



Gyroscopic Survey Report
for
K.P. Kauffman

Well Location	Weld County, Colorado
Well Name	1415 Corp Gas Unit G#1
Rig Number	
Survey Date	11/21/2014
Latitude	40.1323600°N
Longitude	104.8607700°W
North Reference	True North
Grid Correction	None
Depth Reference	Ground Level (4940.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 286.30Azim (deg)
Definitive Survey	1415 CORP GAS UNIT G#1 (05-123-10029)
Operator(s)	Jon Valenzuela

Well Notes

API-05-123-10029

Well Name: 1415 Corp Gas Unit G#1
Survey: 1415 CORP GAS UNIT G#1 (05-123-10029)
Survey Date: 11/21/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
99.18	0.37	69.40	99.18	-0.26	0.11	0.30	0.38	0.32	69.40
123.38	0.45	56.35	123.38	-0.38	0.19	0.46	0.49	0.50	66.92
149.08	0.31	53.23	149.08	-0.49	0.29	0.59	0.55	0.66	63.91
171.96	0.34	27.73	171.96	-0.54	0.39	0.68	0.64	0.78	60.12
198.92	0.37	29.56	198.92	-0.58	0.53	0.76	0.11	0.92	54.75
223.50	0.39	17.26	223.50	-0.59	0.68	0.82	0.34	1.07	50.23
248.47	0.19	352.93	248.46	-0.58	0.80	0.84	0.90	1.16	46.22
272.85	0.29	21.93	272.85	-0.57	0.90	0.86	0.64	1.24	43.52
297.81	0.30	353.70	297.81	-0.55	1.03	0.87	0.58	1.35	40.41
322.88	0.26	352.36	322.88	-0.50	1.15	0.86	0.17	1.43	36.85
348.13	0.20	347.75	348.12	-0.46	1.25	0.84	0.23	1.50	34.05
373.11	0.28	5.50	373.10	-0.43	1.35	0.84	0.42	1.59	31.86
397.21	0.13	344.56	397.21	-0.40	1.43	0.84	0.68	1.66	30.28
422.01	0.18	9.59	422.01	-0.38	1.50	0.84	0.33	1.72	29.16
446.77	0.21	44.48	446.77	-0.40	1.57	0.87	0.48	1.80	29.12
471.41	0.24	46.99	471.41	-0.44	1.63	0.94	0.13	1.89	29.95
499.93	0.24	42.93	499.92	-0.50	1.72	1.03	0.06	2.00	30.82
524.28	0.30	39.21	524.28	-0.55	1.80	1.10	0.26	2.11	31.37
549.21	0.26	45.52	549.21	-0.60	1.90	1.18	0.20	2.23	31.95
573.89	0.32	32.74	573.89	-0.65	1.99	1.26	0.34	2.36	32.30
598.31	0.27	22.78	598.30	-0.67	2.10	1.32	0.29	2.48	32.09
622.99	0.22	14.11	622.98	-0.68	2.20	1.35	0.23	2.58	31.56
646.88	0.24	5.03	646.87	-0.67	2.29	1.37	0.17	2.67	30.79
674.79	0.10	25.63	674.79	-0.66	2.37	1.38	0.53	2.75	30.22
699.11	0.10	15.07	699.11	-0.66	2.41	1.40	0.08	2.79	30.07
723.47	0.09	2.84	723.46	-0.66	2.45	1.40	0.09	2.82	29.79
748.65	0.03	335.82	748.64	-0.65	2.48	1.40	0.25	2.85	29.49
773.12	0.01	307.57	773.11	-0.64	2.49	1.40	0.10	2.85	29.33
798.29	0.09	258.12	798.28	-0.62	2.48	1.38	0.34	2.84	28.97
823.45	0.08	145.44	823.44	-0.62	2.46	1.37	0.57	2.82	28.99
848.51	0.12	230.73	848.50	-0.62	2.43	1.36	0.56	2.78	29.12
873.18	0.27	203.98	873.17	-0.60	2.36	1.31	0.68	2.70	29.02
898.32	0.31	204.86	898.31	-0.58	2.25	1.26	0.17	2.58	29.25
923.47	0.31	220.04	923.46	-0.54	2.13	1.19	0.33	2.44	29.07
948.57	0.24	199.05	948.56	-0.51	2.03	1.12	0.49	2.32	28.97

Well Name: 1415 Corp Gas Unit G#1
Survey: 1415 CORP GAS UNIT G#1 (05-123-10029)
Survey Date: 11/21/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
973.15	0.32	195.05	973.14	-0.51	1.92	1.09	0.34	2.20	29.64
998.28	0.33	196.56	998.27	-0.51	1.78	1.05	0.05	2.07	30.58
1023.52	0.30	182.89	1023.51	-0.52	1.64	1.03	0.32	1.94	32.03
1048.37	0.12	178.55	1048.36	-0.55	1.55	1.02	0.73	1.86	33.47
1073.67	0.22	188.21	1073.66	-0.56	1.47	1.02	0.39	1.79	34.63
1098.16	0.29	188.40	1098.15	-0.58	1.37	1.00	0.29	1.69	36.27
1122.12	0.27	193.21	1122.11	-0.59	1.25	0.98	0.14	1.59	38.08
1146.75	0.30	188.38	1146.74	-0.60	1.13	0.96	0.15	1.48	40.24
1174.88	0.20	195.85	1174.87	-0.61	1.01	0.93	0.35	1.38	42.70
1198.86	0.17	198.18	1198.85	-0.61	0.94	0.91	0.16	1.31	44.17
1223.50	0.08	267.25	1223.49	-0.59	0.90	0.88	0.63	1.26	44.38
1248.29	0.20	168.49	1248.28	-0.60	0.86	0.88	0.89	1.23	45.50
1272.84	0.14	189.99	1272.83	-0.62	0.79	0.88	0.33	1.18	48.08
1297.41	0.45	256.14	1297.40	-0.54	0.74	0.78	1.68	1.07	46.67
1321.57	0.21	236.81	1321.55	-0.43	0.69	0.65	1.07	0.95	43.39
1349.64	0.33	208.20	1349.62	-0.38	0.59	0.57	0.63	0.82	44.02
1374.24	0.23	221.92	1374.23	-0.35	0.49	0.50	0.48	0.70	45.75
1398.90	0.23	231.82	1398.89	-0.29	0.42	0.43	0.16	0.60	45.57
1423.48	0.29	241.70	1423.46	-0.22	0.36	0.34	0.31	0.50	42.98
1447.66	0.21	251.94	1447.65	-0.14	0.32	0.24	0.37	0.40	37.11
1472.31	0.29	231.29	1472.29	-0.07	0.27	0.15	0.50	0.31	29.33
1496.89	0.21	256.62	1496.87	0.01	0.22	0.06	0.56	0.22	14.69
1521.56	0.36	230.97	1521.55	0.09	0.16	-0.05	0.80	0.16	343.05
1549.73	0.24	260.65	1549.71	0.19	0.09	-0.18	0.69	0.20	297.31
1573.65	0.32	246.16	1573.64	0.29	0.06	-0.29	0.43	0.29	281.02
1598.54	0.30	255.82	1598.53	0.40	0.01	-0.41	0.22	0.41	271.66
1623.79	0.26	251.22	1623.78	0.50	-0.02	-0.53	0.18	0.53	267.56
1646.88	0.39	237.69	1646.87	0.60	-0.08	-0.65	0.63	0.65	262.86
1673.12	0.35	281.84	1673.11	0.74	-0.11	-0.80	1.06	0.81	262.03
1698.94	0.32	261.68	1698.93	0.88	-0.11	-0.95	0.46	0.95	263.59
1721.91	0.37	264.38	1721.89	1.01	-0.12	-1.08	0.25	1.09	263.53
1748.22	0.40	272.91	1748.20	1.17	-0.13	-1.26	0.24	1.27	264.26
1774.07	0.41	269.20	1774.05	1.35	-0.12	-1.44	0.11	1.45	265.11
1799.04	0.44	275.99	1799.02	1.53	-0.11	-1.63	0.23	1.63	265.97
1822.88	0.51	270.14	1822.86	1.72	-0.10	-1.83	0.34	1.83	266.71
1847.17	0.48	268.07	1847.15	1.92	-0.11	-2.03	0.12	2.04	266.96

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Survey Date: 11/21/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
1872.30	0.53	280.07	1872.28	2.14	-0.09	-2.25	0.45	2.26	267.68
1897.56	0.54	277.59	1897.53	2.37	-0.06	-2.49	0.11	2.49	268.72
1924.65	1.08	337.35	1924.62	2.66	0.20	-2.71	3.46	2.72	274.18
1948.24	0.60	293.57	1948.21	2.92	0.45	-2.91	3.27	2.95	278.86
1973.40	0.60	284.69	1973.37	3.18	0.54	-3.16	0.37	3.21	279.70
1998.46	0.73	306.21	1998.43	3.47	0.67	-3.42	1.12	3.48	281.07
2023.54	0.54	296.23	2023.51	3.73	0.82	-3.65	0.87	3.74	282.59
2048.23	0.55	288.06	2048.20	3.97	0.90	-3.87	0.32	3.98	283.15
2073.58	0.42	278.00	2073.55	4.18	0.96	-4.08	0.60	4.19	283.18
2098.29	0.44	302.72	2098.25	4.37	1.02	-4.25	0.76	4.37	283.49
2124.39	0.81	287.06	2124.35	4.65	1.13	-4.51	1.55	4.65	284.04
2148.13	0.67	291.70	2148.09	4.96	1.23	-4.80	0.64	4.96	284.36
2174.25	0.57	293.86	2174.21	5.24	1.34	-5.07	0.40	5.24	284.81
2197.99	0.52	292.11	2197.95	5.46	1.43	-5.27	0.25	5.46	285.15
2224.48	0.45	292.69	2224.44	5.68	1.51	-5.48	0.25	5.69	285.43
2248.25	0.45	281.52	2248.21	5.87	1.57	-5.66	0.37	5.87	285.48
2274.30	0.44	298.48	2274.26	6.07	1.64	-5.85	0.51	6.07	285.63
2299.59	0.34	311.54	2299.54	6.23	1.73	-5.99	0.53	6.23	286.13
2324.85	0.42	292.02	2324.80	6.39	1.82	-6.13	0.60	6.39	286.50
2349.38	0.34	292.88	2349.33	6.56	1.88	-6.28	0.35	6.56	286.65
2373.98	0.54	339.33	2373.93	6.70	2.01	-6.39	1.60	6.70	287.50
2399.01	0.35	302.80	2398.96	6.84	2.17	-6.49	1.32	6.85	288.45
2424.73	0.57	340.98	2424.68	6.99	2.33	-6.60	1.43	7.00	289.44
2448.14	0.56	334.14	2448.09	7.14	2.54	-6.69	0.30	7.16	290.82
2473.31	0.48	356.66	2473.26	7.25	2.76	-6.75	0.86	7.29	292.23
2499.49	0.48	0.46	2499.44	7.32	2.98	-6.76	0.12	7.38	293.77
2524.33	0.47	346.17	2524.28	7.40	3.18	-6.78	0.48	7.49	295.12
2548.92	0.36	359.50	2548.86	7.47	3.35	-6.80	0.60	7.59	296.24
2574.27	0.46	15.76	2574.22	7.50	3.53	-6.78	0.62	7.64	297.52
2596.49	0.41	3.08	2596.43	7.51	3.70	-6.75	0.49	7.69	298.72
2623.31	0.54	2.90	2623.25	7.57	3.92	-6.74	0.47	7.79	300.19
2646.27	0.45	353.33	2646.21	7.63	4.12	-6.74	0.52	7.90	301.41
2672.98	0.56	338.52	2672.92	7.75	4.34	-6.80	0.63	8.07	302.55
2699.18	0.57	342.70	2699.12	7.90	4.59	-6.89	0.16	8.27	303.65
2722.24	0.37	354.19	2722.18	7.99	4.77	-6.93	0.95	8.41	304.53
2748.95	0.40	340.02	2748.90	8.08	4.94	-6.97	0.38	8.54	305.34

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MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
2771.27	0.47	344.32	2771.21	8.17	5.10	-7.02	0.33	8.68	306.01
2798.02	0.52	340.97	2797.96	8.30	5.32	-7.09	0.22	8.86	306.90
2824.53	0.31	334.32	2824.47	8.42	5.50	-7.16	0.82	9.03	307.53
2847.78	0.33	348.64	2847.71	8.49	5.62	-7.20	0.35	9.13	307.98
2874.51	0.31	343.59	2874.45	8.56	5.77	-7.24	0.13	9.25	308.56
2896.85	0.28	336.70	2896.79	8.63	5.88	-7.27	0.22	9.35	308.93
2923.47	0.27	340.16	2923.41	8.71	5.99	-7.32	0.07	9.46	309.31
2946.46	0.26	1.25	2946.39	8.76	6.10	-7.34	0.43	9.54	309.72
2972.78	0.25	338.60	2972.72	8.81	6.21	-7.36	0.38	9.63	310.17
2999.52	0.24	329.88	2999.45	8.88	6.31	-7.41	0.15	9.73	310.44
3022.53	0.25	317.17	3022.47	8.96	6.39	-7.47	0.24	9.83	310.57
3049.27	0.19	339.39	3049.20	9.04	6.48	-7.52	0.39	9.92	310.73
3071.72	0.21	342.42	3071.66	9.08	6.55	-7.55	0.10	9.99	310.95
3097.87	0.20	324.51	3097.81	9.14	6.63	-7.59	0.25	10.08	311.16
3124.42	0.26	346.88	3124.35	9.21	6.73	-7.63	0.40	10.17	311.41
3146.94	0.31	340.25	3146.88	9.27	6.84	-7.66	0.28	10.27	311.74
3173.70	0.30	337.00	3173.63	9.36	6.97	-7.71	0.09	10.39	312.10
3196.75	0.29	315.01	3196.68	9.45	7.06	-7.78	0.49	10.51	312.25
3222.84	0.29	326.75	3222.77	9.56	7.17	-7.86	0.23	10.64	312.36
3249.56	0.25	315.75	3249.49	9.66	7.27	-7.94	0.24	10.76	312.47
3272.53	0.27	305.90	3272.47	9.75	7.33	-8.02	0.22	10.87	312.45
3298.86	0.37	308.00	3298.79	9.89	7.42	-8.14	0.36	11.01	312.38
3320.83	0.34	294.60	3320.76	10.02	7.49	-8.25	0.40	11.15	312.25
3347.06	0.31	310.17	3346.99	10.17	7.57	-8.38	0.36	11.29	312.11
3373.22	0.39	295.27	3373.15	10.32	7.66	-8.51	0.46	11.45	311.97
3399.37	0.38	300.75	3399.31	10.49	7.74	-8.67	0.14	11.62	311.76
3424.91	0.51	276.61	3424.84	10.69	7.80	-8.85	0.87	11.80	311.36
3447.40	0.48	280.64	3447.33	10.88	7.83	-9.05	0.20	11.96	310.86
3473.48	0.46	261.79	3473.41	11.08	7.83	-9.26	0.59	12.12	310.23
3499.64	0.45	261.88	3499.56	11.27	7.80	-9.46	0.03	12.26	309.51
3521.57	0.47	242.70	3521.50	11.41	7.75	-9.63	0.70	12.36	308.83
3547.72	0.59	243.25	3547.65	11.59	7.64	-9.84	0.49	12.46	307.81
3573.83	0.54	241.02	3573.76	11.78	7.52	-10.07	0.21	12.57	306.74
3599.97	0.43	267.98	3599.90	11.96	7.45	-10.28	0.97	12.70	305.95
3621.61	0.54	245.33	3621.54	12.11	7.41	-10.45	1.00	12.81	305.33
3647.99	0.51	238.75	3647.92	12.28	7.30	-10.66	0.25	12.92	304.38

Survey Report

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MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
3674.13	0.53	220.38	3674.05	12.41	7.14	-10.84	0.64	12.98	303.39
3696.63	0.50	229.83	3696.55	12.51	7.00	-10.98	0.40	13.02	302.52
3722.14	0.48	226.64	3722.06	12.62	6.86	-11.15	0.13	13.09	301.60
3748.27	0.38	258.91	3748.19	12.75	6.76	-11.31	0.99	13.18	300.88
3774.28	0.42	234.74	3774.20	12.89	6.69	-11.47	0.66	13.28	300.26
3796.67	0.43	239.53	3796.59	13.00	6.60	-11.61	0.17	13.36	299.63
3822.15	0.50	249.06	3822.07	13.15	6.52	-11.80	0.40	13.48	298.91
3848.21	0.46	247.25	3848.12	13.32	6.43	-12.00	0.14	13.61	298.20
3874.32	0.48	248.32	3874.23	13.49	6.35	-12.20	0.08	13.75	297.51
3896.78	0.46	259.41	3896.70	13.64	6.30	-12.37	0.42	13.89	296.99
3922.36	0.53	275.61	3922.27	13.85	6.29	-12.59	0.61	14.08	296.56
3947.82	0.55	262.42	3947.73	14.08	6.29	-12.83	0.50	14.29	296.11
3974.35	0.55	260.98	3974.26	14.31	6.25	-13.08	0.06	14.50	295.54
3996.40	0.66	263.84	3996.31	14.53	6.22	-13.32	0.53	14.70	295.05
4021.43	0.71	266.97	4021.34	14.81	6.20	-13.61	0.23	14.96	294.48
4046.91	0.77	268.43	4046.81	15.12	6.19	-13.94	0.25	15.25	293.93
4072.41	0.58	248.66	4072.31	15.38	6.13	-14.23	1.17	15.50	293.32
4097.90	0.58	242.37	4097.80	15.58	6.03	-14.46	0.25	15.67	292.63
4123.41	0.55	275.00	4123.31	15.79	5.98	-14.70	1.25	15.87	292.13
4148.26	0.59	252.39	4148.16	16.01	5.95	-14.94	0.92	16.08	291.72
4173.84	0.51	253.75	4173.74	16.22	5.88	-15.18	0.33	16.28	291.17
4199.36	0.53	260.87	4199.26	16.42	5.83	-15.40	0.26	16.47	290.73
4224.97	0.55	245.61	4224.87	16.62	5.76	-15.63	0.56	16.66	290.23
4249.32	0.57	260.51	4249.21	16.82	5.69	-15.86	0.60	16.85	289.74
4274.84	0.34	241.35	4274.74	16.98	5.63	-16.05	1.05	17.01	289.34
4296.85	0.43	247.75	4296.74	17.10	5.57	-16.18	0.45	17.12	289.00
4321.70	0.40	279.63	4321.59	17.26	5.55	-16.36	0.93	17.27	288.74
4347.17	0.48	255.88	4347.07	17.44	5.54	-16.55	0.78	17.45	288.51
4372.71	0.53	259.79	4372.60	17.64	5.49	-16.77	0.23	17.64	288.14
4398.22	0.45	271.82	4398.12	17.84	5.47	-16.98	0.50	17.84	287.87
4423.71	0.44	276.00	4423.60	18.03	5.49	-17.18	0.14	18.04	287.71
4448.67	0.47	279.03	4448.56	18.23	5.51	-17.38	0.16	18.23	287.61
4474.06	0.61	265.95	4473.95	18.46	5.52	-17.61	0.74	18.46	287.40
4499.71	0.52	271.29	4499.59	18.70	5.51	-17.87	0.40	18.70	287.15
4524.44	0.21	270.18	4524.32	18.85	5.52	-18.03	1.28	18.85	287.01
4546.98	0.19	207.46	4546.87	18.90	5.48	-18.08	0.91	18.90	286.87



Well Name: 1415 Corp Gas Unit G#1
Survey: 1415 CORP GAS UNIT G#1 (05-123-10029)
Survey Date: 11/21/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
4574.02	0.20	196.72	4573.91	18.90	5.40	-18.12	0.14	18.90	286.59
4598.73	0.28	237.70	4598.62	18.95	5.33	-18.18	0.75	18.95	286.32
4601.34	0.18	255.69	4601.23	18.95	5.32	-18.19	4.66	18.95	286.30