



## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site:</b>	S18-T4N-R66W (Bernhardt)	<b>North Reference:</b>	True
<b>Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

<b>Project</b>	Wattenberg		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		S18-T4N-R66W (Bernhardt)			
Site Position:		Northing:	1,354,998.15 ft	Latitude:	40.305920
From:	Lat/Long	Easting:	3,187,108.12 ft	Longitude:	-104.829130
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.43 °

Well	Bernhardt #18-6H					
Well Position	+N/-S	0.0 ft	Northing:	1,354,998.13 ft	Latitude:	40.305920
	+E/-W	0.0 ft	Easting:	3,187,108.12 ft	Longitude:	-104.829130
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,718.0 ft

<b>Wellbore</b>	HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b> (°)	<b>Dip Angle</b> (°)	<b>Field Strength</b> (nT)
	IGRF2010	7/18/2013	8.61	66.89	52,856

<b>Design</b>	Plan #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b> (ft)	<b>+N/-S</b> (ft)	<b>+E/-W</b> (ft)	<b>Direction</b> (°)
	0.0	0.0	0.0	86.47

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,195.7	5.96	2.02	1,194.7	30.9	1.1	1.00	1.00	0.00	2.02	
6,587.8	5.96	2.02	6,557.6	590.2	20.8	0.00	0.00	0.00	0.00	
7,491.3	90.56	90.00	7,125.3	650.0	599.3	10.00	9.36	9.74	87.93	
10,591.3	90.56	90.00	7,095.0	650.0	3,699.2	0.00	0.00	0.00	0.00	Bernhardt #18-6H TG
10,961.5	90.55	86.30	7,091.4	662.0	4,069.2	1.00	0.00	-1.00	-90.10	
12,708.2	90.55	86.30	7,074.6	774.7	5,812.1	0.00	0.00	0.00	0.00	
13,328.4	90.55	92.50	7,068.6	781.3	6,432.0	1.00	0.00	1.00	89.99	
16,828.4	90.55	92.50	7,035.0	628.6	9,928.5	0.00	0.00	0.00	0.00	Bernhardt 6H PBHL

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<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site:</b>	S18-T4N-R66W (Bernhardt)	<b>North Reference:</b>	True
<b>Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

## Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	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	KOP @ 600'
700.0	1.00	2.02	700.0	0.9	0.0	0.1	1.00	1.00	
800.0	2.00	2.02	800.0	3.5	0.1	0.3	1.00	1.00	
900.0	3.00	2.02	899.9	7.8	0.3	0.8	1.00	1.00	
1,000.0	4.00	2.02	999.7	13.9	0.5	1.4	1.00	1.00	
1,100.0	5.00	2.02	1,099.4	21.8	0.8	2.1	1.00	1.00	
1,195.7	5.96	2.02	1,194.7	30.9	1.1	3.0	1.00	1.00	EOB; Inc=5.96°
1,200.0	5.96	2.02	1,198.9	31.4	1.1	3.0	0.00	0.00	
1,300.0	5.96	2.02	1,298.4	41.7	1.5	4.0	0.00	0.00	
1,400.0	5.96	2.02	1,397.8	52.1	1.8	5.0	0.00	0.00	
1,500.0	5.96	2.02	1,497.3	62.5	2.2	6.0	0.00	0.00	
1,600.0	5.96	2.02	1,596.7	72.9	2.6	7.1	0.00	0.00	
1,700.0	5.96	2.02	1,696.2	83.2	2.9	8.1	0.00	0.00	
1,800.0	5.96	2.02	1,795.7	93.6	3.3	9.1	0.00	0.00	
1,900.0	5.96	2.02	1,895.1	104.0	3.7	10.1	0.00	0.00	
2,000.0	5.96	2.02	1,994.6	114.3	4.0	11.1	0.00	0.00	
2,100.0	5.96	2.02	2,094.0	124.7	4.4	12.1	0.00	0.00	
2,200.0	5.96	2.02	2,193.5	135.1	4.8	13.1	0.00	0.00	
2,300.0	5.96	2.02	2,293.0	145.5	5.1	14.1	0.00	0.00	
2,400.0	5.96	2.02	2,392.4	155.8	5.5	15.1	0.00	0.00	
2,500.0	5.96	2.02	2,491.9	166.2	5.9	16.1	0.00	0.00	
2,600.0	5.96	2.02	2,591.3	176.6	6.2	17.1	0.00	0.00	
2,700.0	5.96	2.02	2,690.8	187.0	6.6	18.1	0.00	0.00	
2,800.0	5.96	2.02	2,790.3	197.3	7.0	19.1	0.00	0.00	
2,900.0	5.96	2.02	2,889.7	207.7	7.3	20.1	0.00	0.00	
3,000.0	5.96	2.02	2,989.2	218.1	7.7	21.1	0.00	0.00	
3,100.0	5.96	2.02	3,088.6	228.4	8.1	22.1	0.00	0.00	
3,200.0	5.96	2.02	3,188.1	238.8	8.4	23.1	0.00	0.00	
3,300.0	5.96	2.02	3,287.6	249.2	8.8	24.1	0.00	0.00	
3,400.0	5.96	2.02	3,387.0	259.6	9.2	25.1	0.00	0.00	
3,500.0	5.96	2.02	3,486.5	269.9	9.5	26.1	0.00	0.00	
3,600.0	5.96	2.02	3,585.9	280.3	9.9	27.1	0.00	0.00	
3,700.0	5.96	2.02	3,685.4	290.7	10.3	28.1	0.00	0.00	
3,800.0	5.96	2.02	3,784.9	301.0	10.6	29.1	0.00	0.00	
3,900.0	5.96	2.02	3,884.3	311.4	11.0	30.2	0.00	0.00	
4,000.0	5.96	2.02	3,983.8	321.8	11.4	31.2	0.00	0.00	
4,100.0	5.96	2.02	4,083.2	332.2	11.7	32.2	0.00	0.00	
4,200.0	5.96	2.02	4,182.7	342.5	12.1	33.2	0.00	0.00	
4,300.0	5.96	2.02	4,282.2	352.9	12.4	34.2	0.00	0.00	
4,400.0	5.96	2.02	4,381.6	363.3	12.8	35.2	0.00	0.00	
4,500.0	5.96	2.02	4,481.1	373.7	13.2	36.2	0.00	0.00	
4,600.0	5.96	2.02	4,580.5	384.0	13.5	37.2	0.00	0.00	
4,700.0	5.96	2.02	4,680.0	394.4	13.9	38.2	0.00	0.00	
4,800.0	5.96	2.02	4,779.5	404.8	14.3	39.2	0.00	0.00	
4,900.0	5.96	2.02	4,878.9	415.1	14.6	40.2	0.00	0.00	
5,000.0	5.96	2.02	4,978.4	425.5	15.0	41.2	0.00	0.00	

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<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site:</b>	S18-T4N-R66W (Bernhardt)	<b>North Reference:</b>	True
<b>Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

## Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
5,100.0	5.96	2.02	5,077.8	435.9	15.4	42.2	0.00	0.00	
5,200.0	5.96	2.02	5,177.3	446.3	15.7	43.2	0.00	0.00	
5,300.0	5.96	2.02	5,276.8	456.6	16.1	44.2	0.00	0.00	
5,400.0	5.96	2.02	5,376.2	467.0	16.5	45.2	0.00	0.00	
5,500.0	5.96	2.02	5,475.7	477.4	16.8	46.2	0.00	0.00	
5,600.0	5.96	2.02	5,575.1	487.8	17.2	47.2	0.00	0.00	
5,700.0	5.96	2.02	5,674.6	498.1	17.6	48.2	0.00	0.00	
5,800.0	5.96	2.02	5,774.1	508.5	17.9	49.2	0.00	0.00	
5,900.0	5.96	2.02	5,873.5	518.9	18.3	50.2	0.00	0.00	
6,000.0	5.96	2.02	5,973.0	529.2	18.7	51.2	0.00	0.00	
6,100.0	5.96	2.02	6,072.4	539.6	19.0	52.2	0.00	0.00	
6,200.0	5.96	2.02	6,171.9	550.0	19.4	53.2	0.00	0.00	
6,300.0	5.96	2.02	6,271.4	560.4	19.8	54.3	0.00	0.00	
6,400.0	5.96	2.02	6,370.8	570.7	20.1	55.3	0.00	0.00	
6,500.0	5.96	2.02	6,470.3	581.1	20.5	56.3	0.00	0.00	
6,587.8	5.96	2.02	6,557.6	590.2	20.8	57.1	0.00	0.00	Start build/turn @ 6587' MD
6,600.0	6.12	13.53	6,569.7	591.5	21.0	57.4	10.00	1.36	
6,700.0	12.87	62.80	6,668.4	601.8	32.2	69.2	10.00	6.75	
6,800.0	22.21	75.14	6,763.7	611.7	60.4	98.0	10.00	9.34	
6,900.0	31.94	80.31	6,852.7	621.1	104.9	142.9	10.00	9.73	
7,000.0	41.78	83.24	6,932.6	629.5	164.2	202.7	10.00	9.85	
7,100.0	51.68	85.21	7,001.0	636.7	236.6	275.3	10.00	9.90	
7,200.0	61.60	86.71	7,056.0	642.5	319.8	358.7	10.00	9.92	
7,300.0	71.54	87.95	7,095.7	646.7	411.3	450.4	10.00	9.94	
7,400.0	81.48	89.05	7,119.0	649.2	508.4	547.4	10.00	9.94	
7,491.3	90.56	90.00	7,125.3	650.0	599.3	638.2	10.00	9.95	LP @ 7125' TVD; 90.5°
7,500.0	90.56	90.00	7,125.2	650.0	608.1	647.0	0.00	0.00	
7,600.0	90.56	90.00	7,124.2	650.0	708.1	746.8	0.00	0.00	
7,700.0	90.56	90.00	7,123.3	650.0	808.1	846.6	0.00	0.00	
7,800.0	90.56	90.00	7,122.3	650.0	908.1	946.4	0.00	0.00	
7,900.0	90.56	90.00	7,121.3	650.0	1,008.1	1,046.2	0.00	0.00	
8,000.0	90.56	90.00	7,120.3	650.0	1,108.0	1,146.0	0.00	0.00	
8,100.0	90.56	90.00	7,119.3	650.0	1,208.0	1,245.8	0.00	0.00	
8,200.0	90.56	90.00	7,118.4	650.0	1,308.0	1,345.6	0.00	0.00	
8,300.0	90.56	90.00	7,117.4	650.0	1,408.0	1,445.4	0.00	0.00	
8,400.0	90.56	90.00	7,116.4	650.0	1,508.0	1,545.2	0.00	0.00	
8,500.0	90.56	90.00	7,115.4	650.0	1,608.0	1,645.0	0.00	0.00	
8,600.0	90.56	90.00	7,114.5	650.0	1,708.0	1,744.8	0.00	0.00	
8,700.0	90.56	90.00	7,113.5	650.0	1,808.0	1,844.6	0.00	0.00	
8,800.0	90.56	90.00	7,112.5	650.0	1,908.0	1,944.4	0.00	0.00	
8,900.0	90.56	90.00	7,111.5	650.0	2,008.0	2,044.2	0.00	0.00	
9,000.0	90.56	90.00	7,110.6	650.0	2,108.0	2,144.0	0.00	0.00	
9,100.0	90.56	90.00	7,109.6	650.0	2,208.0	2,243.8	0.00	0.00	
9,200.0	90.56	90.00	7,108.6	650.0	2,308.0	2,343.7	0.00	0.00	
9,300.0	90.56	90.00	7,107.6	650.0	2,408.0	2,443.5	0.00	0.00	
9,400.0	90.56	90.00	7,106.6	650.0	2,508.0	2,543.3	0.00	0.00	
9,500.0	90.56	90.00	7,105.7	650.0	2,608.0	2,643.1	0.00	0.00	
9,600.0	90.56	90.00	7,104.7	650.0	2,708.0	2,742.9	0.00	0.00	
9,700.0	90.56	90.00	7,103.7	650.0	2,808.0	2,842.7	0.00	0.00	
9,800.0	90.56	90.00	7,102.7	650.0	2,908.0	2,942.5	0.00	0.00	
9,900.0	90.56	90.00	7,101.8	650.0	3,008.0	3,042.3	0.00	0.00	
10,000.0	90.56	90.00	7,100.8	650.0	3,108.0	3,142.1	0.00	0.00	

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<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site:</b>	S18-T4N-R66W (Bernhardt)	<b>North Reference:</b>	True
<b>Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
10,100.0	90.56	90.00	7,099.8	650.0	3,207.9	3,241.9	0.00	0.00	
10,200.0	90.56	90.00	7,098.8	650.0	3,307.9	3,341.7	0.00	0.00	
10,300.0	90.56	90.00	7,097.8	650.0	3,407.9	3,441.5	0.00	0.00	
10,400.0	90.56	90.00	7,096.9	650.0	3,507.9	3,541.3	0.00	0.00	
10,500.0	90.56	90.00	7,095.9	650.0	3,607.9	3,641.1	0.00	0.00	
10,591.3	90.56	90.00	7,095.0	650.0	3,699.2	3,732.2	0.00	0.00	Start turn @ 10591' MD - Bernhardt #18-6H TG
10,600.0	90.56	89.91	7,094.9	650.0	3,707.9	3,740.9	1.00	0.00	
10,700.0	90.56	88.91	7,093.9	651.0	3,807.9	3,840.8	1.00	0.00	
10,800.0	90.56	87.91	7,093.0	653.8	3,907.9	3,940.7	1.00	0.00	
10,900.0	90.55	86.91	7,092.0	658.3	4,007.8	4,040.7	1.00	0.00	
10,961.5	90.55	86.30	7,091.4	662.0	4,069.2	4,102.2	1.00	0.00	End of turn @ 10961' MD
11,000.0	90.55	86.30	7,091.0	664.4	4,107.6	4,140.7	0.00	0.00	
11,100.0	90.55	86.30	7,090.1	670.9	4,207.4	4,240.7	0.00	0.00	
11,200.0	90.55	86.30	7,089.1	677.4	4,307.1	4,340.7	0.00	0.00	
11,300.0	90.55	86.30	7,088.1	683.8	4,406.9	4,440.7	0.00	0.00	
11,400.0	90.55	86.30	7,087.2	690.3	4,506.7	4,540.7	0.00	0.00	
11,500.0	90.55	86.30	7,086.2	696.7	4,606.5	4,640.7	0.00	0.00	
11,600.0	90.55	86.30	7,085.3	703.2	4,706.3	4,740.7	0.00	0.00	
11,700.0	90.55	86.30	7,084.3	709.6	4,806.1	4,840.7	0.00	0.00	
11,800.0	90.55	86.30	7,083.3	716.1	4,905.9	4,940.7	0.00	0.00	
11,900.0	90.55	86.30	7,082.4	722.6	5,005.6	5,040.7	0.00	0.00	
12,000.0	90.55	86.30	7,081.4	729.0	5,105.4	5,140.6	0.00	0.00	
12,100.0	90.55	86.30	7,080.4	735.5	5,205.2	5,240.6	0.00	0.00	
12,200.0	90.55	86.30	7,079.5	741.9	5,305.0	5,340.6	0.00	0.00	
12,300.0	90.55	86.30	7,078.5	748.4	5,404.8	5,440.6	0.00	0.00	
12,400.0	90.55	86.30	7,077.5	754.8	5,504.6	5,540.6	0.00	0.00	
12,500.0	90.55	86.30	7,076.6	761.3	5,604.4	5,640.6	0.00	0.00	
12,600.0	90.55	86.30	7,075.6	767.8	5,704.2	5,740.6	0.00	0.00	
12,700.0	90.55	86.30	7,074.6	774.2	5,803.9	5,840.6	0.00	0.00	
12,708.2	90.55	86.30	7,074.6	774.7	5,812.1	5,848.8	0.00	0.00	Start turn @ 12708' MD
12,800.0	90.55	87.22	7,073.7	779.9	5,903.8	5,940.6	1.00	0.00	
12,900.0	90.55	88.22	7,072.7	783.9	6,003.7	6,040.6	1.00	0.00	
13,000.0	90.55	89.22	7,071.8	786.2	6,103.7	6,140.5	1.00	0.00	
13,100.0	90.55	90.22	7,070.8	786.7	6,203.6	6,240.3	1.00	0.00	
13,200.0	90.55	91.22	7,069.8	785.4	6,303.6	6,340.0	1.00	0.00	
13,300.0	90.55	92.22	7,068.9	782.4	6,403.6	6,439.6	1.00	0.00	
13,328.4	90.55	92.50	7,068.6	781.3	6,432.0	6,467.9	1.00	0.00	End of turn @ 13328' MD
13,400.0	90.55	92.50	7,067.9	778.1	6,503.5	6,539.1	0.00	0.00	
13,500.0	90.55	92.50	7,067.0	773.8	6,603.4	6,638.5	0.00	0.00	
13,600.0	90.55	92.50	7,066.0	769.4	6,703.3	6,738.0	0.00	0.00	
13,700.0	90.55	92.50	7,065.0	765.0	6,803.2	6,837.4	0.00	0.00	
13,800.0	90.55	92.50	7,064.1	760.7	6,903.1	6,936.8	0.00	0.00	
13,900.0	90.55	92.50	7,063.1	756.3	7,003.0	7,036.3	0.00	0.00	
14,000.0	90.55	92.50	7,062.2	752.0	7,102.9	7,135.7	0.00	0.00	
14,100.0	90.55	92.50	7,061.2	747.6	7,202.8	7,235.2	0.00	0.00	
14,200.0	90.55	92.50	7,060.2	743.2	7,302.7	7,334.6	0.00	0.00	
14,300.0	90.55	92.50	7,059.3	738.9	7,402.6	7,434.0	0.00	0.00	
14,400.0	90.55	92.50	7,058.3	734.5	7,502.5	7,533.5	0.00	0.00	
14,500.0	90.55	92.50	7,057.4	730.2	7,602.4	7,632.9	0.00	0.00	
14,600.0	90.55	92.50	7,056.4	725.8	7,702.3	7,732.4	0.00	0.00	
14,700.0	90.55	92.50	7,055.4	721.4	7,802.2	7,831.8	0.00	0.00	
14,800.0	90.55	92.50	7,054.5	717.1	7,902.1	7,931.3	0.00	0.00	

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site:</b>	S18-T4N-R66W (Bernhardt)	<b>North Reference:</b>	True
<b>Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
14,900.0	90.55	92.50	7,053.5	712.7	8,002.0	8,030.7	0.00	0.00	
15,000.0	90.55	92.50	7,052.6	708.3	8,101.9	8,130.1	0.00	0.00	
15,100.0	90.55	92.50	7,051.6	704.0	8,201.8	8,229.6	0.00	0.00	
15,200.0	90.55	92.50	7,050.6	699.6	8,301.7	8,329.0	0.00	0.00	
15,300.0	90.55	92.50	7,049.7	695.3	8,401.6	8,428.5	0.00	0.00	
15,400.0	90.55	92.50	7,048.7	690.9	8,501.5	8,527.9	0.00	0.00	
15,500.0	90.55	92.50	7,047.8	686.5	8,601.4	8,627.3	0.00	0.00	
15,600.0	90.55	92.50	7,046.8	682.2	8,701.3	8,726.8	0.00	0.00	
15,700.0	90.55	92.50	7,045.8	677.8	8,801.2	8,826.2	0.00	0.00	
15,800.0	90.55	92.50	7,044.9	673.5	8,901.1	8,925.7	0.00	0.00	
15,900.0	90.55	92.50	7,043.9	669.1	9,001.0	9,025.1	0.00	0.00	
16,000.0	90.55	92.50	7,043.0	664.7	9,100.9	9,124.6	0.00	0.00	
16,100.0	90.55	92.50	7,042.0	660.4	9,200.8	9,224.0	0.00	0.00	
16,200.0	90.55	92.50	7,041.0	656.0	9,300.7	9,323.4	0.00	0.00	
16,300.0	90.55	92.50	7,040.1	651.6	9,400.6	9,422.9	0.00	0.00	
16,400.0	90.55	92.50	7,039.1	647.3	9,500.5	9,522.3	0.00	0.00	
16,500.0	90.55	92.50	7,038.2	642.9	9,600.4	9,621.8	0.00	0.00	
16,600.0	90.55	92.50	7,037.2	638.6	9,700.3	9,721.2	0.00	0.00	
16,700.0	90.55	92.50	7,036.2	634.2	9,800.2	9,820.6	0.00	0.00	
16,800.0	90.55	92.50	7,035.3	629.8	9,900.1	9,920.1	0.00	0.00	
16,828.4	90.55	92.50	7,035.0	628.6	9,928.5	9,948.4	0.00	0.00	TD at 16828.4 - Bernhardt 6H PBHL

### Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Bernhardt #18-6H TGT - plan hits target center - Point	0.00	0.00	7,095.0	650.0	3,699.2	1,355,676.10	3,190,802.30	40.307703	-104.815866
Bernhardt 6H PBHL - plan hits target center - Point	0.00	0.46	7,035.0	628.6	9,928.5	1,355,701.82	3,197,031.58	40.307640	-104.793530

### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
600.0	600.0	0.0	0.0	KOP @ 600'
1,195.7	1,194.7	30.9	1.1	EOB; Inc=5.96°
6,587.8	6,557.6	590.2	20.8	Start build/turn @ 6587' MD
7,491.3	7,125.3	650.0	599.3	LP @ 7125' TVD; 90.5°
10,591.3	7,095.0	650.0	3,699.2	Start turn @ 10591' MD
10,961.5	7,091.4	662.0	4,069.2	End of turn @ 10961' MD
12,708.2	7,074.6	774.7	5,812.1	Start turn @ 12708' MD
13,328.4	7,068.6	781.3	6,432.0	End of turn @ 13328' MD
16,828.4	7,035.0	628.6	9,928.5	TD at 16828.4

# **K. P. Kauffman Company, Inc.**

**Wattenberg**

**S18-T4N-R66W (Bernhardt)**

**Bernhardt #18-6H**

**HZ**

**Plan #1**

## **Anticollision Report**

**19 July, 2013**

## Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.0ft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 500.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>		<b>Date</b>	7/19/2013		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.0	16,978.4	Plan #1 (HZ)	Geolink MWD	Geolink MWD	

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

## Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
S18-T4N-R66W (Bernhardt)						
Bernhardt #18-1H - Hz - Plan #1	200.0	200.0	123.9	123.2	188.758	CC, ES
Bernhardt #18-1H - Hz - Plan #1	1,600.0	1,558.4	217.4	211.9	39.720	SF
Bernhardt #18-2H - Hz - Plan #1	300.0	300.0	98.4	97.4	97.851	CC, ES
Bernhardt #18-2H - Hz - Plan #1	1,500.0	1,473.2	158.9	153.7	30.865	SF
Bernhardt #18-3H - Hz - Plan #1	400.0	400.0	76.5	75.2	56.493	CC, ES
Bernhardt #18-3H - Hz - Plan #1	1,500.0	1,481.6	117.9	112.7	22.841	SF
Bernhardt #18-4H - Hz - Plan #1	500.0	500.0	51.0	49.3	29.947	CC, ES
Bernhardt #18-4H - Hz - Plan #1	14,000.0	14,048.5	495.9	146.1	1.418	Level 3, SF
Bernhardt #18-5H - Hz - Plan #1	1,200.0	1,197.3	25.4	21.2	6.139	CC
Bernhardt #18-5H - Hz - Plan #1	16,962.0	17,014.5	305.0	-191.7	0.614	Level 1, ES, SF
Bernhardt #18-7H - HZ - Plan #1	1,108.5	1,110.7	25.4	21.6	6.639	CC
Bernhardt #18-7H - HZ - Plan #1	16,535.7	16,533.3	351.0	-124.8	0.738	Level 1, ES, SF
Bernhardt #18-8H - HZ - Plan #1	200.0	200.0	51.1	50.4	77.826	CC, ES
Bernhardt #18-8H - HZ - Plan #1	900.0	897.5	79.3	76.2	25.643	SF
BERNHARDT #8-32 (EXISTING) - EXISTING - EXISTIN						Out of range
EATON CATTLE CO. #1-18 (EXISTING) - EXISTING - E						Out of range
EATON CATTLE CO. #19-34-5 (EXISTING) - EXISTING	10,579.1	7,083.1	177.2	73.1	1.702	CC, ES, SF
EATON CATTLE CO. UNIT #1 (EXISTING) - EXISTING -	8,375.1	7,104.7	305.7	254.9	6.022	CC, ES
EATON CATTLE CO. UNIT #1 (EXISTING) - EXISTING -	8,400.0	7,104.4	306.7	255.4	5.973	SF
FR-LORENZ #11-17-11 (EXISTING) - EXISTING - EXIST						Out of range
FRONT RANGE #11-17-10 (EXISTING) - EXISTING - EX						Out of range
FRONT RANGE #11-17-23 (EXISTING) - EXISTING - EX	13,974.8	7,050.4	202.6	15.8	1.084	Level 2, CC, ES, SF
FRONT RANGE #11-17-25R (EXISTING) - EXISTING - E	13,904.6	7,051.1	210.5	25.3	1.137	Level 2, CC, ES, SF
FRONT RANGE #12-17-22R - EXISTING - EXISTING						Out of range
FRONT RANGE #12-17-33 (EXISTING) - EXISTING - EX						Out of range
GREENHEAD #11-18 (EXISTING) - EXISTING - EXISTIN						Out of range
GREENHEAD #14-18 (EXISTING) - EXISTING - EXISTI	8,562.8	7,102.8	415.3	360.1	7.525	CC, ES
GREENHEAD #14-18 (EXISTING) - EXISTING - EXISTI	8,600.0	7,102.5	417.0	360.9	7.437	SF
JOHNSON #17-1 (EXISTING) - EXISTING - EXISTING						Out of range
KNUTSON #17-25 (EXISTING) - EXISTING - EXISTING	13,283.0	7,057.0	172.5	2.6	1.015	Level 2, CC, ES, SF
MONTGOMERY#1-27 (EXISTING) - EXISTING - EXISTI	3,732.8	3,706.0	281.8	267.0	19.036	CC
MONTGOMERY#1-27 (EXISTING) - EXISTING - EXISTI	3,800.0	3,772.9	281.9	266.8	18.684	ES
MONTGOMERY#1-27 (EXISTING) - EXISTING - EXISTI	7,200.0	7,044.0	359.4	332.7	13.432	SF
OWENS K #17-15 (EXISTING) - EXISTING - EXISTING						Out of range
OWENS K #17-23D (EXISTING) - EXISTING - EXISTING						Out of range
OWENS K #20-28 (EXISTING) - EXISTING - EXISTING						Out of range
PHELPS #1-13 (EXISTING) - EXISTING - EXISTING						Out of range
PHELPS #2-17 (EXISTING) - EXISTING - EXISTING						Out of range
RANGE K #17-9 (EXISTING) - EXISTING - EXISTING						Out of range
RICHARDSON #17-14 (EXISTING) - EXISTING - EXIST						Out of range
RICHARDSON K #17-14X (EXISTING) - EXISTING - EX						Out of range
UPRC #17-1616 (EXISTING) - EXISTING - EXISTING	16,553.4	7,025.6	347.6	97.2	1.388	Level 3, CC, ES, SF

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

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - Bernhardt #18-1H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	0.00	123.9	0.0	123.9					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	123.9	0.0	123.9	123.6	0.31	403.255		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	123.9	0.0	123.9	123.2	0.66	188.758 CC, ES		
300.0	300.0	297.9	297.9	0.5	0.5	-0.01	124.7	0.0	124.7	123.7	1.00	124.525		
400.0	400.0	395.7	395.7	0.7	0.7	-0.04	127.2	-0.1	127.3	125.9	1.35	94.505		
500.0	500.0	493.4	493.3	0.9	0.9	-0.09	131.4	-0.2	131.6	129.9	1.69	77.752		
600.0	600.0	590.9	590.6	1.0	1.1	-0.16	137.2	-0.4	137.5	135.5	2.04	67.521		
700.0	700.0	688.3	687.7	1.2	1.3	-2.26	144.7	-0.6	144.3	141.9	2.38	60.603		
800.0	800.0	785.6	784.6	1.4	1.5	-2.38	153.8	-0.8	151.1	148.3	2.73	55.426		
900.0	899.9	882.7	881.1	1.6	1.7	-2.53	164.5	-1.1	157.8	154.7	3.07	51.402		
1,000.0	999.7	979.8	977.4	1.8	2.0	-2.70	176.8	-1.5	164.4	161.0	3.41	48.181		
1,100.0	1,099.4	1,076.7	1,073.3	2.0	2.3	-2.89	190.8	-1.9	171.0	167.3	3.76	45.542		
1,200.0	1,198.9	1,173.6	1,168.9	2.2	2.6	-3.10	206.4	-2.3	177.6	173.5	4.10	43.336		
1,300.0	1,298.4	1,270.2	1,264.0	2.4	2.9	-3.32	223.5	-2.8	185.0	180.6	4.44	41.650		
1,400.0	1,397.8	1,366.6	1,358.6	2.6	3.3	-3.52	242.2	-3.3	194.2	189.4	4.79	40.561		
1,500.0	1,497.3	1,462.7	1,452.5	2.9	3.6	-3.70	262.4	-3.9	205.0	199.8	5.13	39.948		
1,600.0	1,596.7	1,558.4	1,545.7	3.1	4.0	-3.86	284.1	-4.5	217.4	211.9	5.47	39.720 SF		
1,700.0	1,696.2	1,653.6	1,638.1	3.3	4.5	-4.00	307.2	-5.1	231.5	225.7	5.82	39.808		
1,800.0	1,795.7	1,748.4	1,729.6	3.6	4.9	-4.12	331.8	-5.8	247.3	241.1	6.16	40.158		
1,900.0	1,895.1	1,842.7	1,820.3	3.8	5.4	-4.22	357.7	-6.5	264.7	258.2	6.50	40.727		
2,000.0	1,994.6	1,936.4	1,909.9	4.0	5.9	-4.31	384.9	-7.3	283.7	276.9	6.84	41.481		
2,100.0	2,094.0	2,029.5	1,998.5	4.3	6.4	-4.38	413.4	-8.1	304.3	297.1	7.18	42.393		
2,200.0	2,193.5	2,122.3	2,086.5	4.5	6.9	-4.43	443.2	-8.9	326.5	319.0	7.52	43.435		
2,300.0	2,293.0	2,219.7	2,178.4	4.8	7.5	-4.48	475.1	-9.8	349.3	341.4	7.86	44.428		
2,400.0	2,392.4	2,317.0	2,270.4	5.0	8.1	-4.53	507.0	-10.7	372.1	363.9	8.21	45.337		
2,500.0	2,491.9	2,414.4	2,362.4	5.3	8.6	-4.57	538.9	-11.6	395.0	386.4	8.55	46.173		
2,600.0	2,591.3	2,511.7	2,454.4	5.5	9.2	-4.60	570.9	-12.5	417.8	408.9	8.90	46.945		
2,700.0	2,690.8	2,609.1	2,546.3	5.8	9.8	-4.63	602.8	-13.4	440.7	431.4	9.25	47.658		
2,800.0	2,790.3	2,706.5	2,638.3	6.0	10.3	-4.66	634.7	-14.3	463.5	453.9	9.59	48.321		
2,900.0	2,889.7	2,803.8	2,730.3	6.3	10.9	-4.69	666.6	-15.2	486.3	476.4	9.94	48.938		

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - Bernhardt #18-2H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	0.00	98.4	0.0	98.4					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	98.4	0.0	98.4	98.1	0.31	320.240		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	98.4	0.0	98.4	97.7	0.66	149.900		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	98.4	0.0	98.4	97.4	1.01	97.851 CC, ES		
400.0	400.0	398.3	398.3	0.7	0.7	0.01	99.2	0.0	99.2	97.9	1.35	73.425		
500.0	500.0	496.5	496.5	0.9	0.9	0.04	101.7	0.1	101.8	100.1	1.70	59.973		
600.0	600.0	594.7	594.5	1.0	1.0	0.09	105.9	0.2	106.1	104.0	2.04	51.919		
700.0	700.0	692.7	692.4	1.2	1.2	-1.87	111.8	0.3	111.2	108.8	2.39	46.554		
800.0	800.0	790.6	790.0	1.4	1.4	-1.84	119.4	0.5	116.3	113.6	2.73	42.537		
900.0	899.9	888.5	887.4	1.6	1.7	-1.81	128.6	0.7	121.3	118.3	3.08	39.415		
1,000.0	999.7	986.2	984.6	1.8	1.9	-1.80	139.4	1.0	126.4	122.9	3.42	36.916		
1,100.0	1,099.4	1,083.9	1,081.5	2.0	2.1	-1.80	151.9	1.2	131.3	127.6	3.77	34.867		
1,200.0	1,198.9	1,181.5	1,178.0	2.2	2.4	-1.80	166.0	1.6	136.3	132.2	4.11	33.155		
1,300.0	1,298.4	1,279.0	1,274.2	2.4	2.7	-1.81	181.8	1.9	142.1	137.7	4.46	31.890		
1,400.0	1,397.8	1,376.2	1,369.9	2.6	3.1	-1.80	199.1	2.3	149.6	144.8	4.80	31.163		
1,500.0	1,497.3	1,473.2	1,465.0	2.9	3.4	-1.78	218.0	2.8	158.9	153.7	5.15	30.865 SF		
1,600.0	1,596.7	1,569.8	1,559.4	3.1	3.8	-1.75	238.5	3.2	169.8	164.3	5.49	30.913		
1,700.0	1,696.2	1,666.1	1,653.1	3.3	4.2	-1.72	260.4	3.8	182.3	176.5	5.84	31.245		
1,800.0	1,795.7	1,761.9	1,746.1	3.6	4.6	-1.68	283.8	4.3	196.6	190.4	6.18	31.813		
1,900.0	1,895.1	1,857.2	1,838.1	3.8	5.1	-1.64	308.6	4.9	212.5	205.9	6.52	32.579		
2,000.0	1,994.6	1,952.0	1,929.2	4.0	5.5	-1.60	334.8	5.5	230.0	223.1	6.86	33.511		
2,100.0	2,094.0	2,046.2	2,019.3	4.3	6.0	-1.56	362.3	6.1	249.1	241.9	7.20	34.585		
2,200.0	2,193.5	2,139.8	2,108.3	4.5	6.5	-1.52	391.1	6.8	269.9	262.3	7.54	35.781		
2,300.0	2,293.0	2,236.4	2,199.9	4.8	7.1	-1.49	421.9	7.5	291.7	283.8	7.89	36.992		
2,400.0	2,392.4	2,333.9	2,292.3	5.0	7.6	-1.45	453.0	8.2	313.6	305.4	8.23	38.099		
2,500.0	2,491.9	2,431.5	2,384.8	5.3	8.2	-1.42	484.2	8.9	335.5	326.9	8.58	39.118		
2,600.0	2,591.3	2,529.1	2,477.3	5.5	8.7	-1.40	515.3	9.7	357.4	348.5	8.92	40.058		
2,700.0	2,690.8	2,626.7	2,569.8	5.8	9.3	-1.38	546.4	10.4	379.3	370.1	9.27	40.928		
2,800.0	2,790.3	2,724.2	2,662.2	6.0	9.9	-1.36	577.6	11.1	401.2	391.6	9.61	41.736		
2,900.0	2,889.7	2,821.8	2,754.7	6.3	10.4	-1.34	608.7	11.8	423.1	413.2	9.96	42.488		
3,000.0	2,989.2	2,919.4	2,847.2	6.5	11.0	-1.32	639.8	12.6	445.1	434.7	10.30	43.190		
3,100.0	3,088.6	3,016.9	2,939.6	6.8	11.5	-1.31	671.0	13.3	467.0	456.3	10.65	43.847		
3,200.0	3,188.1	3,114.5	3,032.1	7.0	12.1	-1.29	702.1	14.0	488.9	477.9	10.99	44.463		

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - Bernhardt #18-3H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	0.00	76.5	0.0	76.5					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	76.5	0.0	76.5	76.2	0.31	249.085		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	76.5	0.0	76.5	75.9	0.66	116.593		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	76.5	0.0	76.5	75.5	1.01	76.109		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	76.5	0.0	76.5	75.2	1.35	56.493 CC, ES		
500.0	500.0	498.7	498.7	0.9	0.8	0.02	77.4	0.0	77.4	75.7	1.70	45.484		
600.0	600.0	597.3	597.2	1.0	1.0	0.07	79.9	0.1	80.0	77.9	2.05	39.045		
700.0	700.0	695.8	695.7	1.2	1.2	-1.89	84.1	0.2	83.4	81.0	2.39	34.828		
800.0	800.0	794.3	794.0	1.4	1.4	-1.84	90.1	0.4	86.8	84.0	2.74	31.672		
900.0	899.9	892.7	892.1	1.6	1.6	-1.80	97.7	0.6	90.2	87.1	3.09	29.220		
1,000.0	999.7	991.1	990.0	1.8	1.8	-1.77	107.0	0.9	93.5	90.1	3.43	27.257		
1,100.0	1,099.4	1,089.4	1,087.7	2.0	2.1	-1.75	117.9	1.2	96.8	93.1	3.78	25.649		
1,200.0	1,198.9	1,187.7	1,185.2	2.2	2.3	-1.74	130.5	1.6	100.1	96.0	4.12	24.305		
1,300.0	1,298.4	1,285.8	1,282.3	2.4	2.6	-1.72	144.8	2.0	104.3	99.9	4.47	23.357		
1,400.0	1,397.8	1,383.8	1,379.0	2.6	2.9	-1.68	160.7	2.4	110.2	105.4	4.81	22.903		
1,500.0	1,497.3	1,481.6	1,475.2	2.9	3.2	-1.63	178.3	2.9	117.9	112.7	5.16	22.841 SF		
1,600.0	1,596.7	1,579.1	1,570.8	3.1	3.6	-1.57	197.4	3.5	127.2	121.7	5.51	23.097		
1,700.0	1,696.2	1,676.2	1,665.7	3.3	3.9	-1.50	218.0	4.1	138.2	132.3	5.85	23.614		
1,800.0	1,795.7	1,773.0	1,759.9	3.6	4.3	-1.43	240.2	4.7	150.9	144.7	6.20	24.347		
1,900.0	1,895.1	1,869.3	1,853.2	3.8	4.8	-1.36	263.8	5.4	165.2	158.7	6.54	25.261		
2,000.0	1,994.6	1,965.1	1,945.7	4.0	5.2	-1.29	288.9	6.2	181.2	174.4	6.88	26.328		
2,100.0	2,094.0	2,062.5	2,039.4	4.3	5.7	-1.23	315.6	6.9	198.5	191.3	7.23	27.461		
2,200.0	2,193.5	2,161.0	2,134.1	4.5	6.2	-1.18	342.7	7.7	215.9	208.4	7.58	28.496		
2,300.0	2,293.0	2,259.5	2,228.8	4.8	6.6	-1.13	369.8	8.5	233.3	225.4	7.93	29.441		
2,400.0	2,392.4	2,358.0	2,323.4	5.0	7.1	-1.09	396.8	9.3	250.7	242.4	8.27	30.307		
2,500.0	2,491.9	2,456.4	2,418.1	5.3	7.6	-1.06	423.9	10.1	268.1	259.5	8.62	31.103		
2,600.0	2,591.3	2,554.9	2,512.8	5.5	8.1	-1.03	451.0	10.9	285.5	276.5	8.97	31.838		
2,700.0	2,690.8	2,653.4	2,607.5	5.8	8.6	-1.00	478.1	11.6	302.9	293.6	9.31	32.518		
2,800.0	2,790.3	2,751.9	2,702.1	6.0	9.1	-0.98	505.2	12.4	320.3	310.6	9.66	33.150		
2,900.0	2,889.7	2,850.4	2,796.8	6.3	9.6	-0.96	532.3	13.2	337.7	327.7	10.01	33.738		
3,000.0	2,989.2	2,948.8	2,891.5	6.5	10.1	-0.94	559.4	14.0	355.1	344.7	10.36	34.286		
3,100.0	3,088.6	3,047.3	2,986.2	6.8	10.6	-0.92	586.4	14.8	372.4	361.7	10.70	34.799		
3,200.0	3,188.1	3,145.8	3,080.8	7.0	11.1	-0.91	613.5	15.6	389.8	378.8	11.05	35.280		
3,300.0	3,287.6	3,244.3	3,175.5	7.3	11.6	-0.89	640.6	16.4	407.2	395.8	11.40	35.732		
3,400.0	3,387.0	3,342.7	3,270.2	7.5	12.1	-0.88	667.7	17.1	424.6	412.9	11.74	36.158		
3,500.0	3,486.5	3,441.2	3,364.9	7.8	12.6	-0.87	694.8	17.9	442.0	429.9	12.09	36.559		
3,600.0	3,585.9	3,539.7	3,459.5	8.0	13.1	-0.86	721.9	18.7	459.4	447.0	12.44	36.937		
3,700.0	3,685.4	3,638.2	3,554.2	8.3	13.6	-0.85	749.0	19.5	476.8	464.0	12.78	37.295		
3,800.0	3,784.9	3,736.6	3,648.9	8.5	14.0	-0.84	776.1	20.3	494.2	481.1	13.13	37.635		

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - Bernhardt #18-4H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	51.0	0.0	51.0					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	51.0	0.0	51.0	50.7	0.31	166.070		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	51.0	0.0	51.0	50.4	0.66	77.735		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	51.0	0.0	51.0	50.0	1.01	50.744		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	51.0	0.0	51.0	49.7	1.35	37.665		
500.0	500.0	500.0	500.0	0.9	0.9	0.00	51.0	0.0	51.0	49.3	1.70	29.947	CC, ES	
600.0	600.0	599.1	599.1	1.0	1.0	0.04	51.9	0.0	51.9	49.8	2.05	25.294		
700.0	700.0	698.2	698.1	1.2	1.2	-1.89	54.4	0.1	53.6	51.2	2.40	22.349		
800.0	800.0	797.2	797.1	1.4	1.4	-1.80	58.7	0.3	55.3	52.6	2.75	20.145		
900.0	899.9	896.2	895.9	1.6	1.6	-1.69	64.7	0.6	57.0	53.9	3.09	18.433		
1,000.0	999.7	995.2	994.6	1.8	1.8	-1.58	72.4	0.9	58.7	55.2	3.44	17.063		
1,100.0	1,099.4	1,094.2	1,093.1	2.0	2.0	-1.46	81.8	1.3	60.3	56.5	3.78	15.941		
1,200.0	1,198.9	1,193.1	1,191.4	2.2	2.2	-1.34	92.8	1.8	61.9	57.8	4.13	15.004		
1,300.0	1,298.4	1,292.0	1,289.5	2.4	2.5	-1.19	105.6	2.4	64.5	60.0	4.48	14.409		
1,400.0	1,397.8	1,390.8	1,387.2	2.6	2.8	-1.01	120.0	3.0	68.8	64.0	4.82	14.256		
1,500.0	1,497.3	1,489.3	1,484.4	2.9	3.1	-0.83	136.1	3.7	74.8	69.6	5.17	14.458		
1,600.0	1,596.7	1,587.7	1,581.2	3.1	3.4	-0.65	153.8	4.5	82.5	77.0	5.52	14.946		
1,700.0	1,696.2	1,686.9	1,678.5	3.3	3.7	-0.48	173.0	5.3	91.5	85.6	5.87	15.591		
1,800.0	1,795.7	1,786.5	1,776.2	3.6	4.1	-0.34	192.2	6.2	100.6	94.4	6.22	16.173		
1,900.0	1,895.1	1,886.1	1,873.9	3.8	4.4	-0.23	211.5	7.0	109.6	103.1	6.57	16.694		
2,000.0	1,994.6	1,985.6	1,971.6	4.0	4.8	-0.13	230.8	7.9	118.7	111.8	6.92	17.162		
2,100.0	2,094.0	2,085.2	2,069.3	4.3	5.1	-0.05	250.0	8.7	127.8	120.5	7.27	17.586		
2,200.0	2,193.5	2,184.8	2,167.0	4.5	5.5	0.02	269.3	9.5	136.9	129.2	7.62	17.970		
2,300.0	2,293.0	2,284.4	2,264.7	4.8	5.9	0.08	288.5	10.4	145.9	138.0	7.97	18.321		
2,400.0	2,392.4	2,384.0	2,362.4	5.0	6.2	0.14	307.8	11.2	155.0	146.7	8.31	18.643		
2,500.0	2,491.9	2,483.6	2,460.1	5.3	6.6	0.19	327.1	12.1	164.1	155.4	8.66	18.939		
2,600.0	2,591.3	2,583.2	2,557.8	5.5	7.0	0.23	346.3	12.9	173.2	164.1	9.01	19.212		
2,700.0	2,690.8	2,682.7	2,655.5	5.8	7.3	0.27	365.6	13.8	182.2	172.9	9.36	19.464		
2,800.0	2,790.3	2,782.3	2,753.2	6.0	7.7	0.31	384.9	14.6	191.3	181.6	9.71	19.699		
2,900.0	2,889.7	2,881.9	2,850.9	6.3	8.1	0.34	404.1	15.4	200.4	190.3	10.06	19.917		
3,000.0	2,989.2	2,981.5	2,948.6	6.5	8.4	0.37	423.4	16.3	209.5	199.0	10.41	20.121		
3,100.0	3,088.6	3,081.1	3,046.3	6.8	8.8	0.40	442.6	17.1	218.5	207.8	10.76	20.311		
3,200.0	3,188.1	3,180.7	3,144.0	7.0	9.2	0.43	461.9	18.0	227.6	216.5	11.11	20.490		
3,300.0	3,287.6	3,280.3	3,241.7	7.3	9.6	0.45	481.2	18.8	236.7	225.2	11.46	20.657		
3,400.0	3,387.0	3,379.9	3,339.4	7.5	9.9	0.47	500.4	19.7	245.7	233.9	11.81	20.815		
3,500.0	3,486.5	3,479.4	3,437.1	7.8	10.3	0.49	519.7	20.5	254.8	242.7	12.16	20.964		
3,600.0	3,585.9	3,579.0	3,534.8	8.0	10.7	0.51	539.0	21.3	263.9	251.4	12.50	21.104		
3,700.0	3,685.4	3,678.6	3,632.6	8.3	11.1	0.53	558.2	22.2	273.0	260.1	12.85	21.237		
3,800.0	3,784.9	3,778.2	3,730.3	8.5	11.4	0.54	577.5	23.0	282.0	268.8	13.20	21.363		
3,900.0	3,884.3	3,877.8	3,828.0	8.8	11.8	0.56	596.7	23.9	291.1	277.6	13.55	21.482		
4,000.0	3,983.8	3,977.4	3,925.7	9.0	12.2	0.57	616.0	24.7	300.2	286.3	13.90	21.596		
4,100.0	4,083.2	4,077.0	4,023.4	9.3	12.6	0.59	635.3	25.6	309.3	295.0	14.25	21.704		
4,200.0	4,182.7	4,176.6	4,121.1	9.5	12.9	0.60	654.5	26.4	318.3	303.7	14.60	21.806		
4,300.0	4,282.2	4,276.1	4,218.8	9.8	13.3	0.61	673.8	27.2	327.4	312.5	14.95	21.904		
4,400.0	4,381.6	4,375.7	4,316.5	10.0	13.7	0.62	693.1	28.1	336.5	321.2	15.30	21.997		
4,500.0	4,481.1	4,475.3	4,414.2	10.3	14.1	0.63	712.3	28.9	345.6	329.9	15.65	22.087		
4,600.0	4,580.5	4,574.9	4,511.9	10.5	14.4	0.64	731.6	29.8	354.6	338.6	16.00	22.172		
4,700.0	4,680.0	4,674.5	4,609.6	10.8	14.8	0.65	750.8	30.6	363.7	347.4	16.34	22.254		
4,800.0	4,779.5	4,774.1	4,707.3	11.0	15.2	0.66	770.1	31.5	372.8	356.1	16.69	22.332		
4,900.0	4,878.9	4,873.7	4,805.0	11.3	15.6	0.67	789.4	32.3	381.9	364.8	17.04	22.407		
5,000.0	4,978.4	4,973.3	4,902.7	11.5	16.0	0.68	808.6	33.1	390.9	373.6	17.39	22.479		
5,100.0	5,077.8	5,072.8	5,000.4	11.8	16.3	0.69	827.9	34.0	400.0	382.3	17.74	22.549		

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

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - Bernhardt #18-4H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
5,200.0	5,177.3	5,172.4	5,098.1	12.0	16.7	0.70	847.2	34.8	409.1	391.0	18.09	22.615		
5,300.0	5,276.8	5,272.0	5,195.8	12.3	17.1	0.70	866.4	35.7	418.2	399.7	18.44	22.679		
5,400.0	5,376.2	5,371.6	5,293.5	12.5	17.5	0.71	885.7	36.5	427.2	408.5	18.79	22.741		
5,500.0	5,475.7	5,471.2	5,391.2	12.8	17.8	0.72	904.9	37.4	436.3	417.2	19.14	22.800		
5,600.0	5,575.1	5,570.8	5,488.9	13.0	18.2	0.72	924.2	38.2	445.4	425.9	19.49	22.858		
5,700.0	5,674.6	5,670.4	5,586.6	13.3	18.6	0.73	943.5	39.0	454.5	434.6	19.83	22.913		
5,800.0	5,774.1	5,770.0	5,684.3	13.5	19.0	0.74	962.7	39.9	463.5	443.4	20.18	22.966		
5,900.0	5,873.5	5,869.5	5,782.0	13.8	19.4	0.74	982.0	40.7	472.6	452.1	20.53	23.018		
6,000.0	5,973.0	5,969.1	5,879.7	14.0	19.7	0.75	1,001.3	41.6	481.7	460.8	20.88	23.068		
6,100.0	6,072.4	6,068.7	5,977.4	14.3	20.1	0.75	1,020.5	42.4	490.8	469.5	21.23	23.116		
6,200.0	6,171.9	6,168.3	6,075.1	14.5	20.5	0.76	1,039.8	43.3	499.8	478.3	21.58	23.163		
12,300.0	7,078.5	12,350.3	7,078.8	134.4	134.6	-90.07	1,247.9	5,404.8	499.5	230.7	268.78	1.858		
12,400.0	7,077.5	12,450.1	7,077.8	136.9	137.1	-90.07	1,247.9	5,504.6	493.0	219.3	273.70	1.801		
12,500.0	7,076.6	12,549.9	7,076.9	139.3	139.5	-90.07	1,247.9	5,604.4	486.6	208.0	278.61	1.746		
12,600.0	7,075.6	12,649.7	7,075.9	141.8	141.9	-90.07	1,247.9	5,704.2	480.1	196.6	283.53	1.693		
12,700.0	7,074.6	12,749.5	7,074.9	144.2	144.4	-90.07	1,247.9	5,803.9	473.7	185.2	288.45	1.642		
12,800.0	7,073.7	12,849.3	7,074.0	146.7	146.8	-90.06	1,247.9	5,903.8	467.9	174.8	293.19	1.596		
12,900.0	7,072.7	12,949.3	7,073.0	149.2	149.3	-90.05	1,247.9	6,003.7	464.0	166.1	297.83	1.558		
13,000.0	7,071.8	13,049.2	7,072.0	151.6	151.7	-90.04	1,247.9	6,103.7	461.7	159.3	302.40	1.527		
13,078.4	7,071.0	13,127.7	7,071.3	153.6	153.7	-90.03	1,247.9	6,182.1	461.2	155.3	305.91	1.508		
13,100.0	7,070.8	13,149.2	7,071.1	154.1	154.2	-90.03	1,247.9	6,203.7	461.2	154.3	306.87	1.503		
13,200.0	7,069.8	13,249.2	7,070.1	156.5	156.6	-90.02	1,247.9	6,303.6	462.5	151.2	311.26	1.486 Level 3		
13,300.0	7,068.9	13,349.2	7,069.1	159.0	159.1	-90.01	1,247.9	6,403.6	465.5	149.9	315.55	1.475 Level 3		
13,400.0	7,067.9	13,449.1	7,068.1	161.4	161.5	-90.01	1,247.9	6,503.5	469.8	149.5	320.28	1.467 Level 3		
13,500.0	7,067.0	13,549.0	7,067.2	163.9	164.0	-90.00	1,247.9	6,603.4	474.1	148.9	325.21	1.458 Level 3		
13,600.0	7,066.0	13,648.9	7,066.2	166.3	166.5	-90.00	1,247.9	6,703.3	478.5	148.3	330.13	1.449 Level 3		
13,700.0	7,065.0	13,748.8	7,065.2	168.8	168.9	-90.00	1,247.9	6,803.2	482.8	147.8	335.06	1.441 Level 3		
13,800.0	7,064.1	13,848.7	7,064.3	171.2	171.4	-90.00	1,247.9	6,903.1	487.2	147.2	339.99	1.433 Level 3		
13,900.0	7,063.1	13,948.6	7,063.3	173.7	173.8	-90.00	1,247.9	7,003.0	491.6	146.6	344.92	1.425 Level 3		
14,000.0	7,062.2	14,048.5	7,062.3	176.1	176.3	-90.00	1,247.9	7,102.9	495.9	146.1	349.85	1.418 Level 3, SF		

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - Bernhardt #18-5H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	25.5	0.0	25.5					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	25.5	0.0	25.5	25.2	0.31	83.055		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	25.5	0.0	25.5	24.9	0.66	38.877		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	25.5	0.0	25.5	24.5	1.01	25.378		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	25.5	0.0	25.5	24.2	1.35	18.837		
500.0	500.0	500.0	500.0	0.9	0.9	0.00	25.5	0.0	25.5	23.8	1.70	14.977		
600.0	600.0	600.0	600.0	1.0	1.0	0.00	25.5	0.0	25.5	23.5	2.05	12.430		
700.0	700.0	699.6	699.6	1.2	1.2	-2.03	26.4	0.0	25.5	23.1	2.40	10.626		
800.0	800.0	799.1	799.1	1.4	1.4	-2.07	29.0	0.1	25.5	22.7	2.75	9.278		
900.0	899.9	898.7	898.5	1.6	1.6	-2.13	33.3	0.2	25.5	22.4	3.10	8.231		
1,000.0	999.7	998.2	997.9	1.8	1.7	-2.21	39.3	0.4	25.5	22.0	3.44	7.395		
1,100.0	1,099.4	1,097.8	1,097.2	2.0	1.9	-2.31	47.1	0.6	25.4	21.6	3.79	6.710		
1,188.1	1,187.0	1,185.5	1,184.4	2.1	2.1	-2.42	55.4	0.9	25.4	21.3	4.09	6.209		
1,200.0	1,198.9	1,197.3	1,196.3	2.2	2.2	-2.44	56.6	0.9	25.4	21.2	4.13	6.139 CC		
1,300.0	1,298.4	1,296.9	1,295.2	2.4	2.4	-2.50	67.8	1.2	26.3	21.8	4.48	5.861		
1,400.0	1,397.8	1,396.4	1,393.8	2.6	2.6	-2.42	80.7	1.6	28.9	24.1	4.83	5.982		
1,500.0	1,497.3	1,495.7	1,492.1	2.9	2.9	-2.25	95.4	2.1	33.3	28.1	5.18	6.422		
1,600.0	1,596.7	1,595.5	1,590.6	3.1	3.2	-2.07	111.2	2.5	38.8	33.3	5.53	7.018		
1,700.0	1,696.2	1,695.3	1,689.1	3.3	3.5	-1.93	127.1	3.0	44.4	38.5	5.88	7.550		
1,800.0	1,795.7	1,795.2	1,787.7	3.6	3.8	-1.82	143.0	3.5	50.0	43.8	6.23	8.021		
1,900.0	1,895.1	1,895.0	1,886.3	3.8	4.1	-1.73	158.8	3.9	55.6	49.0	6.58	8.443		
2,000.0	1,994.6	1,994.9	1,984.9	4.0	4.4	-1.66	174.7	4.4	61.2	54.2	6.93	8.822		
2,100.0	2,094.0	2,094.7	2,083.4	4.3	4.7	-1.60	190.6	4.9	66.7	59.5	7.28	9.165		
2,200.0	2,193.5	2,194.5	2,182.0	4.5	5.0	-1.55	206.5	5.3	72.3	64.7	7.63	9.476		
2,300.0	2,293.0	2,294.4	2,280.6	4.8	5.4	-1.51	222.4	5.8	77.9	69.9	7.98	9.760		
2,400.0	2,392.4	2,394.2	2,379.1	5.0	5.7	-1.47	238.3	6.3	83.5	75.2	8.33	10.021		
2,500.0	2,491.9	2,494.1	2,477.7	5.3	6.0	-1.44	254.1	6.7	89.1	80.4	8.68	10.260		
2,600.0	2,591.3	2,593.9	2,576.3	5.5	6.3	-1.41	270.0	7.2	94.6	85.6	9.03	10.481		
2,700.0	2,690.8	2,693.8	2,674.9	5.8	6.6	-1.39	285.9	7.7	100.2	90.9	9.38	10.685		
2,800.0	2,790.3	2,793.6	2,773.4	6.0	6.9	-1.36	301.8	8.1	105.8	96.1	9.73	10.875		
2,900.0	2,889.7	2,893.5	2,872.0	6.3	7.3	-1.34	317.7	8.6	111.4	101.3	10.08	11.052		
3,000.0	2,989.2	2,993.3	2,970.6	6.5	7.6	-1.32	333.5	9.1	117.0	106.5	10.43	11.216		
3,100.0	3,088.6	3,093.1	3,069.1	6.8	7.9	-1.31	349.4	9.5	122.6	111.8	10.78	11.371		
3,200.0	3,188.1	3,193.0	3,167.7	7.0	8.2	-1.29	365.3	10.0	128.1	117.0	11.13	11.515		
3,300.0	3,287.6	3,292.8	3,266.3	7.3	8.5	-1.28	381.2	10.5	133.7	122.2	11.48	11.651		
3,400.0	3,387.0	3,392.7	3,364.9	7.5	8.9	-1.26	397.1	10.9	139.3	127.5	11.83	11.778		
3,500.0	3,486.5	3,492.5	3,463.4	7.8	9.2	-1.25	413.0	11.4	144.9	132.7	12.18	11.899		
3,600.0	3,585.9	3,592.4	3,562.0	8.0	9.5	-1.24	428.8	11.9	150.5	137.9	12.53	12.012		
3,700.0	3,685.4	3,692.2	3,660.6	8.3	9.8	-1.23	444.7	12.3	156.1	143.2	12.88	12.120		
3,800.0	3,784.9	3,792.0	3,759.1	8.5	10.2	-1.22	460.6	12.8	161.6	148.4	13.23	12.221		
3,900.0	3,884.3	3,891.9	3,857.7	8.8	10.5	-1.21	476.5	13.3	167.2	153.6	13.58	12.318		
4,000.0	3,983.8	3,991.7	3,956.3	9.0	10.8	-1.20	492.4	13.7	172.8	158.9	13.92	12.410		
4,100.0	4,083.2	4,091.6	4,054.9	9.3	11.1	-1.20	508.3	14.2	178.4	164.1	14.27	12.497		
4,200.0	4,182.7	4,191.4	4,153.4	9.5	11.5	-1.19	524.1	14.7	184.0	169.3	14.62	12.580		
4,300.0	4,282.2	4,291.3	4,252.0	9.8	11.8	-1.18	540.0	15.1	189.6	174.6	14.97	12.659		
4,400.0	4,381.6	4,391.1	4,350.6	10.0	12.1	-1.18	555.9	15.6	195.1	179.8	15.32	12.735		
4,500.0	4,481.1	4,491.0	4,449.1	10.3	12.4	-1.17	571.8	16.1	200.7	185.0	15.67	12.807		
4,600.0	4,580.5	4,590.8	4,547.7	10.5	12.8	-1.16	587.7	16.5	206.3	190.3	16.02	12.876		
4,700.0	4,680.0	4,690.6	4,646.3	10.8	13.1	-1.16	603.6	17.0	211.9	195.5	16.37	12.942		
4,800.0	4,779.5	4,790.5	4,744.9	11.0	13.4	-1.15	619.4	17.5	217.5	200.7	16.72	13.005		
4,900.0	4,878.9	4,890.3	4,843.4	11.3	13.7	-1.15	635.3	17.9	223.0	206.0	17.07	13.066		
5,000.0	4,978.4	4,990.2	4,942.0	11.5	14.1	-1.14	651.2	18.4	228.6	211.2	17.42	13.124		

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

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - Bernhardt #18-5H - Hz - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,100.0	5,077.8	5,090.0	5,040.6	11.8	14.4	-1.14	667.1	18.9	234.2	216.4	17.77	13.180		
5,200.0	5,177.3	5,189.9	5,139.1	12.0	14.7	-1.13	683.0	19.3	239.8	221.7	18.12	13.234		
5,300.0	5,276.8	5,289.7	5,237.7	12.3	15.0	-1.13	698.9	19.8	245.4	226.9	18.47	13.286		
5,400.0	5,376.2	5,389.6	5,336.3	12.5	15.4	-1.13	714.7	20.3	251.0	232.1	18.82	13.336		
5,500.0	5,475.7	5,489.4	5,434.9	12.8	15.7	-1.12	730.6	20.8	256.5	237.4	19.17	13.384		
5,600.0	5,575.1	5,589.2	5,533.4	13.0	16.0	-1.12	746.5	21.2	262.1	242.6	19.52	13.430		
5,700.0	5,674.6	5,689.1	5,632.0	13.3	16.3	-1.12	762.4	21.7	267.7	247.8	19.87	13.475		
5,800.0	5,774.1	5,788.9	5,730.6	13.5	16.7	-1.11	778.3	22.2	273.3	253.1	20.22	13.518		
5,900.0	5,873.5	5,888.8	5,829.1	13.8	17.0	-1.11	794.2	22.6	278.9	258.3	20.57	13.560		
6,000.0	5,973.0	5,988.6	5,927.7	14.0	17.3	-1.11	810.0	23.1	284.5	263.5	20.92	13.600		
6,100.0	6,072.4	6,088.5	6,026.3	14.3	17.7	-1.10	825.9	23.6	290.0	268.8	21.26	13.639		
6,200.0	6,171.9	6,188.3	6,124.9	14.5	18.0	-1.10	841.8	24.0	295.6	274.0	21.61	13.677		
6,300.0	6,271.4	6,288.1	6,223.4	14.8	18.3	-1.10	857.7	24.5	301.2	279.2	21.96	13.714		
6,400.0	6,370.8	6,388.0	6,322.0	15.0	18.6	-1.10	873.6	25.0	306.8	284.5	22.31	13.749		
6,500.0	6,470.3	6,487.8	6,420.6	15.3	19.0	-1.09	889.4	25.4	312.4	289.7	22.66	13.783		
6,600.0	6,569.7	6,587.7	6,519.1	15.5	19.3	-12.49	905.3	25.9	317.9	294.9	23.01	13.817		
6,700.0	6,668.4	6,686.6	6,616.7	15.8	19.6	-62.13	921.1	28.9	323.5	300.1	23.39	13.834		
6,800.0	6,763.7	6,786.3	6,713.3	16.1	20.0	-75.10	937.0	47.3	329.4	305.6	23.85	13.810		
6,900.0	6,852.7	6,887.8	6,806.8	16.4	20.3	-80.81	952.7	83.2	335.5	311.0	24.51	13.692		
7,000.0	6,932.6	6,991.2	6,894.0	16.8	20.7	-84.16	967.8	136.3	341.7	316.2	25.47	13.416		
7,100.0	7,001.0	7,096.4	6,971.6	17.3	21.2	-86.39	981.6	205.7	347.6	320.7	26.86	12.938		
7,200.0	7,056.0	7,203.4	7,036.3	18.0	21.9	-87.94	993.6	289.9	353.0	324.1	28.82	12.249		
7,300.0	7,095.7	7,311.9	7,085.0	19.0	22.7	-89.00	1,003.3	386.2	357.6	326.2	31.38	11.396		
7,400.0	7,119.0	7,421.8	7,115.1	20.2	23.7	-89.64	1,010.1	491.5	361.3	326.8	34.51	10.471		
7,500.0	7,125.2	7,532.5	7,124.8	21.6	25.0	-89.92	1,013.8	601.6	363.9	325.8	38.08	9.556		
7,600.0	7,124.2	7,632.6	7,123.8	23.3	26.3	-89.92	1,015.5	701.7	365.6	323.6	42.01	8.703		
7,700.0	7,123.3	7,732.6	7,122.9	25.1	27.8	-89.93	1,017.3	801.6	367.3	321.2	46.12	7.965		
7,800.0	7,122.3	7,832.6	7,121.9	27.0	29.4	-89.93	1,019.0	901.6	369.1	318.7	50.39	7.325		
7,900.0	7,121.3	7,932.6	7,120.9	29.0	31.2	-89.93	1,020.8	1,001.6	370.8	316.1	54.77	6.771		
8,000.0	7,120.3	8,032.6	7,120.0	31.1	33.1	-89.94	1,022.5	1,101.5	372.6	313.3	59.24	6.290		
8,100.0	7,119.3	8,132.6	7,119.0	33.3	35.1	-89.94	1,024.3	1,201.5	374.3	310.6	63.78	5.869		
8,200.0	7,118.4	8,232.6	7,118.1	35.5	37.1	-89.94	1,026.0	1,301.5	376.1	307.7	68.37	5.500		
8,300.0	7,117.4	8,332.5	7,117.1	37.7	39.2	-89.94	1,027.8	1,401.4	377.8	304.8	73.02	5.174		
8,400.0	7,116.4	8,432.5	7,116.1	40.0	41.4	-89.95	1,029.5	1,501.4	379.6	301.9	77.70	4.885		
8,500.0	7,115.4	8,532.5	7,115.2	42.3	43.6	-89.95	1,031.3	1,601.4	381.3	298.9	82.41	4.627		
8,600.0	7,114.5	8,632.5	7,114.2	44.6	45.8	-89.95	1,033.0	1,701.3	383.1	295.9	87.15	4.395		
8,700.0	7,113.5	8,732.5	7,113.3	46.9	48.1	-89.96	1,034.7	1,801.3	384.8	292.9	91.91	4.187		
8,800.0	7,112.5	8,832.5	7,112.3	49.3	50.3	-89.96	1,036.5	1,901.3	386.5	289.9	96.69	3.998		
8,900.0	7,111.5	8,932.4	7,111.3	51.6	52.6	-89.96	1,038.2	2,001.2	388.3	286.8	101.48	3.826		
9,000.0	7,110.6	9,032.4	7,110.4	54.0	55.0	-89.96	1,040.0	2,101.2	390.0	283.7	106.29	3.669		
9,100.0	7,109.6	9,132.4	7,109.4	56.4	57.3	-89.97	1,041.7	2,201.2	391.8	280.7	111.11	3.526		
9,200.0	7,108.6	9,232.4	7,108.5	58.7	59.6	-89.97	1,043.5	2,301.1	393.5	277.6	115.95	3.394		
9,300.0	7,107.6	9,332.4	7,107.5	61.1	62.0	-89.97	1,045.2	2,401.1	395.3	274.5	120.79	3.272		
9,400.0	7,106.6	9,432.4	7,106.5	63.5	64.3	-89.97	1,047.0	2,501.1	397.0	271.4	125.64	3.160		
9,500.0	7,105.7	9,532.4	7,105.6	65.9	66.7	-89.98	1,048.7	2,601.0	398.8	268.3	130.49	3.056		
9,600.0	7,104.7	9,632.3	7,104.6	68.4	69.1	-89.98	1,050.4	2,701.0	400.5	265.2	135.36	2.959		
9,700.0	7,103.7	9,732.3	7,103.7	70.8	71.5	-89.98	1,052.2	2,800.9	402.3	262.0	140.23	2.869		
9,800.0	7,102.7	9,832.3	7,102.7	73.2	73.9	-89.98	1,053.9	2,900.9	404.0	258.9	145.10	2.784		
9,900.0	7,101.8	9,932.3	7,101.7	75.6	76.3	-89.99	1,055.7	3,000.9	405.7	255.8	149.98	2.705		
10,000.0	7,100.8	10,032.3	7,100.8	78.0	78.7	-89.99	1,057.4	3,100.8	407.5	252.6	154.86	2.631		
10,100.0	7,099.8	10,132.3	7,099.8	80.5	81.1	-89.99	1,059.2	3,200.8	409.2	249.5	159.75	2.562		
10,200.0	7,098.8	10,232.2	7,098.9	82.9	83.5	-89.99	1,060.9	3,300.8	411.0	246.3	164.64	2.496		

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

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - Bernhardt #18-5H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
10,300.0	7,097.8	10,332.2	7,097.9	85.3	85.9	-90.00	1,062.7	3,400.7	412.7	243.2	169.54	2.434		
10,400.0	7,096.9	10,432.2	7,096.9	87.8	88.3	-90.00	1,064.4	3,500.7	414.5	240.0	174.43	2.376		
10,500.0	7,095.9	10,532.2	7,096.0	90.2	90.7	-90.00	1,066.2	3,600.7	416.2	236.9	179.34	2.321		
10,600.0	7,094.9	10,632.2	7,095.0	92.6	93.2	-90.01	1,067.9	3,700.6	418.0	233.7	184.27	2.268		
10,700.0	7,093.9	10,732.2	7,094.1	95.1	95.6	-90.02	1,069.6	3,800.6	418.7	229.1	189.54	2.209		
10,800.0	7,093.0	10,832.2	7,093.1	97.5	98.0	-90.03	1,071.4	3,900.6	417.6	222.9	194.76	2.144		
10,900.0	7,092.0	10,932.1	7,092.1	100.0	100.5	-90.04	1,073.1	4,000.5	414.9	215.0	199.92	2.075		
11,000.0	7,091.0	11,032.0	7,091.2	102.4	102.9	-90.05	1,074.9	4,100.4	410.5	205.5	204.96	2.003		
11,100.0	7,090.1	11,131.9	7,090.2	104.9	105.3	-90.05	1,076.6	4,200.3	405.8	195.9	209.86	1.934		
11,200.0	7,089.1	11,231.8	7,089.3	107.4	107.8	-90.05	1,078.4	4,300.1	401.1	186.3	214.77	1.867		
11,300.0	7,088.1	11,331.7	7,088.3	109.8	110.2	-90.05	1,080.1	4,400.0	396.3	176.7	219.68	1.804		
11,400.0	7,087.2	11,431.6	7,087.3	112.3	112.6	-90.05	1,081.8	4,499.9	391.6	167.0	224.59	1.744		
11,500.0	7,086.2	11,531.5	7,086.4	114.7	115.1	-90.05	1,083.6	4,599.8	386.9	157.4	229.50	1.686		
11,600.0	7,085.3	11,631.4	7,085.4	117.2	117.5	-90.05	1,085.3	4,699.6	382.2	147.8	234.41	1.630		
11,700.0	7,084.3	11,731.3	7,084.5	119.6	120.0	-90.05	1,087.1	4,799.5	377.5	138.2	239.33	1.577		
11,800.0	7,083.3	11,831.2	7,083.5	122.1	122.4	-90.05	1,088.8	4,899.4	372.8	128.5	244.24	1.526		
11,900.0	7,082.4	11,931.0	7,082.5	124.6	124.8	-90.06	1,090.6	4,999.2	368.1	118.9	249.16	1.477 Level 3		
12,000.0	7,081.4	12,030.9	7,081.6	127.0	127.3	-90.06	1,092.3	5,099.1	363.3	109.3	254.07	1.430 Level 3		
12,100.0	7,080.4	12,130.8	7,080.6	129.5	129.7	-90.06	1,094.0	5,199.0	358.6	99.6	258.99	1.385 Level 3		
12,200.0	7,079.5	12,230.7	7,079.7	131.9	132.2	-90.06	1,095.8	5,298.8	353.9	90.0	263.91	1.341 Level 3		
12,300.0	7,078.5	12,330.6	7,078.7	134.4	134.6	-90.06	1,097.5	5,398.7	349.2	80.4	268.83	1.299 Level 3		
12,400.0	7,077.5	12,430.5	7,077.8	136.9	137.1	-90.06	1,099.3	5,498.6	344.5	70.7	273.75	1.258 Level 3		
12,500.0	7,076.6	12,530.4	7,076.8	139.3	139.5	-90.06	1,101.0	5,598.4	339.8	61.1	278.67	1.219 Level 3		
12,600.0	7,075.6	12,630.3	7,075.8	141.8	142.0	-90.06	1,102.8	5,698.3	335.1	51.5	283.59	1.181 Level 2		
12,700.0	7,074.6	12,730.2	7,074.9	144.2	144.4	-90.07	1,104.5	5,798.2	330.3	41.8	288.51	1.145 Level 2		
12,800.0	7,073.7	12,830.1	7,073.9	146.7	146.9	-90.06	1,106.3	5,898.1	326.4	33.1	293.26	1.113 Level 2		
12,900.0	7,072.7	12,930.0	7,073.0	149.2	149.3	-90.05	1,108.0	5,998.0	324.1	26.2	297.92	1.088 Level 2		
12,978.4	7,072.0	13,008.5	7,072.2	151.1	151.3	-90.04	1,109.4	6,076.5	323.6	22.1	301.51	1.073 Level 2		
13,000.0	7,071.8	13,030.0	7,072.0	151.6	151.8	-90.04	1,109.7	6,098.0	323.6	21.1	302.49	1.070 Level 2		
13,100.0	7,070.8	13,130.0	7,071.0	154.1	154.3	-90.03	1,111.5	6,198.0	324.9	17.9	306.97	1.058 Level 2		
13,200.0	7,069.8	13,230.0	7,070.1	156.5	156.7	-90.02	1,113.2	6,297.9	327.9	16.5	311.36	1.053 Level 2		
13,300.0	7,068.9	13,329.9	7,069.1	159.0	159.2	-90.01	1,115.0	6,397.8	332.6	16.9	315.65	1.054 Level 2		
13,400.0	7,067.9	13,429.7	7,068.2	161.4	161.6	-90.01	1,116.7	6,497.6	338.6	18.3	320.38	1.057 Level 2		
13,500.0	7,067.0	13,529.5	7,067.2	163.9	164.1	-90.01	1,118.5	6,597.4	344.7	19.4	325.30	1.060 Level 2		
13,600.0	7,066.0	13,629.3	7,066.2	166.3	166.5	-90.01	1,120.2	6,697.2	350.8	20.6	330.23	1.062 Level 2		
13,700.0	7,065.0	13,729.1	7,065.3	168.8	169.0	-90.01	1,121.9	6,797.0	356.9	21.8	335.15	1.065 Level 2		
13,800.0	7,064.1	13,828.9	7,064.3	171.2	171.4	-90.01	1,123.7	6,896.8	363.1	23.0	340.08	1.068 Level 2		
13,900.0	7,063.1	13,928.8	7,063.4	173.7	173.9	-90.01	1,125.4	6,996.5	369.2	24.2	345.00	1.070 Level 2		
14,000.0	7,062.2	14,035.2	7,062.3	176.1	176.5	-90.01	1,126.4	7,103.0	374.4	24.3	350.09	1.069 Level 2		
14,100.0	7,061.2	14,142.2	7,061.3	178.6	179.1	-90.01	1,125.4	7,209.9	377.8	22.6	355.20	1.064 Level 2		
14,200.0	7,060.2	14,249.2	7,060.3	181.1	181.8	-90.01	1,122.3	7,317.0	379.4	19.1	360.31	1.053 Level 2		
14,300.0	7,059.3	14,356.3	7,059.3	183.5	184.4	-90.00	1,117.3	7,423.9	379.0	13.6	365.42	1.037 Level 2		
14,400.0	7,058.3	14,462.1	7,058.2	186.0	187.0	-90.00	1,110.4	7,529.5	376.9	6.4	370.49	1.017 Level 2		
14,500.0	7,057.4	14,562.1	7,057.3	188.4	189.4	-90.00	1,103.2	7,629.2	374.0	-1.4	375.43	0.996 Level 1		
14,600.0	7,056.4	14,662.1	7,056.3	190.9	191.8	-90.00	1,096.1	7,728.9	371.2	-9.1	380.36	0.976 Level 1		
14,700.0	7,055.4	14,762.0	7,055.3	193.3	194.3	-90.00	1,088.9	7,828.6	368.4	-16.9	385.29	0.956 Level 1		
14,800.0	7,054.5	14,862.0	7,054.4	195.8	196.7	-90.00	1,081.7	7,928.3	365.6	-24.6	390.22	0.937 Level 1		
14,900.0	7,053.5	14,961.9	7,053.4	198.2	199.1	-90.00	1,074.6	8,028.0	362.8	-32.3	395.16	0.918 Level 1		
15,000.0	7,052.6	15,061.9	7,052.4	200.7	201.6	-90.00	1,067.4	8,127.7	360.0	-40.1	400.09	0.900 Level 1		
15,100.0	7,051.6	15,161.9	7,051.5	203.2	204.0	-90.00	1,060.3	8,227.4	357.2	-47.8	405.02	0.882 Level 1		
15,200.0	7,050.6	15,261.8	7,050.5	205.6	206.5	-89.99	1,053.1	8,327.1	354.4	-55.6	409.96	0.864 Level 1		
15,300.0	7,049.7	15,361.8	7,049.5	208.1	208.9	-89.99	1,045.9	8,426.8	351.6	-63.3	414.89	0.847 Level 1		

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

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - Bernhardt #18-5H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
15,400.0	7,048.7	15,461.7	7,048.6	210.5	211.3	-89.99	1,038.8	8,526.5	348.8	-71.1	419.82	0.831	Level 1	
15,500.0	7,047.8	15,561.7	7,047.6	213.0	213.8	-89.99	1,031.6	8,626.2	346.0	-78.8	424.76	0.814	Level 1	
15,600.0	7,046.8	15,661.7	7,046.6	215.5	216.2	-89.99	1,024.4	8,725.9	343.1	-86.5	429.69	0.799	Level 1	
15,700.0	7,045.8	15,761.6	7,045.7	217.9	218.7	-89.99	1,017.3	8,825.6	340.3	-94.3	434.63	0.783	Level 1	
15,800.0	7,044.9	15,861.6	7,044.7	220.4	221.1	-89.99	1,010.1	8,925.3	337.5	-102.0	439.56	0.768	Level 1	
15,900.0	7,043.9	15,961.5	7,043.7	222.8	223.6	-89.98	1,002.9	9,025.0	334.7	-109.8	444.50	0.753	Level 1	
16,000.0	7,043.0	16,061.5	7,042.8	225.3	226.0	-89.98	995.8	9,124.7	331.9	-117.5	449.43	0.739	Level 1	
16,100.0	7,042.0	16,161.5	7,041.8	227.8	228.5	-89.98	988.6	9,224.4	329.1	-125.3	454.37	0.724	Level 1	
16,200.0	7,041.0	16,261.4	7,040.8	230.2	230.9	-89.98	981.5	9,324.1	326.3	-133.0	459.30	0.710	Level 1	
16,300.0	7,040.1	16,361.4	7,039.9	232.7	233.4	-89.98	974.3	9,423.8	323.5	-140.8	464.24	0.697	Level 1	
16,400.0	7,039.1	16,461.3	7,038.9	235.1	235.8	-89.98	967.1	9,523.5	320.7	-148.5	469.17	0.683	Level 1	
16,500.0	7,038.2	16,561.3	7,037.9	237.6	238.3	-89.98	960.0	9,623.2	317.9	-156.2	474.11	0.670	Level 1	
16,600.0	7,037.2	16,661.3	7,037.0	240.1	240.7	-89.97	952.8	9,722.9	315.1	-164.0	479.05	0.658	Level 1	
16,700.0	7,036.2	16,761.2	7,036.0	242.5	243.2	-89.97	945.6	9,822.6	312.2	-171.7	483.98	0.645	Level 1	
16,800.0	7,035.3	16,861.2	7,035.0	245.0	245.6	-89.97	938.5	9,922.3	309.4	-179.5	488.92	0.633	Level 1	
16,900.0	7,034.3	16,961.1	7,034.1	247.5	248.1	-89.97	931.3	10,022.0	306.6	-187.2	493.85	0.621	Level 1	
16,962.0	7,033.7	17,014.5	7,033.5	249.0	249.4	-89.97	927.5	10,075.2	305.0	-191.7	496.70	0.614	Level 1, ES, SF	
16,978.4	7,033.6	17,014.5	7,033.5	249.4	249.4	-89.97	927.5	10,075.2	305.5	-191.7	497.11	0.614	Level 1	

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - Bernhardt #18-7H - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-25.5	0.0	25.5					
100.0	100.0	100.0	100.0	0.2	0.2	-180.00	-25.5	0.0	25.5	25.2	0.31	83.001		
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-25.5	0.0	25.5	24.8	0.66	38.852		
300.0	300.0	300.0	300.0	0.5	0.5	-180.00	-25.5	0.0	25.5	24.5	1.01	25.362		
400.0	400.0	400.0	400.0	0.7	0.7	-180.00	-25.5	0.0	25.5	24.1	1.35	18.825		
500.0	500.0	500.0	500.0	0.9	0.9	-180.00	-25.5	0.0	25.5	23.8	1.70	14.967		
600.0	600.0	600.0	600.0	1.0	1.0	-180.00	-25.5	0.0	25.5	23.4	2.05	12.422		
700.0	700.0	700.4	700.4	1.2	1.2	178.05	-24.6	0.0	25.5	23.1	2.40	10.612		
800.0	800.0	800.9	800.9	1.4	1.4	178.28	-22.0	0.0	25.5	22.7	2.75	9.261		
900.0	899.9	901.3	901.2	1.6	1.6	178.66	-17.6	0.0	25.5	22.4	3.10	8.212		
1,000.0	999.7	1,001.8	1,001.5	1.8	1.8	179.19	-11.4	0.0	25.4	22.0	3.45	7.375		
1,100.0	1,099.4	1,102.2	1,101.6	2.0	2.0	179.87	-3.5	-0.1	25.4	21.6	3.80	6.691		
1,108.5	1,107.8	1,110.7	1,110.1	2.0	2.0	179.94	-2.7	-0.1	25.4	21.6	3.83	6.639 CC		
1,200.0	1,198.9	1,202.3	1,201.2	2.2	2.2	-179.37	5.5	-0.1	26.0	21.8	4.14	6.274		
1,300.0	1,298.4	1,302.3	1,300.8	2.4	2.4	-178.68	14.5	-0.1	27.4	22.9	4.49	6.091		
1,400.0	1,397.8	1,402.3	1,400.4	2.6	2.6	-178.05	23.5	-0.1	28.7	23.9	4.84	5.936		
1,500.0	1,497.3	1,502.3	1,500.0	2.9	2.8	-177.48	32.6	-0.2	30.1	24.9	5.19	5.801		
1,600.0	1,596.7	1,602.3	1,599.6	3.1	3.0	-176.97	41.6	-0.2	31.5	26.0	5.54	5.684		
1,700.0	1,696.2	1,702.2	1,699.2	3.3	3.3	-176.49	50.6	-0.2	32.9	27.0	5.90	5.581		
1,800.0	1,795.7	1,802.2	1,798.7	3.6	3.5	-176.06	59.6	-0.3	34.3	28.0	6.25	5.489		
1,900.0	1,895.1	1,902.2	1,898.3	3.8	3.7	-175.66	68.6	-0.3	35.7	29.1	6.60	5.408		
2,000.0	1,994.6	2,002.2	1,997.9	4.0	3.9	-175.29	77.7	-0.3	37.1	30.1	6.95	5.334		
2,100.0	2,094.0	2,102.2	2,097.5	4.3	4.2	-174.94	86.7	-0.3	38.5	31.2	7.30	5.268		
2,200.0	2,193.5	2,202.2	2,197.1	4.5	4.4	-174.62	95.7	-0.4	39.9	32.2	7.66	5.207		
2,300.0	2,293.0	2,302.2	2,296.7	4.8	4.6	-174.32	104.7	-0.4	41.3	33.3	8.01	5.152		
2,400.0	2,392.4	2,402.2	2,396.2	5.0	4.9	-174.04	113.8	-0.4	42.7	34.3	8.36	5.102		
2,500.0	2,491.9	2,502.2	2,495.8	5.3	5.1	-173.78	122.8	-0.4	44.1	35.4	8.72	5.055		
2,600.0	2,591.3	2,602.2	2,595.4	5.5	5.3	-173.54	131.8	-0.5	45.5	36.4	9.07	5.012		
2,700.0	2,690.8	2,702.1	2,695.0	5.8	5.6	-173.31	140.8	-0.5	46.9	37.4	9.43	4.972		
2,800.0	2,790.3	2,802.1	2,794.6	6.0	5.8	-173.09	149.8	-0.5	48.3	38.5	9.78	4.936		
2,900.0	2,889.7	2,902.1	2,894.1	6.3	6.0	-172.88	158.9	-0.6	49.7	39.5	10.14	4.901		
3,000.0	2,989.2	3,002.1	2,993.7	6.5	6.3	-172.69	167.9	-0.6	51.1	40.6	10.49	4.869		
3,100.0	3,088.6	3,102.1	3,093.3	6.8	6.5	-172.51	176.9	-0.6	52.5	41.6	10.85	4.839		
3,200.0	3,188.1	3,202.1	3,192.9	7.0	6.7	-172.33	185.9	-0.6	53.9	42.7	11.20	4.811		
3,300.0	3,287.6	3,302.1	3,292.5	7.3	7.0	-172.17	194.9	-0.7	55.3	43.7	11.56	4.784		
3,400.0	3,387.0	3,402.1	3,392.1	7.5	7.2	-172.01	204.0	-0.7	56.7	44.8	11.91	4.759		
3,500.0	3,486.5	3,502.1	3,491.6	7.8	7.4	-171.86	213.0	-0.7	58.1	45.8	12.27	4.736		
3,600.0	3,585.9	3,602.1	3,591.2	8.0	7.7	-171.72	222.0	-0.7	59.5	46.9	12.62	4.714		
3,700.0	3,685.4	3,702.0	3,690.8	8.3	7.9	-171.59	231.0	-0.8	60.9	47.9	12.98	4.693		
3,800.0	3,784.9	3,802.0	3,790.4	8.5	8.1	-171.46	240.0	-0.8	62.3	49.0	13.34	4.673		
3,900.0	3,884.3	3,902.0	3,890.0	8.8	8.4	-171.33	249.1	-0.8	63.7	50.0	13.69	4.654		
4,000.0	3,983.8	4,002.0	3,989.6	9.0	8.6	-171.21	258.1	-0.8	65.1	51.1	14.05	4.636		
4,100.0	4,083.2	4,102.0	4,089.1	9.3	8.8	-171.10	267.1	-0.9	66.5	52.1	14.41	4.619		
4,200.0	4,182.7	4,202.0	4,188.7	9.5	9.1	-170.99	276.1	-0.9	67.9	53.2	14.76	4.602		
4,300.0	4,282.2	4,302.0	4,288.3	9.8	9.3	-170.89	285.1	-0.9	69.4	54.2	15.12	4.587		
4,400.0	4,381.6	4,402.0	4,387.9	10.0	9.5	-170.79	294.2	-1.0	70.8	55.3	15.48	4.572		
4,500.0	4,481.1	4,502.0	4,487.5	10.3	9.8	-170.69	303.2	-1.0	72.2	56.3	15.84	4.558		
4,600.0	4,580.5	4,602.0	4,587.0	10.5	10.0	-170.60	312.2	-1.0	73.6	57.4	16.19	4.544		
4,700.0	4,680.0	4,701.9	4,686.6	10.8	10.2	-170.51	321.2	-1.0	75.0	58.4	16.55	4.531		
4,800.0	4,779.5	4,801.9	4,786.2	11.0	10.5	-170.42	330.2	-1.1	76.4	59.5	16.91	4.518		
4,900.0	4,878.9	4,901.9	4,885.8	11.3	10.7	-170.34	339.3	-1.1	77.8	60.5	17.27	4.506		
5,000.0	4,978.4	5,001.9	4,985.4	11.5	10.9	-170.26	348.3	-1.1	79.2	61.6	17.62	4.495		

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

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - Bernhardt #18-7H - HZ - Plan #1												Offset Site Error: 0.0 ft	
Survey Program: 0-Geolink MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	
5,100.0	5,077.8	5,101.9	5,085.0	11.8	11.2	-170.18	357.3	-1.1	80.6	62.6	17.98	4.484	
5,200.0	5,177.3	5,201.9	5,184.5	12.0	11.4	-170.11	366.3	-1.2	82.0	63.7	18.34	4.473	
5,300.0	5,276.8	5,301.9	5,284.1	12.3	11.6	-170.04	375.3	-1.2	83.4	64.7	18.70	4.463	
5,400.0	5,376.2	5,401.9	5,383.7	12.5	11.9	-169.97	384.4	-1.2	84.9	65.8	19.06	4.453	
5,500.0	5,475.7	5,501.9	5,483.3	12.8	12.1	-169.90	393.4	-1.3	86.3	66.8	19.41	4.443	
5,600.0	5,575.1	5,601.9	5,582.9	13.0	12.3	-169.84	402.4	-1.3	87.7	67.9	19.77	4.434	
5,700.0	5,674.6	5,701.8	5,682.5	13.3	12.6	-169.77	411.4	-1.3	89.1	69.0	20.13	4.425	
5,800.0	5,774.1	5,801.8	5,782.0	13.5	12.8	-169.71	420.4	-1.3	90.5	70.0	20.49	4.417	
5,900.0	5,873.5	5,901.8	5,881.6	13.8	13.0	-169.65	429.5	-1.4	91.9	71.1	20.85	4.409	
6,000.0	5,973.0	6,001.8	5,981.2	14.0	13.3	-169.60	438.5	-1.4	93.3	72.1	21.20	4.401	
6,100.0	6,072.4	6,101.8	6,080.8	14.3	13.5	-169.54	447.5	-1.4	94.7	73.2	21.56	4.393	
6,200.0	6,171.9	6,201.8	6,180.4	14.5	13.7	-169.49	456.5	-1.4	96.1	74.2	21.92	4.385	
6,300.0	6,271.4	6,301.8	6,279.9	14.8	14.0	-169.44	465.5	-1.5	97.5	75.3	22.28	4.378	
6,400.0	6,370.8	6,401.8	6,379.5	15.0	14.2	-169.38	474.6	-1.5	99.0	76.3	22.64	4.371	
6,500.0	6,470.3	6,501.8	6,479.1	15.3	14.4	-169.33	483.6	-1.5	100.4	77.4	23.00	4.364	
6,600.0	6,569.7	6,602.7	6,579.6	15.5	14.7	178.99	492.7	-0.9	101.7	78.4	23.34	4.358	
6,700.0	6,668.4	6,705.9	6,681.4	15.8	14.9	128.56	501.5	13.1	102.9	79.4	23.51	4.376	
6,800.0	6,763.7	6,808.6	6,778.5	16.1	15.2	114.74	509.5	45.0	104.4	80.7	23.71	4.406	
6,900.0	6,852.7	6,910.7	6,868.0	16.4	15.5	107.90	516.4	93.4	106.4	82.3	24.15	4.406	
7,000.0	6,932.6	7,012.2	6,947.1	16.8	15.9	103.20	522.0	156.5	108.7	83.7	25.06	4.339	
7,100.0	7,001.0	7,113.0	7,013.5	17.3	16.4	99.47	526.1	232.0	111.4	84.8	26.60	4.187	
7,200.0	7,056.0	7,213.0	7,065.4	18.0	17.1	96.32	528.6	317.3	114.3	85.5	28.82	3.965	
7,300.0	7,095.7	7,312.4	7,101.6	19.0	18.1	93.64	529.6	409.7	117.3	85.7	31.62	3.709	
7,400.0	7,119.0	7,411.1	7,121.3	20.2	19.4	91.38	528.9	506.3	120.4	85.5	34.86	3.454	
7,500.0	7,125.2	7,509.8	7,124.8	21.6	20.9	89.80	526.7	604.8	123.3	85.0	38.34	3.216	
7,600.0	7,124.2	7,609.7	7,123.8	23.3	22.7	89.79	524.1	704.8	125.9	83.6	42.28	2.978	
7,700.0	7,123.3	7,709.7	7,122.8	25.1	24.5	89.78	521.5	804.7	128.5	82.1	46.42	2.769	
7,800.0	7,122.3	7,809.7	7,121.8	27.0	26.5	89.77	518.9	904.6	131.2	80.5	50.70	2.587	
7,900.0	7,121.3	7,909.6	7,120.8	29.0	28.6	89.76	516.3	1,004.5	133.8	78.7	55.09	2.428	
8,000.0	7,120.3	8,009.6	7,119.8	31.1	30.7	89.75	513.7	1,104.5	136.4	76.8	59.57	2.290	
8,100.0	7,119.3	8,109.6	7,118.8	33.3	32.9	89.74	511.0	1,204.4	139.0	74.9	64.12	2.168	
8,200.0	7,118.4	8,209.5	7,117.7	35.5	35.1	89.73	508.4	1,304.3	141.6	72.9	68.72	2.061	
8,300.0	7,117.4	8,309.5	7,116.7	37.7	37.4	89.72	505.8	1,404.3	144.2	70.9	73.37	1.966	
8,400.0	7,116.4	8,409.5	7,115.7	40.0	39.7	89.71	503.2	1,504.2	146.9	68.8	78.05	1.882	
8,500.0	7,115.4	8,509.4	7,114.7	42.3	42.0	89.70	500.6	1,604.1	149.5	66.7	82.76	1.806	
8,600.0	7,114.5	8,609.4	7,113.7	44.6	44.3	89.70	498.0	1,704.0	152.1	64.6	87.50	1.738	
8,700.0	7,113.5	8,709.4	7,112.7	46.9	46.7	89.69	495.3	1,804.0	154.7	62.4	92.27	1.677	
8,800.0	7,112.5	8,809.3	7,111.7	49.3	49.0	89.68	492.7	1,903.9	157.3	60.3	97.05	1.621	
8,900.0	7,111.5	8,909.3	7,110.7	51.6	51.4	89.67	490.1	2,003.8	159.9	58.1	101.84	1.571	
9,000.0	7,110.6	9,009.3	7,109.6	54.0	53.8	89.67	487.5	2,103.7	162.6	55.9	106.65	1.524	
9,100.0	7,109.6	9,109.2	7,108.6	56.4	56.2	89.66	484.9	2,203.7	165.2	53.7	111.47	1.482 Level 3	
9,200.0	7,108.6	9,209.2	7,107.6	58.7	58.6	89.65	482.3	2,303.6	167.8	51.5	116.31	1.443 Level 3	
9,300.0	7,107.6	9,309.2	7,106.6	61.1	61.0	89.65	479.6	2,403.5	170.4	49.3	121.15	1.407 Level 3	
9,400.0	7,106.6	9,409.1	7,105.6	63.5	63.4	89.64	477.0	2,503.4	173.0	47.0	126.00	1.373 Level 3	
9,500.0	7,105.7	9,509.1	7,104.6	65.9	65.8	89.63	474.4	2,603.4	175.7	44.8	130.85	1.342 Level 3	
9,600.0	7,104.7	9,609.1	7,103.6	68.4	68.2	89.63	471.8	2,703.3	178.3	42.6	135.72	1.314 Level 3	
9,700.0	7,103.7	9,709.0	7,102.6	70.8	70.6	89.62	469.2	2,803.2	180.9	40.3	140.59	1.287 Level 3	
9,800.0	7,102.7	9,809.0	7,101.5	73.2	73.0	89.62	466.6	2,903.1	183.5	38.0	145.46	1.262 Level 3	
9,900.0	7,101.8	9,909.0	7,100.5	75.6	75.5	89.61	463.9	3,003.1	186.1	35.8	150.34	1.238 Level 2	
10,000.0	7,100.8	10,008.9	7,099.5	78.0	77.9	89.60	461.3	3,103.0	188.7	33.5	155.22	1.216 Level 2	
10,100.0	7,099.8	10,108.9	7,098.5	80.5	80.3	89.60	458.7	3,202.9	191.4	31.2	160.11	1.195 Level 2	
10,200.0	7,098.8	10,208.9	7,097.5	82.9	82.7	89.59	456.1	3,302.9	194.0	29.0	165.00	1.176 Level 2	

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

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - Bernhardt #18-7H - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis			
10,300.0	7,097.8	10,308.8	7,096.5	85.3	85.2	89.59	453.5	3,402.8	196.6	26.7	169.89	1.157 Level 2		
10,400.0	7,096.9	10,408.8	7,095.5	87.8	87.6	89.59	450.9	3,502.7	199.2	24.4	174.79	1.140 Level 2		
10,500.0	7,095.9	10,508.8	7,094.5	90.2	90.1	89.58	448.2	3,602.6	201.8	22.1	179.69	1.123 Level 2		
10,600.0	7,094.9	10,608.7	7,093.5	92.6	92.5	89.58	445.6	3,702.6	204.5	19.8	184.61	1.107 Level 2		
10,700.0	7,093.9	10,708.7	7,092.4	95.1	94.9	89.56	443.0	3,802.5	208.1	18.4	189.72	1.097 Level 2		
10,800.0	7,093.0	10,808.5	7,091.4	97.5	97.4	89.55	440.4	3,902.3	213.5	18.7	194.77	1.096 Level 2		
10,900.0	7,092.0	10,908.3	7,090.4	100.0	99.8	89.54	437.8	4,002.0	220.6	20.9	199.75	1.104 Level 2		
11,000.0	7,091.0	11,007.9	7,089.4	102.4	102.3	89.54	435.2	4,101.5	229.3	24.7	204.66	1.121 Level 2		
11,100.0	7,090.1	11,107.5	7,088.4	104.9	104.7	89.55	432.6	4,201.1	238.4	28.9	209.55	1.138 Level 2		
11,200.0	7,089.1	11,207.0	7,087.4	107.4	107.2	89.55	430.0	4,300.6	247.5	33.0	214.45	1.154 Level 2		
11,300.0	7,088.1	11,306.6	7,086.4	109.8	109.6	89.56	427.4	4,400.2	256.6	37.2	219.34	1.170 Level 2		
11,400.0	7,087.2	11,406.2	7,085.4	112.3	112.0	89.56	424.8	4,499.7	265.6	41.4	224.24	1.185 Level 2		
11,500.0	7,086.2	11,505.8	7,084.4	114.7	114.5	89.56	422.1	4,599.3	274.7	45.6	229.13	1.199 Level 2		
11,600.0	7,085.3	11,605.4	7,083.4	117.2	116.9	89.57	419.5	4,698.8	283.8	49.7	234.03	1.212 Level 2		
11,700.0	7,084.3	11,705.0	7,082.4	119.6	119.4	89.57	416.9	4,798.4	292.8	53.9	238.93	1.226 Level 2		
11,800.0	7,083.3	11,804.6	7,081.3	122.1	121.8	89.57	414.3	4,897.9	301.9	58.1	243.83	1.238 Level 2		
11,900.0	7,082.4	11,904.2	7,080.3	124.6	124.3	89.58	411.7	4,997.5	311.0	62.2	248.73	1.250 Level 3		
12,000.0	7,081.4	12,003.7	7,079.3	127.0	126.7	89.58	409.1	5,097.0	320.0	66.4	253.63	1.262 Level 3		
12,100.0	7,080.4	12,103.3	7,078.3	129.5	129.2	89.58	406.5	5,196.6	329.1	70.6	258.53	1.273 Level 3		
12,200.0	7,079.5	12,202.9	7,077.3	131.9	131.6	89.58	403.9	5,296.1	338.2	74.7	263.44	1.284 Level 3		
12,300.0	7,078.5	12,302.5	7,076.3	134.4	134.1	89.59	401.3	5,395.7	347.2	78.9	268.34	1.294 Level 3		
12,400.0	7,077.5	12,402.1	7,075.3	136.9	136.5	89.59	398.7	5,495.2	356.3	83.0	273.25	1.304 Level 3		
12,500.0	7,076.6	12,501.7	7,074.3	139.3	139.0	89.59	396.1	5,594.8	365.4	87.2	278.15	1.314 Level 3		
12,600.0	7,075.6	12,601.3	7,073.3	141.8	141.4	89.59	393.5	5,694.3	374.4	91.4	283.06	1.323 Level 3		
12,700.0	7,074.6	12,700.9	7,072.3	144.2	143.9	89.59	390.9	5,793.9	383.5	95.5	287.97	1.332 Level 3		
12,800.0	7,073.7	12,800.5	7,071.3	146.7	146.3	89.60	388.3	5,893.5	391.8	98.9	292.89	1.338 Level 3		
12,900.0	7,072.7	12,900.3	7,070.3	149.2	148.8	89.61	385.6	5,993.2	398.4	100.7	297.74	1.338 Level 3		
13,000.0	7,071.8	13,000.2	7,069.2	151.6	151.2	89.62	383.0	6,093.1	403.3	100.8	302.51	1.333 Level 3		
13,100.0	7,070.8	13,100.1	7,068.2	154.1	153.7	89.63	380.4	6,193.0	406.4	99.2	307.20	1.323 Level 3		
13,200.0	7,069.8	13,200.1	7,067.2	156.5	156.2	89.63	377.8	6,292.9	407.8	96.0	311.80	1.308 Level 3		
13,300.0	7,068.9	13,300.1	7,066.2	159.0	158.6	89.63	375.2	6,392.9	407.4	91.1	316.31	1.288 Level 3		
13,400.0	7,067.9	13,400.1	7,065.2	161.4	161.1	89.63	372.6	6,492.8	405.7	84.6	321.10	1.264 Level 3		
13,500.0	7,067.0	13,500.1	7,064.2	163.9	163.5	89.62	369.9	6,592.8	404.0	77.9	326.03	1.239 Level 2		
13,600.0	7,066.0	13,600.1	7,063.2	166.3	166.0	89.61	367.3	6,692.7	402.2	71.3	330.97	1.215 Level 2		
13,700.0	7,065.0	13,700.1	7,062.2	168.8	168.5	89.60	364.7	6,792.7	400.5	64.6	335.90	1.192 Level 2		
13,800.0	7,064.1	13,800.0	7,061.1	171.2	170.9	89.59	362.1	6,892.6	398.7	57.9	340.83	1.170 Level 2		
13,900.0	7,063.1	13,900.0	7,060.1	173.7	173.4	89.58	359.5	6,992.6	397.0	51.2	345.77	1.148 Level 2		
14,000.0	7,062.2	14,000.0	7,059.1	176.1	175.9	89.57	356.9	7,092.5	395.3	44.6	350.70	1.127 Level 2		
14,100.0	7,061.2	14,100.0	7,058.1	178.6	178.3	89.56	354.2	7,192.5	393.5	37.9	355.63	1.106 Level 2		
14,200.0	7,060.2	14,200.0	7,057.1	181.1	180.8	89.55	351.6	7,292.4	391.8	31.2	360.57	1.087 Level 2		
14,300.0	7,059.3	14,300.0	7,056.1	183.5	183.3	89.54	349.0	7,392.3	390.0	24.5	365.50	1.067 Level 2		
14,400.0	7,058.3	14,399.9	7,055.1	186.0	185.7	89.53	346.4	7,492.3	388.3	17.8	370.44	1.048 Level 2		
14,500.0	7,057.4	14,499.9	7,054.1	188.4	188.2	89.52	343.8	7,592.2	386.5	11.2	375.37	1.030 Level 2		
14,600.0	7,056.4	14,599.9	7,053.1	190.9	190.7	89.51	341.2	7,692.2	384.8	4.5	380.31	1.012 Level 2		
14,700.0	7,055.4	14,699.9	7,052.0	193.3	193.1	89.50	338.5	7,792.1	383.0	-2.2	385.24	0.994 Level 1		
14,800.0	7,054.5	14,799.9	7,051.0	195.8	195.6	89.49	335.9	7,892.1	381.3	-8.9	390.18	0.977 Level 1		
14,900.0	7,053.5	14,899.9	7,050.0	198.2	198.1	89.48	333.3	7,992.0	379.6	-15.6	395.11	0.961 Level 1		
15,000.0	7,052.6	14,999.9	7,049.0	200.7	200.5	89.47	330.7	8,092.0	377.8	-22.2	400.05	0.944 Level 1		
15,100.0	7,051.6	15,099.8	7,048.0	203.2	203.0	89.46	328.1	8,191.9	376.1	-28.9	404.99	0.929 Level 1		
15,200.0	7,050.6	15,199.8	7,047.0	205.6	205.5	89.45	325.5	8,291.9	374.3	-35.6	409.92	0.913 Level 1		
15,300.0	7,049.7	15,299.8	7,046.0	208.1	207.9	89.44	322.8	8,391.8	372.6	-42.3	414.86	0.898 Level 1		
15,400.0	7,048.7	15,399.8	7,045.0	210.5	210.4	89.43	320.2	8,491.7	370.8	-49.0	419.79	0.883 Level 1		

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

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - Bernhardt #18-7H - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis			
15,500.0	7,047.8	15,499.8	7,043.9	213.0	212.9	89.42	317.6	8,591.7	369.1	-55.6	424.73	0.869 Level 1		
15,600.0	7,046.8	15,599.8	7,042.9	215.5	215.3	89.41	315.0	8,691.6	367.3	-62.3	429.67	0.855 Level 1		
15,700.0	7,045.8	15,699.7	7,041.9	217.9	217.8	89.40	312.4	8,791.6	365.6	-69.0	434.61	0.841 Level 1		
15,800.0	7,044.9	15,799.7	7,040.9	220.4	220.3	89.39	309.7	8,891.5	363.8	-75.7	439.54	0.828 Level 1		
15,900.0	7,043.9	15,899.7	7,039.9	222.8	222.7	89.37	307.1	8,991.5	362.1	-82.4	444.48	0.815 Level 1		
16,000.0	7,043.0	15,999.7	7,038.9	225.3	225.2	89.36	304.5	9,091.4	360.4	-89.1	449.42	0.802 Level 1		
16,100.0	7,042.0	16,099.7	7,037.9	227.8	227.7	89.35	301.9	9,191.4	358.6	-95.7	454.36	0.789 Level 1		
16,200.0	7,041.0	16,199.7	7,036.9	230.2	230.1	89.34	299.3	9,291.3	356.9	-102.4	459.29	0.777 Level 1		
16,300.0	7,040.1	16,299.7	7,035.8	232.7	232.6	89.33	296.7	9,391.3	355.1	-109.1	464.23	0.765 Level 1		
16,400.0	7,039.1	16,399.6	7,034.8	235.1	235.1	89.32	294.0	9,491.2	353.4	-115.8	469.17	0.753 Level 1		
16,500.0	7,038.2	16,499.6	7,033.8	237.6	237.6	89.30	291.4	9,591.1	351.6	-122.5	474.11	0.742 Level 1		
16,535.7	7,037.8	16,533.3	7,033.5	238.5	238.4	89.30	290.5	9,624.8	351.0	-124.8	475.82	0.738 Level 1, ES, SF		
16,600.0	7,037.2	16,533.3	7,033.5	240.1	238.4	89.30	290.5	9,624.8	356.1	-121.3	477.41	0.746 Level 1		
16,700.0	7,036.2	16,533.3	7,033.5	242.5	238.4	89.30	290.5	9,624.8	385.8	-94.0	479.88	0.804 Level 1		
16,800.0	7,035.3	16,533.3	7,033.5	245.0	238.4	89.30	290.5	9,624.8	436.9	-45.4	482.35	0.906 Level 1		

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - Bernhardt #18-8H - HZ - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor			
0.0	0.0	0.0	0.0	0.0	0.0	-176.87	-51.0	-2.8	51.1						
100.0	100.0	100.0	100.0	0.2	0.2	-176.87	-51.0	-2.8	51.1	50.8	0.31	166.264			
200.0	200.0	200.0	200.0	0.3	0.3	-176.87	-51.0	-2.8	51.1	50.4	0.66	77.826 CC, ES			
300.0	300.0	299.1	299.1	0.5	0.5	-176.60	-51.8	-3.1	51.9	50.9	1.00	51.701			
400.0	400.0	398.2	398.2	0.7	0.7	-175.84	-54.2	-3.9	54.4	53.0	1.35	40.240			
500.0	500.0	498.1	498.0	0.9	0.9	-174.90	-57.5	-5.1	57.8	56.1	1.70	33.974			
600.0	600.0	598.1	597.9	1.0	1.0	-174.07	-60.9	-6.3	61.2	59.2	2.05	29.851			
700.0	700.0	698.0	697.7	1.2	1.2	-175.41	-64.2	-7.5	65.5	63.1	2.40	27.308			
800.0	800.0	797.8	797.5	1.4	1.4	-174.93	-67.5	-8.7	71.6	68.8	2.75	26.049			
900.0	899.9	897.5	897.1	1.6	1.6	-174.64	-70.8	-9.9	79.3	76.2	3.09	25.643 SF			
1,000.0	999.7	997.0	996.6	1.8	1.8	-174.52	-74.1	-11.1	88.8	85.4	3.44	25.829			
1,100.0	1,099.4	1,096.4	1,095.9	2.0	2.0	-174.51	-77.4	-12.2	100.1	96.3	3.78	26.446			
1,200.0	1,198.9	1,195.5	1,195.0	2.2	2.1	-174.58	-80.7	-13.4	113.1	108.9	4.13	27.385			
1,300.0	1,298.4	1,294.6	1,294.0	2.4	2.3	-174.69	-84.0	-14.6	126.8	122.3	4.48	28.330			
1,400.0	1,397.8	1,393.6	1,393.0	2.6	2.5	-174.77	-87.3	-15.8	140.6	135.7	4.82	29.139			
1,500.0	1,497.3	1,492.7	1,492.0	2.9	2.7	-174.84	-90.5	-17.0	154.3	149.1	5.17	29.839			
1,600.0	1,596.7	1,591.7	1,591.0	3.1	2.9	-174.90	-93.8	-18.1	168.1	162.5	5.52	30.451			
1,700.0	1,696.2	1,690.8	1,690.0	3.3	3.1	-174.94	-97.1	-19.3	181.8	175.9	5.87	30.990			
1,800.0	1,795.7	1,789.8	1,788.9	3.6	3.2	-174.99	-100.4	-20.5	195.6	189.4	6.21	31.469			
1,900.0	1,895.1	1,888.9	1,887.9	3.8	3.4	-175.02	-103.7	-21.7	209.3	202.8	6.56	31.898			
2,000.0	1,994.6	1,987.9	1,986.9	4.0	3.6	-175.05	-107.0	-22.8	223.1	216.2	6.91	32.283			
2,100.0	2,094.0	2,087.0	2,085.9	4.3	3.8	-175.08	-110.3	-24.0	236.8	229.6	7.26	32.631			
2,200.0	2,193.5	2,186.0	2,184.9	4.5	4.0	-175.11	-113.5	-25.2	250.6	243.0	7.61	32.948			
2,300.0	2,293.0	2,285.1	2,283.9	4.8	4.2	-175.13	-116.8	-26.4	264.3	256.4	7.95	33.237			
2,400.0	2,392.4	2,384.1	2,382.9	5.0	4.3	-175.15	-120.1	-27.5	278.1	269.8	8.30	33.501			
2,500.0	2,491.9	2,483.2	2,481.9	5.3	4.5	-175.17	-123.4	-28.7	291.8	283.2	8.65	33.745			
2,600.0	2,591.3	2,582.2	2,580.8	5.5	4.7	-175.18	-126.7	-29.9	305.6	296.6	9.00	33.969			
2,700.0	2,690.8	2,681.3	2,679.8	5.8	4.9	-175.20	-130.0	-31.1	319.4	310.0	9.34	34.177			
2,800.0	2,790.3	2,780.3	2,778.8	6.0	5.1	-175.21	-133.3	-32.3	333.1	323.4	9.69	34.370			
2,900.0	2,889.7	2,879.4	2,877.8	6.3	5.3	-175.22	-136.6	-33.4	346.9	336.8	10.04	34.550			
3,000.0	2,989.2	2,978.4	2,976.8	6.5	5.4	-175.24	-139.8	-34.6	360.6	350.2	10.39	34.717			
3,100.0	3,088.6	3,077.5	3,075.8	6.8	5.6	-175.25	-143.1	-35.8	374.4	363.6	10.73	34.874			
3,200.0	3,188.1	3,176.5	3,174.8	7.0	5.8	-175.26	-146.4	-37.0	388.1	377.0	11.08	35.021			
3,300.0	3,287.6	3,275.6	3,273.8	7.3	6.0	-175.27	-149.7	-38.1	401.9	390.4	11.43	35.159			
3,400.0	3,387.0	3,374.6	3,372.7	7.5	6.2	-175.28	-153.0	-39.3	415.6	403.9	11.78	35.289			
3,500.0	3,486.5	3,473.7	3,471.7	7.8	6.4	-175.28	-156.3	-40.5	429.4	417.3	12.13	35.411			
3,600.0	3,585.9	3,572.7	3,570.7	8.0	6.5	-175.29	-159.6	-41.7	443.1	430.7	12.47	35.527			
3,700.0	3,685.4	3,671.8	3,669.7	8.3	6.7	-175.30	-162.8	-42.9	456.9	444.1	12.82	35.636			
3,800.0	3,784.9	3,770.8	3,768.7	8.5	6.9	-175.31	-166.1	-44.0	470.6	457.5	13.17	35.740			
3,900.0	3,884.3	3,869.9	3,867.7	8.8	7.1	-175.31	-169.4	-45.2	484.4	470.9	13.52	35.838			
4,000.0	3,983.8	3,968.9	3,966.7	9.0	7.3	-175.32	-172.7	-46.4	498.2	484.3	13.86	35.931			

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - EATON CATTLE CO. #19-34-5 (EXISTING) - EXISTING - EXISTING													Offset Site Error:	0.0 ft
Survey Program: 8000-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
10,200.0	7,098.8	7,086.8	7,086.8	82.9	12.4	-91.20	827.2	3,686.9	418.3	323.6	94.78	4.414		
10,300.0	7,097.8	7,085.8	7,085.8	85.3	12.4	-90.88	827.2	3,686.9	330.5	233.3	97.24	3.399		
10,400.0	7,096.9	7,084.9	7,084.9	87.8	12.4	-90.57	827.2	3,686.9	251.9	152.2	99.69	2.526		
10,500.0	7,095.9	7,083.9	7,083.9	90.2	12.4	-90.25	827.2	3,686.9	194.0	91.9	102.15	1.899		
10,579.1	7,095.1	7,083.1	7,083.1	92.1	12.4	-90.00	827.2	3,686.9	177.2	73.1	104.10	1.702 CC, ES, SF		
10,600.0	7,094.9	7,082.9	7,082.9	92.6	12.4	-89.93	827.2	3,686.9	178.5	73.8	104.61	1.706		
10,700.0	7,093.9	7,081.9	7,081.9	95.1	12.4	-89.63	827.2	3,686.9	213.7	106.5	107.20	1.994		
10,800.0	7,093.0	7,081.0	7,081.0	97.5	12.4	-89.34	827.2	3,686.9	280.9	171.1	109.75	2.559		
10,900.0	7,092.0	7,080.0	7,080.0	100.0	12.4	-89.07	827.2	3,686.9	362.6	250.3	112.27	3.230		
11,000.0	7,091.0	7,079.0	7,079.0	102.4	12.4	-88.81	827.2	3,686.9	451.1	336.3	114.75	3.931		

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													S18-T4N-R66W (Bernhardt) - EATON CATTLE CO. UNIT #1 (EXISTING) - EXISTING - EXISTING		Offset Site Error:		0.0 ft
Survey Program:													8000-Geolink MWD		Offset Well Error:		0.0 ft
Reference				Offset		Semi Major Axis			Distance								
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	+N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	Warning			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)						
8,000.0	7,120.3	7,108.3	7,108.3	31.1	12.4	90.69	344.3	1,483.2	483.9	441.8	42.12	11.490					
8,100.0	7,119.3	7,107.3	7,107.3	33.3	12.4	90.50	344.3	1,483.2	411.3	366.9	44.39	9.265					
8,200.0	7,118.4	7,106.4	7,106.4	35.5	12.4	90.32	344.3	1,483.2	352.3	305.6	46.69	7.546					
8,300.0	7,117.4	7,105.4	7,105.4	37.7	12.4	90.14	344.3	1,483.2	314.8	265.8	49.01	6.423					
8,375.1	7,116.7	7,104.7	7,104.7	39.4	12.4	90.00	344.3	1,483.2	305.7	254.9	50.77	6.022 CC, ES					
8,400.0	7,116.4	7,104.4	7,104.4	40.0	12.4	89.95	344.3	1,483.2	306.7	255.4	51.35	5.973 SF					
8,500.0	7,115.4	7,103.4	7,103.4	42.3	12.4	89.77	344.3	1,483.2	330.2	276.5	53.70	6.149					
8,600.0	7,114.5	7,102.5	7,102.5	44.6	12.4	89.59	344.3	1,483.2	379.5	323.4	56.07	6.768					
8,700.0	7,113.5	7,101.5	7,101.5	46.9	12.4	89.40	344.3	1,483.2	446.1	387.6	58.45	7.632					

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - FRONT RANGE #11-17-23 (EXISTING) - EXISTING - EXISTING													Offset Site Error:	0.0 ft
Survey Program: 8000-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
13,600.0	7,066.0	7,054.0	7,054.0	166.3	12.3	-91.02	955.5	7,086.5	426.0	248.4	177.57	2.399		
13,700.0	7,065.0	7,053.0	7,053.0	168.8	12.3	-90.75	955.5	7,086.5	341.4	161.3	180.05	1.896		
13,800.0	7,064.1	7,052.1	7,052.1	171.2	12.3	-90.47	955.5	7,086.5	267.5	85.0	182.52	1.466	Level 3	
13,900.0	7,063.1	7,051.1	7,051.1	173.7	12.3	-90.20	955.5	7,086.5	215.9	30.9	184.99	1.167	Level 2	
13,974.8	7,062.4	7,050.4	7,050.4	175.5	12.3	-90.00	955.5	7,086.5	202.6	15.8	186.84	1.084	Level 2, CC, ES, SF	
14,000.0	7,062.2	7,050.2	7,050.2	176.1	12.3	-89.93	955.5	7,086.5	204.2	16.7	187.46	1.089	Level 2	
14,100.0	7,061.2	7,049.2	7,049.2	178.6	12.3	-89.66	955.5	7,086.5	238.2	48.2	189.92	1.254	Level 3	
14,200.0	7,060.2	7,048.2	7,048.2	181.1	12.3	-89.39	955.5	7,086.5	302.9	110.6	192.38	1.575		
14,300.0	7,059.3	7,047.3	7,047.3	183.5	12.3	-89.12	955.5	7,086.5	383.2	188.3	194.84	1.967		
14,400.0	7,058.3	7,046.3	7,046.3	186.0	12.3	-88.85	955.5	7,086.5	471.0	273.7	197.29	2.387		

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		S18-T4N-R66W (Bernhardt) - FRONT RANGE #11-17-25R (EXISTING) - EXISTING - EXISTING										Offset Site Error:		0.0 ft	
Survey Program:		8000-Geolink MWD										Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)					
13,500.0	7,067.0	7,055.0	7,055.0	163.9	12.3	-91.06	966.4	7,016.8	456.1	281.0	175.10	2.605			
13,600.0	7,066.0	7,054.0	7,054.0	166.3	12.3	-90.80	966.4	7,016.8	370.2	192.7	177.58	2.085			
13,700.0	7,065.0	7,053.0	7,053.0	168.8	12.3	-90.53	966.4	7,016.8	293.5	113.5	180.06	1.630			
13,800.0	7,064.1	7,052.1	7,052.1	171.2	12.3	-90.27	966.4	7,016.8	235.0	52.5	182.53	1.288	Level 3		
13,900.0	7,063.1	7,051.1	7,051.1	173.7	12.3	-90.01	966.4	7,016.8	210.5	25.5	185.00	1.138	Level 2		
13,904.6	7,063.1	7,051.1	7,051.1	173.8	12.3	-90.00	966.4	7,016.8	210.5	25.3	185.11	1.137	Level 2, CC, ES, SF		
14,000.0	7,062.2	7,050.2	7,050.2	176.1	12.3	-89.75	966.4	7,016.8	231.1	43.6	187.46	1.233	Level 2		
14,100.0	7,061.2	7,049.2	7,049.2	178.6	12.3	-89.49	966.4	7,016.8	287.2	97.2	189.92	1.512			
14,200.0	7,060.2	7,048.2	7,048.2	181.1	12.3	-89.23	966.4	7,016.8	362.7	170.3	192.38	1.885			
14,300.0	7,059.3	7,047.3	7,047.3	183.5	12.3	-88.97	966.4	7,016.8	447.9	253.1	194.83	2.299			

## Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													S18-T4N-R66W (Bernhardt) - GREENHEAD #14-18 (EXISTING) - EXISTING - EXISTING		Offset Site Error:		0.0 ft
Survey Program: 8000-Geolink MWD															Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning				
8,300.0	7,117.4	7,105.4	7,105.4	37.7	12.4	90.35	234.7	1,670.9	491.5	442.5	49.01	10.029					
8,400.0	7,116.4	7,104.4	7,104.4	40.0	12.4	90.22	234.7	1,670.9	446.1	394.8	51.35	8.688					
8,500.0	7,115.4	7,103.4	7,103.4	42.3	12.4	90.08	234.7	1,670.9	420.1	366.4	53.70	7.822					
8,562.8	7,114.8	7,102.8	7,102.8	43.7	12.4	90.00	234.7	1,670.9	415.3	360.1	55.19	7.525 CC, ES					
8,600.0	7,114.5	7,102.5	7,102.5	44.6	12.4	89.95	234.7	1,670.9	417.0	360.9	56.07	7.437 SF					
8,700.0	7,113.5	7,101.5	7,101.5	46.9	12.4	89.82	234.7	1,670.9	437.4	378.9	58.45	7.483					
8,800.0	7,112.5	7,100.5	7,100.5	49.3	12.4	89.68	234.7	1,670.9	478.3	417.4	60.84	7.861					

## Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - KNUTSON #17-25 (EXISTING) - EXISTING - EXISTING													Offset Site Error:	0.0 ft
Survey Program: 8000-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
							+N/-S (ft)	+E/-W (ft)						
12,900.0	7,072.7	7,060.7	7,060.7	149.2	12.3	91.11	610.7	6,380.5	414.7	253.4	161.28	2.571		
13,000.0	7,071.8	7,059.8	7,059.8	151.6	12.3	90.84	610.7	6,380.5	327.8	164.2	163.61	2.003		
13,100.0	7,070.8	7,058.8	7,058.8	154.1	12.3	90.56	610.7	6,380.5	249.5	83.6	165.89	1.504		
13,200.0	7,069.8	7,057.8	7,057.8	156.5	12.3	90.26	610.7	6,380.5	190.9	22.8	168.12	1.136	Level 2	
13,283.0	7,069.0	7,057.0	7,057.0	158.6	12.3	90.00	610.7	6,380.5	172.5	2.6	169.93	1.015	Level 2, CC, ES, SF	
13,300.0	7,068.9	7,056.9	7,056.9	159.0	12.3	89.95	610.7	6,380.5	173.3	3.0	170.30	1.018	Level 2	
13,400.0	7,067.9	7,055.9	7,055.9	161.4	12.3	89.63	610.7	6,380.5	207.8	35.1	172.67	1.204	Level 2	
13,500.0	7,067.0	7,055.0	7,055.0	163.9	12.3	89.31	610.7	6,380.5	276.2	101.1	175.12	1.577		
13,600.0	7,066.0	7,054.0	7,054.0	166.3	12.3	88.99	610.7	6,380.5	359.8	182.2	177.57	2.026		
13,700.0	7,065.0	7,053.0	7,053.0	168.8	12.3	88.68	610.7	6,380.5	450.0	270.0	180.01	2.500		

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - MONTGOMERY#1-27 (EXISTING) - EXISTING - EXISTING														Offset Site Error:	0.0 ft
Survey Program: 8000-Geolink MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)							
0.0	0.0	0.0	0.0	0.0	0.0	45.78	284.1	292.0	407.6						
100.0	100.0	88.0	88.0	0.2	0.2	45.78	284.1	292.0	407.4	407.1	0.31	1,325.527			
200.0	200.0	188.0	188.0	0.3	0.3	45.78	284.1	292.0	407.4	406.8	0.66	620.674			
300.0	300.0	288.0	288.0	0.5	0.5	45.78	284.1	292.0	407.4	406.4	1.01	405.205			
400.0	400.0	388.0	388.0	0.7	0.7	45.78	284.1	292.0	407.4	406.1	1.35	300.786			
500.0	500.0	488.0	488.0	0.9	0.9	45.78	284.1	292.0	407.4	405.7	1.70	239.157			
600.0	600.0	588.0	588.0	1.0	1.0	45.78	284.1	292.0	407.4	405.4	2.05	198.488			
700.0	700.0	688.0	688.0	1.2	1.2	43.85	284.1	292.0	406.8	404.4	2.40	169.374			
800.0	800.0	788.0	788.0	1.4	1.4	44.12	284.1	292.0	404.9	402.2	2.75	147.153			
900.0	899.9	887.9	887.9	1.6	1.5	44.57	284.1	292.0	401.8	398.7	3.10	129.459			
1,000.0	999.7	987.7	987.7	1.8	1.7	45.22	284.1	292.0	397.5	394.0	3.46	114.891			
1,100.0	1,099.4	1,087.4	1,087.4	2.0	1.9	46.07	284.1	292.0	392.0	388.2	3.82	102.573			
1,200.0	1,198.9	1,186.9	1,186.9	2.2	2.1	47.14	284.1	292.0	385.4	381.2	4.19	91.935			
1,300.0	1,298.4	1,286.4	1,286.4	2.4	2.2	48.29	284.1	292.0	378.4	373.8	4.57	82.800			
1,400.0	1,397.8	1,385.8	1,385.8	2.6	2.4	49.48	284.1	292.0	371.5	366.6	4.95	75.013			
1,500.0	1,497.3	1,485.3	1,485.3	2.9	2.6	50.72	284.1	292.0	364.9	359.5	5.34	68.312			
1,600.0	1,596.7	1,584.7	1,584.7	3.1	2.8	52.00	284.1	292.0	358.3	352.6	5.73	62.500			
1,700.0	1,696.2	1,684.2	1,684.2	3.3	2.9	53.33	284.1	292.0	352.0	345.9	6.13	57.420			
1,800.0	1,795.7	1,783.7	1,783.7	3.6	3.1	54.70	284.1	292.0	345.9	339.4	6.53	52.954			
1,900.0	1,895.1	1,883.1	1,883.1	3.8	3.3	56.12	284.1	292.0	340.0	333.1	6.94	49.004			
2,000.0	1,994.6	1,982.6	1,982.6	4.0	3.5	57.59	284.1	292.0	334.3	327.0	7.35	45.496			
2,100.0	2,094.0	2,082.0	2,082.0	4.3	3.6	59.12	284.1	292.0	328.8	321.1	7.76	42.365			
2,200.0	2,193.5	2,181.5	2,181.5	4.5	3.8	60.69	284.1	292.0	323.6	315.4	8.18	39.563			
2,300.0	2,293.0	2,281.0	2,281.0	4.8	4.0	62.31	284.1	292.0	318.6	310.0	8.60	37.047			
2,400.0	2,392.4	2,380.4	2,380.4	5.0	4.2	63.98	284.1	292.0	313.9	304.9	9.03	34.781			
2,500.0	2,491.9	2,479.9	2,479.9	5.3	4.3	65.70	284.1	292.0	309.5	300.0	9.45	32.738			
2,600.0	2,591.3	2,579.3	2,579.3	5.5	4.5	67.46	284.1	292.0	305.3	295.5	9.88	30.892			
2,700.0	2,690.8	2,678.8	2,678.8	5.8	4.7	69.28	284.1	292.0	301.5	291.2	10.32	29.222			
2,800.0	2,790.3	2,778.3	2,778.3	6.0	4.8	71.13	284.1	292.0	298.0	287.2	10.75	27.711			
2,900.0	2,889.7	2,877.7	2,877.7	6.3	5.0	73.03	284.1	292.0	294.8	283.6	11.19	26.343			
3,000.0	2,989.2	2,977.2	2,977.2	6.5	5.2	74.97	284.1	292.0	291.9	280.3	11.63	25.104			
3,100.0	3,088.6	3,076.6	3,076.6	6.8	5.4	76.95	284.1	292.0	289.4	277.3	12.07	23.982			
3,200.0	3,188.1	3,176.1	3,176.1	7.0	5.5	78.96	284.1	292.0	287.2	274.7	12.50	22.968			
3,300.0	3,287.6	3,275.6	3,275.6	7.3	5.7	80.99	284.1	292.0	285.4	272.4	12.94	22.053			
3,400.0	3,387.0	3,375.0	3,375.0	7.5	5.9	83.05	284.1	292.0	283.9	270.5	13.38	21.227			
3,500.0	3,486.5	3,474.5	3,474.5	7.8	6.1	85.13	284.1	292.0	282.8	269.0	13.81	20.483			
3,600.0	3,585.9	3,573.9	3,573.9	8.0	6.2	87.21	284.1	292.0	282.1	267.9	14.24	19.815			
3,700.0	3,685.4	3,673.4	3,673.4	8.3	6.4	89.31	284.1	292.0	281.8	267.2	14.66	19.218			
3,732.8	3,718.0	3,706.0	3,706.0	8.3	6.5	90.00	284.1	292.0	281.8	267.0	14.80	19.036 CC			
3,800.0	3,784.9	3,772.9	3,772.9	8.5	6.6	91.41	284.1	292.0	281.9	266.8	15.09	18.684 ES			
3,900.0	3,884.3	3,872.3	3,872.3	8.8	6.8	93.50	284.1	292.0	282.3	266.8	15.50	18.210			
4,000.0	3,983.8	3,971.8	3,971.8	9.0	6.9	95.59	284.1	292.0	283.2	267.2	15.92	17.790			
4,100.0	4,083.2	4,071.2	4,071.2	9.3	7.1	97.66	284.1	292.0	284.4	268.0	16.32	17.420			
4,200.0	4,182.7	4,170.7	4,170.7	9.5	7.3	99.71	284.1	292.0	285.9	269.2	16.73	17.096			
4,300.0	4,282.2	4,270.2	4,270.2	9.8	7.5	101.74	284.1	292.0	287.9	270.8	17.12	16.815			
4,400.0	4,381.6	4,369.6	4,369.6	10.0	7.6	103.73	284.1	292.0	290.2	272.7	17.51	16.572			
4,500.0	4,481.1	4,469.1	4,469.1	10.3	7.8	105.70	284.1	292.0	292.8	274.9	17.89	16.365			
4,600.0	4,580.5	4,568.5	4,568.5	10.5	8.0	107.62	284.1	292.0	295.8	277.6	18.27	16.191			
4,700.0	4,680.0	4,668.0	4,668.0	10.8	8.1	109.51	284.1	292.0	299.1	280.5	18.64	16.047			
4,800.0	4,779.5	4,767.5	4,767.5	11.0	8.3	111.35	284.1	292.0	302.8	283.8	19.01	15.929			
4,900.0	4,878.9	4,866.9	4,866.9	11.3	8.5	113.15	284.1	292.0	306.7	287.4	19.37	15.837			
5,000.0	4,978.4	4,966.4	4,966.4	11.5	8.7	114.90	284.1	292.0	311.0	291.3	19.72	15.767			

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

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - MONTGOMERY#1-27 (EXISTING) - EXISTING - EXISTING													Offset Site Error:	0.0 ft
Survey Program: 8000-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
5,100.0	5,077.8	5,065.8	5,065.8	11.8	8.8	116.60	284.1	292.0	315.5	295.4	20.07	15.717		
5,200.0	5,177.3	5,165.3	5,165.3	12.0	9.0	118.26	284.1	292.0	320.3	299.9	20.42	15.686		
5,300.0	5,276.8	5,264.8	5,264.8	12.3	9.2	119.86	284.1	292.0	325.4	304.6	20.76	15.672		
5,400.0	5,376.2	5,364.2	5,364.2	12.5	9.4	121.41	284.1	292.0	330.7	309.6	21.10	15.672		
5,500.0	5,475.7	5,463.7	5,463.7	12.8	9.5	122.92	284.1	292.0	336.2	314.8	21.44	15.686		
5,600.0	5,575.1	5,563.1	5,563.1	13.0	9.7	124.37	284.1	292.0	342.0	320.2	21.77	15.712		
5,700.0	5,674.6	5,662.6	5,662.6	13.3	9.9	125.78	284.1	292.0	348.0	325.9	22.10	15.749		
5,800.0	5,774.1	5,762.1	5,762.1	13.5	10.1	127.13	284.1	292.0	354.2	331.8	22.42	15.795		
5,900.0	5,873.5	5,861.5	5,861.5	13.8	10.2	128.44	284.1	292.0	360.6	337.8	22.75	15.850		
6,000.0	5,973.0	5,961.0	5,961.0	14.0	10.4	129.71	284.1	292.0	367.1	344.1	23.07	15.913		
6,100.0	6,072.4	6,060.4	6,060.4	14.3	10.6	130.93	284.1	292.0	373.9	350.5	23.39	15.982		
6,200.0	6,171.9	6,159.9	6,159.9	14.5	10.8	132.11	284.1	292.0	380.8	357.1	23.71	16.057		
6,300.0	6,271.4	6,259.4	6,259.4	14.8	10.9	133.24	284.1	292.0	387.8	363.8	24.03	16.137		
6,400.0	6,370.8	6,358.8	6,358.8	15.0	11.1	134.33	284.1	292.0	395.0	370.7	24.35	16.222		
6,500.0	6,470.3	6,458.3	6,458.3	15.3	11.3	135.39	284.1	292.0	402.4	377.7	24.67	16.310		
6,600.0	6,569.7	6,557.7	6,557.7	15.5	11.4	124.91	284.1	292.0	409.8	384.8	25.00	16.391		
6,700.0	6,668.4	6,656.4	6,656.4	15.8	11.6	78.22	284.1	292.0	410.4	385.1	25.24	16.256		
6,800.0	6,763.7	6,751.7	6,751.7	16.1	11.8	71.00	284.1	292.0	401.2	375.9	25.24	15.894		
6,900.0	6,852.7	6,840.7	6,840.7	16.4	11.9	73.40	284.1	292.0	385.4	360.2	25.23	15.278		
7,000.0	6,932.6	6,920.6	6,920.6	16.8	12.1	79.81	284.1	292.0	368.2	342.8	25.44	14.473		
7,100.0	7,001.0	6,989.0	6,989.0	17.3	12.2	87.42	284.1	292.0	356.9	330.9	25.96	13.746		
7,136.7	7,022.9	7,010.9	7,010.9	17.5	12.2	90.00	284.1	292.0	355.8	329.5	26.26	13.551		
7,200.0	7,056.0	7,044.0	7,044.0	18.0	12.3	93.69	284.1	292.0	359.4	332.7	26.76	13.432 SF		
7,300.0	7,095.7	7,083.7	7,083.7	19.0	12.4	96.67	284.1	292.0	381.7	353.7	27.95	13.655		
7,400.0	7,119.0	7,107.0	7,107.0	20.2	12.4	95.21	284.1	292.0	424.4	394.8	29.66	14.311		
7,500.0	7,125.2	7,113.2	7,113.2	21.6	12.4	89.52	284.1	292.0	483.5	452.0	31.51	15.342		

# Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S18-T4N-R66W (Bernhardt) - UPRC #17-1616 (EXISTING) - EXISTING - EXISTING													Offset Site Error:	0.0 ft
Survey Program: 8000-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
16,200.0	7,041.0	7,029.0	7,029.0	230.2	12.3	90.56	293.3	9,638.6	495.7	254.0	241.72	2.051		
16,300.0	7,040.1	7,028.1	7,028.1	232.7	12.3	90.40	293.3	9,638.6	430.2	186.0	244.20	1.762		
16,400.0	7,039.1	7,027.1	7,027.1	235.1	12.3	90.24	293.3	9,638.6	379.9	133.3	246.67	1.540		
16,500.0	7,038.2	7,026.2	7,026.2	237.6	12.3	90.08	293.3	9,638.6	351.7	102.5	249.14	1.412	Level 3	
16,553.4	7,037.6	7,025.6	7,025.6	238.9	12.3	90.00	293.3	9,638.6	347.6	97.2	250.45	1.388	Level 3, CC, ES, SF	
16,600.0	7,037.2	7,025.2	7,025.2	240.1	12.3	89.93	293.3	9,638.6	350.7	99.1	251.60	1.394	Level 3	
16,700.0	7,036.2	7,024.2	7,024.2	242.5	12.3	89.77	293.3	9,638.6	377.3	123.2	254.07	1.485	Level 3	
16,800.0	7,035.3	7,023.3	7,023.3	245.0	12.3	89.61	293.3	9,638.6	426.2	169.7	256.53	1.661		
16,900.0	7,034.3	7,022.3	7,022.3	247.5	12.3	89.45	293.3	9,638.6	490.9	231.9	259.00	1.895		

## Anticollision Report

<b>Company:</b>	K. P. Kauffman Company, Inc.	<b>Local Co-ordinate Reference:</b>	Well Bernhardt #18-6H
<b>Project:</b>	Wattenberg	<b>TVD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Reference Site:</b>	S18-T4N-R66W (Bernhardt)	<b>MD Reference:</b>	WELL @ 4730.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt #18-6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4730.0ft (Original Well Elev)

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Bernhardt #18-6H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.43°

