

# DRILTECH MWD SURVEY REPORT

Company: Sandridge Energy	Job Number: KTX-043	Calculation Method
Well: Ruby 3119 1A-20H	Magnetic Decl.: 6.05	Proposed Azimuth
Location: SEC 20- T31S- R19W	Grid Corr.:	WELL API #
Rig: Lariat 38	Total Grid Corr.: 6.05	1503321633-01-00
		Tie Into: MWD

Survey #	Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')		
								N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)				
Tie In	MWD	0	0.00	0.00	0	0	0	0	0	0	0	0	0		
1	MWD	1046.00	0.90	317.00	1046	1045.96	-5.85	6.01	N	5.60	W	8.22	317.00	0.09	0.09
2	MWD	1331.00	1.10	318.60	285	1330.91	-9.44	9.70	N	8.94	W	13.19	317.33	0.07	0.07
3	MWD	1617.00	1.30	298.00	286	1616.85	-12.89	13.28	N	13.62	W	19.02	314.28	0.17	0.07
4	MWD	1903.00	1.40	306.90	286	1902.77	-16.35	16.90	N	19.28	W	25.64	311.24	0.08	0.03
5	MWD	2188.00	1.50	305.00	285	2187.68	-20.41	21.13	N	25.12	W	32.82	310.07	0.04	0.04
6	MWD	2474.00	1.00	294.20	286	2473.61	-23.42	24.30	N	30.46	W	38.97	308.58	0.19	-0.17
7	MWD	2950.00	1.00	306.50	476	2949.54	-27.39	28.47	N	37.59	W	47.15	307.15	0.05	0.00
8	MWD	3426.00	0.90	320.90	476	3425.47	-32.60	33.85	N	43.28	W	54.95	308.02	0.05	-0.02
9	MWD	3902.00	1.10	275.40	476	3901.41	-35.73	37.18	N	50.19	W	62.46	306.53	0.17	0.04
10	MWD	4282.00	1.20	271.80	380	4281.33	-35.99	37.65	N	57.80	W	68.98	303.08	0.03	0.03
11	MWD	4314.00	1.00	269.60	32	4313.33	-35.98	37.65	N	58.41	W	69.50	302.81	0.64	-0.63
12	MWD	4345.00	1.60	201.20	31	4344.32	-35.56	37.25	N	58.84	W	69.64	302.34	4.98	1.94
13	MWD	4377.00	3.30	188.00	32	4376.29	-34.22	35.92	N	59.13	W	69.18	301.28	5.56	5.31
14	MWD	4409.00	3.60	172.30	32	4408.23	-32.32	34.01	N	59.12	W	68.21	299.91	3.09	0.94
15	MWD	4440.00	5.30	152.80	31	4439.14	-30.10	31.77	N	58.34	W	66.43	298.57	7.27	5.48
16	MWD	4472.00	8.00	152.90	32	4470.92	-26.85	28.48	N	56.65	W	63.40	296.69	8.44	8.44
17	MWD	4504.00	11.10	154.90	32	4502.47	-22.15	23.70	N	54.33	W	59.27	293.57	9.74	9.69
18	MWD	4536.00	14.80	159.00	32	4533.66	-15.62	17.10	N	51.55	W	54.31	288.35	11.91	11.56
19	MWD	4567.00	14.90	163.80	31	4563.62	-8.17	9.57	N	49.02	W	49.95	281.05	3.98	0.32
20	MWD	4599.00	15.40	169.80	32	4594.51	-0.10	1.44	N	47.12	W	47.14	271.75	5.14	1.56
21	MWD	4631.00	17.20	175.30	32	4625.23	8.76	7.46	S	45.98	W	46.58	260.79	7.40	5.63
22	MWD	4663.00	20.00	177.20	32	4655.55	18.93	17.64	S	45.33	W	48.64	248.73	8.95	8.75
23	MWD	4694.00	23.00	179.10	31	4684.39	30.26	29.00	S	44.97	W	53.51	237.19	9.93	9.68
24	MWD	4726.00	25.60	180.50	32	4713.55	43.42	42.16	S	44.94	W	61.62	226.82	8.32	8.13
25	MWD	4758.00	28.30	180.90	32	4742.08	57.92	56.66	S	45.11	W	72.43	218.53	8.46	8.44
26	MWD	4790.00	31.50	180.90	32	4769.81	73.87	72.61	S	45.37	W	85.62	212.00	10.00	10.00
27	MWD	4821.00	34.20	178.80	31	4795.85	90.68	89.42	S	45.31	W	100.25	206.87	9.45	8.71
28	MWD	4853.00	36.60	177.80	32	4821.94	109.18	107.95	S	44.76	W	116.86	202.52	7.72	7.50
29	MWD	4885.00	38.20	176.90	32	4847.36	128.56	127.36	S	43.85	W	134.70	199.00	5.28	5.00
30	MWD	4917.00	40.30	177.10	32	4872.14	148.74	147.58	S	42.80	W	153.66	196.17	6.57	6.56
31	MWD	4948.00	42.30	177.00	31	4895.42	169.13	168.01	S	41.74	W	173.12	193.95	6.46	6.45
32	MWD	4980.00	44.50	177.10	32	4918.67	191.05	189.97	S	40.61	W	194.26	192.07	6.88	6.88



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Company: Sandridge Energy      Job Number: KTX-043      Calculation Method: Minimum Curvature  
 Well: Ruby 3119 1A-20H      Magnetic Decl.: 6.05      Proposed Azimuth: 181.63  
 Location: SEC 20- T31S- R19W      Grid Corr.:      WELL API #: 1503321633-01-00  
 Rig: Lariat 38      Total Grid Corr.: 6.05      Tie Into: MWD

Survey #	Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')		
								N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)				
33	MWD	5012.00	46.40	176.40	32	4941.12	213.77	212.74	S	39.32	W	216.34	190.47	6.14	5.94
34	MWD	5044.00	48.60	176.40	32	4962.74	237.26	236.28	S	37.83	W	239.29	189.10	6.88	6.88
35	MWD	5075.00	49.20	176.60	31	4983.12	260.53	259.60	S	36.41	W	262.14	187.98	2.00	1.94
36	MWD	5107.00	49.10	176.10	32	5004.05	284.63	283.75	S	34.87	W	285.89	187.01	1.22	-0.31
37	MWD	5139.00	49.00	176.50	32	5025.02	308.69	307.87	S	33.31	W	309.67	186.17	0.99	-0.31
38	MWD	5171.00	48.90	176.70	32	5046.04	332.73	331.96	S	31.88	W	333.49	185.48	0.57	-0.31
39	MWD	5202.00	48.50	177.20	31	5066.50	355.95	355.22	S	30.64	W	356.54	184.93	1.77	-1.29
40	MWD	5234.00	50.10	176.80	32	5087.36	380.13	379.44	S	29.37	W	380.58	184.43	5.09	5.00
41	MWD	5266.00	53.40	176.60	32	5107.17	405.16	404.53	S	27.92	W	405.49	183.95	10.32	10.31
42	MWD	5298.00	56.50	177.30	32	5125.55	431.27	430.69	S	26.53	W	431.50	183.52	9.85	9.69
43	MWD	5329.00	59.70	178.70	31	5141.93	457.53	456.98	S	25.62	W	457.70	183.21	11.01	10.32
44	MWD	5361.00	62.60	179.90	32	5157.37	485.53	485.01	S	25.28	W	485.66	182.98	9.64	9.06
45	MWD	5392.00	65.70	181.30	31	5170.88	513.42	512.90	S	25.57	W	513.54	182.85	10.79	10.00
46	MWD	5424.00	68.30	181.80	32	5183.38	542.87	542.34	S	26.37	W	542.98	182.78	8.25	8.12
47	MWD	5456.00	71.00	180.50	32	5194.51	572.87	572.33	S	26.97	W	572.97	182.70	9.26	8.44
48	MWD	5488.00	74.40	179.80	32	5204.03	603.41	602.88	S	27.05	W	603.49	182.57	10.83	10.63
49	MWD	5519.00	78.80	179.50	31	5211.21	633.54	633.03	S	26.86	W	633.60	182.43	14.22	14.19
50	MWD	5551.00	82.50	178.00	32	5216.41	665.07	664.59	S	26.17	W	665.11	182.26	12.45	11.56
51	MWD	5583.00	84.80	177.40	32	5219.95	696.79	696.37	S	24.90	W	696.81	182.05	7.43	7.19
52	MWD	5615.00	86.60	177.10	32	5222.34	728.61	728.24	S	23.37	W	728.61	181.84	5.70	5.62
53	MWD	5670.00	90.20	175.30	55	5223.88	783.33	783.08	S	19.72	W	783.33	181.44	7.32	6.55
54	MWD	5761.00	92.40	176.00	91	5221.82	873.80	873.79	S	12.82	W	873.89	180.84	2.54	2.42
55	MWD	5854.00	89.90	176.00	93	5219.95	966.33	966.54	S	6.34	W	966.56	180.38	2.69	-2.69
56	MWD	5946.00	88.80	176.70	92	5220.99	1057.93	1058.35	S	0.48	W	1058.35	180.03	1.42	-1.20
57	MWD	6037.00	88.40	180.00	91	5223.22	1148.74	1149.27	S	2.14	E	1149.27	179.89	3.65	-0.44
58	MWD	6129.00	88.10	182.80	92	5226.03	1240.69	1241.19	S	0.11	W	1241.19	180.00	3.06	-0.33
59	MWD	6220.00	90.20	183.50	91	5227.38	1331.64	1332.03	S	5.11	W	1332.04	180.22	2.43	2.31
60	MWD	6311.00	89.80	183.40	91	5227.38	1422.60	1422.87	S	10.58	W	1422.91	180.43	0.45	-0.44
61	MWD	6402.00	88.60	184.20	91	5228.65	1513.52	1513.66	S	16.61	W	1513.75	180.63	1.58	-1.32
62	MWD	6495.00	90.40	184.70	93	5229.46	1606.40	1606.37	S	23.83	W	1606.55	180.85	2.01	1.94
63	MWD	6587.00	89.50	184.70	92	5229.54	1698.27	1698.06	S	31.37	W	1698.35	181.06	0.98	-0.98
64	MWD	6679.00	89.10	185.50	92	5230.66	1790.09	1789.69	S	39.54	W	1790.13	181.27	0.97	-0.43
65	MWD	6775.00	90.90	183.70	96	5230.66	1885.95	1885.37	S	47.24	W	1885.96	181.44	2.65	1.88
66	MWD	6871.00	90.80	182.50	96	5229.24	1981.91	1981.22	S	52.43	W	1981.91	181.52	1.25	-0.10
67	MWD	6966.00	91.40	183.00	95	5227.42	2076.87	2076.09	S	56.99	W	2076.87	181.57	0.82	0.63
68	MWD	7062.00	91.10	182.40	96	5225.32	2172.83	2171.96	S	61.51	W	2172.83	181.62	0.70	-0.31



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 Location: SEC 20- T31S- R19W Grid Corr.: 6.05 WELL API # 1503321633-01-00  
 Rig: Lariat 38 Total Grid Corr.: 6.05 Tie Info: MWD

Survey #	Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')		
								N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)				
69	MWD	7157.00	90.60	182.20	95	5223.91	2267.81	2266.87	S	65.32	W	2267.81	181.65	0.57	-0.53
70	MWD	7253.00	89.70	181.70	96	5223.66	2363.81	2362.82	S	68.59	W	2363.81	181.66	1.07	-0.94
71	MWD	7349.00	89.40	181.30	96	5224.41	2459.81	2458.78	S	71.10	W	2459.81	181.66	0.52	-0.31
72	MWD	7444.00	89.40	181.40	95	5225.41	2554.80	2553.75	S	73.34	W	2554.80	181.65	0.11	0.00
73	MWD	7540.00	88.10	181.70	96	5227.50	2650.78	2649.69	S	75.94	W	2650.78	181.64	1.39	-1.35
74	MWD	7636.00	87.60	182.00	96	5231.11	2746.71	2745.57	S	79.03	W	2746.71	181.65	0.61	-0.52
75	MWD	7731.00	89.10	181.80	95	5233.84	2841.66	2840.48	S	82.18	W	2841.66	181.66	1.59	1.58
76	MWD	7827.00	90.30	181.50	96	5234.34	2937.66	2936.43	S	84.95	W	2937.66	181.66	1.29	1.25
77	MWD	7923.00	89.50	181.20	96	5234.51	3033.66	3032.41	S	87.21	W	3033.66	181.65	0.89	-0.83
78	MWD	8018.00	89.00	181.00	95	5235.75	3128.65	3127.38	S	89.03	W	3128.65	181.63	0.57	-0.53
79	MWD	8114.00	88.40	181.10	96	5237.93	3224.62	3223.34	S	90.79	W	3224.62	181.61	0.63	-0.62
80	MWD	8210.00	87.90	181.70	96	5241.03	3320.56	3319.26	S	93.13	W	3320.56	181.61	0.81	-0.52
81	MWD	8305.00	87.00	181.60	95	5245.26	3415.47	3414.12	S	95.87	W	3415.47	181.61	0.95	-0.95
82	MWD	8401.00	88.60	182.00	96	5248.94	3511.40	3510.00	S	98.88	W	3511.40	181.61	1.72	1.67
83	MWD	8496.00	89.50	181.40	95	5250.52	3606.38	3604.95	S	101.70	W	3606.38	181.62	1.14	0.95
84	MWD	8592.00	88.80	181.70	96	5251.94	3702.37	3700.90	S	104.29	W	3702.37	181.61	0.79	-0.73
85	MWD	8687.00	88.90	182.80	95	5253.85	3797.34	3795.81	S	108.02	W	3797.34	181.63	1.16	0.11
86	MWD	8782.00	88.10	182.40	95	5256.34	3892.30	3890.67	S	112.33	W	3892.30	181.65	0.94	-0.84
87	MWD	8878.00	88.00	180.40	96	5259.60	3988.23	3986.59	S	114.68	W	3988.23	181.65	2.08	-0.10
88	MWD	8974.00	89.70	182.20	96	5261.53	4084.21	4082.53	S	116.85	W	4084.21	181.64	2.58	1.77
89	MWD	9069.00	91.60	183.10	95	5260.45	4179.18	4177.42	S	121.25	W	4179.18	181.66	2.21	2.00
90	MWD	9165.00	90.80	182.00	96	5258.44	4275.14	4273.30	S	125.52	W	4275.15	181.68	1.42	-0.83
91	MWD	9261.00	92.90	182.90	96	5255.34	4371.08	4369.16	S	129.62	W	4371.08	181.70	2.38	2.19
92	MWD	9357.00	92.20	181.90	96	5251.07	4466.97	4464.98	S	133.63	W	4466.98	181.71	1.27	-0.73
93	MWD	9452.00	92.10	182.10	95	5247.51	4561.90	4559.85	S	136.95	W	4561.91	181.72	0.24	-0.11
94	MWD	9548.00	88.00	177.10	96	5247.42	4657.79	4655.80	S	136.28	W	4657.79	181.68	6.73	-4.27
95	MWD	9616.00	88.90	177.20	68	5249.26	4725.56	4723.69	S	132.90	W	4725.56	181.61	1.33	1.32
PTB	MWD	9665.00	89.55	177.30	49	5249.93	4774.41	4772.63	S	130.54	W	4774.41	181.57	1.34	1.33
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