



Company: Sandridge Energy  
 Well: Gabriel 3120 2-12H  
 Location: Comanche Co, KS  
 Rig: Larlat 38

Job Number: 5463861  
 Magnetic Decl: 5.48  
 Grid Corr: 0.58  
 Total Grid Corr: 6.06

Calculation Method Minimum Curvature  
 Proposed Azimuth 3.08  
 Depth Reference Rig Flo Plan # 1  
 Tie Into: Surface

Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Direction	Course Length (ft)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure Distance (ft)	Closure Angle (deg)	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
								N/S (ft)	EW (ft)					
<b>Tie In Coordinates</b>														
Surface	20	0.00	0.00	N 0.0 E	0	20.00	0.00	0.00 N	0.00 W					
Gyro	250	0.84	191.71	S 11.7 W	230	249.99	-1.67	1.65 S	0.34 W	1.69	191.71	0.37	0.37	83.35
Gyro	500	0.58	191.71	S 11.7 W	250	499.97	-4.73	4.68 S	0.97 W	4.78	191.71	0.10	-0.10	0.00
Gyro	750	0.26	191.71	S 11.7 W	250	749.97	-6.54	6.48 S	1.34 W	6.62	191.71	0.13	-0.13	0.00
ATC-1	997	0.03	191.71	S 11.7 W	247	996.96	-7.16	7.09 S	1.47 W	7.24	191.71	0.09	-0.09	0.00
ATC-1	1455	0.10	310.32	N 49.7 W	458	1454.96	-7.04	6.95 S	1.80 W	7.18	194.51	0.03	0.02	25.90
ATC-1	1950	0.12	21.64	N 21.6 E	495	1949.96	-6.28	6.19 S	1.94 W	6.48	197.38	0.03	0.00	14.41
ATC-1	2425	0.03	123.77	S 56.2 E	475	2424.96	-5.88	5.80 S	1.65 W	6.03	195.89	0.03	-0.02	21.50
ATC-1	2900	0.07	329.44	N 30.6 W	475	2899.96	-5.70	5.61 S	1.69 W	5.86	196.79	0.02	0.01	43.30
ATC-1	3376	0.13	177.97	S 2.0 E	476	3375.96	-5.99	5.90 S	1.82 W	6.18	197.16	0.04	0.01	-31.82
ATC-1	3851	0.04	243.52	S 63.5 W	475	3850.96	-6.61	6.52 S	1.95 W	6.80	196.68	0.03	-0.02	13.80
ATC-1	4167	0.06	353.47	N 6.5 W	316	4166.96	-6.50	6.40 S	2.07 W	6.73	197.92	0.03	0.01	34.79
ATC-1	4199	1.17	16.80	N 16.8 E	32	4198.96	-6.17	6.07 S	1.98 W	6.39	198.04	3.48	3.47	72.91
ATC-1	4231	2.88	20.42	N 20.4 E	32	4230.94	-5.08	5.01 S	1.60 W	5.26	197.75	5.36	5.34	11.31
ATC-1	4262	5.03	20.10	N 20.1 E	31	4261.86	-3.04	3.00 S	0.86 W	3.12	196.07	6.94	6.94	-1.03
ATC-1	4294	6.93	18.09	N 18.1 E	32	4293.69	0.17	0.15 N	0.22 E	0.27	54.78	5.97	5.94	-6.28
ATC-1	4326	9.19	17.10	N 17.1 E	32	4325.37	4.51	4.43 N	1.57 E	4.70	19.50	7.08	7.06	-3.09
ATC-1	4357	11.67	16.18	N 16.2 E	31	4355.85	9.97	9.81 N	3.17 E	10.31	17.91	8.02	8.00	-2.97
ATC-1	4389	14.36	15.84	N 15.8 E	32	4387.03	16.99	16.74 N	5.16 E	17.51	17.12	8.41	8.41	-1.06
ATC-1	4421	17.55	15.35	N 15.4 E	32	4417.79	25.58	25.21 N	7.52 E	26.31	16.60	9.98	9.97	-1.53
ATC-1	4452	20.16	15.37	N 15.4 E	31	4447.13	35.36	34.87 N	10.17 E	36.32	16.26	8.42	8.42	0.06
ATC-1	4484	23.03	15.19	N 15.2 E	32	4476.88	46.88	46.23 N	13.27 E	48.10	16.02	8.97	8.97	-0.56
ATC-1	4516	25.63	15.13	N 15.1 E	32	4506.03	59.77	58.95 N	16.72 E	61.28	15.83	8.13	8.12	-0.19
ATC-1	4547	28.18	14.93	N 14.9 E	31	4533.67	73.49	72.50 N	20.36 E	75.30	15.68	8.23	8.23	-0.65
ATC-1	4579	29.80	15.21	N 15.2 E	32	4561.66	88.66	87.47 N	24.39 E	90.81	15.58	5.08	5.06	0.88
ATC-1	4611	31.48	15.58	N 15.6 E	32	4589.19	104.59	103.20 N	28.72 E	107.12	15.55	5.28	5.25	1.16
ATC-1	4642	33.26	16.12	N 16.1 E	31	4615.38	120.78	119.16 N	33.25 E	123.72	15.59	5.82	5.74	1.74
ATC-1	4674	35.04	16.34	N 16.3 E	32	4641.86	138.27	136.41 N	38.28 E	141.68	15.67	5.58	5.56	0.69
ATC-1	4706	37.07	16.43	N 16.4 E	32	4667.73	156.60	154.48 N	43.59 E	160.51	15.76	6.35	6.34	0.28
ATC-1	4737	37.73	16.05	N 16.1 E	31	4692.35	174.93	172.55 N	48.85 E	179.34	15.81	2.26	2.13	-1.23
ATC-1	4769	39.89	15.73	N 15.7 E	32	4717.29	194.49	191.84 N	54.34 E	199.39	15.82	6.78	6.75	-1.00
ATC-1	4801	41.73	15.45	N 15.5 E	32	4741.51	214.90	211.99 N	59.96 E	220.30	15.79	5.78	5.75	-0.88
ATC-1	4832	43.87	14.95	N 15.0 E	31	4764.25	235.49	232.31 N	65.48 E	241.36	15.74	6.99	6.90	-1.61
ATC-1	4864	46.79	14.15	N 14.2 E	32	4786.75	257.79	254.34 N	71.20 E	264.11	15.64	9.30	9.13	-2.50
ATC-1	4895	49.66	13.37	N 13.4 E	31	4807.40	280.51	276.79 N	76.69 E	287.22	15.49	9.45	9.26	-2.52
ATC-1	4927	50.22	13.00	N 13.0 E	32	4827.99	304.62	300.64 N	82.28 E	311.69	15.31	1.96	1.75	-1.16
ATC-1	4959	50.22	12.70	N 12.7 E	32	4848.47	328.86	324.61 N	87.75 E	336.26	15.13	0.72	0.00	-0.94



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 Proposed Azimuth 3.08  
 Depth Reference Rig Flo. Plan # 1  
 Tie Into: Surface

Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Direction	Course Length (ft)	Vertical Section (ft)	Coordinates N/S (ft)	E/W (ft)	Closure Distance (ft)	Angle (deg)	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
ATC-1	4990	50.06	12.27	N 12.3 E	31	4868.33	347.85 N	92.89 E	360.04	14.95	1.18	-0.52	-1.39
ATC-1	5022	49.86	12.05	N 12.1 E	32	4888.92	371.80 N	98.05 E	384.51	14.77	0.82	-0.63	-0.69
ATC-1	5054	49.88	11.73	N 11.7 E	32	4909.55	395.74 N	103.09 E	408.94	14.60	0.77	0.06	-1.00
ATC-1	5085	49.89	11.68	N 11.7 E	31	4929.52	418.95 N	107.90 E	432.62	14.44	0.13	0.03	-0.16
ATC-1	5117	52.20	11.04	N 11.0 E	32	4949.64	443.35 N	112.80 E	457.47	14.27	7.38	7.22	-2.00
ATC-1	5149	54.96	10.48	N 10.5 E	32	4968.63	468.64 N	117.61 E	483.17	14.09	8.74	8.62	-1.75
ATC-1	5180	58.04	10.30	N 10.3 E	31	4985.74	494.07 N	122.27 E	508.97	13.90	9.95	9.94	-0.58
ATC-1	5212	60.76	10.40	N 10.4 E	32	5002.03	521.16 N	127.21 E	536.46	13.72	8.50	8.50	0.31
ATC-1	5244	63.15	10.76	N 10.8 E	32	5017.07	548.92 N	132.40 E	564.66	13.56	7.53	7.47	1.13
ATC-1	5275	66.47	10.57	N 10.6 E	31	5030.27	576.48 N	137.59 E	592.67	13.42	10.72	10.71	-0.61
ATC-1	5307	69.80	10.05	N 10.1 E	32	5042.18	605.70 N	142.90 E	622.33	13.28	10.51	10.41	-1.63
ATC-1	5339	72.46	7.85	N 7.9 E	32	5052.53	635.60 N	147.61 E	652.52	13.07	10.56	8.31	-6.88
ATC-1	5370	74.89	6.23	N 6.2 E	31	5061.25	665.13 N	151.25 E	682.11	12.81	9.31	7.84	-5.23
ATC-1	5402	77.68	4.98	N 5.0 E	32	5068.83	696.06 N	154.29 E	712.96	12.50	9.51	8.72	-3.91
ATC-1	5434	80.04	3.74	N 3.7 E	32	5075.01	727.37 N	156.67 E	744.05	12.16	8.30	7.38	-3.88
ATC-1	5465	82.31	2.93	N 2.9 E	31	5079.77	757.94 N	158.45 E	774.33	11.81	7.76	7.32	-2.61
LCPG-1	5568	89.10	2.54	N 2.5 E	103	5087.48	860.48 N	163.35 E	875.85	10.75	6.60	6.59	-0.38
LCPG-1	5663	88.99	2.50	N 2.5 E	95	5089.06	955.37 N	167.53 E	969.95	9.95	0.12	-0.12	-0.04
LCPG-1	5758	90.65	2.06	N 2.1 E	95	5089.36	1050.29 N	171.30 E	1064.17	9.26	1.81	1.75	-0.46
LCPG-1	5849	91.30	2.00	N 2.0 E	91	5087.81	1141.22 N	174.53 E	1154.49	8.69	0.72	0.71	-0.07
LCPG-1	5941	90.64	2.03	N 2.0 E	92	5086.25	1240.92	177.76 E	1245.90	8.20	0.72	-0.72	0.03
LCPG-1	6033	91.39	1.40	N 1.4 E	92	5084.63	1332.88	180.52 E	1337.33	7.76	1.06	0.82	-0.68
LCPG-1	6125	90.56	1.73	N 1.7 E	92	5083.06	1424.83	183.03 E	1428.82	7.36	0.97	-0.90	0.36
LCPG-1	6217	91.75	0.45	N 0.5 E	92	5081.21	1516.76	184.78 E	1520.28	6.98	1.90	1.29	-1.39
LCPG-1	6308	90.77	1.46	N 1.5 E	91	5079.20	1607.67	186.29 E	1610.78	6.64	1.55	-1.08	1.11
LCPG-1	6400	90.96	1.35	N 1.4 E	92	5077.82	1699.62	188.55 E	1702.41	6.36	0.24	0.21	-0.12
LCPG-1	6492	89.57	2.62	N 2.6 E	92	5077.39	1791.60	191.74 E	1794.15	6.13	2.05	-1.51	1.38
LCPG-1	6583	89.69	2.86	N 2.9 E	91	5077.98	1882.59	196.09 E	1884.99	5.97	0.29	0.13	0.26
LCPG-1	6675	90.56	2.33	N 2.3 E	92	5077.78	1974.59	200.25 E	1976.84	5.81	1.11	0.95	-0.58
LCPG-1	6767	90.09	1.03	N 1.0 E	92	5077.25	2066.56	202.95 E	2068.61	5.63	1.50	-0.51	-1.41
LCPG-1	6858	90.12	359.87	N 0.1 W	91	5077.09	2149.62 N	203.66 E	2159.25	5.41	1.28	0.03	-1.27
LCPG-1	6950	88.80	0.59	N 0.6 E	92	5077.96	2249.34	204.03 E	2250.88	5.20	1.63	-1.43	0.78
LCPG-1	7042	89.07	0.37	N 0.4 E	92	5079.67	2341.23	204.80 E	2342.57	5.02	0.38	0.29	-0.24
LCPG-1	7133	88.79	1.47	N 1.5 E	91	5081.36	2424.57 N	206.26 E	2433.33	4.86	1.25	-0.31	1.21
LCPG-1	7228	89.69	2.12	N 2.1 E	95	5082.62	2527.11	209.24 E	2528.18	4.75	1.17	0.95	0.68
LCPG-1	7323	88.64	1.57	N 1.6 E	95	5084.01	2614.45 N	212.30 E	2623.06	4.64	1.25	-1.11	-0.58
LCPG-1	7418	88.15	1.40	N 1.4 E	95	5086.67	2709.38 N	214.76 E	2717.88	4.53	0.55	-0.52	-0.18
LCPG-1	7513	89.32	1.08	N 1.1 E	95	5088.77	2804.33 N	216.81 E	2812.70	4.42	1.28	1.23	-0.34



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 Proposed Azimuth 3.08  
 Depth Reference Rig Flo. Plan # 1  
 Tie Into: Surface

Survey Tool Type	Survey Depth (ft)	Inclina-tion (deg)	Azimuth (deg)	Direction	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Angle (deg)	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
LCPG-1	7608	88.95	1.62	N 1.6 E	95	5090.20	2906.88	2899.30 N	219.05 E	2907.56	4.32	0.69	-0.39	0.57
LCPG-1	7703	88.30	1.36	N 1.4 E	95	5092.48	3001.81	2994.24 N	221.52 E	3002.42	4.23	0.74	-0.68	-0.27
LCPG-1	7798	88.64	1.41	N 1.4 E	95	5095.02	3096.74	3089.17 N	223.82 E	3097.27	4.14	0.36	0.36	0.05
LCPG-1	7893	88.64	1.55	N 1.6 E	95	5097.27	3191.67	3184.12 N	226.27 E	3192.14	4.06	0.15	0.00	0.15
LCPG-1	7988	89.66	1.40	N 1.4 E	95	5098.68	3286.62	3279.07 N	228.71 E	3287.04	3.99	1.09	1.07	-0.16
LCPG-1	8083	90.18	1.11	N 1.1 E	95	5098.81	3381.58	3374.05 N	230.80 E	3381.93	3.91	0.63	0.55	-0.31
LCPG-1	8178	91.11	359.46	N 0.5 W	95	5097.74	3476.45	3469.04 N	231.27 E	3476.74	3.81	1.99	0.98	-1.74
LCPG-1	8273	91.08	359.85	N 0.1 W	95	5095.93	3571.26	3564.02 N	230.70 E	3571.48	3.70	0.41	-0.03	0.41
LCPG-1	8368	91.20	359.74	N 0.3 W	95	5094.04	3666.09	3659.00 N	230.36 E	3666.24	3.60	0.17	0.13	-0.12
LCPG-1	8463	90.12	0.42	N 0.4 E	95	5092.94	3760.95	3753.99 N	230.49 E	3761.06	3.51	1.34	-1.14	0.72
LCPG-1	8558	90.22	1.77	N 1.8 E	95	5092.66	3855.89	3848.97 N	232.30 E	3855.97	3.45	1.42	0.11	1.42
LCPG-1	8653	89.94	1.73	N 1.7 E	95	5092.53	3950.87	3943.93 N	235.21 E	3950.93	3.41	0.30	-0.29	-0.04
LCPG-1	8748	89.48	1.53	N 1.5 E	95	5093.01	4045.83	4038.89 N	237.91 E	4045.89	3.37	0.53	-0.48	-0.21
LCPG-1	8843	90.71	1.61	N 1.6 E	95	5092.85	4140.80	4133.85 N	240.51 E	4140.84	3.33	1.30	1.29	0.08
LCPG-1	8938	89.45	1.81	N 1.8 E	95	5092.72	4235.77	4228.80 N	243.35 E	4235.80	3.29	1.34	-1.33	0.21
LCPG-1	9033	89.66	2.20	N 2.2 E	95	5093.46	4330.75	4323.74 N	246.67 E	4330.77	3.27	0.47	0.22	0.41
LCPG-1	9128	88.89	1.91	N 1.9 E	95	5094.66	4425.73	4418.67 N	250.08 E	4425.74	3.24	0.87	-0.81	-0.31
LCPG-1	9223	88.95	2.80	N 2.8 E	95	5096.45	4520.70	4513.57 N	253.98 E	4520.71	3.22	0.94	0.06	0.94
LCPG-1	9248	89.05	2.14	N 2.1 E	25	5096.89	4545.70	4538.55 N	255.06 E	4545.71	3.22	2.67	0.40	-2.64
LCPG-1	9343	89.88	2.57	N 2.6 E	95	5097.77	4640.68	4633.46 N	258.96 E	4640.69	3.20	0.98	0.87	0.45
LCPG-1	9438	89.14	1.47	N 1.5 E	95	5098.59	4735.66	4728.40 N	262.31 E	4735.67	3.18	1.40	-0.78	-1.16
LCPG-1	9533	89.38	2.15	N 2.2 E	95	5099.81	4830.63	4823.34 N	265.31 E	4830.63	3.15	0.76	0.25	0.72
LCPG-1	9628	88.15	0.46	N 0.5 E	95	5101.86	4925.56	4918.29 N	267.47 E	4925.56	3.11	2.20	-1.29	-1.78
LCPG-1	9722	89.26	0.63	N 0.6 E	94	5103.99	5019.44	5012.26 N	268.36 E	5019.44	3.06	1.19	1.18	0.18
LCPG-1	9817	90.77	1.41	N 1.4 E	95	5103.96	5114.37	5107.24 N	270.06 E	5114.38	3.03	1.79	1.59	0.82
LCPG-1	9912	91.20	0.71	N 0.7 E	95	5102.33	5209.30	5202.21 N	271.81 E	5209.31	2.99	0.86	0.45	-0.74
TD	9973	90.71	0.16	N 0.2 E	61	5101.31	5270.23	5263.20 N	272.28 E	5270.24	2.96	1.21	-0.80	-0.90
Proj	10013	90.71	0.16	N 0.2 E	40	5100.82	5310.17	5303.20 N	272.39 E	5310.19	2.94	0.00	0.00	0.00