



**Scientific  
Drilling**

## Survey Certification

7327 West Barton Road  
Casper, WY 82604  
(307)-472-6621 Fax (307) 472-5439

Operator	KP Kauffman Co, Inc.
Well Name & No.	UPRR 43 PAN AM G #3
County & State	Weld County, CO
SDI Job No.	410114K104729
Rig	Ground Level
Survey Date	17-Jan-2014

I, Steven F. Gottschalk, having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 0 feet to a measured depth of 4967.59 feet is true and correct as determined from all available records.

Signature

28-Jan-2014

Date

**Steven F. Gottschalk**  
Rockies Region Well Planner  
Scientific Drilling - Rocky Mountain District

# **KP Kauffman Co, Inc.**

**Weld County, CO**

**UPPR**

**UPRR 43 PAN AM G #3**

**OH**

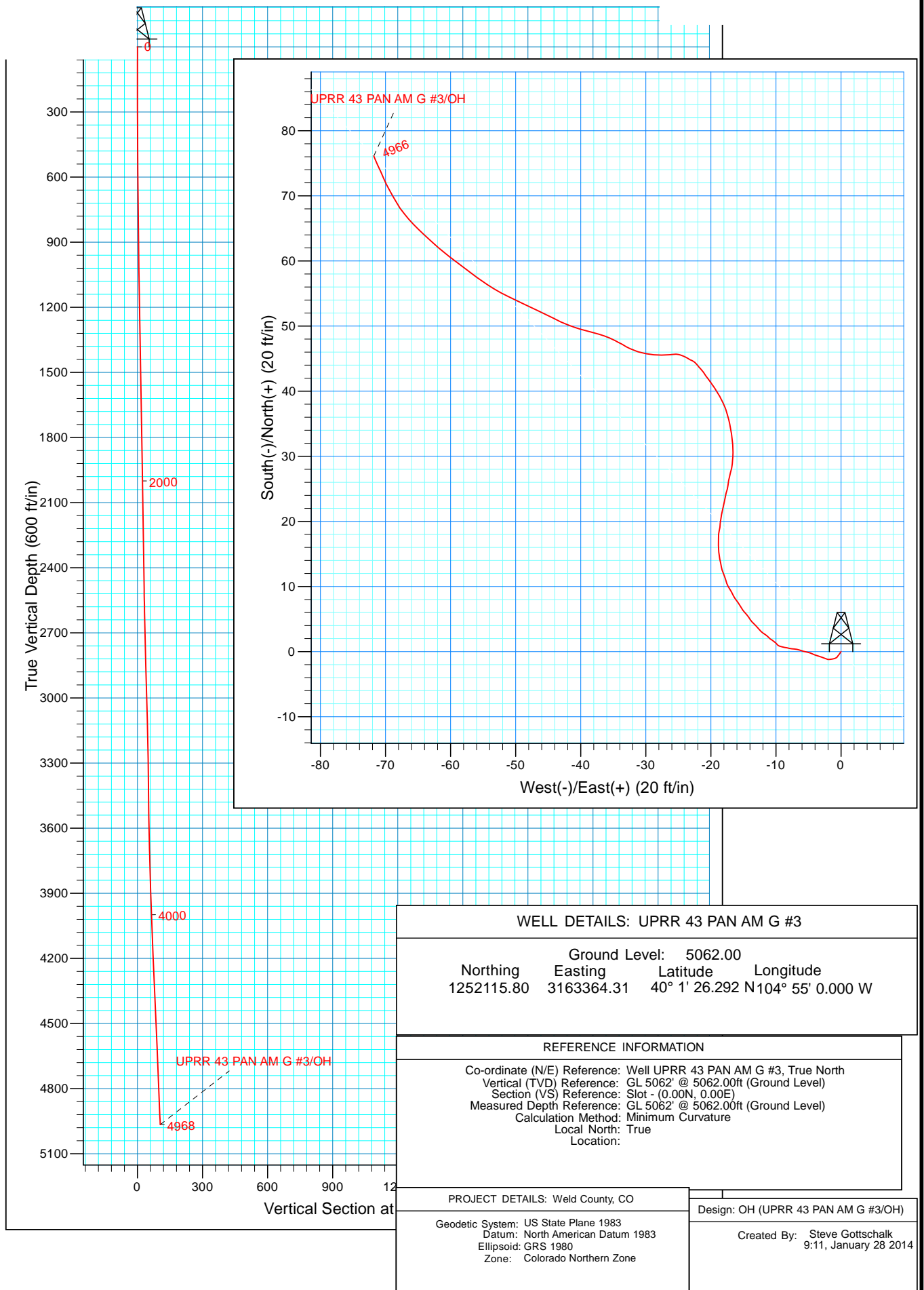
**Design: OH**

## **Standard Survey Report**

**28 January, 2014**



Project: Weld County, CO  
Site: UPPR  
Well: UPPR 43 PAN AM G #3



# Scientific Drilling International

## Survey Report

<b>Company:</b>	KP Kauffman Co, Inc.	<b>Local Co-ordinate Reference:</b>	Well UPRR 43 PAN AM G #3
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	GL 5062' @ 5062.00ft (Ground Level)
<b>Site:</b>	UPRR	<b>MD Reference:</b>	GL 5062' @ 5062.00ft (Ground Level)
<b>Well:</b>	UPRR 43 PAN AM G #3	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Casper District

<b>Project</b>	Weld County, CO		
<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		UPPR			
Site Position:		Northing:	1,252,115.82 usft	Latitude:	40° 1' 26.292 N
From:	Lat/Long	Easting:	3,163,364.30 usft	Longitude:	104° 55' 0.000 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.38 °

Well	UPRR 43 PAN AM G #3, 1980' FNL, 1980' FWL, SEC 29 T1N R67W					
Well Position	+N/-S	0.00 ft	Northing:	1,252,115.80 usft	Latitude:	40° 1' 26.292 N
	+E/-W	0.00 ft	Easting:	3,163,364.31 usft	Longitude:	104° 55' 0.000 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	5,062.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2013	1/17/2014	8.61	66.62	52,564

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	316.68	

<b>Survey Program</b>	<b>Date</b>	1/28/2014			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
100.36	4,967.59	Survey #1 Surface Gyros (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3	

<b>Survey</b>									
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.36	0.42	217.75	100.36	-0.29	-0.23	-0.06	0.42	0.42	0.00
<b>First SDI Gyro Survey</b>									
125.25	0.38	207.89	125.25	-0.44	-0.32	-0.10	0.32	-0.16	-39.61
150.39	0.45	223.72	150.39	-0.58	-0.43	-0.13	0.53	0.28	62.97
176.07	0.36	214.97	176.07	-0.72	-0.54	-0.15	0.42	-0.35	-34.07
200.28	0.31	219.13	200.28	-0.83	-0.63	-0.18	0.23	-0.21	17.18
226.04	0.27	236.82	226.04	-0.92	-0.72	-0.17	0.38	-0.16	68.67
250.98	0.33	243.00	250.98	-0.99	-0.84	-0.14	0.27	0.24	24.78
275.99	0.22	233.25	275.99	-1.05	-0.94	-0.12	0.48	-0.44	-38.98
301.03	0.28	255.54	301.03	-1.09	-1.04	-0.08	0.45	0.24	89.02

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## Survey Report

<b>Company:</b>	KP Kauffman Co, Inc.	<b>Local Co-ordinate Reference:</b>	Well UPRR 43 PAN AM G #3
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	GL 5062' @ 5062.00ft (Ground Level)
<b>Site:</b>	UPPR	<b>MD Reference:</b>	GL 5062' @ 5062.00ft (Ground Level)
<b>Well:</b>	UPRR 43 PAN AM G #3	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Casper District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
325.72	0.30	266.05	325.72	-1.11	-1.16	-0.01	0.23	0.08	42.57
350.04	0.31	259.93	350.03	-1.13	-1.29	0.06	0.14	0.04	-25.16
375.85	0.40	261.36	375.84	-1.15	-1.45	0.15	0.35	0.35	5.54
400.56	0.51	260.68	400.55	-1.18	-1.64	0.26	0.45	0.45	-2.75
425.69	0.44	266.23	425.68	-1.21	-1.85	0.39	0.33	-0.28	22.09
450.79	0.40	277.06	450.78	-1.20	-2.03	0.52	0.35	-0.16	43.15
475.58	0.47	289.73	475.57	-1.16	-2.21	0.67	0.48	0.28	51.11
500.99	0.47	296.46	500.98	-1.08	-2.40	0.86	0.22	0.00	26.49
525.06	0.67	294.32	525.05	-0.97	-2.62	1.09	0.84	0.83	-8.89
550.43	0.73	290.05	550.42	-0.86	-2.91	1.37	0.31	0.24	-16.83
575.64	0.69	284.45	575.63	-0.76	-3.20	1.64	0.32	-0.16	-22.21
600.72	0.73	285.40	600.70	-0.68	-3.50	1.91	0.17	0.16	3.79
625.93	0.69	289.29	625.91	-0.59	-3.80	2.18	0.25	-0.16	15.43
650.73	0.75	294.60	650.71	-0.47	-4.09	2.46	0.36	0.24	21.41
675.14	0.81	292.62	675.12	-0.34	-4.39	2.77	0.27	0.25	-8.11
700.24	0.93	289.27	700.21	-0.21	-4.75	3.11	0.52	0.48	-13.35
725.80	0.86	283.01	725.77	-0.09	-5.13	3.45	0.47	-0.27	-24.49
750.20	0.77	281.82	750.17	-0.02	-5.47	3.74	0.38	-0.37	-4.88
775.69	0.75	284.34	775.66	0.06	-5.80	4.02	0.15	-0.08	9.89
800.17	0.74	292.55	800.13	0.16	-6.10	4.30	0.44	-0.04	33.54
825.75	0.79	285.39	825.71	0.27	-6.43	4.60	0.42	0.20	-27.99
850.98	0.94	281.78	850.94	0.36	-6.80	4.92	0.63	0.59	-14.31
875.25	0.91	273.87	875.21	0.41	-7.18	5.23	0.54	-0.12	-32.59
901.04	0.77	273.31	900.99	0.43	-7.56	5.50	0.54	-0.54	-2.17
925.21	0.88	282.41	925.16	0.48	-7.90	5.77	0.71	0.46	37.65
950.85	0.97	283.53	950.80	0.58	-8.31	6.12	0.36	0.35	4.37
975.47	1.00	281.32	975.41	0.67	-8.72	6.47	0.20	0.12	-8.98
1,000.51	0.98	283.36	1,000.45	0.76	-9.14	6.82	0.16	-0.08	8.15
1,025.32	0.64	290.44	1,025.26	0.86	-9.48	7.13	1.43	-1.37	28.54
1,050.56	0.58	310.22	1,050.50	0.99	-9.71	7.38	0.86	-0.24	78.37
1,075.14	0.71	322.66	1,075.07	1.19	-9.90	7.65	0.77	0.53	50.61
1,100.09	0.73	306.42	1,100.02	1.41	-10.12	7.96	0.82	0.08	-65.09
1,125.77	0.74	304.61	1,125.70	1.60	-10.39	8.29	0.10	0.04	-7.05
1,150.78	0.62	306.88	1,150.71	1.77	-10.63	8.58	0.49	-0.48	9.08
1,175.68	0.69	309.36	1,175.61	1.95	-10.85	8.86	0.30	0.28	9.96
1,200.66	0.78	313.64	1,200.59	2.16	-11.09	9.18	0.42	0.36	17.13
1,225.67	0.87	311.35	1,225.59	2.40	-11.36	9.54	0.38	0.36	-9.16
1,250.70	0.95	305.29	1,250.62	2.65	-11.67	9.93	0.50	0.32	-24.21
1,275.97	0.83	302.01	1,275.89	2.87	-11.99	10.31	0.52	-0.47	-12.98
1,300.97	0.83	312.02	1,300.88	3.08	-12.28	10.67	0.58	0.00	40.04
1,325.96	0.89	320.75	1,325.87	3.35	-12.54	11.04	0.58	0.24	34.93
1,350.59	1.02	317.70	1,350.50	3.66	-12.81	11.45	0.57	0.53	-12.38
1,375.60	1.05	315.61	1,375.50	3.99	-13.12	11.90	0.19	0.12	-8.36

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## Survey Report

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<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	GL 5062' @ 5062.00ft (Ground Level)
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<b>Well:</b>	UPRR 43 PAN AM G #3	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Casper District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,400.60	0.93	312.36	1,400.50	4.29	-13.43	12.34	0.53	-0.48	-13.00
1,425.90	0.99	320.95	1,425.80	4.60	-13.72	12.76	0.62	0.24	33.95
1,451.31	1.03	327.46	1,451.20	4.96	-13.98	13.20	0.48	0.16	25.62
1,475.22	1.15	323.50	1,475.11	5.34	-14.24	13.65	0.59	0.50	-16.56
1,500.14	1.13	318.69	1,500.02	5.72	-14.55	14.15	0.39	-0.08	-19.30
1,525.91	0.97	319.86	1,525.79	6.08	-14.86	14.62	0.63	-0.62	4.54
1,550.15	1.00	323.82	1,550.03	6.41	-15.11	15.03	0.31	0.12	16.34
1,575.89	1.05	330.73	1,575.76	6.80	-15.36	15.48	0.52	0.19	26.85
1,600.77	1.15	326.16	1,600.64	7.20	-15.61	15.95	0.53	0.40	-18.37
1,625.04	1.10	326.81	1,624.90	7.60	-15.87	16.42	0.21	-0.21	2.68
1,651.25	1.02	318.89	1,651.11	7.99	-16.17	16.90	0.64	-0.31	-30.22
1,675.14	0.96	331.97	1,674.99	8.32	-16.40	17.31	0.98	-0.25	54.75
1,701.19	1.06	331.63	1,701.04	8.73	-16.62	17.75	0.38	0.38	-1.31
1,725.53	1.21	331.50	1,725.38	9.15	-16.85	18.22	0.62	0.62	-0.53
1,750.88	1.16	329.66	1,750.72	9.61	-17.10	18.72	0.25	-0.20	-7.26
1,775.39	1.15	329.77	1,775.22	10.03	-17.35	19.21	0.04	-0.04	0.45
1,800.70	1.08	342.95	1,800.53	10.48	-17.55	19.67	1.05	-0.28	52.07
1,825.41	1.18	342.48	1,825.24	10.95	-17.70	20.11	0.41	0.40	-1.90
1,850.87	1.37	339.23	1,850.69	11.48	-17.88	20.62	0.80	0.75	-12.77
1,875.19	1.32	339.03	1,875.00	12.02	-18.09	21.15	0.21	-0.21	-0.82
1,900.68	1.20	342.01	1,900.49	12.54	-18.27	21.66	0.54	-0.47	11.69
1,925.16	1.18	348.69	1,924.96	13.03	-18.40	22.11	0.57	-0.08	27.29
1,950.65	1.31	351.01	1,950.44	13.58	-18.50	22.57	0.55	0.51	9.10
1,975.79	1.37	349.34	1,975.58	14.16	-18.60	23.06	0.28	0.24	-6.64
2,000.51	1.31	348.44	2,000.29	14.73	-18.71	23.55	0.26	-0.24	-3.64
2,025.28	1.19	352.80	2,025.06	15.26	-18.80	24.00	0.62	-0.48	17.60
2,050.78	1.25	359.69	2,050.55	15.80	-18.83	24.42	0.62	0.24	27.02
2,075.58	1.32	0.04	2,075.34	16.36	-18.84	24.82	0.28	0.28	1.41
2,100.03	1.35	359.72	2,099.79	16.93	-18.84	25.24	0.13	0.12	-1.31
2,125.92	1.24	358.91	2,125.67	17.51	-18.84	25.67	0.43	-0.42	-3.13
2,151.09	1.16	5.03	2,150.83	18.04	-18.83	26.04	0.60	-0.32	24.31
2,175.48	1.23	13.99	2,175.22	18.54	-18.74	26.34	0.82	0.29	36.74
2,200.29	1.32	10.03	2,200.02	19.08	-18.63	26.66	0.51	0.36	-15.96
2,225.48	1.34	4.25	2,225.21	19.66	-18.56	27.03	0.54	0.08	-22.95
2,250.69	1.28	6.49	2,250.41	20.23	-18.50	27.41	0.31	-0.24	8.89
2,276.00	1.24	7.55	2,275.71	20.78	-18.43	27.77	0.18	-0.16	4.19
2,300.02	1.36	16.74	2,299.73	21.31	-18.32	28.07	1.00	0.50	38.26
2,325.02	1.48	13.90	2,324.72	21.91	-18.15	28.40	0.56	0.48	-11.36
2,350.15	1.56	11.05	2,349.84	22.56	-18.01	28.77	0.44	0.32	-11.34
2,376.28	1.24	6.82	2,375.96	23.19	-17.91	29.16	1.29	-1.22	-16.19
2,400.27	1.36	13.19	2,399.95	23.73	-17.81	29.48	0.78	0.50	26.55
2,425.93	1.45	16.88	2,425.60	24.33	-17.65	29.81	0.50	0.35	14.38
2,450.62	1.52	13.22	2,450.28	24.95	-17.48	30.15	0.48	0.28	-14.82

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<b>Well:</b>	UPRR 43 PAN AM G #3	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Casper District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
2,475.29	1.55	8.22	2,474.94	25.60	-17.36	30.54	0.56	0.12	-20.27	
2,500.34	1.46	7.65	2,499.98	26.25	-17.27	30.95	0.36	-0.36	-2.28	
2,526.01	1.39	14.80	2,525.65	26.88	-17.15	31.32	0.74	-0.27	27.85	
2,550.06	1.56	14.86	2,549.69	27.47	-16.99	31.64	0.71	0.71	0.25	
2,575.82	1.57	11.87	2,575.44	28.16	-16.83	32.03	0.32	0.04	-11.61	
2,600.59	1.58	6.12	2,600.20	28.83	-16.72	32.45	0.64	0.04	-23.21	
2,625.54	1.53	4.24	2,625.14	29.50	-16.66	32.89	0.29	-0.20	-7.54	
2,650.37	1.64	2.76	2,649.96	30.19	-16.62	33.36	0.47	0.44	-5.96	
2,675.33	1.74	0.20	2,674.91	30.93	-16.60	33.89	0.50	0.40	-10.26	
2,700.40	1.82	354.28	2,699.97	31.70	-16.64	34.48	0.80	0.32	-23.61	
2,725.07	1.80	351.34	2,724.62	32.47	-16.73	35.11	0.38	-0.08	-11.92	
2,750.91	1.73	353.95	2,750.45	33.26	-16.84	35.75	0.41	-0.27	10.10	
2,776.29	1.90	352.26	2,775.82	34.06	-16.93	36.40	0.70	0.67	-6.66	
2,800.10	1.89	349.59	2,799.62	34.84	-17.06	37.05	0.37	-0.04	-11.21	
2,825.94	1.85	343.75	2,825.44	35.66	-17.25	37.78	0.75	-0.15	-22.60	
2,850.99	1.78	343.41	2,850.48	36.42	-17.48	38.49	0.28	-0.28	-1.36	
2,875.82	1.81	342.79	2,875.30	37.16	-17.70	39.18	0.14	0.12	-2.50	
2,900.83	1.89	337.29	2,900.30	37.92	-17.98	39.92	0.78	0.32	-21.99	
2,925.70	1.79	328.77	2,925.15	38.63	-18.34	40.69	1.17	-0.40	-34.26	
2,950.75	1.70	329.07	2,950.19	39.29	-18.73	41.43	0.36	-0.36	1.20	
2,975.57	1.75	330.75	2,975.00	39.93	-19.11	42.16	0.29	0.20	6.77	
3,000.58	1.80	327.43	3,000.00	40.60	-19.50	42.92	0.46	0.20	-13.27	
3,025.82	1.64	324.60	3,025.23	41.22	-19.93	43.66	0.72	-0.63	-11.21	
3,050.02	1.68	320.51	3,049.42	41.78	-20.35	44.36	0.52	0.17	-16.90	
3,075.85	1.49	326.31	3,075.24	42.35	-20.78	45.07	0.96	-0.74	22.45	
3,100.78	1.42	324.27	3,100.16	42.87	-21.14	45.69	0.35	-0.28	-8.18	
3,125.20	1.32	319.21	3,124.57	43.33	-21.50	46.28	0.64	-0.41	-20.72	
3,150.90	1.11	320.12	3,150.27	43.75	-21.85	46.82	0.82	-0.82	3.54	
3,175.40	1.07	320.16	3,174.76	44.10	-22.15	47.29	0.16	-0.16	0.16	
3,200.27	1.07	309.80	3,199.63	44.43	-22.48	47.75	0.78	0.00	-41.66	
3,225.86	0.97	294.15	3,225.21	44.67	-22.86	48.18	1.15	-0.39	-61.16	
3,250.11	0.87	298.93	3,249.46	44.85	-23.21	48.55	0.52	-0.41	19.71	
3,275.62	0.95	302.38	3,274.97	45.05	-23.56	48.94	0.38	0.31	13.52	
3,300.78	1.05	293.33	3,300.12	45.26	-23.94	49.35	0.74	0.40	-35.97	
3,325.01	0.90	291.86	3,324.35	45.41	-24.33	49.73	0.63	-0.62	-6.07	
3,350.64	0.71	293.25	3,349.98	45.55	-24.66	50.06	0.75	-0.74	5.42	
3,375.22	0.83	281.30	3,374.55	45.65	-24.97	50.34	0.81	0.49	-48.62	
3,400.10	0.98	268.63	3,399.43	45.68	-25.36	50.63	1.00	0.60	-50.92	
3,425.43	0.80	262.71	3,424.76	45.65	-25.75	50.88	0.80	-0.71	-23.37	
3,450.44	0.98	269.05	3,449.76	45.62	-26.14	51.13	0.82	0.72	25.35	
3,475.01	1.07	264.89	3,474.33	45.60	-26.58	51.41	0.48	0.37	-16.93	
3,500.37	1.06	263.02	3,499.69	45.55	-27.05	51.70	0.14	-0.04	-7.37	
3,525.02	1.18	272.17	3,524.33	45.53	-27.53	52.01	0.87	0.49	37.12	
3,550.70	1.39	273.79	3,550.01	45.56	-28.10	52.43	0.83	0.82	6.31	

# Scientific Drilling International

## Survey Report

<b>Company:</b>	KP Kauffman Co, Inc.	<b>Local Co-ordinate Reference:</b>	Well UPRR 43 PAN AM G #3
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	GL 5062' @ 5062.00ft (Ground Level)
<b>Site:</b>	UPRR	<b>MD Reference:</b>	GL 5062' @ 5062.00ft (Ground Level)
<b>Well:</b>	UPRR 43 PAN AM G #3	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Casper District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3,576.16	1.43	272.84	3,575.46	45.60	-28.73	52.88	0.18	0.16	-3.73
3,600.80	1.33	277.70	3,600.09	45.65	-29.32	53.33	0.62	-0.41	19.72
3,625.62	1.50	283.24	3,624.90	45.77	-29.92	53.82	0.88	0.68	22.32
3,650.28	1.54	280.88	3,649.55	45.90	-30.56	54.36	0.30	0.16	-9.57
3,675.65	1.43	286.33	3,674.92	46.06	-31.20	54.91	0.71	-0.43	21.48
3,700.02	1.59	293.37	3,699.28	46.27	-31.80	55.48	1.00	0.66	28.89
3,725.84	1.56	293.03	3,725.09	46.55	-32.45	56.14	0.12	-0.12	-1.32
3,750.59	1.51	299.87	3,749.83	46.85	-33.05	56.76	0.77	-0.20	27.64
3,775.71	1.64	299.78	3,774.94	47.19	-33.65	57.42	0.52	0.52	-0.36
3,800.11	1.64	295.65	3,799.33	47.52	-34.26	58.08	0.48	0.00	-16.93
3,825.72	1.57	298.07	3,824.93	47.84	-34.90	58.75	0.38	-0.27	9.45
3,850.01	1.78	296.12	3,849.21	48.16	-35.54	59.42	0.90	0.86	-8.03
3,875.86	1.85	287.75	3,875.05	48.47	-36.29	60.16	1.06	0.27	-32.38
3,901.44	1.94	286.94	3,900.61	48.72	-37.10	60.90	0.37	0.35	-3.17
3,926.06	2.34	285.46	3,925.21	48.97	-37.98	61.69	1.64	1.62	-6.01
3,950.82	2.35	283.04	3,949.95	49.22	-38.97	62.54	0.40	0.04	-9.77
3,975.52	2.37	286.21	3,974.63	49.48	-39.95	63.41	0.53	0.08	12.83
4,001.00	2.55	289.93	4,000.09	49.82	-40.99	64.37	0.94	0.71	14.60
4,025.74	2.54	289.51	4,024.81	50.19	-42.02	65.35	0.09	-0.04	-1.70
4,051.28	2.53	296.35	4,050.32	50.63	-43.06	66.38	1.18	-0.04	26.78
4,075.31	2.64	296.88	4,074.33	51.12	-44.03	67.40	0.47	0.46	2.21
4,100.38	2.68	294.90	4,099.37	51.62	-45.08	68.48	0.40	0.16	-7.90
4,125.05	2.62	297.98	4,124.01	52.13	-46.10	69.55	0.63	-0.24	12.48
4,150.97	2.73	293.90	4,149.90	52.66	-47.18	70.68	0.85	0.42	-15.74
4,175.29	2.59	297.00	4,174.20	53.14	-48.20	71.74	0.83	-0.58	12.75
4,201.09	2.71	294.79	4,199.97	53.66	-49.28	72.85	0.61	0.47	-8.57
4,225.12	2.58	292.70	4,223.97	54.11	-50.29	73.87	0.67	-0.54	-8.70
4,250.22	2.59	297.89	4,249.05	54.59	-51.31	74.92	0.93	0.04	20.68
4,275.33	2.64	298.59	4,274.13	55.14	-52.32	76.01	0.24	0.20	2.79
4,300.94	2.56	301.15	4,299.72	55.71	-53.33	77.12	0.55	-0.31	10.00
4,325.01	2.50	303.51	4,323.76	56.28	-54.23	78.15	0.50	-0.25	9.80
4,350.32	2.49	303.69	4,349.05	56.89	-55.15	79.23	0.05	-0.04	0.71
4,375.10	2.41	307.58	4,373.81	57.51	-56.01	80.26	0.74	-0.32	15.70
4,400.95	2.53	305.82	4,399.63	58.17	-56.90	81.36	0.55	0.46	-6.81
4,425.43	2.42	307.99	4,424.09	58.81	-57.75	82.40	0.59	-0.45	8.86
4,450.86	2.57	306.44	4,449.50	59.48	-58.63	83.49	0.65	0.59	-6.10
4,475.29	2.37	307.37	4,473.90	60.11	-59.47	84.53	0.83	-0.82	3.81
4,500.43	2.35	309.08	4,499.02	60.75	-60.28	85.56	0.29	-0.08	6.80
4,526.29	2.29	307.83	4,524.86	61.40	-61.10	86.59	0.30	-0.23	-4.83
4,550.02	2.33	310.60	4,548.57	62.01	-61.84	87.54	0.50	0.17	11.67
4,575.55	2.34	311.98	4,574.08	62.69	-62.62	88.58	0.22	0.04	5.41
4,600.30	2.45	314.09	4,598.81	63.40	-63.38	89.61	0.57	0.44	8.53
4,625.90	2.45	311.93	4,624.38	64.14	-64.18	90.70	0.36	0.00	-8.44



# Scientific Drilling International

## Survey Report

<b>Company:</b>	KP Kauffman Co, Inc.	<b>Local Co-ordinate Reference:</b>	Well UPRR 43 PAN AM G #3
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	GL 5062' @ 5062.00ft (Ground Level)
<b>Site:</b>	UPRR	<b>MD Reference:</b>	GL 5062' @ 5062.00ft (Ground Level)
<b>Well:</b>	UPRR 43 PAN AM G #3	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Casper District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
4,650.29	2.46	313.64	4,648.75	64.85	-64.95	91.74	0.30	0.04	7.01	
4,675.48	2.51	317.12	4,673.92	65.63	-65.71	92.83	0.63	0.20	13.82	
4,700.37	2.43	318.85	4,698.79	66.43	-66.43	93.90	0.44	-0.32	6.95	
4,725.39	2.49	321.35	4,723.78	67.25	-67.12	94.98	0.49	0.24	9.99	
4,750.72	2.40	324.80	4,749.09	68.11	-67.77	96.05	0.68	-0.36	13.62	
4,775.67	2.39	330.76	4,774.02	69.00	-68.32	97.07	1.00	-0.04	23.89	
4,801.06	2.50	329.95	4,799.38	69.94	-68.86	98.12	0.45	0.43	-3.19	
4,825.56	2.34	331.79	4,823.86	70.84	-69.36	99.13	0.73	-0.65	7.51	
4,851.21	2.55	332.65	4,849.49	71.81	-69.87	100.18	0.83	0.82	3.35	
4,875.90	2.35	338.90	4,874.16	72.77	-70.31	101.18	1.35	-0.81	25.31	
4,900.27	2.57	333.96	4,898.50	73.73	-70.73	102.16	1.25	0.90	-20.27	
4,925.69	2.29	335.08	4,923.90	74.70	-71.19	103.19	1.12	-1.10	4.41	
4,950.57	2.13	338.70	4,948.76	75.58	-71.57	104.09	0.85	-0.64	14.55	
4,967.59	1.85	336.07	4,965.77	76.13	-71.80	104.64	1.73	-1.65	-15.45	
Last SDI Gyro Survey										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
100.36	100.36	-0.29	-0.23	First SDI Gyro Survey	
4,967.59	4,965.77	76.13	-71.80	Last SDI Gyro Survey	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_