



**Scientific
Drilling**

Survey Certification

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

Operator	K.P. Kauffman
Well Name & No.	Yoxall Farms #1
County & State	Weld County, CO
SDI Job No.	410913K60541
Rig	N/A
Survey Date	24-Sep-2013

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 4920 feet is true and correct as determined from all available records.

Signature

30-Sep-2013

Date

Steven F. Gottschalk

Rockies Region Well Planner
Scientific Drilling - Rocky Mountain District

KP Kauffman Co, Inc.

Weld County, CO

Yoxall Farms

Yoxall Farms #1

OH

Design: OH

Standard Survey Report

30 September, 2013



Scientific Drilling International

Survey Report

Company:	KP Kauffman Co, Inc.	Local Co-ordinate Reference:	Well Yoxall Farms #1
Project:	Weld County, CO	TVD Reference:	GL 5006' @ 5006.00ft (Ground Level)
Site:	Yoxall Farms	MD Reference:	GL 5006' @ 5006.00ft (Ground Level)
Well:	Yoxall Farms #1	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Casper District

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

Site		Yoxall Farms			
Site Position:		Northing:	1,249,521.18 usft	Latitude:	40° 1' 0.300 N
From:	Lat/Long	Easting:	3,168,671.98 usft	Longitude:	104° 53' 52.000 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.39 °

Well	Yoxall Farms #1, 660 FSL, 1980 FWL SEC 28 T1N R67W					
Well Position	+N/-S	0.00 ft	Northing:	1,249,521.17 usft	Latitude:	40° 1' 0.300 N
	+E/-W	0.00 ft	Easting:	3,168,671.98 usft	Longitude:	104° 53' 52.000 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	5,006.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	9/24/2013	8.63	66.63	52,602

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	322.68	

Survey Program	Date	9/30/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
100.00	4,920.00	Survey #1 Surface Gyros (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3	

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.43	130.69	100.00	-0.24	0.28	-0.37	0.43	0.43	0.00
First SDI Gyro Survey									
200.00	0.26	200.06	200.00	-0.70	0.49	-0.86	0.42	-0.17	69.37
300.00	0.28	258.93	300.00	-0.96	0.17	-0.87	0.27	0.02	58.87
400.00	0.37	322.62	400.00	-0.75	-0.26	-0.44	0.35	0.09	63.69
500.00	0.56	312.90	499.99	-0.16	-0.82	0.36	0.21	0.19	-9.72
600.00	0.65	316.78	599.99	0.58	-1.56	1.41	0.10	0.09	3.88
700.00	0.83	319.97	699.98	1.55	-2.42	2.70	0.18	0.18	3.19
800.00	0.81	322.83	799.97	2.67	-3.31	4.13	0.05	-0.02	2.86
900.00	0.71	320.09	899.96	3.71	-4.13	5.45	0.11	-0.10	-2.74

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Site:	Yoxall Farms	MD Reference:	GL 5006' @ 5006.00ft (Ground Level)
Well:	Yoxall Farms #1	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	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)
1,000.00	0.64	310.76	999.95	4.55	-4.95	6.62	0.13	-0.07	-9.33
1,100.00	0.54	320.88	1,099.95	5.28	-5.68	7.64	0.14	-0.10	10.12
1,200.00	0.47	322.21	1,199.94	5.97	-6.22	8.52	0.07	-0.07	1.33
1,300.00	0.51	323.88	1,299.94	6.65	-6.74	9.37	0.04	0.04	1.67
1,400.00	0.46	308.44	1,399.94	7.26	-7.31	10.21	0.14	-0.05	-15.44
1,500.00	0.63	309.66	1,499.93	7.86	-8.05	11.13	0.17	0.17	1.22
1,600.00	0.49	288.69	1,599.93	8.35	-8.88	12.02	0.25	-0.14	-20.97
1,700.00	0.63	304.43	1,699.92	8.80	-9.74	12.90	0.21	0.14	15.74
1,800.00	0.57	306.41	1,799.92	9.40	-10.59	13.90	0.06	-0.06	1.98
1,900.00	0.63	306.24	1,899.91	10.02	-11.44	14.90	0.06	0.06	-0.17
2,000.00	0.56	299.41	1,999.91	10.59	-12.31	15.88	0.10	-0.07	-6.83
2,100.00	0.73	302.67	2,099.90	11.17	-13.27	16.93	0.17	0.17	3.26
2,200.00	0.81	303.78	2,199.89	11.91	-14.39	18.19	0.08	0.08	1.11
2,300.00	0.75	309.19	2,299.88	12.71	-15.49	19.50	0.09	-0.06	5.41
2,400.00	0.93	310.97	2,399.87	13.66	-16.61	20.93	0.18	0.18	1.78
2,500.00	0.58	312.35	2,499.86	14.53	-17.59	22.22	0.35	-0.35	1.38
2,600.00	0.48	288.68	2,599.86	15.01	-18.36	23.07	0.24	-0.10	-23.67
2,700.00	0.52	272.85	2,699.85	15.16	-19.21	23.71	0.14	0.04	-15.83
2,800.00	0.58	273.55	2,799.85	15.22	-20.17	24.33	0.06	0.06	0.70
2,900.00	0.95	271.36	2,899.84	15.27	-21.51	25.18	0.37	0.37	-2.19
3,000.00	0.96	258.63	2,999.83	15.12	-23.16	26.07	0.21	0.01	-12.73
3,100.00	0.85	266.27	3,099.81	14.91	-24.72	26.84	0.16	-0.11	7.64
3,200.00	0.70	267.37	3,199.80	14.83	-26.07	27.60	0.15	-0.15	1.10
3,300.00	0.56	243.09	3,299.80	14.59	-27.11	28.04	0.30	-0.14	-24.28
3,400.00	0.31	173.00	3,399.80	14.10	-27.52	27.89	0.54	-0.25	-70.09
3,500.00	0.51	332.96	3,499.79	14.22	-27.69	28.10	0.81	0.20	159.96
3,600.00	0.76	318.16	3,599.79	15.11	-28.33	29.20	0.30	0.25	-14.80
3,700.00	1.17	325.73	3,699.77	16.45	-29.35	30.88	0.43	0.41	7.57
3,800.00	1.02	332.49	3,799.76	18.08	-30.33	32.77	0.20	-0.15	6.76
3,900.00	0.83	335.42	3,899.74	19.53	-31.05	34.36	0.20	-0.19	2.93
4,000.00	1.08	348.82	3,999.73	21.12	-31.53	35.91	0.33	0.25	13.40
4,100.00	0.80	35.68	4,099.72	22.61	-31.31	36.96	0.79	-0.28	46.86
4,200.00	1.29	38.76	4,199.70	24.05	-30.19	37.43	0.49	0.49	3.08
4,300.00	1.74	20.47	4,299.67	26.35	-28.96	38.51	0.66	0.45	-18.29
4,400.00	1.38	13.61	4,399.63	28.95	-28.14	40.08	0.40	-0.36	-6.86
4,500.00	0.95	7.74	4,499.61	30.94	-27.75	41.43	0.45	-0.43	-5.87
4,600.00	0.70	355.12	4,599.60	32.37	-27.69	42.53	0.31	-0.25	-12.62
4,700.00	1.22	344.84	4,699.58	34.00	-28.02	44.03	0.55	0.52	-10.28
4,800.00	1.31	341.65	4,799.56	36.12	-28.66	46.10	0.11	0.09	-3.19
4,920.00	1.19	343.06	4,919.53	38.61	-29.45	48.56	0.10	-0.10	1.18
Last SDI Gyro Survey									

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Site:	Yoxall Farms	MD Reference:	GL 5006' @ 5006.00ft (Ground Level)
Well:	Yoxall Farms #1	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Casper District

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
100.00	100.00	-0.24	0.28	First SDI Gyro Survey
4,920.00	4,919.53	38.61	-29.45	Last SDI Gyro Survey

Checked By: _____ Approved By: _____ Date: _____