	25.9	1.919	ES
22D-2703A - HZ - Plan #2	12,857.7	12,778.8	341.1	65.9	1.240	Level 2, SF
RAZOR 22-2712H (EXISTING) - WHITING WELL - SURV	0.0	0.0	129.6			
RAZOR 22-2712H (EXISTING) - WHITING WELL - SURV	12,300.0	12,568.0	651.7	397.1	2.559	SF

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2205A - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	22.81	75.7	31.8	82.1					
100.0	100.0	100.0	100.0	0.1	0.1	22.81	75.7	31.8	82.1	81.9	0.19	437.304		
200.0	200.0	200.0	200.0	0.3	0.3	22.81	75.7	31.8	82.1	81.4	0.64	128.800		
300.0	300.0	301.4	301.4	0.5	0.5	23.90	74.2	32.9	81.2	80.1	1.07	75.925		
400.0	400.0	402.6	402.4	0.8	0.7	27.29	69.9	36.1	78.7	77.2	1.51	52.139		
500.0	500.0	502.4	501.9	1.0	1.0	32.01	64.3	40.2	75.9	73.9	1.97	38.467		
600.0	600.0	602.1	601.5	1.2	1.2	37.06	58.7	44.3	73.6	71.1	2.44	30.105		
700.0	700.0	701.9	701.0	1.4	1.5	42.39	53.1	48.5	71.9	69.0	2.92	24.638		
800.0	800.0	801.6	800.5	1.7	1.7	47.91	47.5	52.6	70.9	67.5	3.39	20.901		
900.0	900.0	901.4	900.0	1.9	2.0	53.55	41.9	56.7	70.5	66.7	3.86	18.274		
900.5	900.5	901.9	900.5	1.9	2.0	53.58	41.9	56.7	70.5	66.7	3.86	18.262 CC		
1,000.0	1,000.0	1,001.1	999.5	2.1	2.3	59.19	36.3	60.9	70.9	66.5	4.32	16.396 ES		
1,100.0	1,100.0	1,101.0	1,099.1	2.3	2.5	-87.90	30.7	65.0	71.8	67.0	4.84	14.828		
1,200.0	1,199.8	1,201.0	1,198.9	2.5	2.8	-86.58	25.1	69.1	72.8	67.5	5.28	13.784		
1,300.0	1,299.6	1,301.0	1,298.6	2.7	3.0	-86.67	19.5	73.3	73.7	68.0	5.74	12.851		
1,400.0	1,399.4	1,401.0	1,398.4	2.9	3.3	-86.76	13.9	77.4	74.7	68.5	6.20	12.033		
1,500.0	1,499.1	1,501.0	1,498.1	3.1	3.6	-86.85	8.2	81.6	75.6	68.9	6.68	11.314		
1,600.0	1,598.9	1,601.0	1,597.9	3.3	3.8	-86.93	2.6	85.7	76.5	69.3	7.16	10.679		
1,700.0	1,698.6	1,701.0	1,697.6	3.6	4.1	-87.02	-3.0	89.8	77.4	69.8	7.65	10.117		
1,800.0	1,798.4	1,800.9	1,797.4	3.8	4.4	-87.10	-8.6	94.0	78.4	70.2	8.15	9.616		
1,900.0	1,898.1	1,900.9	1,897.1	4.0	4.6	-87.18	-14.2	98.1	79.3	70.6	8.65	9.168		
2,000.0	1,997.9	2,000.9	1,996.9	4.3	4.9	-87.25	-19.8	102.3	80.2	71.1	9.15	8.766		
2,100.0	2,097.6	2,100.9	2,096.6	4.5	5.1	-87.33	-25.4	106.4	81.1	71.5	9.66	8.403		
2,200.0	2,197.4	2,200.9	2,196.4	4.8	5.4	-87.40	-31.0	110.5	82.1	71.9	10.16	8.075		
2,300.0	2,297.2	2,300.9	2,296.1	5.0	5.7	-87.48	-36.7	114.7	83.0	72.3	10.67	7.776		
2,400.0	2,396.9	2,400.9	2,395.9	5.2	5.9	-87.55	-42.3	118.8	83.9	72.7	11.19	7.503		
2,500.0	2,496.7	2,500.9	2,495.6	5.5	6.2	-87.61	-47.9	123.0	84.9	73.2	11.70	7.253		
2,600.0	2,596.4	2,600.9	2,595.4	5.7	6.5	-87.68	-53.5	127.1	85.8	73.6	12.21	7.023		
2,700.0	2,696.2	2,700.9	2,695.1	6.0	6.7	-87.75	-59.1	131.2	86.7	74.0	12.73	6.812		
2,800.0	2,795.9	2,800.9	2,794.9	6.3	7.0	-87.81	-64.7	135.4	87.6	74.4	13.25	6.616		
2,900.0	2,895.7	2,900.9	2,894.6	6.5	7.3	-87.88	-70.3	139.5	88.6	74.8	13.76	6.434		
3,000.0	2,995.5	3,000.9	2,994.4	6.8	7.5	-87.94	-76.0	143.7	89.5	75.2	14.28	6.266		
3,100.0	3,095.2	3,100.9	3,094.2	7.0	7.8	-88.00	-81.6	147.8	90.4	75.6	14.80	6.109		
3,200.0	3,195.0	3,200.9	3,193.9	7.3	8.1	-88.06	-87.2	152.0	91.3	76.0	15.32	5.962		
3,300.0	3,294.7	3,300.9	3,293.7	7.5	8.3	-88.12	-92.8	156.1	92.3	76.4	15.84	5.825		
3,400.0	3,394.5	3,400.9	3,393.4	7.8	8.6	-88.17	-98.4	160.2	93.2	76.8	16.36	5.696		
3,500.0	3,494.2	3,500.9	3,493.2	8.0	8.8	-88.23	-104.0	164.4	94.1	77.2	16.88	5.575		
3,600.0	3,594.0	3,600.9	3,592.9	8.3	9.1	-88.28	-109.6	168.5	95.1	77.7	17.41	5.461		
3,700.0	3,693.7	3,700.9	3,692.7	8.6	9.4	-88.34	-115.2	172.7	96.0	78.1	17.93	5.354		
3,800.0	3,793.5	3,800.9	3,792.4	8.8	9.6	-88.39	-120.9	176.8	96.9	78.5	18.45	5.253		
3,900.0	3,893.3	3,900.9	3,892.2	9.1	9.9	-88.44	-126.5	180.9	97.8	78.9	18.97	5.157		
4,000.0	3,993.0	4,000.9	3,991.9	9.3	10.2	-88.49	-132.1	185.1	98.8	79.3	19.50	5.066		
4,100.0	4,092.8	4,100.8	4,091.7	9.6	10.4	-88.54	-137.7	189.2	99.7	79.7	20.02	4.980		
4,200.0	4,192.5	4,200.8	4,191.4	9.9	10.7	-88.59	-143.3	193.4	100.6	80.1	20.54	4.898		
4,300.0	4,292.3	4,300.8	4,291.2	10.1	11.0	-88.64	-148.9	197.5	101.6	80.5	21.07	4.821		
4,400.0	4,392.0	4,400.8	4,390.9	10.4	11.2	-88.69	-154.5	201.6	102.5	80.9	21.59	4.747		
4,500.0	4,491.8	4,500.8	4,490.7	10.6	11.5	-88.73	-160.1	205.8	103.4	81.3	22.12	4.676		
4,600.0	4,591.6	4,600.8	4,590.4	10.9	11.8	-88.78	-165.8	209.9	104.4	81.7	22.64	4.609		
4,700.0	4,691.3	4,700.8	4,690.2	11.2	12.0	-88.82	-171.4	214.1	105.3	82.1	23.17	4.544		
4,800.0	4,791.1	4,800.8	4,789.9	11.4	12.3	-88.87	-177.0	218.2	106.2	82.5	23.69	4.483		
4,900.0	4,890.8	4,900.8	4,889.7	11.7	12.5	-88.91	-182.6	222.4	107.1	82.9	24.22	4.424		
5,000.0	4,990.6	5,000.8	4,989.4	12.0	12.8	-88.95	-188.2	226.5	108.1	83.3	24.75	4.367		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2205A - HZ - Plan #1												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,090.3	5,100.8	5,089.2	12.2	13.1	-88.99	-193.8	230.6	109.0	83.7	25.27	4.313	
5,200.0	5,190.1	5,200.8	5,188.9	12.5	13.3	-89.04	-199.4	234.8	109.9	84.1	25.80	4.261	
5,300.0	5,289.9	5,300.0	5,287.9	12.7	13.6	-89.07	-205.0	238.9	110.9	84.5	26.32	4.212	
5,382.8	5,372.4	5,380.2	5,367.1	13.0	13.9	-85.82	-214.7	246.1	112.8	86.1	26.79	4.212	
5,400.0	5,389.6	5,396.5	5,382.9	13.0	13.9	-84.49	-217.9	248.4	113.6	86.7	26.89	4.226	
5,450.0	5,439.0	5,443.2	5,427.4	13.2	14.2	-80.80	-229.2	256.7	116.6	89.4	27.22	4.284	
5,500.0	5,487.5	5,489.2	5,470.0	13.4	14.5	-77.46	-243.4	267.2	120.5	92.9	27.59	4.367	
5,550.0	5,534.5	5,534.8	5,510.3	13.6	14.8	-74.50	-260.3	279.7	125.2	97.2	28.00	4.470	
5,600.0	5,579.8	5,579.8	5,548.2	13.9	15.1	-71.93	-279.8	294.1	130.4	102.0	28.43	4.588	
5,650.0	5,622.8	5,624.3	5,583.6	14.3	15.5	-69.76	-301.6	310.2	136.2	107.3	28.88	4.715	
5,700.0	5,663.1	5,668.4	5,616.1	14.7	15.9	-67.96	-325.5	327.8	142.2	112.9	29.36	4.844	
5,750.0	5,700.5	5,712.2	5,645.8	15.1	16.4	-66.50	-351.4	346.9	148.5	118.7	29.89	4.970	
5,800.0	5,734.5	5,755.6	5,672.6	15.6	16.9	-65.35	-378.9	367.2	155.0	124.5	30.48	5.085	
5,850.0	5,764.8	5,800.0	5,696.9	16.2	17.4	-64.48	-408.8	389.2	161.5	130.3	31.17	5.180	
5,900.0	5,791.2	5,841.5	5,716.7	16.8	18.0	-63.88	-438.2	410.9	167.9	136.0	31.93	5.258	
5,950.0	5,813.4	5,884.2	5,733.9	17.4	18.6	-63.50	-469.6	434.1	174.3	141.4	32.84	5.307	
6,000.0	5,831.2	5,926.8	5,747.8	18.2	19.3	-63.32	-501.9	457.9	180.5	146.7	33.87	5.329	
6,050.0	5,844.4	5,969.2	5,758.4	18.9	19.9	-63.34	-535.0	482.3	186.6	151.6	35.05	5.324	
6,100.0	5,853.0	6,011.6	5,765.6	19.7	20.6	-63.52	-568.6	507.1	192.5	156.1	36.36	5.293	
6,150.0	5,856.8	6,054.0	5,769.4	20.5	21.4	-63.85	-602.5	532.2	198.1	160.3	37.81	5.240	
6,164.6	5,857.0	6,066.4	5,769.9	20.7	21.6	-63.98	-612.5	539.5	199.8	161.5	38.26	5.221	
6,200.0	5,857.0	6,101.4	5,770.0	21.3	22.1	-64.57	-640.7	560.2	204.1	164.7	39.46	5.173	
6,300.0	5,857.0	6,211.4	5,770.0	22.8	23.9	-66.15	-731.9	621.9	216.7	173.8	42.83	5.059	
6,400.0	5,857.0	6,322.5	5,770.0	24.3	25.7	-67.50	-827.2	678.8	228.9	182.6	46.22	4.951	
6,500.0	5,857.0	6,434.5	5,770.0	25.9	27.5	-68.67	-926.6	730.4	240.6	191.0	49.58	4.853	
6,600.0	5,857.0	6,547.4	5,770.0	27.5	29.5	-69.67	-1,029.7	776.4	251.8	199.0	52.85	4.765	
6,700.0	5,857.0	6,661.2	5,770.0	29.1	31.4	-70.54	-1,136.1	816.6	262.5	206.4	56.01	4.686	
6,800.0	5,857.0	6,775.8	5,770.0	30.7	33.3	-71.30	-1,245.6	850.6	272.4	213.4	59.03	4.615	
6,900.0	5,857.0	6,891.2	5,770.0	32.4	35.3	-71.95	-1,357.6	878.1	281.7	219.8	61.89	4.552	
7,000.0	5,857.0	7,007.4	5,770.0	33.9	37.1	-72.51	-1,471.9	898.9	290.3	225.7	64.56	4.496	
7,106.4	5,857.0	7,131.8	5,770.0	35.6	39.1	-73.01	-1,595.4	913.5	298.4	231.3	67.19	4.442	
7,200.0	5,857.0	7,241.8	5,770.0	37.1	40.8	-73.30	-1,705.3	919.6	302.7	232.1	70.61	4.287	
7,300.0	5,857.0	7,349.7	5,770.0	38.7	42.5	-73.29	-1,813.1	920.3	302.4	228.4	74.02	4.085	
7,400.0	5,857.0	7,449.7	5,770.0	40.4	44.1	-73.24	-1,913.1	920.3	301.6	224.3	77.32	3.900	
7,500.0	5,857.0	7,549.7	5,770.0	42.1	45.6	-73.19	-2,013.1	920.3	300.7	220.1	80.65	3.729	
7,600.0	5,857.0	7,649.7	5,770.0	43.8	47.2	-73.14	-2,113.1	920.3	299.9	215.9	84.01	3.570	
7,700.0	5,857.0	7,749.7	5,770.0	45.5	48.9	-73.10	-2,213.1	920.3	299.1	211.7	87.40	3.422	
7,800.0	5,857.0	7,849.7	5,770.0	47.2	50.5	-73.05	-2,313.1	920.3	298.3	207.4	90.80	3.285	
7,900.0	5,857.0	7,949.7	5,770.0	49.0	52.2	-73.00	-2,413.1	920.3	297.4	203.2	94.23	3.156	
8,000.0	5,857.0	8,049.7	5,770.0	50.7	53.9	-72.95	-2,513.1	920.3	296.6	198.9	97.67	3.037	
8,100.0	5,857.0	8,149.7	5,770.0	52.5	55.6	-72.90	-2,613.1	920.3	295.8	194.6	101.12	2.925	
8,200.0	5,857.0	8,249.6	5,770.0	54.3	57.3	-72.85	-2,713.1	920.3	294.9	190.3	104.59	2.820	
8,300.0	5,857.0	8,349.6	5,770.0	56.1	59.0	-72.80	-2,813.1	920.3	294.1	186.0	108.07	2.721	
8,400.0	5,857.0	8,449.6	5,770.0	57.9	60.8	-72.75	-2,913.1	920.3	293.3	181.7	111.56	2.629	
8,500.0	5,857.0	8,549.6	5,770.0	59.7	62.5	-72.70	-3,013.1	920.3	292.4	177.4	115.06	2.542	
8,600.0	5,857.0	8,649.6	5,770.0	61.5	64.3	-72.65	-3,113.1	920.3	291.6	173.1	118.56	2.460	
8,700.0	5,857.0	8,749.6	5,770.0	63.3	66.0	-72.60	-3,213.1	920.3	290.8	168.7	122.08	2.382	
8,800.0	5,857.0	8,849.6	5,770.0	65.1	67.8	-72.54	-3,313.1	920.3	290.0	164.4	125.60	2.309	
8,900.0	5,857.0	8,949.6	5,770.0	66.9	69.6	-72.49	-3,413.1	920.3	289.1	160.0	129.12	2.239	
9,000.0	5,857.0	9,049.6	5,770.0	68.8	71.4	-72.44	-3,513.1	920.3	288.3	155.7	132.65	2.173	
9,100.0	5,857.0	9,149.6	5,770.0	70.6	73.2	-72.39	-3,613.1	920.2	287.5	151.3	136.19	2.111	
9,200.0	5,857.0	9,249.6	5,770.0	72.5	75.0	-72.33	-3,713.1	920.2	286.6	146.9	139.73	2.052	

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2205A - HZ - Plan #1												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis		
9,300.0	5,857.0	9,349.6	5,770.0	74.3	76.8	-72.28	-3,813.1	920.2	285.8	142.6	143.27	1.995	
9,400.0	5,857.0	9,449.6	5,770.0	76.1	78.6	-72.23	-3,913.1	920.2	285.0	138.2	146.81	1.941	
9,500.0	5,857.0	9,549.6	5,770.0	78.0	80.4	-72.17	-4,013.1	920.2	284.2	133.8	150.36	1.890	
9,600.0	5,857.0	9,649.6	5,770.0	79.9	82.2	-72.12	-4,113.1	920.2	283.3	129.4	153.91	1.841	
9,700.0	5,857.0	9,749.6	5,770.0	81.7	84.0	-72.07	-4,213.1	920.2	282.5	125.1	157.46	1.794	
9,800.0	5,857.0	9,849.6	5,770.0	83.6	85.9	-72.01	-4,313.1	920.2	281.7	120.7	161.02	1.749	
9,900.0	5,857.0	9,949.6	5,770.0	85.4	87.7	-71.96	-4,413.0	920.2	280.9	116.3	164.57	1.707	
10,000.0	5,857.0	10,049.6	5,770.0	87.3	89.5	-71.90	-4,513.0	920.2	280.0	111.9	168.13	1.666	
10,100.0	5,857.0	10,149.6	5,770.0	89.2	91.4	-71.85	-4,613.0	920.2	279.2	107.5	171.68	1.626	
10,197.0	5,857.0	10,246.6	5,770.0	91.0	93.2	-71.79	-4,710.1	920.2	278.4	103.3	175.13	1.590	
10,200.0	5,857.0	10,247.0	5,770.0	91.0	93.2	-71.79	-4,710.4	920.2	278.4	103.2	175.19	1.589 SF	
10,300.0	5,857.0	10,247.0	5,770.0	92.9	93.2	-71.79	-4,710.4	920.2	295.9	119.0	176.93	1.673	
10,400.0	5,857.0	10,247.0	5,770.0	94.8	93.2	-71.79	-4,710.4	920.2	343.0	164.3	178.67	1.920	
10,500.0	5,857.0	10,247.0	5,770.0	96.7	93.2	-71.79	-4,710.4	920.2	409.5	229.1	180.41	2.270	
10,600.0	5,857.0	10,247.0	5,770.0	98.6	93.2	-71.79	-4,710.4	920.2	487.6	305.4	182.15	2.677	
10,700.0	5,857.0	10,247.0	5,770.0	100.4	93.2	-71.79	-4,710.4	920.2	572.5	388.7	183.89	3.114	
10,800.0	5,857.0	10,247.0	5,770.0	102.3	93.2	-71.79	-4,710.4	920.2	661.7	476.1	185.64	3.565	
10,900.0	5,857.0	10,247.0	5,770.0	104.2	93.2	-71.79	-4,710.4	920.2	753.6	566.2	187.45	4.020	
11,000.0	5,857.0	10,247.0	5,770.0	106.1	93.2	-71.79	-4,710.4	920.2	847.3	658.1	189.27	4.477	
11,100.0	5,857.0	10,247.0	5,770.0	108.0	93.2	-71.79	-4,710.4	920.2	942.4	751.3	191.08	4.932	
11,200.0	5,857.0	10,247.0	5,770.0	109.9	93.2	-71.79	-4,710.4	920.2	1,038.3	845.4	192.90	5.383	
11,300.0	5,857.0	10,247.0	5,770.0	111.7	93.2	-71.79	-4,710.4	920.2	1,135.0	940.3	194.72	5.829	
11,400.0	5,857.0	10,247.0	5,770.0	113.6	93.2	-71.79	-4,710.4	920.2	1,232.2	1,035.6	196.54	6.269	
11,500.0	5,857.0	10,247.0	5,770.0	115.5	93.2	-71.79	-4,710.4	920.2	1,329.8	1,131.4	198.36	6.704	
11,600.0	5,857.0	10,247.0	5,770.0	117.4	93.2	-71.79	-4,710.4	920.2	1,427.7	1,227.5	200.18	7.132	
11,700.0	5,857.0	10,247.0	5,770.0	119.3	93.2	-71.79	-4,710.4	920.2	1,525.9	1,323.9	202.00	7.554	
11,800.0	5,857.0	10,247.0	5,770.0	121.2	93.2	-71.79	-4,710.4	920.2	1,624.3	1,420.5	203.82	7.969	
11,900.0	5,857.0	10,247.0	5,770.0	123.1	93.2	-71.79	-4,710.4	920.2	1,722.9	1,517.3	205.64	8.378	
12,000.0	5,857.0	10,247.0	5,770.0	125.0	93.2	-71.79	-4,710.4	920.2	1,821.7	1,614.2	207.46	8.781	
12,100.0	5,857.0	10,247.0	5,770.0	126.9	93.2	-71.79	-4,710.4	920.2	1,920.6	1,711.3	209.29	9.177	
12,200.0	5,857.0	10,247.0	5,770.0	128.8	93.2	-71.79	-4,710.4	920.2	2,019.6	1,808.5	211.11	9.567	
12,300.0	5,857.0	10,247.0	5,770.0	130.7	93.2	-71.79	-4,710.4	920.2	2,118.7	1,905.7	212.93	9.950	
12,400.0	5,857.0	10,247.0	5,770.0	132.6	93.2	-71.79	-4,710.4	920.2	2,217.8	2,003.1	214.76	10.327	
12,500.0	5,857.0	10,247.0	5,770.0	134.5	93.2	-71.79	-4,710.4	920.2	2,317.1	2,100.5	216.58	10.698	
12,600.0	5,857.0	10,247.0	5,770.0	136.4	93.2	-71.79	-4,710.4	920.2	2,416.4	2,198.0	218.41	11.064	
12,700.0	5,857.0	10,247.0	5,770.0	138.3	93.2	-71.79	-4,710.4	920.2	2,515.7	2,295.5	220.23	11.423	
12,800.0	5,857.0	10,247.0	5,770.0	140.2	93.2	-71.79	-4,710.4	920.2	2,615.2	2,393.1	222.06	11.777	
12,857.7	5,857.0	10,247.0	5,770.0	141.1	93.2	-71.79	-4,710.4	920.2	2,672.5	2,449.6	222.91	11.989	

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2206B - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	88.94	0.6	33.2	33.2					
100.0	100.0	100.0	100.0	0.1	0.1	88.94	0.6	33.2	33.2	33.0	0.19	176.946		
200.0	200.0	200.0	200.0	0.3	0.3	88.94	0.6	33.2	33.2	32.6	0.64	52.116		
300.0	300.0	300.0	300.0	0.5	0.5	88.94	0.6	33.2	33.2	32.1	1.09	30.558		
400.0	400.0	400.0	400.0	0.8	0.8	88.94	0.6	33.2	33.2	31.7	1.54	21.617		
500.0	500.0	500.0	500.0	1.0	1.0	88.94	0.6	33.2	33.2	31.2	1.99	16.723		
600.0	600.0	600.0	600.0	1.2	1.2	88.94	0.6	33.2	33.2	30.8	2.44	13.636		
700.0	700.0	700.0	700.0	1.4	1.4	88.94	0.6	33.2	33.2	30.3	2.88	11.512		
800.0	800.0	800.0	800.0	1.7	1.7	88.94	0.6	33.2	33.2	29.9	3.33	9.960		
900.0	900.0	900.0	900.0	1.9	1.9	88.94	0.6	33.2	33.2	29.4	3.78	8.776		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	88.94	0.6	33.2	33.2	29.0	4.23	7.844		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-65.05	0.6	33.2	32.4	27.8	4.68	6.929		
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	-74.00	0.6	33.2	30.6	25.5	5.09	6.012		
1,300.0	1,299.6	1,299.6	1,299.6	2.7	2.8	-87.13	0.6	33.2	29.4	24.0	5.48	5.372		
1,321.2	1,320.7	1,320.7	1,320.7	2.7	2.8	-90.00	0.6	33.2	29.4	23.8	5.57	5.280 CC, ES		
1,400.0	1,399.4	1,399.4	1,399.4	2.9	3.0	-100.57	0.6	33.2	29.9	24.0	5.91	5.063		
1,500.0	1,499.1	1,499.1	1,499.1	3.1	3.2	-112.94	0.6	33.2	31.9	25.6	6.34	5.036		
1,600.0	1,598.9	1,598.9	1,598.9	3.3	3.5	-123.42	0.6	33.2	35.3	28.5	6.78	5.203		
1,700.0	1,698.6	1,698.6	1,698.6	3.6	3.7	-131.87	0.6	33.2	39.5	32.3	7.21	5.484		
1,800.0	1,798.4	1,798.4	1,798.4	3.8	3.9	-138.57	0.6	33.2	44.5	36.9	7.64	5.824		
1,900.0	1,898.1	1,899.1	1,899.0	4.0	4.1	-142.25	-0.5	34.5	49.0	41.0	8.06	6.084		
2,000.0	1,997.9	2,000.0	1,999.8	4.3	4.3	-142.11	-4.0	38.4	51.7	43.3	8.46	6.112		
2,100.0	2,097.6	2,100.0	2,099.5	4.5	4.5	-140.39	-8.6	43.7	53.5	44.6	8.89	6.025		
2,200.0	2,197.4	2,199.9	2,199.3	4.8	4.7	-138.78	-13.2	48.9	55.4	46.1	9.32	5.944		
2,300.0	2,297.2	2,299.9	2,299.0	5.0	4.9	-137.27	-17.9	54.1	57.3	47.5	9.75	5.870		
2,400.0	2,396.9	2,399.9	2,398.7	5.2	5.1	-135.86	-22.5	59.3	59.2	49.0	10.20	5.801		
2,500.0	2,496.7	2,499.8	2,498.5	5.5	5.3	-134.54	-27.1	64.6	61.1	50.5	10.66	5.738		
2,600.0	2,596.4	2,599.8	2,598.2	5.7	5.5	-133.30	-31.7	69.8	63.1	52.0	11.12	5.679		
2,700.0	2,696.2	2,699.8	2,697.9	6.0	5.8	-132.14	-36.3	75.0	65.1	53.6	11.58	5.624		
2,800.0	2,795.9	2,799.8	2,797.6	6.3	6.0	-131.05	-41.0	80.2	67.2	55.1	12.05	5.574		
2,900.0	2,895.7	2,899.7	2,897.4	6.5	6.2	-130.02	-45.6	85.5	69.2	56.7	12.53	5.527		
3,000.0	2,995.5	2,999.7	2,997.1	6.8	6.4	-129.06	-50.2	90.7	71.3	58.3	13.01	5.484		
3,100.0	3,095.2	3,099.7	3,096.8	7.0	6.7	-128.14	-54.8	95.9	73.4	59.9	13.49	5.443		
3,200.0	3,195.0	3,199.6	3,196.6	7.3	6.9	-127.28	-59.4	101.1	75.5	61.6	13.97	5.405		
3,300.0	3,294.7	3,299.6	3,296.3	7.5	7.2	-126.47	-64.0	106.4	77.7	63.2	14.46	5.370		
3,400.0	3,394.5	3,399.6	3,396.0	7.8	7.4	-125.70	-68.7	111.6	79.8	64.9	14.96	5.337		
3,500.0	3,494.2	3,499.6	3,495.7	8.0	7.6	-124.97	-73.3	116.8	82.0	66.5	15.45	5.307		
3,600.0	3,594.0	3,599.5	3,595.5	8.3	7.9	-124.28	-77.9	122.0	84.2	68.2	15.95	5.278		
3,700.0	3,693.7	3,699.5	3,695.2	8.6	8.1	-123.62	-82.5	127.3	86.3	69.9	16.44	5.251		
3,800.0	3,793.5	3,799.5	3,794.9	8.8	8.4	-123.00	-87.1	132.5	88.5	71.6	16.95	5.225		
3,900.0	3,893.3	3,899.4	3,894.6	9.1	8.6	-122.40	-91.8	137.7	90.8	73.3	17.45	5.202		
4,000.0	3,993.0	3,999.4	3,994.4	9.3	8.9	-121.84	-96.4	142.9	93.0	75.0	17.95	5.179		
4,100.0	4,092.8	4,099.4	4,094.1	9.6	9.1	-121.30	-101.0	148.2	95.2	76.7	18.46	5.158		
4,200.0	4,192.5	4,199.4	4,193.8	9.9	9.4	-120.78	-105.6	153.4	97.4	78.5	18.96	5.138		
4,300.0	4,292.3	4,299.3	4,293.6	10.1	9.6	-120.29	-110.2	158.6	99.7	80.2	19.47	5.119		
4,400.0	4,392.0	4,399.3	4,393.3	10.4	9.9	-119.82	-114.8	163.8	101.9	81.9	19.98	5.101		
4,500.0	4,491.8	4,499.3	4,493.0	10.6	10.1	-119.37	-119.5	169.1	104.2	83.7	20.49	5.084		
4,600.0	4,591.6	4,599.2	4,592.7	10.9	10.4	-118.94	-124.1	174.3	106.4	85.4	21.00	5.068		
4,700.0	4,691.3	4,699.2	4,692.5	11.2	10.6	-118.53	-128.7	179.5	108.7	87.2	21.52	5.052		
4,800.0	4,791.1	4,799.2	4,792.2	11.4	10.9	-118.13	-133.3	184.7	111.0	89.0	22.03	5.038		
4,900.0	4,890.8	4,899.2	4,891.9	11.7	11.1	-117.75	-137.9	190.0	113.3	90.7	22.55	5.024		
5,000.0	4,990.6	4,999.1	4,991.7	12.0	11.4	-117.39	-142.6	195.2	115.5	92.5	23.06	5.010		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2206B - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,090.3	5,099.1	5,091.4	12.2	11.6	-117.04	-147.2	200.4	117.8	94.3	23.58	4.998		
5,200.0	5,190.1	5,199.1	5,191.1	12.5	11.9	-116.70	-151.8	205.6	120.1	96.0	24.09	4.986		
5,300.0	5,289.9	5,299.0	5,290.8	12.7	12.1	-116.37	-156.4	210.9	122.4	97.8	24.61	4.975		
5,382.8	5,372.4	5,381.8	5,373.4	13.0	12.3	-116.11	-160.2	215.2	124.3	99.3	25.04	4.965		
5,400.0	5,389.6	5,399.5	5,391.0	13.0	12.4	-115.98	-161.3	216.4	124.8	99.6	25.18	4.956		
5,450.0	5,439.0	5,450.7	5,441.6	13.2	12.6	-115.32	-166.5	222.3	127.3	101.6	25.63	4.965		
5,500.0	5,487.5	5,501.8	5,491.0	13.4	12.8	-114.28	-174.9	231.9	131.3	105.2	26.13	5.025		
5,550.0	5,534.5	5,552.6	5,538.7	13.6	13.0	-112.92	-186.5	244.9	136.8	110.2	26.68	5.129		
5,600.0	5,579.8	5,603.0	5,584.1	13.9	13.3	-111.32	-200.9	261.3	143.9	116.6	27.30	5.270		
5,650.0	5,622.8	5,653.0	5,626.9	14.3	13.6	-109.54	-218.1	280.7	152.4	124.4	28.01	5.441		
5,700.0	5,663.1	5,702.6	5,666.7	14.7	14.0	-107.64	-237.7	302.8	162.3	133.5	28.81	5.632		
5,750.0	5,700.5	5,751.7	5,703.1	15.1	14.4	-105.67	-259.5	327.5	173.5	143.8	29.72	5.837		
5,800.0	5,734.5	5,800.3	5,736.0	15.6	14.9	-103.67	-283.2	354.3	185.8	155.1	30.72	6.049		
5,850.0	5,764.8	5,848.6	5,765.1	16.2	15.4	-101.66	-308.6	383.1	199.3	167.5	31.83	6.262		
5,900.0	5,791.2	5,896.4	5,790.4	16.8	16.0	-99.68	-335.5	413.5	213.6	180.6	33.02	6.471		
5,950.0	5,813.4	5,944.0	5,811.8	17.4	16.7	-97.73	-363.6	445.3	228.8	194.5	34.29	6.673		
6,000.0	5,831.2	5,991.2	5,829.0	18.2	17.4	-95.82	-392.7	478.3	244.6	209.0	35.63	6.866		
6,050.0	5,844.4	6,038.3	5,842.2	18.9	18.1	-93.96	-422.6	512.1	260.9	223.9	37.02	7.049		
6,100.0	5,853.0	6,085.2	5,851.3	19.7	18.9	-92.17	-453.1	546.6	277.6	239.1	38.46	7.218		
6,150.0	5,856.8	6,132.2	5,856.1	20.5	19.7	-90.44	-484.1	581.6	294.4	254.5	39.93	7.374		
6,164.6	5,857.0	6,145.9	5,856.8	20.7	19.9	-89.95	-493.1	591.9	299.4	259.0	40.37	7.417		
6,200.0	5,857.0	6,182.3	5,857.0	21.3	20.5	-90.01	-517.3	619.1	311.6	270.1	41.46	7.516		
6,300.0	5,857.0	6,295.7	5,857.0	22.8	22.5	-90.01	-595.8	701.0	345.9	301.3	44.57	7.761		
6,400.0	5,857.0	6,412.0	5,857.0	24.3	24.5	-90.01	-681.1	780.0	379.5	331.7	47.76	7.944		
6,500.0	5,857.0	6,531.2	5,857.0	25.9	26.7	-90.01	-773.4	855.4	412.1	361.1	51.00	8.082		
6,600.0	5,857.0	6,653.5	5,857.0	27.5	29.0	-90.01	-872.7	926.7	443.8	389.6	54.21	8.187		
6,700.0	5,857.0	6,778.9	5,857.0	29.1	31.3	-90.01	-979.1	993.0	474.3	416.9	57.36	8.268		
6,800.0	5,857.0	6,907.5	5,857.0	30.7	33.6	-90.00	-1,092.5	1,053.6	503.4	443.0	60.42	8.332		
6,900.0	5,857.0	7,039.3	5,857.0	32.4	36.0	-90.00	-1,212.7	1,107.6	531.0	467.7	63.35	8.382		
7,000.0	5,857.0	7,174.4	5,857.0	33.9	38.3	-90.00	-1,339.5	1,154.2	556.9	490.8	66.13	8.422		
7,106.4	5,857.0	7,321.6	5,857.0	35.6	40.8	-90.00	-1,481.0	1,194.7	582.5	513.6	68.89	8.456		
7,200.0	5,857.0	7,454.6	5,857.0	37.1	43.0	-90.00	-1,611.2	1,221.9	600.8	527.9	72.92	8.240		
7,300.0	5,857.0	7,600.1	5,857.0	38.7	45.2	-90.00	-1,755.4	1,241.1	613.2	535.9	77.27	7.935		
7,400.0	5,857.0	7,747.5	5,857.0	40.4	47.4	-90.00	-1,902.5	1,249.3	617.9	536.3	81.58	7.574		
7,500.0	5,857.0	7,858.1	5,857.0	42.1	49.0	-90.00	-2,013.1	1,249.6	617.2	532.0	85.16	7.247		
7,600.0	5,857.0	7,958.1	5,857.0	43.8	50.4	-90.00	-2,113.1	1,249.6	616.3	527.8	88.57	6.959		
7,700.0	5,857.0	8,058.1	5,857.0	45.5	51.8	-90.00	-2,213.1	1,249.6	615.5	523.5	92.01	6.689		
7,800.0	5,857.0	8,158.1	5,857.0	47.2	53.3	-90.00	-2,313.1	1,249.6	614.6	519.1	95.49	6.437		
7,900.0	5,857.0	8,258.1	5,857.0	49.0	54.8	-90.00	-2,413.1	1,249.6	613.8	514.8	98.99	6.200		
8,000.0	5,857.0	8,358.1	5,857.0	50.7	56.3	-90.00	-2,513.1	1,249.6	612.9	510.4	102.51	5.979		
8,100.0	5,857.0	8,458.1	5,857.0	52.5	57.9	-90.00	-2,613.1	1,249.6	612.0	506.0	106.05	5.771		
8,200.0	5,857.0	8,558.1	5,857.0	54.3	59.5	-90.00	-2,713.1	1,249.6	611.2	501.6	109.62	5.575		
8,300.0	5,857.0	8,658.1	5,857.0	56.1	61.0	-90.00	-2,813.1	1,249.6	610.3	497.1	113.20	5.391		
8,400.0	5,857.0	8,758.1	5,857.0	57.9	62.7	-90.00	-2,913.1	1,249.6	609.5	492.7	116.80	5.218		
8,500.0	5,857.0	8,858.1	5,857.0	59.7	64.3	-90.00	-3,013.1	1,249.6	608.6	488.2	120.41	5.054		
8,600.0	5,857.0	8,958.1	5,857.0	61.5	65.9	-90.00	-3,113.1	1,249.6	607.7	483.7	124.04	4.900		
8,700.0	5,857.0	9,058.1	5,857.0	63.3	67.6	-90.00	-3,213.1	1,249.7	606.9	479.2	127.68	4.753		
8,800.0	5,857.0	9,158.1	5,857.0	65.1	69.2	-90.00	-3,313.0	1,249.7	606.0	474.7	131.33	4.615		
8,900.0	5,857.0	9,258.1	5,857.0	66.9	70.9	-90.00	-3,413.0	1,249.7	605.1	470.2	134.99	4.483		
9,000.0	5,857.0	9,358.1	5,857.0	68.8	72.6	-90.00	-3,513.0	1,249.7	604.3	465.6	138.66	4.358		
9,100.0	5,857.0	9,458.1	5,857.0	70.6	74.3	-90.00	-3,613.0	1,249.7	603.4	461.1	142.33	4.240		
9,200.0	5,857.0	9,558.1	5,857.0	72.5	76.0	-90.00	-3,713.0	1,249.7	602.6	456.5	146.02	4.127		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2206B - HZ - Plan #1												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Between Centres (usft)	Between Ellipses (usft)					
9,300.0	5,857.0	9,658.1	5,857.0	74.3	77.7	-90.00	-3,813.0	1,249.7	601.7	452.0	149.71	4.019	
9,400.0	5,857.0	9,758.1	5,857.0	76.1	79.5	-90.00	-3,913.0	1,249.7	600.8	447.4	153.41	3.917	
9,500.0	5,857.0	9,858.1	5,857.0	78.0	81.2	-90.00	-4,013.0	1,249.7	600.0	442.9	157.12	3.819	
9,600.0	5,857.0	9,958.0	5,857.0	79.9	83.0	-90.00	-4,113.0	1,249.7	599.1	438.3	160.83	3.725	
9,700.0	5,857.0	10,058.0	5,857.0	81.7	84.7	-90.00	-4,213.0	1,249.7	598.3	433.7	164.55	3.636	
9,800.0	5,857.0	10,158.0	5,857.0	83.6	86.5	-90.00	-4,313.0	1,249.7	597.4	429.1	168.27	3.550	
9,900.0	5,857.0	10,258.0	5,857.0	85.4	88.3	-90.00	-4,413.0	1,249.7	596.5	424.5	172.00	3.468	
10,000.0	5,857.0	10,358.0	5,857.0	87.3	90.0	-90.00	-4,513.0	1,249.7	595.7	420.0	175.73	3.390	
10,100.0	5,857.0	10,458.0	5,857.0	89.2	91.8	-90.00	-4,613.0	1,249.7	594.8	415.4	179.47	3.314	
10,183.8	5,857.0	10,541.9	5,857.0	90.7	93.2	-90.00	-4,698.8	1,249.7	594.1	411.6	182.46	3.256	
10,200.0	5,857.0	10,543.8	5,857.0	91.0	93.2	-90.00	-4,698.8	1,249.7	594.1	411.3	182.79	3.250 SF	
10,300.0	5,857.0	10,543.8	5,857.0	92.9	93.2	-90.00	-4,698.8	1,249.7	604.0	419.4	184.61	3.272	
10,400.0	5,857.0	10,543.8	5,857.0	94.8	93.2	-90.00	-4,698.8	1,249.7	629.8	443.4	186.42	3.378	
10,500.0	5,857.0	10,543.8	5,857.0	96.7	93.2	-90.00	-4,698.8	1,249.7	669.7	481.4	188.24	3.558	
10,600.0	5,857.0	10,543.8	5,857.0	98.6	93.2	-90.00	-4,698.8	1,249.7	721.3	531.3	190.05	3.795	
10,700.0	5,857.0	10,543.8	5,857.0	100.4	93.2	-90.00	-4,698.8	1,249.7	782.4	590.5	191.87	4.078	
10,800.0	5,857.0	10,543.8	5,857.0	102.3	93.2	-90.00	-4,698.8	1,249.7	850.8	657.2	193.69	4.393	
10,900.0	5,857.0	10,543.8	5,857.0	104.2	93.2	-90.00	-4,698.8	1,249.7	925.1	729.6	195.51	4.732	
11,000.0	5,857.0	10,543.8	5,857.0	106.1	93.2	-90.00	-4,698.8	1,249.7	1,003.8	806.5	197.33	5.087	
11,100.0	5,857.0	10,543.8	5,857.0	108.0	93.2	-90.00	-4,698.8	1,249.7	1,086.0	886.9	199.15	5.453	
11,200.0	5,857.0	10,543.8	5,857.0	109.9	93.2	-90.00	-4,698.8	1,249.7	1,171.0	970.0	200.97	5.827	
11,300.0	5,857.0	10,543.8	5,857.0	111.7	93.2	-90.00	-4,698.8	1,249.7	1,258.2	1,055.4	202.80	6.204	
11,400.0	5,857.0	10,543.8	5,857.0	113.6	93.2	-90.00	-4,698.8	1,249.7	1,347.2	1,142.6	204.62	6.584	
11,500.0	5,857.0	10,543.8	5,857.0	115.5	93.2	-90.00	-4,698.8	1,249.7	1,437.6	1,231.2	206.44	6.964	
11,600.0	5,857.0	10,543.8	5,857.0	117.4	93.2	-90.00	-4,698.8	1,249.7	1,529.2	1,321.0	208.27	7.343	
11,700.0	5,857.0	10,543.8	5,857.0	119.3	93.2	-90.00	-4,698.8	1,249.7	1,621.8	1,411.7	210.09	7.720	
11,800.0	5,857.0	10,543.8	5,857.0	121.2	93.2	-90.00	-4,698.8	1,249.7	1,715.3	1,503.4	211.92	8.094	
11,900.0	5,857.0	10,543.8	5,857.0	123.1	93.2	-90.00	-4,698.8	1,249.7	1,809.4	1,595.7	213.75	8.465	
12,000.0	5,857.0	10,543.8	5,857.0	125.0	93.2	-90.00	-4,698.8	1,249.7	1,904.2	1,688.6	215.57	8.833	
12,100.0	5,857.0	10,543.8	5,857.0	126.9	93.2	-90.00	-4,698.8	1,249.7	1,999.4	1,782.0	217.40	9.197	
12,200.0	5,857.0	10,543.8	5,857.0	128.8	93.2	-90.00	-4,698.8	1,249.7	2,095.1	1,875.9	219.23	9.557	
12,300.0	5,857.0	10,543.8	5,857.0	130.7	93.2	-90.00	-4,698.8	1,249.7	2,191.2	1,970.1	221.06	9.912	
12,400.0	5,857.0	10,543.8	5,857.0	132.6	93.2	-90.00	-4,698.8	1,249.7	2,287.6	2,064.7	222.89	10.264	
12,500.0	5,857.0	10,543.8	5,857.0	134.5	93.2	-90.00	-4,698.8	1,249.7	2,384.3	2,159.6	224.71	10.610	
12,600.0	5,857.0	10,543.8	5,857.0	136.4	93.2	-90.00	-4,698.8	1,249.7	2,481.3	2,254.7	226.54	10.953	
12,700.0	5,857.0	10,543.8	5,857.0	138.3	93.2	-90.00	-4,698.8	1,249.7	2,578.5	2,350.1	228.37	11.291	
12,800.0	5,857.0	10,543.8	5,857.0	140.2	93.2	-90.00	-4,698.8	1,249.7	2,675.9	2,445.7	230.20	11.624	
12,857.7	5,857.0	10,543.8	5,857.0	141.1	93.2	-90.00	-4,698.8	1,249.7	2,732.2	2,501.1	231.06	11.825	

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2207A - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	40.33	76.3	64.7	100.0					
100.0	100.0	100.0	100.0	0.1	0.1	40.33	76.3	64.7	100.0	99.9	0.19	533.031		
200.0	200.0	200.0	200.0	0.3	0.3	40.33	76.3	64.7	100.0	99.4	0.64	156.995		
300.0	300.0	300.0	300.0	0.5	0.5	40.33	76.3	64.7	100.0	99.0	1.09	92.054		
400.0	400.0	400.0	400.0	0.8	0.8	40.33	76.3	64.7	100.0	98.5	1.54	65.118		
500.0	500.0	500.0	500.0	1.0	1.0	40.33	76.3	64.7	100.0	98.1	1.99	50.377		
600.0	600.0	600.0	600.0	1.2	1.2	40.33	76.3	64.7	100.0	97.6	2.44	41.078		
700.0	700.0	701.7	701.7	1.4	1.4	41.23	74.6	65.4	99.2	96.3	2.86	34.664		
800.0	800.0	803.1	803.0	1.7	1.6	44.04	69.5	67.2	96.7	93.5	3.27	29.545		
900.0	900.0	902.9	902.5	1.9	1.8	47.86	63.0	69.6	93.9	90.2	3.70	25.353		
1,000.0	1,000.0	1,002.6	1,002.0	2.1	2.0	51.90	56.4	72.0	91.5	87.3	4.14	22.069		
1,100.0	1,100.0	1,102.4	1,101.5	2.3	2.3	-96.25	49.9	74.3	89.7	85.1	4.58	19.603		
1,134.1	1,134.1	1,135.5	1,134.5	2.4	2.3	-95.70	47.9	75.3	89.5	84.8	4.71	18.978 CC, ES		
1,200.0	1,199.8	1,200.0	1,198.9	2.5	2.5	-95.35	44.6	78.0	90.3	85.3	4.99	18.105		
1,300.0	1,299.6	1,298.6	1,297.2	2.7	2.7	-95.63	40.6	83.7	93.4	88.0	5.41	17.248		
1,400.0	1,399.4	1,398.5	1,396.9	2.9	3.0	-95.89	36.7	89.4	96.6	90.8	5.86	16.488		
1,500.0	1,499.1	1,498.5	1,496.6	3.1	3.2	-96.14	32.8	95.2	99.9	93.5	6.32	15.806		
1,600.0	1,598.9	1,598.4	1,596.3	3.3	3.5	-96.37	28.9	101.0	103.1	96.3	6.78	15.195		
1,700.0	1,698.6	1,698.4	1,696.0	3.6	3.7	-96.59	24.9	106.7	106.3	99.1	7.26	14.647		
1,800.0	1,798.4	1,798.3	1,795.7	3.8	4.0	-96.79	21.0	112.5	109.6	101.8	7.74	14.155		
1,900.0	1,898.1	1,898.3	1,895.4	4.0	4.2	-96.98	17.1	118.2	112.8	104.6	8.23	13.712		
2,000.0	1,997.9	1,998.2	1,995.1	4.3	4.5	-97.16	13.2	124.0	116.0	107.3	8.72	13.312		
2,100.0	2,097.6	2,098.2	2,094.9	4.5	4.7	-97.34	9.3	129.8	119.3	110.1	9.21	12.950		
2,200.0	2,197.4	2,198.1	2,194.6	4.8	5.0	-97.50	5.3	135.5	122.5	112.8	9.71	12.619		
2,300.0	2,297.2	2,298.1	2,294.3	5.0	5.2	-97.65	1.4	141.3	125.8	115.5	10.21	12.318		
2,400.0	2,396.9	2,398.0	2,394.0	5.2	5.5	-97.80	-2.5	147.1	129.0	118.3	10.71	12.042		
2,500.0	2,496.7	2,497.9	2,493.7	5.5	5.7	-97.94	-6.4	152.8	132.2	121.0	11.22	11.789		
2,600.0	2,596.4	2,597.9	2,593.4	5.7	6.0	-98.07	-10.3	158.6	135.5	123.8	11.72	11.556		
2,700.0	2,696.2	2,697.8	2,693.1	6.0	6.3	-98.20	-14.3	164.4	138.7	126.5	12.23	11.341		
2,800.0	2,795.9	2,797.8	2,792.8	6.3	6.5	-98.32	-18.2	170.1	142.0	129.2	12.74	11.142		
2,900.0	2,895.7	2,897.7	2,892.5	6.5	6.8	-98.44	-22.1	175.9	145.2	132.0	13.25	10.957		
3,000.0	2,995.5	2,997.7	2,992.2	6.8	7.0	-98.55	-26.0	181.7	148.5	134.7	13.77	10.786		
3,100.0	3,095.2	3,097.6	3,091.9	7.0	7.3	-98.65	-30.0	187.4	151.7	137.4	14.28	10.626		
3,200.0	3,195.0	3,197.6	3,191.6	7.3	7.5	-98.76	-33.9	193.2	155.0	140.2	14.79	10.476		
3,300.0	3,294.7	3,297.5	3,291.3	7.5	7.8	-98.85	-37.8	198.9	158.2	142.9	15.31	10.336		
3,400.0	3,394.5	3,397.5	3,391.0	7.8	8.1	-98.95	-41.7	204.7	161.5	145.6	15.82	10.205		
3,500.0	3,494.2	3,497.4	3,490.7	8.0	8.3	-99.04	-45.6	210.5	164.7	148.4	16.34	10.082		
3,600.0	3,594.0	3,597.4	3,590.4	8.3	8.6	-99.12	-49.6	216.2	168.0	151.1	16.85	9.966		
3,700.0	3,693.7	3,697.3	3,690.1	8.6	8.9	-99.20	-53.5	222.0	171.2	153.8	17.37	9.856		
3,800.0	3,793.5	3,797.3	3,789.8	8.8	9.1	-99.28	-57.4	227.8	174.5	156.6	17.89	9.753		
3,900.0	3,893.3	3,897.2	3,889.5	9.1	9.4	-99.36	-61.3	233.5	177.7	159.3	18.41	9.655		
4,000.0	3,993.0	3,997.1	3,989.2	9.3	9.6	-99.43	-65.3	239.3	181.0	162.0	18.92	9.563		
4,100.0	4,092.8	4,097.1	4,088.9	9.6	9.9	-99.51	-69.2	245.1	184.2	164.8	19.44	9.475		
4,200.0	4,192.5	4,197.0	4,188.6	9.9	10.2	-99.58	-73.1	250.8	187.5	167.5	19.96	9.392		
4,300.0	4,292.3	4,297.0	4,288.3	10.1	10.4	-99.64	-77.0	256.6	190.7	170.2	20.48	9.312		
4,400.0	4,392.0	4,396.9	4,388.0	10.4	10.7	-99.71	-80.9	262.4	194.0	173.0	21.00	9.237		
4,500.0	4,491.8	4,496.9	4,487.7	10.6	10.9	-99.77	-84.9	268.1	197.2	175.7	21.52	9.165		
4,600.0	4,591.6	4,596.8	4,587.4	10.9	11.2	-99.83	-88.8	273.9	200.5	178.4	22.04	9.096		
4,700.0	4,691.3	4,696.8	4,687.1	11.2	11.5	-99.89	-92.7	279.6	203.7	181.2	22.56	9.031		
4,800.0	4,791.1	4,796.7	4,786.8	11.4	11.7	-99.94	-96.6	285.4	207.0	183.9	23.08	8.968		
4,900.0	4,890.8	4,896.7	4,886.5	11.7	12.0	-100.00	-100.6	291.2	210.2	186.6	23.60	8.908		
5,000.0	4,990.6	4,996.6	4,986.3	12.0	12.3	-100.05	-104.5	296.9	213.5	189.4	24.12	8.851		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2207A - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,090.3	5,096.6	5,086.0	12.2	12.5	-100.10	-108.4	302.7	216.7	192.1	24.64	8.796		
5,200.0	5,190.1	5,196.5	5,185.7	12.5	12.8	-100.15	-112.3	308.5	220.0	194.8	25.16	8.743		
5,300.0	5,289.9	5,296.5	5,285.4	12.7	13.0	-100.20	-116.2	314.2	223.2	197.6	25.68	8.692		
5,382.8	5,372.4	5,369.6	5,357.7	13.0	13.3	-99.00	-122.0	322.7	227.7	201.5	26.14	8.711		
5,400.0	5,389.6	5,384.5	5,372.3	13.0	13.3	-98.37	-123.8	325.4	229.1	202.9	26.24	8.732		
5,450.0	5,439.0	5,427.5	5,413.6	13.2	13.5	-96.52	-130.5	335.2	234.7	208.1	26.58	8.831		
5,500.0	5,487.5	5,469.9	5,453.2	13.4	13.8	-94.72	-138.9	347.6	242.4	215.4	26.98	8.982		
5,550.0	5,534.5	5,511.5	5,490.8	13.6	14.0	-92.98	-149.0	362.4	251.9	224.5	27.45	9.176		
5,600.0	5,579.8	5,550.0	5,524.2	13.9	14.3	-91.32	-159.7	378.1	263.2	235.2	27.97	9.410		
5,650.0	5,622.8	5,592.9	5,559.7	14.3	14.6	-89.72	-173.3	398.1	276.0	247.4	28.59	9.652		
5,700.0	5,663.1	5,632.6	5,590.6	14.7	15.0	-88.21	-187.3	418.6	290.2	260.9	29.27	9.916		
5,750.0	5,700.5	5,671.6	5,619.1	15.1	15.3	-86.77	-202.3	440.7	305.7	275.7	30.01	10.186		
5,800.0	5,734.5	5,710.1	5,645.1	15.6	15.8	-85.39	-218.2	464.1	322.2	291.4	30.81	10.458		
5,850.0	5,764.8	5,750.0	5,669.9	16.2	16.2	-84.10	-235.8	490.0	339.7	308.0	31.70	10.717		
5,900.0	5,791.2	5,785.6	5,689.8	16.8	16.7	-82.79	-252.4	514.3	358.0	325.4	32.61	10.976		
5,950.0	5,813.4	5,822.7	5,708.5	17.4	17.2	-81.56	-270.4	540.8	376.9	343.3	33.61	11.214		
6,000.0	5,831.2	5,859.6	5,724.7	18.2	17.7	-80.38	-289.0	568.2	396.4	361.8	34.67	11.435		
6,050.0	5,844.4	5,900.0	5,739.7	18.9	18.3	-79.37	-310.1	599.2	416.4	380.5	35.85	11.615		
6,100.0	5,853.0	5,932.9	5,749.8	19.7	18.9	-78.16	-327.8	625.1	436.6	399.6	36.97	11.809		
6,150.0	5,856.8	5,969.6	5,758.7	20.5	19.5	-77.13	-347.8	654.6	456.9	418.7	38.20	11.960		
6,164.6	5,857.0	5,980.3	5,760.8	20.7	19.7	-76.84	-353.7	663.3	462.9	424.3	38.58	12.000		
6,200.0	5,857.0	6,006.5	5,765.0	21.3	20.1	-77.64	-368.2	684.6	477.9	438.4	39.53	12.091		
6,300.0	5,857.0	6,081.9	5,770.0	22.8	21.5	-78.92	-410.5	746.7	525.4	483.5	41.96	12.522		
6,400.0	5,857.0	6,202.1	5,770.0	24.3	23.6	-79.95	-481.4	843.8	575.8	530.9	44.89	12.827		
6,500.0	5,857.0	6,327.9	5,770.0	25.9	26.0	-80.82	-561.9	940.4	625.3	577.4	47.88	13.060		
6,600.0	5,857.0	6,459.6	5,770.0	27.5	28.5	-81.56	-652.9	1,035.6	673.5	622.6	50.96	13.216		
6,700.0	5,857.0	6,598.0	5,770.0	29.1	31.2	-82.19	-755.3	1,128.6	720.2	666.1	54.13	13.306		
6,800.0	5,857.0	6,743.4	5,770.0	30.7	34.0	-82.73	-869.8	1,218.1	765.1	707.8	57.29	13.354		
6,900.0	5,857.0	6,896.4	5,770.0	32.4	36.9	-83.21	-997.4	1,302.6	807.6	747.2	60.39	13.373		
7,000.0	5,857.0	7,057.4	5,770.0	33.9	39.9	-83.62	-1,138.4	1,380.2	847.5	784.1	63.43	13.361		
7,106.4	5,857.0	7,237.9	5,770.0	35.6	43.1	-83.99	-1,303.6	1,452.7	886.5	820.0	66.54	13.322		
7,200.0	5,857.0	7,405.7	5,770.0	37.1	46.0	-84.34	-1,462.8	1,505.9	915.3	844.0	71.29	12.838		
7,300.0	5,857.0	7,594.5	5,770.0	38.7	49.0	-84.59	-1,646.5	1,548.7	937.1	860.5	76.53	12.244		
7,400.0	5,857.0	7,789.9	5,770.0	40.4	51.9	-84.73	-1,840.2	1,573.7	949.0	867.2	81.81	11.600		
7,500.0	5,857.0	7,962.9	5,770.0	42.1	54.2	-84.75	-2,013.1	1,579.4	951.0	864.4	86.53	10.989		
7,600.0	5,857.0	8,062.9	5,770.0	43.8	55.6	-84.75	-2,113.1	1,579.4	950.1	860.2	89.92	10.566		
7,700.0	5,857.0	8,162.9	5,770.0	45.5	56.9	-84.74	-2,213.1	1,579.4	949.3	855.9	93.33	10.171		
7,800.0	5,857.0	8,262.9	5,770.0	47.2	58.3	-84.74	-2,313.1	1,579.4	948.4	851.6	96.77	9.800		
7,900.0	5,857.0	8,362.9	5,770.0	49.0	59.7	-84.73	-2,413.1	1,579.4	947.5	847.3	100.24	9.453		
8,000.0	5,857.0	8,462.9	5,770.0	50.7	61.2	-84.73	-2,513.1	1,579.4	946.7	843.0	103.73	9.126		
8,100.0	5,857.0	8,562.9	5,770.0	52.5	62.6	-84.72	-2,613.1	1,579.4	945.8	838.6	107.24	8.819		
8,200.0	5,857.0	8,662.8	5,770.0	54.3	64.1	-84.72	-2,713.1	1,579.4	945.0	834.2	110.78	8.530		
8,300.0	5,857.0	8,762.8	5,770.0	56.1	65.6	-84.71	-2,813.0	1,579.4	944.1	829.8	114.33	8.258		
8,400.0	5,857.0	8,862.8	5,770.0	57.9	67.1	-84.71	-2,913.0	1,579.4	943.3	825.4	117.90	8.001		
8,500.0	5,857.0	8,962.8	5,770.0	59.7	68.7	-84.70	-3,013.0	1,579.4	942.4	820.9	121.48	7.757		
8,600.0	5,857.0	9,062.8	5,770.0	61.5	70.3	-84.70	-3,113.0	1,579.4	941.5	816.5	125.08	7.528		
8,700.0	5,857.0	9,162.8	5,770.0	63.3	71.8	-84.69	-3,213.0	1,579.4	940.7	812.0	128.69	7.310		
8,800.0	5,857.0	9,262.8	5,770.0	65.1	73.4	-84.69	-3,313.0	1,579.4	939.8	807.5	132.31	7.103		
8,900.0	5,857.0	9,362.8	5,770.0	66.9	75.0	-84.68	-3,413.0	1,579.5	939.0	803.0	135.95	6.907		
9,000.0	5,857.0	9,462.8	5,770.0	68.8	76.7	-84.68	-3,513.0	1,579.5	938.1	798.5	139.59	6.721		
9,100.0	5,857.0	9,562.8	5,770.0	70.6	78.3	-84.67	-3,613.0	1,579.5	937.3	794.0	143.24	6.543		
9,200.0	5,857.0	9,662.8	5,770.0	72.5	79.9	-84.67	-3,713.0	1,579.5	936.4	789.5	146.90	6.374		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2207A - HZ - Plan #1												Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,300.0	5,857.0	9,762.8	5,770.0	74.3	81.6	-84.66	-3,813.0	1,579.5	935.5	785.0	150.57	6.213	
9,400.0	5,857.0	9,862.8	5,770.0	76.1	83.3	-84.66	-3,913.0	1,579.5	934.7	780.4	154.24	6.060	
9,500.0	5,857.0	9,962.8	5,770.0	78.0	85.0	-84.65	-4,013.0	1,579.5	933.8	775.9	157.92	5.913	
9,600.0	5,857.0	10,062.8	5,770.0	79.9	86.7	-84.65	-4,113.0	1,579.5	933.0	771.4	161.61	5.773	
9,700.0	5,857.0	10,162.8	5,770.0	81.7	88.4	-84.64	-4,213.0	1,579.5	932.1	766.8	165.31	5.639	
9,800.0	5,857.0	10,262.8	5,770.0	83.6	90.1	-84.64	-4,313.0	1,579.5	931.3	762.3	169.01	5.510	
9,900.0	5,857.0	10,362.8	5,770.0	85.4	91.8	-84.63	-4,413.0	1,579.5	930.4	757.7	172.71	5.387	
10,000.0	5,857.0	10,462.8	5,770.0	87.3	93.5	-84.63	-4,513.0	1,579.5	929.6	753.1	176.42	5.269	
10,100.0	5,857.0	10,562.8	5,770.0	89.2	95.3	-84.62	-4,613.0	1,579.5	928.7	748.6	180.13	5.156	
10,179.1	5,857.0	10,637.3	5,770.0	90.7	96.5	-84.62	-4,687.5	1,579.5	928.0	745.1	182.97	5.072	
10,200.0	5,857.0	10,637.3	5,770.0	91.0	96.5	-84.62	-4,687.5	1,579.5	928.2	744.8	183.36	5.062	
10,300.0	5,857.0	10,637.3	5,770.0	92.9	96.5	-84.62	-4,687.5	1,579.5	935.4	750.3	185.17	5.052 SF	
10,400.0	5,857.0	10,637.3	5,770.0	94.8	96.5	-84.62	-4,687.5	1,579.5	953.2	766.2	186.98	5.098	
10,500.0	5,857.0	10,637.3	5,770.0	96.7	96.5	-84.62	-4,687.5	1,579.5	980.8	792.0	188.79	5.195	
10,600.0	5,857.0	10,637.3	5,770.0	98.6	96.5	-84.62	-4,687.5	1,579.5	1,017.6	827.0	190.60	5.339	
10,700.0	5,857.0	10,637.3	5,770.0	100.4	96.5	-84.62	-4,687.5	1,579.5	1,062.6	870.1	192.41	5.522	
10,800.0	5,857.0	10,637.3	5,770.0	102.3	96.5	-84.62	-4,687.5	1,579.5	1,114.7	920.5	194.22	5.739	
10,900.0	5,857.0	10,637.3	5,770.0	104.2	96.5	-84.62	-4,687.5	1,579.5	1,173.0	977.0	196.03	5.984	
11,000.0	5,857.0	10,637.3	5,770.0	106.1	96.5	-84.62	-4,687.5	1,579.5	1,236.7	1,038.9	197.85	6.251	
11,100.0	5,857.0	10,637.3	5,770.0	108.0	96.5	-84.62	-4,687.5	1,579.5	1,305.0	1,105.3	199.66	6.536	
11,200.0	5,857.0	10,637.3	5,770.0	109.9	96.5	-84.62	-4,687.5	1,579.5	1,377.1	1,175.7	201.48	6.835	
11,300.0	5,857.0	10,637.3	5,770.0	111.7	96.5	-84.62	-4,687.5	1,579.5	1,452.6	1,249.3	203.29	7.145	
11,400.0	5,857.0	10,637.3	5,770.0	113.6	96.5	-84.62	-4,687.5	1,579.5	1,530.9	1,325.7	205.11	7.464	
11,500.0	5,857.0	10,637.3	5,770.0	115.5	96.5	-84.62	-4,687.5	1,579.5	1,611.5	1,404.6	206.93	7.788	
11,600.0	5,857.0	10,637.3	5,770.0	117.4	96.5	-84.62	-4,687.5	1,579.5	1,694.3	1,485.5	208.74	8.116	
11,700.0	5,857.0	10,637.3	5,770.0	119.3	96.5	-84.62	-4,687.5	1,579.5	1,778.8	1,568.2	210.56	8.448	
11,800.0	5,857.0	10,637.3	5,770.0	121.2	96.5	-84.62	-4,687.5	1,579.5	1,864.8	1,652.4	212.38	8.780	
11,900.0	5,857.0	10,637.3	5,770.0	123.1	96.5	-84.62	-4,687.5	1,579.5	1,952.2	1,738.0	214.20	9.114	
12,000.0	5,857.0	10,637.3	5,770.0	125.0	96.5	-84.62	-4,687.5	1,579.5	2,040.7	1,824.7	216.02	9.447	
12,100.0	5,857.0	10,637.3	5,770.0	126.9	96.5	-84.62	-4,687.5	1,579.5	2,130.3	1,912.4	217.84	9.779	
12,200.0	5,857.0	10,637.3	5,770.0	128.8	96.5	-84.62	-4,687.5	1,579.5	2,220.7	2,001.0	219.66	10.109	
12,300.0	5,857.0	10,637.3	5,770.0	130.7	96.5	-84.62	-4,687.5	1,579.5	2,311.9	2,090.4	221.49	10.438	
12,400.0	5,857.0	10,637.3	5,770.0	132.6	96.5	-84.62	-4,687.5	1,579.5	2,403.9	2,180.5	223.31	10.764	
12,500.0	5,857.0	10,637.3	5,770.0	134.5	96.5	-84.62	-4,687.5	1,579.5	2,496.4	2,271.2	225.21	11.085	
12,600.0	5,857.0	10,637.3	5,770.0	136.4	96.5	-84.62	-4,687.5	1,579.5	2,589.5	2,362.4	227.11	11.402	
12,700.0	5,857.0	10,637.3	5,770.0	138.3	96.5	-84.62	-4,687.5	1,579.5	2,683.1	2,454.1	229.01	11.716	
12,800.0	5,857.0	10,637.3	5,770.0	140.2	96.5	-84.62	-4,687.5	1,579.5	2,777.1	2,546.2	230.91	12.027	
12,857.7	5,857.0	10,637.3	5,770.0	141.1	96.5	-84.62	-4,687.5	1,579.5	2,831.6	2,599.8	231.80	12.215	

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2208B - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Between Centres (usft)	Between Ellipses (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	88.94	1.2	66.1	66.1					
100.0	100.0	100.0	100.0	0.1	0.1	88.94	1.2	66.1	66.1	66.0	0.19	352.418		
166.7	166.7	166.7	166.7	0.2	0.2	88.94	1.2	66.1	66.1	65.7	0.49	135.712 CC		
200.0	200.0	200.0	200.0	0.3	0.3	88.94	1.2	66.1	66.1	65.5	0.64	103.799 ES		
300.0	300.0	297.7	297.7	0.5	0.5	88.72	1.5	67.8	67.8	66.8	1.07	63.121		
400.0	400.0	395.2	395.1	0.8	0.8	88.13	2.4	72.7	72.9	71.4	1.52	47.961		
500.0	500.0	494.9	494.5	1.0	1.0	87.42	3.6	79.5	79.8	77.8	1.97	40.407		
600.0	600.0	594.6	594.0	1.2	1.2	86.82	4.8	86.4	86.7	84.3	2.43	35.686		
700.0	700.0	694.4	693.5	1.4	1.5	86.32	6.0	93.2	93.6	90.8	2.89	32.427		
800.0	800.0	794.1	793.0	1.7	1.7	85.88	7.2	100.1	100.6	97.2	3.35	30.048		
900.0	900.0	893.9	892.5	1.9	2.0	85.50	8.4	106.9	107.5	103.7	3.81	28.238		
1,000.0	1,000.0	993.7	992.0	2.1	2.3	85.16	9.6	113.8	114.5	110.2	4.27	26.815		
1,100.0	1,100.0	1,093.4	1,091.6	2.3	2.5	-67.03	10.8	120.6	120.7	116.1	4.64	26.037		
1,200.0	1,199.8	1,194.3	1,192.2	2.5	2.8	-68.71	10.5	127.3	125.3	120.3	5.03	24.930		
1,300.0	1,299.6	1,294.6	1,292.3	2.7	3.0	-69.95	7.6	133.6	128.7	123.2	5.43	23.710		
1,400.0	1,399.4	1,394.5	1,391.9	2.9	3.2	-71.04	4.4	139.9	132.0	126.1	5.86	22.533		
1,500.0	1,499.1	1,494.4	1,491.6	3.1	3.5	-72.08	1.3	146.1	135.4	129.1	6.30	21.478		
1,600.0	1,598.9	1,594.3	1,591.3	3.3	3.7	-73.07	-1.8	152.3	138.8	132.0	6.76	20.535		
1,700.0	1,698.6	1,694.3	1,691.0	3.6	4.0	-74.01	-4.9	158.6	142.2	135.0	7.22	19.693		
1,800.0	1,798.4	1,794.2	1,790.6	3.8	4.2	-74.91	-8.0	164.8	145.7	138.0	7.69	18.939		
1,900.0	1,898.1	1,894.1	1,890.3	4.0	4.5	-75.77	-11.1	171.0	149.3	141.1	8.17	18.263		
2,000.0	1,997.9	1,994.0	1,990.0	4.3	4.7	-76.58	-14.3	177.3	152.8	144.2	8.66	17.654		
2,100.0	2,097.6	2,093.9	2,089.6	4.5	5.0	-77.36	-17.4	183.5	156.4	147.3	9.14	17.104		
2,200.0	2,197.4	2,193.8	2,189.3	4.8	5.3	-78.10	-20.5	189.7	160.0	150.4	9.64	16.606		
2,300.0	2,297.2	2,293.7	2,289.0	5.0	5.5	-78.81	-23.6	196.0	163.7	153.5	10.13	16.153		
2,400.0	2,396.9	2,393.6	2,388.6	5.2	5.8	-79.49	-26.7	202.2	167.3	156.7	10.63	15.741		
2,500.0	2,496.7	2,493.6	2,488.3	5.5	6.0	-80.14	-29.8	208.4	171.0	159.9	11.13	15.364		
2,600.0	2,596.4	2,593.5	2,588.0	5.7	6.3	-80.76	-33.0	214.7	174.7	163.1	11.64	15.018		
2,700.0	2,696.2	2,693.4	2,687.7	6.0	6.5	-81.36	-36.1	220.9	178.5	166.3	12.14	14.701		
2,800.0	2,795.9	2,793.3	2,787.3	6.3	6.8	-81.93	-39.2	227.1	182.2	169.6	12.65	14.408		
2,900.0	2,895.7	2,893.2	2,887.0	6.5	7.1	-82.48	-42.3	233.4	186.0	172.8	13.16	14.137		
3,000.0	2,995.5	2,993.1	2,986.7	6.8	7.3	-83.01	-45.4	239.6	189.8	176.1	13.67	13.887		
3,100.0	3,095.2	3,093.0	3,086.3	7.0	7.6	-83.51	-48.5	245.8	193.6	179.4	14.18	13.654		
3,200.0	3,195.0	3,193.0	3,186.0	7.3	7.8	-84.00	-51.7	252.1	197.4	182.7	14.69	13.437		
3,300.0	3,294.7	3,292.9	3,285.7	7.5	8.1	-84.47	-54.8	258.3	201.2	186.0	15.20	13.235		
3,400.0	3,394.5	3,392.8	3,385.3	7.8	8.4	-84.92	-57.9	264.5	205.0	189.3	15.72	13.047		
3,500.0	3,494.2	3,492.7	3,485.0	8.0	8.6	-85.35	-61.0	270.8	208.9	192.7	16.23	12.870		
3,600.0	3,594.0	3,592.6	3,584.7	8.3	8.9	-85.77	-64.1	277.0	212.8	196.0	16.75	12.705		
3,700.0	3,693.7	3,692.5	3,684.4	8.6	9.1	-86.18	-67.2	283.2	216.6	199.4	17.26	12.549		
3,800.0	3,793.5	3,792.4	3,784.0	8.8	9.4	-86.57	-70.3	289.5	220.5	202.7	17.78	12.403		
3,900.0	3,893.3	3,892.3	3,883.7	9.1	9.7	-86.94	-73.5	295.7	224.4	206.1	18.30	12.265		
4,000.0	3,993.0	3,992.3	3,983.4	9.3	9.9	-87.30	-76.6	301.9	228.3	209.5	18.81	12.135		
4,100.0	4,092.8	4,092.2	4,083.0	9.6	10.2	-87.66	-79.7	308.2	232.2	212.9	19.33	12.013		
4,200.0	4,192.5	4,192.1	4,182.7	9.9	10.4	-88.00	-82.8	314.4	236.2	216.3	19.85	11.896		
4,300.0	4,292.3	4,292.0	4,282.4	10.1	10.7	-88.32	-85.9	320.7	240.1	219.7	20.37	11.786		
4,400.0	4,392.0	4,391.9	4,382.0	10.4	11.0	-88.64	-89.0	326.9	244.0	223.1	20.89	11.682		
4,500.0	4,491.8	4,491.8	4,481.7	10.6	11.2	-88.95	-92.2	333.1	248.0	226.6	21.41	11.582		
4,600.0	4,591.6	4,591.7	4,581.4	10.9	11.5	-89.25	-95.3	339.4	251.9	230.0	21.93	11.488		
4,700.0	4,691.3	4,691.7	4,681.1	11.2	11.8	-89.53	-98.4	345.6	255.9	233.4	22.45	11.398		
4,800.0	4,791.1	4,791.6	4,780.7	11.4	12.0	-89.81	-101.5	351.8	259.8	236.9	22.97	11.313		
4,900.0	4,890.8	4,891.5	4,880.4	11.7	12.3	-90.09	-104.6	358.1	263.8	240.3	23.49	11.231		
5,000.0	4,990.6	4,991.4	4,980.1	12.0	12.5	-90.35	-107.7	364.3	267.8	243.8	24.01	11.153		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2208B - HZ - Plan #1													Offset Site Error: 0.0 usft	
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,090.3	5,091.3	5,079.7	12.2	12.8	-90.61	-110.9	370.5	271.8	247.2	24.53	11.079		
5,200.0	5,190.1	5,191.2	5,179.4	12.5	13.1	-90.85	-114.0	376.8	275.7	250.7	25.05	11.007		
5,300.0	5,289.9	5,291.1	5,279.1	12.7	13.3	-91.09	-117.1	383.0	279.7	254.2	25.57	10.939		
5,382.8	5,372.4	5,373.9	5,361.6	13.0	13.5	-91.29	-119.7	388.2	283.0	257.0	26.00	10.885		
5,400.0	5,389.6	5,389.6	5,377.3	13.0	13.6	-91.29	-120.2	389.2	283.8	257.7	26.09	10.876		
5,450.0	5,439.0	5,427.9	5,415.4	13.2	13.7	-91.34	-122.2	393.1	287.1	260.7	26.37	10.888		
5,500.0	5,487.5	5,466.1	5,452.9	13.4	13.8	-91.39	-125.4	399.6	292.6	265.9	26.71	10.956		
5,550.0	5,534.5	5,500.0	5,485.6	13.6	14.0	-91.32	-129.3	407.3	300.2	273.1	27.08	11.085		
5,600.0	5,579.8	5,541.5	5,524.8	13.9	14.2	-91.44	-135.3	419.4	309.9	282.3	27.57	11.241		
5,650.0	5,622.8	5,578.6	5,558.9	14.3	14.4	-91.38	-141.8	432.5	321.5	293.4	28.09	11.446		
5,700.0	5,663.1	5,615.2	5,591.4	14.7	14.7	-91.24	-149.4	447.5	335.2	306.5	28.68	11.686		
5,750.0	5,700.5	5,650.0	5,621.1	15.1	14.9	-90.92	-157.4	463.7	350.7	321.3	29.33	11.957		
5,800.0	5,734.5	5,686.9	5,651.3	15.6	15.2	-90.59	-166.9	482.7	367.9	337.9	30.07	12.237		
5,850.0	5,764.8	5,722.0	5,678.5	16.2	15.5	-90.06	-176.9	502.5	386.9	356.0	30.87	12.533		
5,900.0	5,791.2	5,756.6	5,703.8	16.8	15.9	-89.38	-187.4	523.7	407.3	375.6	31.73	12.836		
5,950.0	5,813.4	5,790.8	5,727.2	17.4	16.2	-88.56	-198.6	546.0	429.2	396.5	32.67	13.138		
6,000.0	5,831.2	5,824.7	5,748.7	18.2	16.6	-87.59	-210.2	569.3	452.3	418.6	33.66	13.435		
6,050.0	5,844.4	5,858.3	5,768.4	18.9	17.1	-86.50	-222.4	593.7	476.5	441.8	34.71	13.728		
6,100.0	5,853.0	5,891.7	5,786.1	19.7	17.5	-85.29	-235.1	619.1	501.6	465.8	35.80	14.011		
6,150.0	5,856.8	5,925.1	5,802.0	20.5	18.0	-83.99	-248.2	645.4	527.5	490.6	36.94	14.282		
6,164.6	5,857.0	5,934.9	5,806.3	20.7	18.1	-83.59	-252.2	653.2	535.2	498.0	37.27	14.359		
6,200.0	5,857.0	5,959.0	5,816.1	21.3	18.5	-84.91	-262.0	672.9	554.4	516.4	38.07	14.563		
6,300.0	5,857.0	6,030.0	5,839.1	22.8	19.6	-87.88	-292.0	732.9	613.5	573.3	40.15	15.278		
6,400.0	5,857.0	6,103.4	5,853.1	24.3	20.9	-89.56	-324.2	797.3	677.8	635.7	42.14	16.083		
6,500.0	5,857.0	6,182.0	5,856.9	25.9	22.4	-89.99	-359.3	867.5	746.3	702.2	44.09	16.925		
6,600.0	5,857.0	6,303.8	5,856.9	27.5	24.6	-89.99	-418.1	974.1	815.7	769.3	46.40	17.581		
6,700.0	5,857.0	6,435.3	5,856.9	29.1	27.2	-89.99	-489.0	1,084.8	884.2	835.4	48.75	18.135		
6,800.0	5,857.0	6,578.2	5,856.9	30.7	30.1	-89.99	-574.6	1,199.3	951.2	900.0	51.15	18.597		
6,900.0	5,857.0	6,734.9	5,856.9	32.4	33.2	-89.99	-677.9	1,317.0	1,016.2	962.6	53.61	18.955		
7,000.0	5,857.0	6,908.1	5,856.9	33.9	36.7	-90.00	-802.8	1,436.8	1,078.7	1,022.5	56.16	19.207		
7,106.4	5,857.0	7,113.6	5,856.9	35.6	40.7	-90.00	-964.5	1,563.6	1,141.3	1,082.3	59.06	19.323		
7,200.0	5,857.0	7,318.7	5,856.9	37.1	44.5	-90.00	-1,138.4	1,672.1	1,190.2	1,125.9	64.34	18.499		
7,300.0	5,857.0	7,567.3	5,856.9	38.7	48.8	-90.00	-1,363.3	1,777.6	1,232.0	1,161.3	70.75	17.414		
7,400.0	5,857.0	7,843.1	5,856.9	40.4	53.2	-90.00	-1,626.5	1,859.5	1,261.0	1,183.3	77.72	16.225		
7,500.0	5,857.0	8,138.0	5,856.9	42.1	57.3	-90.00	-1,917.6	1,904.1	1,275.3	1,190.4	84.87	15.027		
7,600.0	5,857.0	8,333.7	5,856.9	43.8	59.8	-90.00	-2,113.2	1,909.5	1,276.2	1,186.3	89.97	14.185		
7,700.0	5,857.0	8,433.7	5,856.9	45.5	61.0	-90.00	-2,213.2	1,909.5	1,275.4	1,182.0	93.34	13.664		
7,800.0	5,857.0	8,533.7	5,856.9	47.2	62.2	-90.00	-2,313.2	1,909.5	1,274.5	1,177.7	96.75	13.174		
7,900.0	5,857.0	8,633.7	5,856.9	49.0	63.5	-90.00	-2,413.2	1,909.5	1,273.6	1,173.4	100.18	12.713		
8,000.0	5,857.0	8,733.7	5,856.9	50.7	64.8	-90.00	-2,513.2	1,909.5	1,272.7	1,169.1	103.64	12.280		
8,100.0	5,857.0	8,833.7	5,856.9	52.5	66.2	-90.00	-2,613.2	1,909.5	1,271.9	1,164.7	107.13	11.872		
8,200.0	5,857.0	8,933.7	5,856.9	54.3	67.5	-90.00	-2,713.2	1,909.4	1,271.0	1,160.3	110.64	11.487		
8,300.0	5,857.0	9,033.7	5,857.0	56.1	68.9	-90.00	-2,813.2	1,909.4	1,270.1	1,155.9	114.18	11.124		
8,400.0	5,857.0	9,133.7	5,857.0	57.9	70.3	-90.00	-2,913.2	1,909.4	1,269.2	1,151.5	117.73	10.781		
8,500.0	5,857.0	9,233.7	5,857.0	59.7	71.7	-90.00	-3,013.2	1,909.4	1,268.4	1,147.1	121.30	10.457		
8,600.0	5,857.0	9,333.7	5,857.0	61.5	73.2	-90.00	-3,113.2	1,909.4	1,267.5	1,142.6	124.88	10.150		
8,700.0	5,857.0	9,433.7	5,857.0	63.3	74.6	-90.00	-3,213.2	1,909.4	1,266.6	1,138.2	128.48	9.859		
8,800.0	5,857.0	9,533.7	5,857.0	65.1	76.1	-90.00	-3,313.2	1,909.4	1,265.8	1,133.7	132.09	9.583		
8,900.0	5,857.0	9,633.7	5,857.0	66.9	77.6	-90.00	-3,413.2	1,909.4	1,264.9	1,129.2	135.71	9.320		
9,000.0	5,857.0	9,733.7	5,857.0	68.8	79.2	-90.00	-3,513.2	1,909.4	1,264.0	1,124.7	139.35	9.071		
9,100.0	5,857.0	9,833.6	5,857.0	70.6	80.7	-90.00	-3,613.2	1,909.4	1,263.1	1,120.1	142.99	8.834		
9,200.0	5,857.0	9,933.6	5,857.0	72.5	82.3	-90.00	-3,713.1	1,909.4	1,262.3	1,115.6	146.65	8.608		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2208B - HZ - Plan #1											Offset Site Error: 0.0 usft		
Survey Program: 0-ISCWSA MWD											Offset Well Error: 0.0 usft		
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis		Separation Factor
9,300.0	5,857.0	10,033.6	5,857.0	74.3	83.8	-90.00	-3,813.1	1,909.4	1,261.4	1,111.1	150.31	8.392	
9,400.0	5,857.0	10,133.6	5,857.0	76.1	85.4	-90.00	-3,913.1	1,909.4	1,260.5	1,106.5	153.98	8.186	
9,500.0	5,857.0	10,233.6	5,857.0	78.0	87.0	-90.00	-4,013.1	1,909.4	1,259.7	1,102.0	157.66	7.990	
9,600.0	5,857.0	10,333.6	5,857.0	79.9	88.6	-90.00	-4,113.1	1,909.4	1,258.8	1,097.4	161.35	7.802	
9,700.0	5,857.0	10,433.6	5,857.0	81.7	90.2	-90.00	-4,213.1	1,909.4	1,257.9	1,092.9	165.04	7.622	
9,800.0	5,857.0	10,533.6	5,857.0	83.6	91.9	-90.00	-4,313.1	1,909.3	1,257.0	1,088.3	168.74	7.450	
9,900.0	5,857.0	10,633.6	5,857.0	85.4	93.5	-90.00	-4,413.1	1,909.3	1,256.2	1,083.7	172.45	7.284	
10,000.0	5,857.0	10,733.6	5,857.0	87.3	95.2	-90.00	-4,513.1	1,909.3	1,255.3	1,079.1	176.16	7.126	
10,100.0	5,857.0	10,833.6	5,857.0	89.2	96.8	-90.00	-4,613.1	1,909.3	1,254.4	1,074.5	179.87	6.974	
10,174.4	5,857.0	10,897.2	5,857.0	90.6	97.9	-90.00	-4,676.7	1,909.3	1,253.8	1,071.4	182.41	6.873	
10,200.0	5,857.0	10,897.2	5,857.0	91.0	97.9	-90.00	-4,676.7	1,909.3	1,254.1	1,071.2	182.90	6.857	
10,300.0	5,857.0	10,897.2	5,857.0	92.9	97.9	-90.00	-4,676.7	1,909.3	1,260.1	1,075.4	184.71	6.822 SF	
10,400.0	5,857.0	10,897.2	5,857.0	94.8	97.9	-90.00	-4,676.7	1,909.3	1,273.9	1,087.4	186.52	6.830	
10,500.0	5,857.0	10,897.2	5,857.0	96.7	97.9	-90.00	-4,676.7	1,909.3	1,295.4	1,107.0	188.34	6.878	
10,600.0	5,857.0	10,897.2	5,857.0	98.6	97.9	-90.00	-4,676.7	1,909.3	1,324.0	1,133.9	190.16	6.963	
10,700.0	5,857.0	10,897.2	5,857.0	100.4	97.9	-90.00	-4,676.7	1,909.3	1,359.5	1,167.5	191.97	7.082	
10,800.0	5,857.0	10,897.2	5,857.0	102.3	97.9	-90.00	-4,676.7	1,909.3	1,401.2	1,207.4	193.79	7.230	
10,900.0	5,857.0	10,897.2	5,857.0	104.2	97.9	-90.00	-4,676.7	1,909.3	1,448.6	1,253.0	195.61	7.405	
11,000.0	5,857.0	10,897.2	5,857.0	106.1	97.9	-90.00	-4,676.7	1,909.3	1,501.2	1,303.7	197.43	7.603	
11,100.0	5,857.0	10,897.2	5,857.0	108.0	97.9	-90.00	-4,676.7	1,909.3	1,558.4	1,359.1	199.25	7.821	
11,200.0	5,857.0	10,897.2	5,857.0	109.9	97.9	-90.00	-4,676.7	1,909.3	1,619.8	1,418.7	201.08	8.056	
11,300.0	5,857.0	10,897.2	5,857.0	111.7	97.9	-90.00	-4,676.7	1,909.3	1,684.9	1,482.0	202.90	8.304	
11,400.0	5,857.0	10,897.2	5,857.0	113.6	97.9	-90.00	-4,676.7	1,909.3	1,753.3	1,548.5	204.72	8.564	
11,500.0	5,857.0	10,897.2	5,857.0	115.5	97.9	-90.00	-4,676.7	1,909.3	1,824.6	1,618.0	206.55	8.834	
11,600.0	5,857.0	10,897.2	5,857.0	117.4	97.9	-90.00	-4,676.7	1,909.3	1,898.4	1,690.1	208.37	9.111	
11,700.0	5,857.0	10,897.2	5,857.0	119.3	97.9	-90.00	-4,676.7	1,909.3	1,974.6	1,764.4	210.20	9.394	
11,800.0	5,857.0	10,897.2	5,857.0	121.2	97.9	-90.00	-4,676.7	1,909.3	2,052.9	1,840.9	212.02	9.682	
11,900.0	5,857.0	10,897.2	5,857.0	123.1	97.9	-90.00	-4,676.7	1,909.3	2,132.9	1,919.1	213.85	9.974	
12,000.0	5,857.0	10,897.2	5,857.0	125.0	97.9	-90.00	-4,676.7	1,909.3	2,214.6	1,998.9	215.68	10.268	
12,100.0	5,857.0	10,897.2	5,857.0	126.9	97.9	-90.00	-4,676.7	1,909.3	2,297.7	2,080.2	217.50	10.564	
12,200.0	5,857.0	10,897.2	5,857.0	128.8	97.9	-90.00	-4,676.7	1,909.3	2,382.2	2,162.8	219.33	10.861	
12,300.0	5,857.0	10,897.2	5,857.0	130.7	97.9	-90.00	-4,676.7	1,909.3	2,467.8	2,246.6	221.16	11.158	
12,400.0	5,857.0	10,897.2	5,857.0	132.6	97.9	-90.00	-4,676.7	1,909.3	2,554.4	2,331.4	222.99	11.455	
12,500.0	5,857.0	10,897.2	5,857.0	134.5	97.9	-90.00	-4,676.7	1,909.3	2,642.0	2,417.2	224.82	11.752	
12,600.0	5,857.0	10,897.2	5,857.0	136.4	97.9	-90.00	-4,676.7	1,909.3	2,730.4	2,503.8	226.65	12.047	
12,700.0	5,857.0	10,897.2	5,857.0	138.3	97.9	-90.00	-4,676.7	1,909.3	2,819.6	2,591.1	228.53	12.338	
12,800.0	5,857.0	10,897.2	5,857.0	140.2	97.9	-90.00	-4,676.7	1,909.3	2,909.5	2,679.1	230.44	12.626	
12,857.7	5,857.0	10,897.2	5,857.0	141.1	97.9	-90.00	-4,676.7	1,909.3	2,961.7	2,730.3	231.34	12.802	

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2701A - HZ - Plan #2													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-24.75	74.4	-34.3	82.0					
100.0	100.0	100.0	100.0	0.1	0.1	-24.75	74.4	-34.3	82.0	81.8	0.19	436.710		
200.0	200.0	200.0	200.0	0.3	0.3	-24.75	74.4	-34.3	82.0	81.3	0.64	128.625		
300.0	300.0	302.2	302.2	0.5	0.5	-25.57	72.7	-34.8	80.6	79.5	1.07	75.250		
400.0	400.0	404.1	403.9	0.8	0.7	-28.19	67.4	-36.1	76.6	75.1	1.51	50.674		
500.0	500.0	503.9	503.4	1.0	1.0	-31.97	60.7	-37.9	71.6	69.6	1.95	36.646		
600.0	600.0	603.6	603.0	1.2	1.2	-36.29	53.9	-39.6	67.0	64.6	2.40	27.907		
700.0	700.0	703.4	702.5	1.4	1.5	-41.21	47.2	-41.3	62.8	59.9	2.85	21.990		
800.0	800.0	803.1	802.0	1.7	1.7	-46.79	40.4	-43.0	59.1	55.8	3.32	17.808		
900.0	900.0	902.9	901.5	1.9	2.0	-53.04	33.7	-44.8	56.1	52.3	3.79	14.779		
1,000.0	1,000.0	1,002.6	1,001.0	2.1	2.3	-59.90	27.0	-46.5	53.8	49.5	4.28	12.564		
1,051.6	1,051.6	1,054.1	1,052.4	2.2	2.4	145.39	23.5	-47.4	53.3	48.7	4.60	11.580 CC, ES		
1,100.0	1,100.0	1,102.5	1,100.6	2.3	2.5	142.64	20.2	-48.2	53.7	48.9	4.83	11.124		
1,200.0	1,199.8	1,202.4	1,200.2	2.5	2.8	138.86	13.5	-50.0	56.8	51.5	5.27	10.789		
1,300.0	1,299.6	1,302.2	1,299.9	2.7	3.0	136.66	6.7	-51.7	61.4	55.7	5.72	10.742		
1,400.0	1,399.4	1,402.1	1,399.5	2.9	3.3	134.78	0.0	-53.4	66.1	59.9	6.18	10.698		
1,500.0	1,499.1	1,502.0	1,499.1	3.1	3.6	133.14	-6.8	-55.2	70.8	64.2	6.65	10.657		
1,600.0	1,598.9	1,601.8	1,598.7	3.3	3.8	131.71	-13.5	-56.9	75.6	68.5	7.12	10.618		
1,700.0	1,698.6	1,701.7	1,698.4	3.6	4.1	130.45	-20.3	-58.6	80.5	72.9	7.60	10.582		
1,800.0	1,798.4	1,801.6	1,798.0	3.8	4.4	129.33	-27.0	-60.4	85.3	77.2	8.09	10.548		
1,900.0	1,898.1	1,901.4	1,897.6	4.0	4.6	128.34	-33.8	-62.1	90.2	81.6	8.58	10.516		
2,000.0	1,997.9	2,001.3	1,997.2	4.3	4.9	127.44	-40.5	-63.8	95.1	86.1	9.07	10.485		
2,100.0	2,097.6	2,101.2	2,096.9	4.5	5.1	126.64	-47.3	-65.6	100.1	90.5	9.57	10.457		
2,200.0	2,197.4	2,201.0	2,196.5	4.8	5.4	125.91	-54.0	-67.3	105.0	95.0	10.07	10.431		
2,300.0	2,297.2	2,300.9	2,296.1	5.0	5.7	125.24	-60.8	-69.0	110.0	99.5	10.57	10.407		
2,400.0	2,396.9	2,400.8	2,395.7	5.2	5.9	124.64	-67.5	-70.8	115.0	103.9	11.08	10.384		
2,500.0	2,496.7	2,500.6	2,495.4	5.5	6.2	124.08	-74.3	-72.5	120.0	108.4	11.58	10.363		
2,600.0	2,596.4	2,600.5	2,595.0	5.7	6.5	123.57	-81.0	-74.2	125.0	112.9	12.09	10.343		
2,700.0	2,696.2	2,700.4	2,694.6	6.0	6.7	123.10	-87.8	-76.0	130.0	117.4	12.60	10.325		
2,800.0	2,795.9	2,800.2	2,794.2	6.3	7.0	122.66	-94.5	-77.7	135.1	122.0	13.10	10.308		
2,900.0	2,895.7	2,900.1	2,893.9	6.5	7.3	122.26	-101.2	-79.4	140.1	126.5	13.61	10.292		
3,000.0	2,995.5	3,000.0	2,993.5	6.8	7.5	121.88	-108.0	-81.2	145.2	131.0	14.12	10.276		
3,100.0	3,095.2	3,099.9	3,093.1	7.0	7.8	121.53	-114.7	-82.9	150.2	135.6	14.64	10.262		
3,200.0	3,195.0	3,199.7	3,192.7	7.3	8.0	121.20	-121.5	-84.6	155.3	140.1	15.15	10.249		
3,300.0	3,294.7	3,299.6	3,292.4	7.5	8.3	120.89	-128.2	-86.4	160.3	144.6	15.66	10.236		
3,400.0	3,394.5	3,399.5	3,392.0	7.8	8.6	120.60	-135.0	-88.1	165.4	149.2	16.17	10.224		
3,500.0	3,494.2	3,499.3	3,491.6	8.0	8.8	120.33	-141.7	-89.8	170.4	153.8	16.69	10.213		
3,600.0	3,594.0	3,599.2	3,591.2	8.3	9.1	120.08	-148.5	-91.6	175.5	158.3	17.20	10.202		
3,700.0	3,693.7	3,699.1	3,690.9	8.6	9.4	119.83	-155.2	-93.3	180.6	162.9	17.72	10.192		
3,800.0	3,793.5	3,798.9	3,790.5	8.8	9.6	119.61	-162.0	-95.0	185.7	167.4	18.23	10.183		
3,900.0	3,893.3	3,898.8	3,890.1	9.1	9.9	119.39	-168.7	-96.7	190.7	172.0	18.75	10.174		
4,000.0	3,993.0	3,998.7	3,989.7	9.3	10.2	119.18	-175.5	-98.5	195.8	176.6	19.26	10.165		
4,100.0	4,092.8	4,098.5	4,089.4	9.6	10.4	118.99	-182.2	-100.2	200.9	181.1	19.78	10.157		
4,200.0	4,192.5	4,198.4	4,189.0	9.9	10.7	118.80	-189.0	-101.9	206.0	185.7	20.30	10.149		
4,300.0	4,292.3	4,298.3	4,288.6	10.1	11.0	118.63	-195.7	-103.7	211.1	190.3	20.81	10.142		
4,400.0	4,392.0	4,398.1	4,388.2	10.4	11.2	118.46	-202.5	-105.4	216.2	194.8	21.33	10.135		
4,500.0	4,491.8	4,498.0	4,487.9	10.6	11.5	118.30	-209.2	-107.1	221.3	199.4	21.85	10.128		
4,600.0	4,591.6	4,597.9	4,587.5	10.9	11.7	118.15	-216.0	-108.9	226.4	204.0	22.36	10.121		
4,700.0	4,691.3	4,697.7	4,687.1	11.2	12.0	118.00	-222.7	-110.6	231.4	208.6	22.88	10.115		
4,800.0	4,791.1	4,797.6	4,786.7	11.4	12.3	117.86	-229.5	-112.3	236.5	213.1	23.40	10.109		
4,900.0	4,890.8	4,897.5	4,886.4	11.7	12.5	117.73	-236.2	-114.1	241.6	217.7	23.92	10.103		
5,000.0	4,990.6	4,997.4	4,986.0	12.0	12.8	117.60	-242.9	-115.8	246.7	222.3	24.43	10.098		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2701A - HZ - Plan #2													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,090.3	5,097.2	5,085.6	12.2	13.1	117.47	-249.7	-117.5	251.8	226.9	24.95	10.093		
5,200.0	5,190.1	5,197.1	5,185.2	12.5	13.3	117.36	-256.4	-119.3	256.9	231.5	25.47	10.088		
5,300.0	5,289.9	5,297.0	5,284.9	12.7	13.6	117.24	-263.2	-121.0	262.0	236.1	25.99	10.083		
5,382.8	5,372.4	5,369.1	5,356.3	13.0	13.8	116.15	-272.8	-123.5	267.9	241.4	26.44	10.131		
5,400.0	5,389.6	5,383.8	5,370.6	13.0	13.9	115.55	-275.9	-124.3	269.6	243.1	26.53	10.162		
5,450.0	5,439.0	5,425.9	5,411.2	13.2	14.1	113.68	-287.0	-127.1	277.1	250.3	26.82	10.331		
5,500.0	5,487.5	5,467.1	5,449.7	13.4	14.3	111.65	-300.9	-130.7	287.8	260.7	27.14	10.604		
5,550.0	5,534.5	5,507.1	5,486.0	13.6	14.6	109.47	-317.2	-134.9	301.6	274.1	27.51	10.963		
5,600.0	5,579.8	5,550.0	5,523.4	13.9	14.9	107.15	-337.6	-140.1	318.2	290.3	27.96	11.381		
5,650.0	5,622.8	5,583.4	5,551.2	14.3	15.1	104.80	-355.5	-144.7	337.4	309.0	28.44	11.863		
5,700.0	5,663.1	5,619.7	5,580.0	14.7	15.4	102.31	-376.8	-150.2	358.9	329.9	29.01	12.369		
5,750.0	5,700.5	5,650.0	5,602.8	15.1	15.7	99.67	-396.1	-155.1	382.4	352.8	29.69	12.883		
5,800.0	5,734.5	5,688.6	5,630.2	15.6	16.1	97.06	-422.5	-161.9	407.7	377.2	30.52	13.360		
5,850.0	5,764.8	5,721.3	5,651.7	16.2	16.4	94.32	-446.3	-168.0	434.5	403.1	31.39	13.842		
5,900.0	5,791.2	5,750.0	5,669.3	16.8	16.7	91.40	-468.3	-173.7	462.6	430.3	32.29	14.325		
5,950.0	5,813.4	5,783.7	5,688.3	17.4	17.1	88.63	-495.3	-180.6	491.7	458.4	33.28	14.772		
6,000.0	5,831.2	5,813.7	5,703.7	18.2	17.5	85.73	-520.1	-187.0	521.6	487.3	34.27	15.222		
6,050.0	5,844.4	5,842.9	5,717.2	18.9	17.8	82.83	-545.2	-193.4	552.1	516.9	35.25	15.665		
6,100.0	5,853.0	5,871.5	5,729.1	19.7	18.2	79.96	-570.5	-199.9	583.1	546.8	36.21	16.100		
6,150.0	5,856.8	5,900.0	5,739.4	20.5	18.6	77.16	-596.2	-206.5	614.2	577.1	37.16	16.528		
6,164.6	5,857.0	5,908.0	5,742.1	20.7	18.7	76.34	-603.4	-208.4	623.4	585.9	37.44	16.651		
6,200.0	5,857.0	5,928.2	5,748.2	21.3	19.0	77.57	-622.1	-213.2	645.4	606.9	38.51	16.760		
6,300.0	5,857.0	5,989.8	5,762.3	22.8	19.9	80.31	-680.1	-228.1	707.0	665.6	41.42	17.071		
6,400.0	5,857.0	6,056.8	5,769.5	24.3	20.9	81.94	-744.6	-244.6	766.5	722.1	44.33	17.291		
6,500.0	5,857.0	6,177.1	5,770.0	25.9	22.5	82.98	-861.7	-272.1	821.4	773.7	47.72	17.212		
6,600.0	5,857.0	6,337.1	5,770.0	27.5	24.8	83.77	-1,019.6	-297.3	865.4	813.8	51.66	16.753		
6,700.0	5,857.0	6,512.7	5,770.0	29.1	27.4	84.26	-1,194.8	-309.7	896.6	840.6	55.98	16.016		
6,800.0	5,857.0	6,632.6	5,770.0	30.7	29.2	84.48	-1,314.7	-310.2	916.2	856.5	59.66	15.357		
6,900.0	5,857.0	6,731.6	5,770.0	32.4	30.9	84.60	-1,413.6	-310.2	930.4	867.4	63.02	14.764		
7,000.0	5,857.0	6,831.1	5,770.0	33.9	32.6	84.68	-1,513.2	-310.2	939.4	873.1	66.27	14.175		
7,106.4	5,857.0	6,937.5	5,770.0	35.6	34.4	84.71	-1,619.5	-310.2	943.2	873.7	69.57	13.558		
7,200.0	5,857.0	7,031.1	5,770.0	37.1	36.0	84.71	-1,713.1	-310.2	944.1	871.3	72.79	12.970		
7,300.0	5,857.0	7,131.0	5,770.0	38.7	37.8	84.72	-1,813.1	-310.2	944.9	868.6	76.27	12.389		
7,400.0	5,857.0	7,231.0	5,770.0	40.4	39.6	84.72	-1,913.1	-310.3	945.8	866.0	79.79	11.854		
7,500.0	5,857.0	7,331.0	5,770.0	42.1	41.4	84.73	-2,013.1	-310.3	946.7	863.3	83.33	11.360		
7,600.0	5,857.0	7,431.0	5,770.0	43.8	43.2	84.73	-2,113.1	-310.3	947.5	860.6	86.90	10.903		
7,700.0	5,857.0	7,531.0	5,770.0	45.5	45.0	84.74	-2,213.1	-310.3	948.4	857.9	90.50	10.480		
7,800.0	5,857.0	7,631.0	5,770.0	47.2	46.8	84.74	-2,313.1	-310.3	949.2	855.1	94.11	10.087		
7,900.0	5,857.0	7,731.0	5,770.0	49.0	48.6	84.75	-2,413.1	-310.3	950.1	852.4	97.73	9.721		
8,000.0	5,857.0	7,831.0	5,770.0	50.7	50.4	84.75	-2,513.1	-310.3	951.0	849.6	101.38	9.381		
8,100.0	5,857.0	7,931.0	5,770.0	52.5	52.3	84.76	-2,613.1	-310.3	951.8	846.8	105.03	9.062		
8,200.0	5,857.0	8,031.0	5,770.0	54.3	54.1	84.76	-2,713.1	-310.3	952.7	844.0	108.70	8.764		
8,300.0	5,857.0	8,131.0	5,770.0	56.1	56.0	84.77	-2,813.1	-310.3	953.6	841.2	112.38	8.485		
8,400.0	5,857.0	8,231.0	5,770.0	57.9	57.8	84.77	-2,913.1	-310.3	954.4	838.4	116.07	8.223		
8,500.0	5,857.0	8,331.0	5,770.0	59.7	59.7	84.78	-3,013.1	-310.3	955.3	835.5	119.77	7.976		
8,600.0	5,857.0	8,431.0	5,770.0	61.5	61.5	84.78	-3,113.1	-310.3	956.2	832.7	123.47	7.744		
8,700.0	5,857.0	8,531.0	5,770.0	63.3	63.4	84.79	-3,213.1	-310.3	957.0	829.8	127.19	7.525		
8,800.0	5,857.0	8,631.0	5,770.0	65.1	65.3	84.79	-3,313.1	-310.3	957.9	827.0	130.91	7.317		
8,900.0	5,857.0	8,731.0	5,770.0	66.9	67.1	84.80	-3,413.1	-310.3	958.8	824.1	134.63	7.121		
9,000.0	5,857.0	8,831.0	5,770.0	68.8	69.0	84.80	-3,513.0	-310.3	959.6	821.3	138.36	6.935		
9,100.0	5,857.0	8,931.0	5,770.0	70.6	70.9	84.80	-3,613.0	-310.3	960.5	818.4	142.10	6.759		
9,200.0	5,857.0	9,031.0	5,770.0	72.5	72.7	84.81	-3,713.0	-310.3	961.4	815.5	145.84	6.592		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2701A - HZ - Plan #2												Offset Site Error:	0.0 usft
Survey Program: 0-ISCSWA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,300.0	5,857.0	9,131.0	5,770.0	74.3	74.6	84.81	-3,813.0	-310.3	962.2	812.6	149.59	6.432	
9,400.0	5,857.0	9,231.0	5,770.0	76.1	76.5	84.82	-3,913.0	-310.3	963.1	809.7	153.34	6.281	
9,500.0	5,857.0	9,331.0	5,770.0	78.0	78.4	84.82	-4,013.0	-310.3	964.0	806.9	157.09	6.136	
9,600.0	5,857.0	9,431.0	5,770.0	79.9	80.3	84.83	-4,113.0	-310.3	964.8	804.0	160.85	5.998	
9,700.0	5,857.0	9,531.0	5,770.0	81.7	82.2	84.83	-4,213.0	-310.3	965.7	801.1	164.61	5.866	
9,800.0	5,857.0	9,631.0	5,770.0	83.6	84.0	84.84	-4,313.0	-310.3	966.5	798.2	168.38	5.740	
9,900.0	5,857.0	9,730.9	5,770.0	85.4	85.9	84.84	-4,413.0	-310.3	967.4	795.3	172.15	5.620	
10,000.0	5,857.0	9,830.9	5,770.0	87.3	87.8	84.85	-4,513.0	-310.3	968.3	792.4	175.92	5.504	
10,100.0	5,857.0	9,930.9	5,770.0	89.2	89.7	84.85	-4,613.0	-310.3	969.1	789.5	179.69	5.393	
10,200.0	5,857.0	10,030.9	5,770.0	91.0	91.6	84.86	-4,713.0	-310.3	970.0	786.5	183.46	5.287	
10,300.0	5,857.0	10,130.9	5,770.0	92.9	93.5	84.86	-4,813.0	-310.3	970.9	783.6	187.24	5.185	
10,400.0	5,857.0	10,230.9	5,770.0	94.8	95.4	84.86	-4,913.0	-310.3	971.7	780.7	191.02	5.087	
10,500.0	5,857.0	10,330.9	5,770.0	96.7	97.3	84.87	-5,013.0	-310.3	972.6	777.8	194.80	4.993	
10,600.0	5,857.0	10,430.9	5,770.0	98.6	99.2	84.87	-5,113.0	-310.3	973.5	774.9	198.58	4.902	
10,700.0	5,857.0	10,530.9	5,770.0	100.4	101.1	84.88	-5,213.0	-310.3	974.3	772.0	202.37	4.815	
10,800.0	5,857.0	10,630.9	5,770.0	102.3	103.0	84.88	-5,313.0	-310.3	975.2	769.0	206.15	4.730	
10,900.0	5,857.0	10,730.9	5,770.0	104.2	104.9	84.89	-5,413.0	-310.3	976.1	766.1	209.94	4.649	
11,000.0	5,857.0	10,830.9	5,770.0	106.1	106.8	84.89	-5,513.0	-310.3	976.9	763.2	213.73	4.571	
11,100.0	5,857.0	10,930.9	5,770.0	108.0	108.7	84.90	-5,613.0	-310.4	977.8	760.3	217.52	4.495	
11,200.0	5,857.0	11,030.9	5,770.0	109.9	110.6	84.90	-5,713.0	-310.4	978.7	757.3	221.32	4.422	
11,300.0	5,857.0	11,130.9	5,770.0	111.7	112.5	84.90	-5,813.0	-310.4	979.5	754.4	225.11	4.351	
11,400.0	5,857.0	11,230.9	5,770.0	113.6	114.4	84.91	-5,913.0	-310.4	980.4	751.5	228.90	4.283	
11,500.0	5,857.0	11,330.9	5,770.0	115.5	116.3	84.91	-6,013.0	-310.4	981.3	748.6	232.70	4.217	
11,600.0	5,857.0	11,430.9	5,770.0	117.4	118.2	84.92	-6,113.0	-310.4	982.1	745.6	236.50	4.153	
11,700.0	5,857.0	11,530.9	5,770.0	119.3	120.1	84.92	-6,212.9	-310.4	983.0	742.7	240.30	4.091	
11,800.0	5,857.0	11,630.9	5,770.0	121.2	122.0	84.93	-6,312.9	-310.4	983.9	739.8	244.09	4.031	
11,900.0	5,857.0	11,730.9	5,770.0	123.1	123.9	84.93	-6,412.9	-310.4	984.7	736.8	247.89	3.972	
12,000.0	5,857.0	11,830.9	5,770.0	125.0	125.8	84.94	-6,512.9	-310.4	985.6	733.9	251.70	3.916	
12,100.0	5,857.0	11,930.9	5,770.0	126.9	127.7	84.94	-6,612.9	-310.4	986.4	731.0	255.50	3.861	
12,200.0	5,857.0	12,030.9	5,770.0	128.8	129.6	84.94	-6,712.9	-310.4	987.3	728.0	259.30	3.808	
12,300.0	5,857.0	12,130.9	5,770.0	130.7	131.5	84.95	-6,812.9	-310.4	988.2	725.1	263.10	3.756	
12,400.0	5,857.0	12,230.9	5,770.0	132.6	133.4	84.95	-6,912.9	-310.4	989.0	722.1	266.91	3.706	
12,500.0	5,857.0	12,330.9	5,770.0	134.5	135.3	84.96	-7,012.9	-310.4	989.9	719.2	270.71	3.657	
12,600.0	5,857.0	12,430.8	5,770.0	136.4	137.2	84.96	-7,112.9	-310.4	990.8	716.3	274.52	3.609	
12,700.0	5,857.0	12,530.8	5,770.0	138.3	139.1	84.97	-7,212.9	-310.4	991.6	713.3	278.33	3.563	
12,800.0	5,857.0	12,630.8	5,770.0	140.2	141.0	84.97	-7,312.9	-310.4	992.5	710.4	282.13	3.518	
12,857.7	5,857.0	12,688.5	5,770.0	141.1	142.1	84.97	-7,370.6	-310.4	993.0	708.9	284.13	3.495 SF	

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2703A - HZ - Plan #2													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-1.06	75.0	-1.4	75.1					
100.0	100.0	100.0	100.0	0.1	0.1	-1.06	75.0	-1.4	75.1	74.9	0.19	399.906		
200.0	200.0	200.0	200.0	0.3	0.3	-1.06	75.0	-1.4	75.1	74.4	0.64	117.786		
300.0	300.0	300.0	300.0	0.5	0.5	-1.06	75.0	-1.4	75.1	74.0	1.09	69.064		
400.0	400.0	400.0	400.0	0.8	0.8	-1.06	75.0	-1.4	75.1	73.5	1.54	48.855		
500.0	500.0	500.0	500.0	1.0	1.0	-1.06	75.0	-1.4	75.1	73.1	1.99	37.795		
600.0	600.0	600.0	600.0	1.2	1.2	-1.06	75.0	-1.4	75.1	72.6	2.44	30.819		
700.0	700.0	700.0	700.0	1.4	1.4	-1.06	75.0	-1.4	75.1	72.2	2.88	26.017		
800.0	800.0	800.0	800.0	1.7	1.7	-1.06	75.0	-1.4	75.1	71.7	3.33	22.509		
900.0	900.0	900.0	900.0	1.9	1.9	-1.06	75.0	-1.4	75.1	71.3	3.78	19.835		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-1.06	75.0	-1.4	75.1	70.8	4.23	17.729		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-152.90	75.0	-1.4	76.6	71.9	4.66	16.452		
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	-154.54	75.0	-1.4	81.3	76.2	5.06	16.076		
1,300.0	1,299.6	1,299.6	1,299.6	2.7	2.8	-156.50	75.0	-1.4	87.7	82.2	5.47	16.028		
1,400.0	1,399.4	1,402.6	1,402.6	2.9	3.0	-158.04	73.3	-0.8	92.3	86.5	5.86	15.750		
1,500.0	1,499.1	1,505.7	1,505.5	3.1	3.2	-159.05	68.0	0.8	93.5	87.3	6.24	14.987		
1,600.0	1,598.9	1,605.7	1,605.3	3.3	3.4	-159.84	61.4	3.0	93.2	86.6	6.63	14.062		
1,700.0	1,698.6	1,705.7	1,705.0	3.6	3.6	-160.65	54.7	5.1	92.9	85.8	7.02	13.226		
1,800.0	1,798.4	1,805.7	1,804.8	3.8	3.8	-161.46	48.1	7.2	92.6	85.1	7.42	12.468		
1,900.0	1,898.1	1,905.7	1,904.5	4.0	4.0	-162.28	41.4	9.3	92.3	84.4	7.83	11.781		
2,000.0	1,997.9	2,005.7	2,004.3	4.3	4.2	-163.10	34.8	11.4	92.0	83.7	8.24	11.157		
2,100.0	2,097.6	2,105.7	2,104.0	4.5	4.4	-163.93	28.1	13.5	91.7	83.1	8.66	10.590		
2,200.0	2,197.4	2,205.6	2,203.8	4.8	4.6	-164.76	21.5	15.7	91.5	82.4	9.08	10.073		
2,300.0	2,297.2	2,305.6	2,303.5	5.0	4.9	-165.59	14.8	17.8	91.3	81.8	9.51	9.600		
2,400.0	2,396.9	2,405.6	2,403.3	5.2	5.1	-166.43	8.2	19.9	91.1	81.1	9.93	9.168		
2,500.0	2,496.7	2,505.6	2,503.0	5.5	5.3	-167.27	1.5	22.0	90.9	80.5	10.36	8.770		
2,600.0	2,596.4	2,605.6	2,602.8	5.7	5.6	-168.12	-5.1	24.1	90.7	79.9	10.80	8.405		
2,700.0	2,696.2	2,705.6	2,702.5	6.0	5.8	-168.96	-11.7	26.2	90.6	79.4	11.23	8.067		
2,800.0	2,795.9	2,805.6	2,802.3	6.3	6.1	-169.82	-18.4	28.3	90.5	78.8	11.67	7.756		
2,900.0	2,895.7	2,905.6	2,902.0	6.5	6.3	-170.67	-25.0	30.5	90.4	78.3	12.10	7.467		
3,000.0	2,995.5	3,005.6	3,001.7	6.8	6.6	-171.52	-31.7	32.6	90.3	77.8	12.54	7.199		
3,100.0	3,095.2	3,105.6	3,101.5	7.0	6.8	-172.38	-38.3	34.7	90.2	77.3	12.98	6.950		
3,200.0	3,195.0	3,205.6	3,201.2	7.3	7.1	-173.23	-45.0	36.8	90.2	76.8	13.43	6.718		
3,300.0	3,294.7	3,305.5	3,301.0	7.5	7.3	-174.09	-51.6	38.9	90.2	76.3	13.87	6.502		
3,343.5	3,338.1	3,349.0	3,344.4	7.6	7.4	-174.46	-54.5	39.8	90.2	76.1	14.06	6.412		
3,400.0	3,394.5	3,405.5	3,400.7	7.8	7.6	-174.95	-58.3	41.0	90.2	75.9	14.32	6.299		
3,500.0	3,494.2	3,505.5	3,500.5	8.0	7.8	-175.80	-64.9	43.1	90.2	75.4	14.76	6.110		
3,600.0	3,594.0	3,605.5	3,600.2	8.3	8.1	-176.66	-71.6	45.3	90.2	75.0	15.21	5.933		
3,700.0	3,693.7	3,705.5	3,700.0	8.6	8.3	-177.52	-78.2	47.4	90.3	74.6	15.66	5.766		
3,800.0	3,793.5	3,805.5	3,799.7	8.8	8.6	-178.37	-84.9	49.5	90.4	74.3	16.11	5.609		
3,900.0	3,893.3	3,905.5	3,899.5	9.1	8.8	-179.22	-91.5	51.6	90.5	73.9	16.57	5.462		
4,000.0	3,993.0	4,005.5	3,999.2	9.3	9.1	179.93	-98.2	53.7	90.6	73.6	17.02	5.323		
4,100.0	4,092.8	4,105.5	4,099.0	9.6	9.3	179.08	-104.8	55.8	90.8	73.3	17.48	5.192		
4,200.0	4,192.5	4,205.5	4,198.7	9.9	9.6	178.23	-111.4	57.9	90.9	73.0	17.94	5.068		
4,300.0	4,292.3	4,305.5	4,298.5	10.1	9.9	177.39	-118.1	60.1	91.1	72.7	18.40	4.951		
4,400.0	4,392.0	4,405.4	4,398.2	10.4	10.1	176.55	-124.7	62.2	91.3	72.4	18.86	4.841		
4,500.0	4,491.8	4,505.4	4,498.0	10.6	10.4	175.72	-131.4	64.3	91.5	72.2	19.32	4.736		
4,600.0	4,591.6	4,605.4	4,597.7	10.9	10.6	174.89	-138.0	66.4	91.8	72.0	19.79	4.637		
4,700.0	4,691.3	4,705.4	4,697.4	11.2	10.9	174.06	-144.7	68.5	92.0	71.8	20.26	4.542		
4,800.0	4,791.1	4,805.4	4,797.2	11.4	11.1	173.24	-151.3	70.6	92.3	71.6	20.73	4.453		
4,900.0	4,890.8	4,905.4	4,896.9	11.7	11.4	172.43	-158.0	72.8	92.6	71.4	21.20	4.368		
5,000.0	4,990.6	5,005.4	4,996.7	12.0	11.7	171.62	-164.6	74.9	92.9	71.2	21.67	4.287		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2703A - HZ - Plan #2													Offset Site Error:	0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,090.3	5,105.4	5,096.4	12.2	11.9	170.81	-171.3	77.0	93.2	71.1	22.15	4.210		
5,200.0	5,190.1	5,205.4	5,196.2	12.5	12.2	170.01	-177.9	79.1	93.6	71.0	22.63	4.137		
5,300.0	5,289.9	5,307.5	5,298.0	12.7	12.5	169.17	-184.8	81.3	93.9	70.7	23.11	4.061		
5,382.8	5,372.4	5,405.2	5,393.9	13.0	12.8	165.38	-202.2	86.8	85.2	61.6	23.66	3.602		
5,400.0	5,389.6	5,424.8	5,412.7	13.0	12.9	163.98	-207.7	88.6	82.0	58.3	23.78	3.450		
5,450.0	5,439.0	5,480.9	5,464.8	13.2	13.2	158.62	-227.2	94.8	72.9	48.8	24.11	3.026		
5,500.0	5,487.5	5,535.3	5,513.1	13.4	13.5	150.97	-251.1	102.4	64.7	40.1	24.52	2.636		
5,550.0	5,534.5	5,588.3	5,557.3	13.6	13.9	140.62	-278.8	111.2	58.0	32.8	25.27	2.297		
5,600.0	5,579.8	5,639.8	5,597.3	13.9	14.3	127.72	-309.7	121.0	54.2	27.7	26.56	2.041		
5,626.0	5,602.4	5,665.9	5,616.3	14.1	14.5	120.37	-326.8	126.5	53.7	26.3	27.42	1.958 CC		
5,650.0	5,622.8	5,689.8	5,632.9	14.3	14.8	113.48	-343.3	131.7	54.2	25.9	28.23	1.919 ES		
5,700.0	5,663.1	5,738.6	5,664.1	14.7	15.3	99.89	-378.9	143.1	58.1	28.3	29.74	1.953		
5,750.0	5,700.5	5,786.2	5,691.2	15.1	15.8	88.44	-416.3	154.9	65.4	34.6	30.77	2.126		
5,800.0	5,734.5	5,832.7	5,714.0	15.6	16.4	79.50	-454.9	167.2	75.1	43.8	31.36	2.396		
5,850.0	5,764.8	5,878.3	5,732.7	16.2	17.0	72.73	-494.4	179.8	86.4	54.7	31.69	2.726		
5,900.0	5,791.2	5,922.9	5,747.5	16.8	17.6	67.64	-534.5	192.5	98.5	66.6	31.94	3.085		
5,950.0	5,813.4	5,966.7	5,758.5	17.4	18.2	63.78	-574.9	205.4	111.2	79.0	32.20	3.453		
6,000.0	5,831.2	6,009.9	5,765.8	18.2	18.8	60.82	-615.4	218.3	123.9	91.4	32.53	3.810		
6,050.0	5,844.4	6,052.4	5,769.5	18.9	19.5	58.53	-655.8	231.1	136.6	103.7	32.98	4.143		
6,100.0	5,853.0	6,096.0	5,770.1	19.7	20.2	56.87	-697.3	244.3	149.0	115.4	33.60	4.434		
6,150.0	5,856.8	6,141.6	5,770.1	20.5	20.8	56.79	-741.1	257.1	160.0	125.2	34.79	4.599		
6,164.6	5,857.0	6,154.9	5,770.1	20.7	21.0	57.06	-753.9	260.7	162.9	127.7	35.26	4.621		
6,200.0	5,857.0	6,186.9	5,770.1	21.3	21.4	58.56	-784.8	268.9	169.9	133.2	36.70	4.630		
6,300.0	5,857.0	6,276.9	5,770.1	22.8	22.7	62.16	-872.5	289.1	189.9	149.4	40.53	4.686		
6,400.0	5,857.0	6,365.9	5,770.1	24.3	24.0	65.02	-960.1	305.1	210.0	165.8	44.15	4.755		
6,500.0	5,857.0	6,454.2	5,770.1	25.9	25.4	67.32	-1,047.6	316.8	229.9	182.3	47.60	4.829		
6,600.0	5,857.0	6,541.7	5,770.1	27.5	26.7	69.21	-1,134.8	324.5	249.5	198.7	50.89	4.903		
6,700.0	5,857.0	6,628.5	5,770.1	29.1	28.1	70.78	-1,221.5	328.1	268.8	214.8	54.02	4.976		
6,800.0	5,857.0	6,722.7	5,770.1	30.7	29.6	72.13	-1,315.6	328.6	286.7	229.5	57.15	5.016		
6,900.0	5,857.0	6,821.7	5,770.1	32.4	31.2	73.06	-1,414.6	329.0	299.9	239.8	60.18	4.984		
7,000.0	5,857.0	6,921.3	5,770.1	33.9	32.9	73.60	-1,514.2	329.3	308.3	245.3	62.97	4.895		
7,106.4	5,857.0	7,027.6	5,770.1	35.6	34.8	73.81	-1,620.6	329.7	311.7	246.0	65.68	4.745		
7,200.0	5,857.0	7,121.2	5,770.1	37.1	36.4	73.84	-1,714.1	330.0	312.1	243.3	68.81	4.536		
7,300.0	5,857.0	7,221.2	5,770.1	38.7	38.1	73.87	-1,814.1	330.3	312.7	240.4	72.21	4.330		
7,400.0	5,857.0	7,321.2	5,770.1	40.4	39.9	73.89	-1,914.1	330.7	313.2	237.5	75.64	4.140		
7,500.0	5,857.0	7,421.2	5,770.1	42.1	41.7	73.92	-2,014.1	331.0	313.7	234.6	79.10	3.966		
7,600.0	5,857.0	7,521.2	5,770.1	43.8	43.5	73.94	-2,114.1	331.3	314.2	231.6	82.57	3.805		
7,700.0	5,857.0	7,621.2	5,770.1	45.5	45.3	73.97	-2,214.1	331.7	314.7	228.6	86.08	3.656		
7,800.0	5,857.0	7,721.2	5,770.1	47.2	47.1	74.00	-2,314.1	332.0	315.2	225.6	89.59	3.518		
7,900.0	5,857.0	7,821.2	5,770.1	49.0	49.0	74.02	-2,414.1	332.3	315.7	222.6	93.13	3.390		
8,000.0	5,857.0	7,921.2	5,770.1	50.7	50.8	74.05	-2,514.1	332.7	316.2	219.5	96.68	3.271		
8,100.0	5,857.0	8,021.2	5,770.1	52.5	52.6	74.08	-2,614.1	333.0	316.7	216.5	100.25	3.160		
8,200.0	5,857.0	8,121.2	5,770.1	54.3	54.5	74.10	-2,714.1	333.3	317.2	213.4	103.82	3.056		
8,300.0	5,857.0	8,221.2	5,770.1	56.1	56.3	74.13	-2,814.1	333.7	317.8	210.3	107.41	2.958		
8,400.0	5,857.0	8,321.2	5,770.1	57.9	58.2	74.15	-2,914.1	334.0	318.3	207.3	111.01	2.867		
8,500.0	5,857.0	8,421.2	5,770.1	59.7	60.0	74.18	-3,014.1	334.4	318.8	204.2	114.61	2.781		
8,600.0	5,857.0	8,521.2	5,770.1	61.5	61.9	74.20	-3,114.1	334.7	319.3	201.1	118.23	2.701		
8,700.0	5,857.0	8,621.2	5,770.1	63.3	63.8	74.23	-3,214.1	335.0	319.8	197.9	121.85	2.624		
8,800.0	5,857.0	8,721.2	5,770.1	65.1	65.6	74.25	-3,314.1	335.4	320.3	194.8	125.48	2.553		
8,900.0	5,857.0	8,821.2	5,770.1	66.9	67.5	74.28	-3,414.1	335.7	320.8	191.7	129.11	2.485		
9,000.0	5,857.0	8,921.2	5,770.1	68.8	69.4	74.31	-3,514.1	336.0	321.3	188.6	132.76	2.420		
9,100.0	5,857.0	9,021.2	5,770.1	70.6	71.2	74.33	-3,614.1	336.4	321.8	185.4	136.40	2.359		

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - 22D-2703A - HZ - Plan #2													Offset Site Error: 0.0 usft
Survey Program: 0-ISCWSA MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,200.0	5,857.0	9,121.2	5,770.1	72.5	73.1	74.36	-3,714.1	336.7	322.3	182.3	140.06	2.302	
9,300.0	5,857.0	9,221.2	5,770.1	74.3	75.0	74.38	-3,814.1	337.0	322.9	179.1	143.71	2.247	
9,400.0	5,857.0	9,321.2	5,770.1	76.1	76.9	74.41	-3,914.1	337.4	323.4	176.0	147.37	2.194	
9,500.0	5,857.0	9,421.2	5,770.1	78.0	78.8	74.43	-4,014.1	337.7	323.9	172.8	151.04	2.144	
9,600.0	5,857.0	9,521.2	5,770.1	79.9	80.6	74.46	-4,114.1	338.1	324.4	169.7	154.71	2.097	
9,700.0	5,857.0	9,621.2	5,770.1	81.7	82.5	74.48	-4,214.1	338.4	324.9	166.5	158.38	2.051	
9,800.0	5,857.0	9,721.2	5,770.1	83.6	84.4	74.50	-4,314.1	338.7	325.4	163.3	162.06	2.008	
9,900.0	5,857.0	9,821.2	5,770.1	85.4	86.3	74.53	-4,414.1	339.1	325.9	160.2	165.74	1.966	
10,000.0	5,857.0	9,921.2	5,770.1	87.3	88.2	74.55	-4,514.1	339.4	326.4	157.0	169.42	1.927	
10,100.0	5,857.0	10,021.2	5,770.1	89.2	90.1	74.58	-4,614.1	339.7	326.9	153.8	173.11	1.889	
10,200.0	5,857.0	10,121.2	5,770.0	91.0	92.0	74.60	-4,714.1	340.1	327.5	150.7	176.80	1.852	
10,300.0	5,857.0	10,221.2	5,770.0	92.9	93.9	74.63	-4,814.1	340.4	328.0	147.5	180.49	1.817	
10,400.0	5,857.0	10,321.2	5,770.0	94.8	95.8	74.65	-4,914.1	340.7	328.5	144.3	184.19	1.783	
10,500.0	5,857.0	10,421.2	5,770.0	96.7	97.7	74.67	-5,014.1	341.1	329.0	141.1	187.89	1.751	
10,600.0	5,857.0	10,521.2	5,770.0	98.6	99.6	74.70	-5,114.1	341.4	329.5	137.9	191.58	1.720	
10,700.0	5,857.0	10,621.2	5,770.0	100.4	101.5	74.72	-5,214.1	341.8	330.0	134.7	195.29	1.690	
10,800.0	5,857.0	10,721.2	5,770.0	102.3	103.4	74.75	-5,314.1	342.1	330.5	131.5	198.99	1.661	
10,900.0	5,857.0	10,821.2	5,770.0	104.2	105.3	74.77	-5,414.1	342.4	331.0	128.3	202.70	1.633	
11,000.0	5,857.0	10,921.2	5,770.0	106.1	107.2	74.79	-5,514.1	342.8	331.5	125.1	206.40	1.606	
11,100.0	5,857.0	11,021.2	5,770.0	108.0	109.1	74.82	-5,614.1	343.1	332.1	121.9	210.11	1.580	
11,200.0	5,857.0	11,121.1	5,770.0	109.9	111.0	74.84	-5,714.1	343.4	332.6	118.7	213.83	1.555	
11,300.0	5,857.0	11,221.1	5,770.0	111.7	112.9	74.86	-5,814.1	343.8	333.1	115.5	217.54	1.531	
11,400.0	5,857.0	11,321.1	5,770.0	113.6	114.8	74.89	-5,914.1	344.1	333.6	112.3	221.25	1.508	
11,500.0	5,857.0	11,421.1	5,770.0	115.5	116.7	74.91	-6,014.1	344.5	334.1	109.1	224.97	1.485 Level 3	
11,600.0	5,857.0	11,521.1	5,770.0	117.4	118.6	74.93	-6,114.1	344.8	334.6	105.9	228.69	1.463 Level 3	
11,700.0	5,857.0	11,621.1	5,770.0	119.3	120.5	74.96	-6,214.1	345.1	335.1	102.7	232.41	1.442 Level 3	
11,800.0	5,857.0	11,721.1	5,770.0	121.2	122.4	74.98	-6,314.1	345.5	335.6	99.5	236.13	1.421 Level 3	
11,900.0	5,857.0	11,821.1	5,770.0	123.1	124.3	75.00	-6,414.1	345.8	336.1	96.3	239.85	1.401 Level 3	
12,000.0	5,857.0	11,921.1	5,770.0	125.0	126.2	75.03	-6,514.1	346.1	336.7	93.1	243.58	1.382 Level 3	
12,100.0	5,857.0	12,021.1	5,770.0	126.9	128.1	75.05	-6,614.1	346.5	337.2	89.9	247.30	1.363 Level 3	
12,200.0	5,857.0	12,121.1	5,770.0	128.8	130.0	75.07	-6,714.1	346.8	337.7	86.7	251.03	1.345 Level 3	
12,300.0	5,857.0	12,221.1	5,770.0	130.7	131.9	75.10	-6,814.0	347.1	338.2	83.4	254.76	1.328 Level 3	
12,400.0	5,857.0	12,321.1	5,770.0	132.6	133.8	75.12	-6,914.0	347.5	338.7	80.2	258.49	1.310 Level 3	
12,500.0	5,857.0	12,421.1	5,770.0	134.5	135.7	75.14	-7,014.0	347.8	339.2	77.0	262.22	1.294 Level 3	
12,600.0	5,857.0	12,521.1	5,770.0	136.4	137.6	75.16	-7,114.0	348.2	339.7	73.8	265.95	1.277 Level 3	
12,700.0	5,857.0	12,621.1	5,770.0	138.3	139.5	75.19	-7,214.0	348.5	340.2	70.6	269.69	1.262 Level 3	
12,800.0	5,857.0	12,721.1	5,770.0	140.2	141.4	75.21	-7,314.0	348.8	340.8	67.4	273.35	1.247 Level 2	
12,857.7	5,857.0	12,778.8	5,770.0	141.1	142.3	75.22	-7,371.7	349.0	341.1	65.9	275.11	1.240 Level 2, SF	

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - RAZOR 22-2712H (EXISTING) - WHITING WELL - SURVEYS												Offset Site Error:	0.0 usft
Survey Program: 190-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Between Centres (usft)	Between Ellipses (usft)					
0.0	0.0	0.0	0.0	0.0	0.0	-15.78	124.7	-35.2	129.6				
100.0	100.0	99.0	99.0	0.1	0.1	-15.85	125.0	-35.5	130.0	129.8	0.20	660.752	
200.0	200.0	198.1	198.1	0.3	0.2	-16.05	126.0	-36.2	131.1	130.6	0.53	245.790	
300.0	300.0	297.8	297.8	0.5	0.4	-16.11	127.5	-36.8	132.7	131.8	0.97	136.950	
400.0	400.0	398.3	398.3	0.8	0.6	-16.10	128.9	-37.2	134.2	132.8	1.40	96.167	
500.0	500.0	498.5	498.5	1.0	0.8	-15.92	130.2	-37.1	135.4	133.5	1.83	74.146	
600.0	600.0	598.5	598.5	1.2	1.0	-15.81	131.3	-37.2	136.5	134.3	2.26	60.433	
700.0	700.0	698.5	698.5	1.4	1.3	-15.67	132.5	-37.1	137.6	134.9	2.69	51.075	
800.0	800.0	797.9	797.8	1.7	1.5	-15.42	133.8	-36.9	138.9	135.7	3.13	44.382	
900.0	900.0	897.7	897.7	1.9	1.7	-15.23	135.7	-36.9	140.6	137.0	3.56	39.456	
1,000.0	1,000.0	997.3	997.2	2.1	1.9	-15.06	137.4	-37.0	142.3	138.3	4.00	35.600	
1,100.0	1,100.0	1,096.1	1,096.0	2.3	2.1	-166.17	139.8	-36.9	146.3	141.9	4.40	33.223	
1,200.0	1,199.8	1,194.5	1,194.3	2.5	2.3	-166.17	143.1	-36.6	154.6	149.8	4.80	32.228	
1,300.0	1,299.6	1,294.4	1,294.1	2.7	2.5	-166.28	146.9	-36.2	164.9	159.7	5.19	31.754	
1,400.0	1,399.4	1,394.3	1,394.0	2.9	2.7	-166.46	150.2	-36.0	174.8	169.2	5.59	31.280	
1,500.0	1,499.1	1,492.3	1,491.9	3.1	3.0	-166.66	153.7	-35.9	185.0	179.0	5.99	30.871	
1,600.0	1,598.9	1,589.8	1,589.3	3.3	3.2	-166.67	158.2	-35.6	196.2	189.8	6.41	30.615	
1,700.0	1,698.6	1,687.5	1,686.9	3.6	3.4	-166.73	163.6	-35.7	208.2	201.4	6.83	30.508	
1,800.0	1,798.4	1,794.5	1,793.8	3.8	3.6	-167.40	168.1	-37.8	219.7	212.4	7.25	30.285	
1,900.0	1,898.1	1,899.8	1,899.1	4.0	3.8	-168.17	168.1	-39.3	226.9	219.2	7.67	29.570	
2,000.0	1,997.9	1,998.7	1,998.0	4.3	4.0	-168.77	167.5	-40.2	233.4	225.3	8.09	28.853	
2,100.0	2,097.6	2,098.3	2,097.6	4.5	4.3	-169.17	167.4	-40.5	240.3	231.8	8.51	28.220	
2,200.0	2,197.4	2,199.2	2,198.4	4.8	4.5	-169.52	167.1	-40.6	246.9	237.9	8.94	27.618	
2,300.0	2,297.2	2,297.7	2,296.9	5.0	4.7	-169.86	167.0	-40.8	253.6	244.3	9.36	27.094	
2,400.0	2,396.9	2,397.5	2,396.7	5.2	4.9	-170.16	166.9	-40.9	260.5	250.7	9.79	26.616	
2,500.0	2,496.7	2,495.3	2,494.5	5.5	5.1	-170.42	167.3	-41.1	267.9	257.7	10.21	26.228	
2,600.0	2,596.4	2,593.9	2,593.1	5.7	5.3	-170.63	168.4	-41.3	275.8	265.2	10.64	25.913	
2,700.0	2,696.2	2,693.6	2,692.8	6.0	5.5	-170.75	169.7	-41.2	283.9	272.8	11.08	25.628	
2,800.0	2,795.9	2,793.2	2,792.4	6.3	5.7	-170.74	171.2	-40.5	292.0	280.4	11.51	25.362	
2,900.0	2,895.7	2,892.6	2,891.8	6.5	5.9	-170.69	172.8	-39.6	300.1	288.2	11.95	25.120	
3,000.0	2,995.5	2,992.9	2,992.0	6.8	6.1	-170.65	174.5	-38.8	308.3	295.9	12.38	24.898	
3,100.0	3,095.2	3,093.0	3,092.2	7.0	6.3	-170.69	175.7	-38.2	316.1	303.3	12.81	24.673	
3,200.0	3,195.0	3,194.0	3,193.2	7.3	6.6	-170.79	176.7	-38.0	323.9	310.6	13.24	24.457	
3,300.0	3,294.7	3,294.8	3,294.0	7.5	6.8	-170.92	177.1	-37.7	331.0	317.3	13.68	24.205	
3,400.0	3,394.5	3,393.4	3,392.5	7.8	7.0	-171.03	177.6	-37.4	338.3	324.2	14.11	23.975	
3,500.0	3,494.2	3,492.0	3,491.2	8.0	7.2	-171.13	178.5	-37.3	345.9	331.4	14.55	23.782	
3,600.0	3,594.0	3,591.2	3,590.4	8.3	7.4	-171.26	179.5	-37.3	353.8	338.8	14.98	23.617	
3,700.0	3,693.7	3,690.3	3,689.5	8.6	7.6	-171.45	180.4	-37.9	361.8	346.4	15.41	23.473	
3,800.0	3,793.5	3,791.0	3,790.1	8.8	7.8	-171.78	181.1	-39.2	369.8	353.9	15.85	23.335	
3,900.0	3,893.3	3,892.1	3,891.2	9.1	8.0	-172.25	181.0	-41.5	377.4	361.1	16.28	23.185	
4,000.0	3,993.0	3,990.0	3,989.0	9.3	8.2	-172.82	180.7	-44.4	385.1	368.4	16.71	23.049	
4,100.0	4,092.8	4,089.4	4,088.4	9.6	8.4	-173.44	180.5	-47.9	393.1	376.0	17.14	22.932	
4,200.0	4,192.5	4,201.9	4,200.8	9.9	8.7	-174.17	178.0	-51.4	399.2	381.6	17.60	22.682	
4,300.0	4,292.3	4,297.3	4,296.2	10.1	8.8	-174.44	176.3	-52.0	404.7	386.7	18.02	22.460	
4,400.0	4,392.0	4,399.0	4,397.8	10.4	9.1	-174.51	175.2	-51.4	410.4	392.0	18.46	22.239	
4,500.0	4,491.8	4,500.2	4,499.0	10.6	9.3	-174.65	173.7	-51.1	415.9	397.0	18.89	22.014	
4,600.0	4,591.6	4,603.0	4,601.8	10.9	9.5	-174.71	171.8	-50.0	420.7	401.4	19.33	21.764	
4,700.0	4,691.3	4,701.8	4,700.6	11.2	9.7	-174.65	169.9	-48.1	425.1	405.4	19.76	21.511	
4,800.0	4,791.1	4,796.9	4,795.7	11.4	9.9	-174.56	169.0	-46.2	430.5	410.3	20.19	21.320	
4,900.0	4,890.8	4,894.5	4,893.3	11.7	10.1	-174.43	169.0	-44.5	436.7	416.1	20.63	21.174	
5,000.0	4,990.6	4,994.0	4,992.7	12.0	10.3	-174.29	169.2	-42.6	443.1	422.1	21.06	21.038	
5,100.0	5,090.3	5,091.9	5,090.6	12.2	10.5	-174.18	169.5	-41.1	449.8	428.3	21.50	20.920	

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - RAZOR 22-2712H (EXISTING) - WHITING WELL - SURVEYS												Offset Site Error:	0.0 usft
Survey Program: 190-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,190.1	5,190.0	5,188.7	12.5	10.7	-174.07	170.3	-39.7	456.9	434.9	21.94	20.828	
5,300.0	5,289.9	5,349.8	5,348.0	12.7	11.0	-174.88	161.7	-41.9	460.4	437.9	22.49	20.473	
5,382.8	5,372.4	5,515.0	5,507.0	13.0	11.4	-178.34	118.6	-50.7	448.0	425.0	23.01	19.468	
5,400.0	5,389.6	5,639.8	5,616.5	13.0	11.7	177.07	59.9	-56.3	442.9	419.6	23.31	19.001	
5,450.0	5,439.0	5,830.1	5,747.4	13.2	12.5	166.18	-76.3	-47.8	413.5	389.6	23.90	17.299	
5,500.0	5,487.5	5,903.3	5,785.1	13.4	13.0	160.49	-138.9	-43.5	384.2	360.1	24.13	15.925	
5,550.0	5,534.5	5,996.7	5,822.2	13.6	13.8	151.53	-224.0	-34.7	355.7	330.9	24.81	14.338	
5,600.0	5,579.8	6,052.5	5,835.8	13.9	14.4	145.58	-277.9	-30.1	328.3	303.0	25.30	12.972	
5,650.0	5,622.8	6,108.8	5,842.6	14.3	15.0	138.45	-333.7	-26.9	304.9	278.7	26.18	11.644	
5,700.0	5,663.1	6,149.5	5,843.5	14.7	15.5	133.04	-374.3	-24.9	287.5	260.6	26.98	10.657	
5,750.0	5,700.5	6,181.1	5,843.3	15.1	15.8	128.66	-405.8	-23.3	277.8	250.1	27.72	10.023	
5,785.7	5,725.1	6,205.6	5,843.3	15.5	16.1	124.99	-430.3	-21.7	275.9	247.4	28.45	9.696	
5,800.0	5,734.5	6,215.4	5,843.3	15.6	16.2	123.48	-440.1	-21.1	276.2	247.4	28.78	9.598	
5,850.0	5,764.8	6,249.4	5,843.3	16.2	16.6	118.08	-474.0	-18.9	281.9	251.8	30.07	9.375	
5,900.0	5,791.2	6,286.1	5,843.2	16.8	17.0	112.22	-510.7	-16.9	293.7	262.1	31.62	9.288	
5,950.0	5,813.4	6,325.5	5,842.5	17.4	17.5	106.19	-550.0	-15.0	310.1	276.8	33.28	9.318	
6,000.0	5,831.2	6,368.0	5,841.4	18.2	18.1	100.36	-592.5	-12.9	329.2	294.3	34.92	9.429	
6,050.0	5,844.4	6,405.8	5,840.5	18.9	18.6	95.57	-630.2	-11.2	350.4	314.1	36.37	9.635	
6,100.0	5,853.0	6,442.3	5,840.0	19.7	19.1	91.51	-666.7	-10.3	373.2	335.5	37.74	9.889	
6,150.0	5,856.8	6,483.9	5,839.8	20.5	19.6	88.07	-708.2	-9.9	396.9	357.8	39.11	10.148	
6,164.6	5,857.0	6,497.2	5,839.7	20.7	19.8	87.22	-721.6	-9.8	403.8	364.3	39.52	10.219	
6,200.0	5,857.0	6,527.2	5,839.7	21.3	20.2	87.35	-751.6	-9.5	420.3	379.7	40.57	10.359	
6,300.0	5,857.0	6,614.0	5,840.2	22.8	21.4	87.73	-838.3	-10.1	464.8	421.2	43.59	10.664	
6,400.0	5,857.0	6,707.3	5,841.2	24.3	22.7	88.07	-931.6	-9.6	503.7	457.0	46.71	10.784	
6,500.0	5,857.0	6,805.1	5,840.3	25.9	24.3	88.13	-1,029.5	-8.9	537.6	487.6	50.04	10.744	
6,600.0	5,857.0	6,902.0	5,838.3	27.5	25.8	88.04	-1,126.3	-8.1	566.4	513.1	53.28	10.631	
6,700.0	5,857.0	7,002.0	5,835.5	29.1	27.3	87.87	-1,226.3	-7.0	589.9	533.4	56.47	10.445	
6,800.0	5,857.0	7,100.4	5,833.3	30.7	28.9	87.74	-1,324.7	-5.5	607.9	548.3	59.59	10.200	
6,900.0	5,857.0	7,202.3	5,830.6	32.4	30.5	87.55	-1,426.5	-3.5	620.2	557.6	62.70	9.893	
7,000.0	5,857.0	7,290.4	5,829.7	33.9	31.9	87.50	-1,514.6	-2.1	627.8	562.4	65.38	9.602	
7,106.4	5,857.0	7,399.5	5,828.4	35.6	33.8	87.40	-1,623.7	-0.9	630.5	562.2	68.39	9.220	
7,200.0	5,857.0	7,488.2	5,827.6	37.1	35.2	87.33	-1,712.3	-0.9	631.4	560.0	71.39	8.844	
7,300.0	5,857.0	7,579.4	5,826.4	38.7	36.7	87.23	-1,803.6	-1.4	632.9	558.2	74.65	8.478	
7,400.0	5,857.0	7,671.8	5,826.0	40.4	38.3	87.20	-1,895.9	-3.1	635.6	557.7	77.92	8.157	
7,500.0	5,857.0	7,766.7	5,826.2	42.1	39.9	87.24	-1,990.8	-6.0	639.5	558.2	81.30	7.866	
7,600.0	5,857.0	7,876.3	5,827.8	43.8	41.7	87.40	-2,100.4	-9.0	643.0	558.2	84.87	7.576	
7,700.0	5,857.0	7,988.3	5,831.4	45.5	43.5	87.73	-2,212.2	-11.3	645.9	557.4	88.55	7.294	
7,800.0	5,857.0	8,098.8	5,833.8	47.2	45.5	87.94	-2,322.6	-9.5	645.0	552.7	92.27	6.990	
7,816.9	5,857.0	8,111.8	5,833.6	47.5	45.7	87.92	-2,335.6	-9.4	644.9	552.1	92.87	6.945	
7,900.0	5,857.0	8,187.0	5,830.8	49.0	47.0	87.68	-2,410.8	-9.1	645.5	549.9	95.60	6.752	
8,000.0	5,857.0	8,279.5	5,827.9	50.7	48.6	87.43	-2,503.3	-10.2	647.7	548.7	98.98	6.544	
8,100.0	5,857.0	8,389.2	5,826.7	52.5	50.4	87.33	-2,613.0	-10.8	649.1	546.4	102.67	6.322	
8,200.0	5,857.0	8,486.3	5,825.6	54.3	52.1	87.23	-2,710.0	-10.7	649.9	543.7	106.17	6.121	
8,300.0	5,857.0	8,589.6	5,823.0	56.1	53.9	87.01	-2,813.3	-11.6	651.8	542.0	109.79	5.937	
8,400.0	5,857.0	8,683.6	5,823.5	57.9	55.5	87.06	-2,907.3	-12.3	653.4	540.2	113.25	5.770	
8,500.0	5,857.0	8,759.4	5,824.0	59.7	56.9	87.11	-2,983.1	-14.1	656.6	540.2	116.44	5.639	
8,600.0	5,857.0	8,867.7	5,824.4	61.5	58.7	87.18	-3,091.2	-19.8	662.8	542.7	120.16	5.516	
8,700.0	5,857.0	8,993.7	5,830.3	63.3	60.9	87.70	-3,217.0	-22.3	665.7	541.5	124.22	5.359	
8,800.0	5,857.0	9,110.3	5,833.1	65.1	62.9	87.95	-3,333.5	-20.9	665.3	537.1	128.15	5.192	
8,900.0	5,857.0	9,209.9	5,831.0	66.9	64.7	87.75	-3,433.1	-17.8	663.1	531.4	131.75	5.034	
9,000.0	5,857.0	9,321.7	5,828.6	68.8	66.7	87.54	-3,544.8	-14.0	660.8	525.2	135.53	4.875	
9,100.0	5,857.0	9,419.0	5,827.3	70.6	68.4	87.41	-3,641.9	-9.1	656.6	517.6	139.07	4.722	

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

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S22-T10N-R58W - RAZOR 22-2712H (EXISTING) - WHITING WELL - SURVEYS												Offset Site Error:	0.0 usft
Survey Program: 190-ISCWSA MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
9,200.0	5,857.0	9,496.8	5,824.9	72.5	69.8	87.19	-3,719.7	-7.2	655.1	512.8	142.30	4.604	
9,300.0	5,857.0	9,642.9	5,820.4	74.3	72.3	86.78	-3,865.6	-1.0	652.1	505.5	146.63	4.447	
9,400.0	5,857.0	9,753.7	5,820.2	76.1	74.3	86.71	-3,975.8	9.6	643.4	493.0	150.38	4.279	
9,500.0	5,857.0	9,835.3	5,821.9	78.0	75.7	86.83	-4,057.2	15.7	636.6	482.9	153.68	4.142	
9,600.0	5,857.0	9,920.9	5,825.3	79.9	77.2	87.12	-4,142.5	20.9	631.2	474.1	157.09	4.018	
9,686.1	5,857.0	9,983.0	5,828.1	81.5	78.3	87.37	-4,204.6	22.4	629.6	469.8	159.86	3.939	
9,700.0	5,857.0	9,992.0	5,828.3	81.7	78.5	87.39	-4,213.6	22.4	629.7	469.4	160.28	3.929	
9,800.0	5,857.0	10,065.5	5,829.4	83.6	79.8	87.50	-4,287.0	20.5	633.0	469.5	163.50	3.871	
9,900.0	5,857.0	10,176.2	5,829.5	85.4	81.7	87.52	-4,397.6	16.6	637.3	470.0	167.35	3.808	
10,000.0	5,857.0	10,285.4	5,828.4	87.3	83.6	87.44	-4,506.9	14.7	640.0	468.9	171.13	3.740	
10,100.0	5,857.0	10,395.4	5,825.6	89.2	85.6	87.20	-4,616.8	13.9	641.8	466.9	174.93	3.669	
10,200.0	5,857.0	10,489.8	5,823.3	91.0	87.2	86.99	-4,711.1	14.3	642.3	463.9	178.45	3.600	
10,300.0	5,857.0	10,592.5	5,821.7	92.9	89.0	86.86	-4,813.8	14.1	643.5	461.4	182.13	3.533	
10,400.0	5,857.0	10,708.9	5,820.1	94.8	91.1	86.71	-4,930.2	15.4	643.4	457.4	186.04	3.458	
10,500.0	5,857.0	10,801.5	5,820.0	96.7	92.7	86.69	-5,022.8	18.4	641.1	451.6	189.55	3.382	
10,512.7	5,857.0	10,810.0	5,819.9	96.9	92.9	86.68	-5,031.2	18.5	641.1	451.1	190.01	3.374	
10,600.0	5,857.0	10,882.4	5,818.0	98.6	94.2	86.52	-5,103.6	18.0	642.5	449.7	192.86	3.331	
10,700.0	5,857.0	10,990.4	5,815.3	100.4	96.1	86.29	-5,211.6	17.3	644.2	447.5	196.61	3.276	
10,800.0	5,857.0	11,093.2	5,813.0	102.3	97.9	86.09	-5,314.3	17.4	645.1	444.8	200.29	3.221	
10,900.0	5,857.0	11,198.5	5,811.1	104.2	99.8	85.92	-5,419.7	18.2	645.3	441.3	204.00	3.163	
11,000.0	5,857.0	11,319.0	5,810.9	106.1	101.9	85.89	-5,540.1	21.2	643.7	435.7	207.99	3.095	
11,100.0	5,857.0	11,400.0	5,811.0	108.0	103.4	85.89	-5,621.0	23.6	641.7	430.3	211.33	3.036	
11,200.0	5,857.0	11,510.7	5,810.7	109.9	105.3	85.85	-5,731.8	25.8	640.6	425.4	215.17	2.977	
11,300.0	5,857.0	11,606.3	5,810.4	111.7	107.0	85.82	-5,827.3	28.2	638.9	420.2	218.76	2.921	
11,400.0	5,857.0	11,718.0	5,809.8	113.6	109.0	85.75	-5,938.9	31.7	636.7	414.1	222.61	2.860	
11,500.0	5,857.0	11,802.9	5,810.7	115.5	110.5	85.82	-6,023.8	33.8	635.0	409.0	226.02	2.810	
11,600.0	5,857.0	11,905.7	5,812.8	117.4	112.4	86.00	-6,126.6	36.1	633.5	403.7	229.78	2.757	
11,658.3	5,857.0	11,955.9	5,814.4	118.5	113.2	86.14	-6,176.7	36.8	633.1	401.3	231.83	2.731	
11,700.0	5,857.0	11,987.1	5,815.3	119.3	113.8	86.22	-6,207.9	36.7	633.4	400.3	233.17	2.717	
11,800.0	5,857.0	12,061.8	5,817.1	121.2	115.1	86.41	-6,282.5	34.3	637.3	400.8	236.45	2.695	
11,900.0	5,857.0	12,164.2	5,815.4	123.1	116.9	86.28	-6,384.9	29.7	642.8	402.6	240.15	2.676	
12,000.0	5,857.0	12,271.6	5,812.6	125.0	118.8	86.06	-6,492.1	25.9	647.3	403.4	243.89	2.654	
12,100.0	5,857.0	12,383.2	5,809.7	126.9	120.8	85.83	-6,603.6	23.6	650.4	402.7	247.70	2.626	
12,200.0	5,857.0	12,498.4	5,805.8	128.8	122.8	85.49	-6,718.8	24.0	651.1	399.6	251.54	2.589	
12,260.7	5,857.0	12,560.3	5,803.5	129.9	123.9	85.29	-6,780.6	24.8	651.0	397.3	253.76	2.565	
12,300.0	5,857.0	12,568.0	5,803.2	130.7	124.1	85.26	-6,788.3	24.9	651.7	397.1	254.63	2.559 SF	
12,400.0	5,857.0	12,568.0	5,803.2	132.6	124.1	85.26	-6,788.3	24.9	663.9	407.3	256.61	2.587	
12,500.0	5,857.0	12,568.0	5,803.2	134.5	124.1	85.26	-6,788.3	24.9	690.5	431.9	258.58	2.670	
12,600.0	5,857.0	12,568.0	5,803.2	136.4	124.1	85.26	-6,788.3	24.9	730.0	469.4	260.56	2.802	
12,700.0	5,857.0	12,568.0	5,803.2	138.3	124.1	85.26	-6,788.3	24.9	780.3	517.8	262.53	2.972	
12,800.0	5,857.0	12,568.0	5,803.2	140.2	124.1	85.26	-6,788.3	24.9	839.6	575.1	264.51	3.174	
12,857.7	5,857.0	12,568.0	5,803.2	141.1	124.1	85.26	-6,788.3	24.9	877.2	611.8	265.45	3.305	

Company:	Whiting Petroleum Corporation	Local Co-ordinate Reference:	Well 22D-2704B
Project:	Weld County, CO	TVD Reference:	WELL @ 4848.0usft (Original Well Elev)
Reference Site:	S22-T10N-R58W	MD Reference:	WELL @ 4848.0usft (Original Well Elev)
Site Error:	0.0usft	North Reference:	Grid
Reference Well:	22D-2704B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4848.0usft (Original Well Elev)
 Offset Depths are relative to Offset Datum
 Central Meridian is 105° 30' 0.00 W °

Coordinates are relative to: 22D-2704B
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 1.06°

