



**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.	Doris Ackerson Unit 2
API #	05-123-08699
County & State	Weld County, CO
SDI Job No.	410115K249755
Rig	N/A
Survey Date	28-Jan-2015

I, Seth M. Burstad, 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 4759.31 feet is true and correct as determined from all available records.

Seth M. Burstad
Signature

30-Jan-2015
Date

Seth M. Burstad
Rockies Region Well Planner
Scientific Drilling - Rocky Mountain District

KP Kauffman Co, Inc.

Weld County, CO

Doris Ackerson

Doris Ackerson Unit 2

OH

Design: OH

Standard Survey Report

30 January, 2015



Company:	KP Kauffman Co, Inc.	Local Co-ordinate Reference:	Well Doris Ackerson Unit 2
Project:	Weld County, CO	TVD Reference:	GL 4955' @ 4955.00ft
Site:	Doris Ackerson	MD Reference:	GL 4955' @ 4955.00ft
Well:	Doris Ackerson Unit 2	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		Doris Ackerson			
Site Position:		Northing:	1,268,231.30 usft	Latitude:	40° 4' 4.296 N
From:	Lat/Long	Easting:	3,181,645.54 usft	Longitude:	104° 51' 3.492 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.42 °

Well	Doris Ackerson Unit 2, 660' FNL 660' FEL Sec 11 T1N R67W					
Well Position	+N/-S	0.00 ft	Northing:	1,269,363.95 usft	Latitude:	40° 4' 15.492 N
	+E/-W	0.00 ft	Easting:	3,181,612.06 usft	Longitude:	104° 51' 3.816 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,955.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	1/28/2015	8.46	66.63	52,468

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	308.60	

Survey Program	Date	1/30/2015			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
89.12	4,759.31	Survey #1 - SDI Gyro (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	
89.12	0.46	118.30	89.12	-0.17	0.31	-0.35	0.52	0.52	0.00	
First SDI Gyro Survey										
121.45	0.41	124.26	121.45	-0.30	0.52	-0.60	0.21	-0.15	18.43	
147.70	0.55	113.30	147.70	-0.40	0.72	-0.81	0.64	0.53	-41.75	
174.92	0.56	109.45	174.92	-0.49	0.96	-1.06	0.14	0.04	-14.14	
197.05	0.57	110.36	197.04	-0.57	1.17	-1.27	0.06	0.05	4.11	
223.92	0.52	117.74	223.91	-0.67	1.40	-1.52	0.32	-0.19	27.47	
245.89	0.51	123.48	245.88	-0.77	1.57	-1.71	0.24	-0.05	26.13	
272.60	0.50	132.01	272.59	-0.92	1.76	-1.95	0.28	-0.04	31.94	

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Well:	Doris Ackerson Unit 2	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)	
296.07	0.66	127.12	296.06	-1.07	1.94	-2.18	0.71	0.68	-20.84	
324.62	0.64	127.90	324.61	-1.26	2.20	-2.51	0.08	-0.07	2.73	
348.47	0.71	126.00	348.46	-1.43	2.42	-2.79	0.31	0.29	-7.97	
371.56	0.62	122.02	371.55	-1.58	2.64	-3.05	0.44	-0.39	-17.24	
395.46	0.51	101.50	395.44	-1.67	2.86	-3.28	0.96	-0.46	-85.86	
422.82	0.28	80.11	422.80	-1.69	3.04	-3.43	0.98	-0.84	-78.18	
446.79	0.17	37.23	446.77	-1.65	3.12	-3.47	0.81	-0.46	-178.89	
470.60	0.20	329.35	470.58	-1.58	3.12	-3.43	0.87	0.13	-285.09	
498.40	0.13	329.79	498.38	-1.51	3.08	-3.35	0.25	-0.25	1.58	
521.46	0.13	324.56	521.44	-1.47	3.05	-3.30	0.05	0.00	-22.68	
549.17	0.16	320.15	549.15	-1.41	3.01	-3.24	0.12	0.11	-15.91	
572.82	0.16	315.70	572.80	-1.37	2.97	-3.17	0.05	0.00	-18.82	
594.76	0.19	329.06	594.74	-1.31	2.93	-3.11	0.23	0.14	60.89	
624.72	0.18	338.45	624.70	-1.23	2.88	-3.02	0.11	-0.03	31.34	
648.57	0.20	354.07	648.55	-1.15	2.87	-2.96	0.23	0.08	65.49	
673.19	0.18	355.38	673.17	-1.07	2.86	-2.90	0.08	-0.08	5.32	
697.91	0.20	334.22	697.89	-0.99	2.84	-2.84	0.29	0.08	-85.60	
721.68	0.20	341.49	721.66	-0.91	2.81	-2.76	0.11	0.00	30.58	
746.23	0.19	302.73	746.21	-0.85	2.76	-2.69	0.53	-0.04	-157.88	
774.56	0.26	266.54	774.54	-0.83	2.65	-2.59	0.55	0.25	-127.74	
798.90	0.30	253.55	798.88	-0.85	2.54	-2.51	0.31	0.16	-53.37	
822.13	0.18	266.21	822.11	-0.87	2.44	-2.45	0.56	-0.52	54.50	
845.76	0.31	274.14	845.74	-0.87	2.34	-2.37	0.57	0.55	33.56	
870.34	0.28	260.48	870.32	-0.87	2.22	-2.28	0.31	-0.12	-55.57	
898.01	0.27	261.05	897.99	-0.90	2.09	-2.19	0.04	-0.04	2.06	
922.37	0.26	274.27	922.35	-0.90	1.97	-2.10	0.25	-0.04	54.27	
949.54	0.20	248.71	949.52	-0.91	1.87	-2.03	0.43	-0.22	-94.07	
974.48	0.19	245.81	974.46	-0.95	1.79	-1.99	0.06	-0.04	-11.63	
996.93	0.22	279.70	996.91	-0.95	1.71	-1.93	0.55	0.13	150.96	
1,021.09	0.31	289.63	1,021.07	-0.92	1.61	-1.83	0.42	0.37	41.10	
1,049.62	0.23	214.94	1,049.60	-0.95	1.50	-1.76	1.17	-0.28	-261.79	
1,073.14	0.27	192.58	1,073.12	-1.04	1.46	-1.79	0.44	0.17	-95.07	
1,097.02	0.27	214.81	1,097.00	-1.14	1.42	-1.82	0.44	0.00	93.09	
1,120.38	0.39	231.34	1,120.36	-1.23	1.32	-1.80	0.65	0.51	70.76	
1,149.05	0.32	217.66	1,149.03	-1.36	1.20	-1.78	0.38	-0.24	-47.72	
1,171.42	0.36	210.98	1,171.40	-1.47	1.12	-1.79	0.25	0.18	-29.86	
1,199.47	0.34	215.68	1,199.45	-1.61	1.03	-1.81	0.12	-0.07	16.76	
1,223.47	0.29	196.85	1,223.45	-1.73	0.97	-1.84	0.48	-0.21	-78.46	
1,246.68	0.27	175.15	1,246.66	-1.84	0.96	-1.90	0.46	-0.09	-93.49	
1,270.75	0.27	190.81	1,270.73	-1.95	0.95	-1.96	0.31	0.00	65.06	

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Well:	Doris Ackerson Unit 2	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)	
1,298.51	0.30	210.03	1,298.49	-2.08	0.90	-2.00	0.36	0.11	69.24	
1,322.31	0.33	218.18	1,322.29	-2.18	0.83	-2.01	0.23	0.13	34.24	
1,345.64	0.31	217.07	1,345.62	-2.29	0.75	-2.01	0.09	-0.09	-4.76	
1,373.44	0.34	221.49	1,373.41	-2.41	0.65	-2.01	0.14	0.11	15.90	
1,396.37	0.31	208.69	1,396.34	-2.52	0.58	-2.02	0.34	-0.13	-55.82	
1,424.62	0.26	208.58	1,424.59	-2.64	0.51	-2.04	0.18	-0.18	-0.39	
1,448.17	0.25	191.38	1,448.14	-2.74	0.47	-2.08	0.33	-0.04	-73.04	
1,470.96	0.23	208.89	1,470.93	-2.82	0.44	-2.11	0.33	-0.09	76.83	
1,499.34	0.27	217.27	1,499.31	-2.93	0.37	-2.12	0.19	0.14	29.53	
1,522.77	0.21	189.66	1,522.74	-3.01	0.33	-2.14	0.55	-0.26	-117.84	
1,547.55	0.29	218.59	1,547.52	-3.11	0.29	-2.16	0.59	0.32	116.75	
1,569.87	0.27	222.29	1,569.84	-3.19	0.22	-2.16	0.12	-0.09	16.58	
1,598.46	0.29	233.65	1,598.43	-3.28	0.11	-2.14	0.21	0.07	39.73	
1,622.20	0.22	221.10	1,622.17	-3.35	0.03	-2.12	0.38	-0.29	-52.86	
1,649.47	0.23	234.13	1,649.44	-3.43	-0.05	-2.10	0.19	0.04	47.78	
1,673.13	0.31	245.25	1,673.10	-3.48	-0.14	-2.06	0.40	0.34	47.00	
1,696.62	0.33	250.85	1,696.59	-3.53	-0.26	-2.00	0.16	0.09	23.84	
1,720.64	0.31	243.32	1,720.61	-3.58	-0.39	-1.93	0.19	-0.08	-31.35	
1,748.56	0.27	249.67	1,748.53	-3.64	-0.52	-1.87	0.18	-0.14	22.74	
1,772.10	0.28	248.46	1,772.07	-3.68	-0.62	-1.81	0.05	0.04	-5.14	
1,799.27	0.30	244.56	1,799.24	-3.73	-0.75	-1.74	0.10	0.07	-14.35	
1,822.78	0.35	251.08	1,822.75	-3.78	-0.87	-1.68	0.26	0.21	27.73	
1,846.14	0.29	249.84	1,846.11	-3.83	-0.99	-1.61	0.26	-0.26	-5.31	
1,873.20	0.35	256.13	1,873.17	-3.87	-1.14	-1.52	0.26	0.22	23.24	
1,896.36	0.33	252.52	1,896.33	-3.91	-1.27	-1.44	0.13	-0.09	-15.59	
1,923.47	0.40	259.23	1,923.44	-3.95	-1.44	-1.34	0.30	0.26	24.75	
1,948.18	0.36	261.69	1,948.15	-3.97	-1.60	-1.23	0.17	-0.16	9.96	
1,972.06	0.39	263.72	1,972.03	-3.99	-1.76	-1.12	0.14	0.13	8.50	
1,996.27	0.28	265.96	1,996.24	-4.01	-1.90	-1.02	0.46	-0.45	9.25	
2,024.24	0.34	272.78	2,024.21	-4.01	-2.05	-0.90	0.25	0.21	24.38	
2,047.80	0.28	273.08	2,047.77	-4.00	-2.17	-0.80	0.25	-0.25	1.27	
2,071.58	0.24	270.63	2,071.55	-4.00	-2.28	-0.71	0.17	-0.17	-10.30	
2,099.64	0.32	273.51	2,099.60	-3.99	-2.42	-0.60	0.29	0.29	10.26	
2,123.85	0.40	272.28	2,123.81	-3.99	-2.57	-0.48	0.33	0.33	-5.08	
2,147.36	0.34	274.58	2,147.32	-3.98	-2.72	-0.35	0.26	-0.26	9.78	
2,171.52	0.21	266.76	2,171.48	-3.97	-2.84	-0.26	0.56	-0.54	-32.37	
2,194.97	0.29	284.96	2,194.93	-3.96	-2.94	-0.17	0.48	0.34	77.61	
2,223.13	0.42	269.98	2,223.09	-3.94	-3.11	-0.03	0.56	0.46	-53.20	
2,247.25	0.29	275.35	2,247.21	-3.94	-3.26	0.09	0.56	-0.54	22.26	
2,274.97	0.39	279.64	2,274.93	-3.91	-3.42	0.23	0.37	0.36	15.48	

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Well:	Doris Ackerson Unit 2	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)	
2,298.84	0.38	286.28	2,298.80	-3.88	-3.58	0.38	0.19	-0.04	27.82	
2,323.22	0.36	273.15	2,323.18	-3.85	-3.73	0.51	0.36	-0.08	-53.86	
2,347.28	0.38	279.86	2,347.24	-3.83	-3.89	0.65	0.20	0.08	27.89	
2,371.89	0.33	271.32	2,371.85	-3.82	-4.04	0.77	0.30	-0.20	-34.70	
2,395.57	0.50	282.14	2,395.53	-3.79	-4.21	0.92	0.79	0.72	45.69	
2,424.90	0.31	291.40	2,424.86	-3.74	-4.41	1.11	0.68	-0.65	31.57	
2,448.70	0.26	294.97	2,448.66	-3.69	-4.52	1.22	0.22	-0.21	15.00	
2,472.83	0.36	308.65	2,472.79	-3.62	-4.62	1.35	0.51	0.41	56.69	
2,496.78	0.31	328.52	2,496.74	-3.52	-4.72	1.49	0.52	-0.21	82.96	
2,524.91	0.47	332.73	2,524.87	-3.35	-4.81	1.67	0.58	0.57	14.97	
2,549.14	0.45	344.85	2,549.10	-3.17	-4.88	1.83	0.41	-0.08	50.02	
2,571.70	0.53	323.92	2,571.66	-3.00	-4.96	2.01	0.86	0.35	-92.77	
2,596.21	0.44	330.66	2,596.16	-2.83	-5.08	2.20	0.43	-0.37	27.50	
2,620.96	0.48	341.70	2,620.91	-2.65	-5.16	2.38	0.39	0.16	44.61	
2,646.64	0.50	330.44	2,646.59	-2.45	-5.25	2.57	0.38	0.08	-43.85	
2,672.18	0.46	319.66	2,672.13	-2.27	-5.37	2.78	0.39	-0.16	-42.21	
2,696.59	0.56	324.47	2,696.54	-2.10	-5.50	2.99	0.45	0.41	19.71	
2,723.11	0.55	330.29	2,723.06	-1.88	-5.64	3.23	0.22	-0.04	21.95	
2,746.81	0.58	326.60	2,746.76	-1.69	-5.76	3.45	0.20	0.13	-15.57	
2,772.28	0.58	331.06	2,772.23	-1.47	-5.89	3.69	0.18	0.00	17.51	
2,796.98	0.58	333.96	2,796.93	-1.24	-6.01	3.92	0.12	0.00	11.74	
2,822.59	0.57	335.47	2,822.53	-1.01	-6.12	4.15	0.07	-0.04	5.90	
2,847.37	0.50	346.91	2,847.31	-0.79	-6.19	4.35	0.51	-0.28	46.17	
2,872.75	0.45	342.56	2,872.69	-0.59	-6.25	4.52	0.24	-0.20	-17.14	
2,897.29	0.41	356.15	2,897.23	-0.41	-6.28	4.65	0.45	-0.16	55.38	
2,922.32	0.36	328.45	2,922.26	-0.25	-6.33	4.79	0.76	-0.20	-110.67	
2,946.15	0.35	350.61	2,946.09	-0.12	-6.38	4.91	0.57	-0.04	92.99	
2,971.18	0.34	335.47	2,971.12	0.02	-6.43	5.04	0.37	-0.04	-60.49	
2,996.21	0.35	334.88	2,996.15	0.16	-6.49	5.17	0.04	0.04	-2.36	
3,020.28	0.38	334.52	3,020.22	0.30	-6.55	5.31	0.12	0.12	-1.50	
3,045.48	0.43	332.22	3,045.42	0.46	-6.63	5.47	0.21	0.20	-9.13	
3,073.42	0.38	331.15	3,073.36	0.63	-6.73	5.65	0.18	-0.18	-3.83	
3,098.36	0.38	325.83	3,098.30	0.77	-6.81	5.81	0.14	0.00	-21.33	
3,122.42	0.24	332.14	3,122.36	0.88	-6.88	5.93	0.60	-0.58	26.23	
3,147.38	0.31	322.45	3,147.32	0.98	-6.95	6.04	0.34	0.28	-38.82	
3,171.31	0.26	316.34	3,171.25	1.07	-7.03	6.16	0.24	-0.21	-25.53	
3,196.06	0.23	284.24	3,196.00	1.13	-7.11	6.26	0.56	-0.12	-129.70	
3,219.81	0.25	271.93	3,219.75	1.14	-7.21	6.35	0.23	0.08	-51.83	
3,248.79	0.45	264.61	3,248.73	1.13	-7.39	6.48	0.71	0.69	-25.26	
3,272.96	0.75	247.99	3,272.89	1.06	-7.63	6.62	1.42	1.24	-68.76	

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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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)	
3,296.61	0.78	254.65	3,296.54	0.96	-7.93	6.80	0.40	0.13	28.16	
3,320.98	0.83	247.99	3,320.91	0.85	-8.25	6.98	0.43	0.21	-27.33	
3,348.99	0.94	250.69	3,348.92	0.70	-8.66	7.20	0.42	0.39	9.64	
3,373.21	1.03	250.03	3,373.13	0.56	-9.05	7.42	0.37	0.37	-2.73	
3,397.32	1.00	244.22	3,397.24	0.40	-9.44	7.62	0.44	-0.12	-24.10	
3,420.39	1.07	244.28	3,420.31	0.21	-9.82	7.80	0.30	0.30	0.26	
3,445.17	1.15	246.64	3,445.08	0.02	-10.25	8.02	0.37	0.32	9.52	
3,474.47	1.23	246.72	3,474.37	-0.23	-10.81	8.31	0.27	0.27	0.27	
3,499.85	1.22	244.83	3,499.75	-0.45	-11.31	8.56	0.16	-0.04	-7.45	
3,524.26	1.25	246.55	3,524.15	-0.66	-11.79	8.80	0.20	0.12	7.05	
3,549.44	1.23	252.25	3,549.33	-0.86	-12.29	9.07	0.50	-0.08	22.64	
3,574.71	1.16	253.21	3,574.59	-1.01	-12.80	9.37	0.29	-0.28	3.80	
3,598.73	1.18	256.81	3,598.61	-1.14	-13.27	9.66	0.32	0.08	14.99	
3,623.72	1.20	256.91	3,623.59	-1.26	-13.78	9.98	0.08	0.08	0.40	
3,647.83	1.01	261.81	3,647.70	-1.35	-14.23	10.28	0.88	-0.79	20.32	
3,672.82	1.02	260.77	3,672.68	-1.41	-14.67	10.58	0.08	0.04	-4.16	
3,696.92	0.91	269.13	3,696.78	-1.45	-15.07	10.88	0.74	-0.46	34.69	
3,721.91	0.90	272.30	3,721.77	-1.44	-15.47	11.19	0.20	-0.04	12.69	
3,746.05	0.83	274.71	3,745.90	-1.42	-15.83	11.48	0.33	-0.29	9.98	
3,770.63	0.84	282.08	3,770.48	-1.37	-16.19	11.79	0.44	0.04	29.98	
3,794.68	0.80	285.94	3,794.53	-1.29	-16.52	12.11	0.28	-0.17	16.05	
3,824.44	0.70	280.27	3,824.29	-1.20	-16.90	12.46	0.42	-0.34	-19.05	
3,849.23	0.75	285.88	3,849.07	-1.13	-17.20	12.74	0.35	0.20	22.63	
3,873.25	0.74	286.52	3,873.09	-1.04	-17.50	13.03	0.05	-0.04	2.66	
3,898.16	0.63	289.45	3,898.00	-0.95	-17.79	13.31	0.46	-0.44	11.76	
3,922.04	0.75	299.32	3,921.88	-0.83	-18.05	13.59	0.71	0.50	41.33	
3,946.54	0.61	311.09	3,946.38	-0.66	-18.28	13.87	0.80	-0.57	48.04	
3,970.60	0.61	313.79	3,970.44	-0.49	-18.47	14.13	0.12	0.00	11.22	
3,995.29	0.59	322.24	3,995.12	-0.30	-18.65	14.38	0.37	-0.08	34.22	
4,024.83	0.60	307.72	4,024.66	-0.08	-18.86	14.69	0.51	0.03	-49.15	
4,048.72	0.63	317.30	4,048.55	0.09	-19.05	14.94	0.45	0.13	40.10	
4,073.33	0.64	315.31	4,073.16	0.29	-19.24	15.21	0.10	0.04	-8.09	
4,097.15	0.70	319.44	4,096.98	0.49	-19.43	15.49	0.32	0.25	17.34	
4,121.55	0.89	336.39	4,121.38	0.78	-19.60	15.80	1.23	0.78	69.47	
4,145.49	0.92	345.80	4,145.31	1.13	-19.72	16.12	0.63	0.13	39.31	
4,174.78	1.09	355.39	4,174.60	1.64	-19.80	16.50	0.81	0.58	32.74	
4,199.32	1.06	359.49	4,199.13	2.10	-19.82	16.80	0.34	-0.12	16.71	
4,222.79	1.04	0.89	4,222.60	2.53	-19.82	17.07	0.14	-0.09	5.97	
4,247.64	1.04	3.07	4,247.45	2.98	-19.80	17.34	0.16	0.00	8.77	
4,271.32	1.03	358.79	4,271.12	3.41	-19.80	17.60	0.33	-0.04	-18.07	

Company:	KP Kauffman Co, Inc.	Local Co-ordinate Reference:	Well Doris Ackerson Unit 2
Project:	Weld County, CO	TVD Reference:	GL 4955' @ 4955.00ft
Site:	Doris Ackerson	MD Reference:	GL 4955' @ 4955.00ft
Well:	Doris Ackerson Unit 2	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)	
4,299.84	1.15	357.23	4,299.64	3.95	-19.82	17.95	0.43	0.42	-5.47	
4,323.81	1.24	357.54	4,323.60	4.45	-19.84	18.28	0.38	0.38	1.29	
4,346.91	1.23	4.52	4,346.70	4.95	-19.83	18.58	0.65	-0.04	30.22	
4,370.71	1.26	10.48	4,370.49	5.46	-19.76	18.85	0.56	0.13	25.04	
4,398.58	1.17	5.52	4,398.35	6.04	-19.68	19.15	0.50	-0.32	-17.80	
4,423.44	1.15	14.97	4,423.21	6.54	-19.59	19.39	0.77	-0.08	38.01	
4,446.35	1.15	19.82	4,446.11	6.97	-19.45	19.55	0.42	0.00	21.17	
4,472.20	1.16	17.00	4,471.96	7.47	-19.29	19.73	0.22	0.04	-10.91	
4,495.74	1.15	18.48	4,495.49	7.92	-19.14	19.90	0.13	-0.04	6.29	
4,522.74	1.19	16.34	4,522.49	8.45	-18.98	20.10	0.22	0.15	-7.93	
4,546.10	1.35	14.14	4,545.84	8.95	-18.84	20.31	0.72	0.68	-9.42	
4,573.65	1.27	17.42	4,573.39	9.55	-18.67	20.55	0.40	-0.29	11.91	
4,596.27	1.28	18.04	4,596.00	10.03	-18.52	20.73	0.08	0.04	2.74	
4,623.51	1.41	21.34	4,623.23	10.63	-18.30	20.94	0.56	0.48	12.11	
4,649.83	1.37	25.68	4,649.55	11.22	-18.05	21.11	0.43	-0.15	16.49	
4,673.60	1.53	22.89	4,673.31	11.77	-17.80	21.25	0.74	0.67	-11.74	
4,697.15	1.53	23.66	4,696.85	12.34	-17.56	21.42	0.09	0.00	3.27	
4,723.84	1.32	12.89	4,723.53	12.97	-17.34	21.65	1.27	-0.79	-40.35	
4,759.31	1.14	12.66	4,758.99	13.71	-17.18	21.98	0.51	-0.51	-0.65	
Last SDI Gyro Survey										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
89.12	89.12	-0.17	0.31	First SDI Gyro Survey	
4,759.31	4,758.99	13.71	-17.18	Last SDI Gyro Survey	

Checked By: _____ Approved By: _____ Date: _____