



Directional Survey Report

Company: **Colgate Operating LLC**
 Well: **Lady Franklin 25 State 133H**
 County: **Eddy**
 State: **NM**
 Field: **Winchester;Bone Spring**
 API: **30-015-46357**
 Rig: **H&P 510**
 Service Co: **Gordate Technologies LLC**
 Job #: **GT2100023**
 Survey Calc: **Minimum Curvature**

Well Surface Location
 Latitude: **32.62827395**
 Longitude: **-104.13804299**
 Reference: **NAD 1983**
 Y (Northing): **592352.15**
 X (Easting): **601458.79**
 Field Engr: **Dean Sanchez**
John Daigle

Report Date: **Feb 06 2021**
 Time: **07:02**
 Mag Reference: **Grid North**
 Mag Correction: **7.08**
 Vert Sect. Azi: **89.595**
 Perm Datum: **Mean Sea Level**
 Depth Ref: **Rotary Table**
 RKB Height: **30**
 GL Elev: **3335**

Survey	MD	Inc	Azimuth	TVD	VS	Rectangular Offsets		Course		Closure			Source
Tie In	0	0	0	0	0	NS	EW	Length	DLS	Temp	Distance	Azimuth	
1	195.00	0.47	6.44	195.00	0.10	0.80	0.09	195.00	0.24	59.00	0.81	6.44	MWD Run 1
2	272.00	1.79	3.36	271.98	0.21	2.32	0.20	77.00	1.71	62.60	2.33	4.85	MWD Run 1
3	432.00	2.06	338.84	431.89	-0.64	7.50	-0.70	160.00	0.54	64.40	7.53	354.69	MWD Run 2
4	526.00	2.04	327.83	525.83	-2.12	10.49	-2.20	94.00	0.42	68.00	10.72	348.16	MWD Run 2
5	621.00	1.86	334.66	620.78	-3.67	13.32	-3.76	95.00	0.31	73.40	13.84	344.23	MWD Run 2
6	731.00	1.53	350.13	730.73	-4.66	16.38	-4.78	110.00	0.51	86.00	17.06	343.74	MWD Run 2
7	825.00	1.78	348.54	824.69	-5.15	19.04	-5.28	94.00	0.27	91.40	19.76	344.50	MWD Run 2
8	920.00	2.04	344.10	919.64	-5.88	22.11	-6.04	95.00	0.32	96.80	22.92	344.73	MWD Run 2
9	1015.00	2.36	335.64	1014.57	-7.13	25.52	-7.31	95.00	0.48	100.40	26.55	344.02	MWD Run 2
10	1109.00	2.49	326.95	1108.48	-9.02	29.00	-9.22	94.00	0.42	104.00	30.43	342.36	MWD Run 2
11	1203.00	2.72	322.78	1202.39	-11.46	32.49	-11.69	94.00	0.31	107.60	34.53	340.22	MWD Run 2
12	1298.00	2.98	313.04	1297.27	-14.60	35.97	-14.85	95.00	0.58	109.40	38.92	337.56	MWD Run 2
13	1392.00	3.16	306.16	1391.14	-18.46	39.17	-18.73	94.00	0.44	113.00	43.42	334.44	MWD Run 2
14	1487.00	3.16	303.84	1485.99	-22.72	42.17	-23.02	95.00	0.13	114.80	48.05	331.37	MWD Run 2
15	1581.00	3.42	298.70	1579.84	-27.32	44.96	-27.64	94.00	0.42	116.60	52.78	328.42	MWD Run 2
16	1675.00	3.61	297.76	1673.66	-32.38	47.69	-32.72	94.00	0.21	104.00	57.84	325.55	MWD Run 2
17	1770.00	3.88	299.98	1768.46	-37.80	50.69	-38.16	95.00	0.32	109.40	63.45	323.03	MWD Run 2
18	1864.00	4.23	299.44	1862.22	-43.55	53.99	-43.93	94.00	0.37	111.20	69.60	320.86	MWD Run 2
19	1959.00	4.32	304.56	1956.96	-49.52	57.74	-49.93	95.00	0.41	114.80	76.33	319.15	MWD Run 2
20	2053.00	4.15	326.06	2050.71	-54.30	62.57	-54.74	94.00	1.69	116.60	83.14	318.82	MWD Run 2
21	2148.00	4.47	324.55	2145.44	-58.32	68.43	-58.81	95.00	0.36	118.40	90.23	319.33	MWD Run 2
22	2243.00	4.69	324.10	2240.13	-62.71	74.60	-63.24	95.00	0.23	120.20	97.79	319.71	MWD Run 2
23	2337.00	5.23	324.57	2333.78	-67.39	81.20	-67.97	94.00	0.57	118.40	105.89	320.07	MWD Run 2
24	2432.00	4.75	330.16	2428.42	-71.81	88.13	-72.44	95.00	0.72	114.80	114.08	320.58	MWD Run 2
25	2526.00	4.07	339.39	2522.14	-74.87	94.63	-75.54	94.00	1.04	116.60	121.08	321.40	MWD Run 2
26	2621.00	4.46	338.04	2616.88	-77.39	101.20	-78.11	95.00	0.43	118.40	127.84	322.34	MWD Run 2
27	2715.00	3.61	336.78	2710.65	-79.88	107.31	-80.64	94.00	0.91	114.80	134.23	323.08	MWD Run 2
28	2809.00	2.93	333.30	2804.49	-82.10	112.18	-82.89	94.00	0.75	118.40	139.48	323.54	MWD Run 2
29	2904.00	3.27	331.42	2899.36	-84.45	116.73	-85.28	95.00	0.37	120.20	144.57	323.85	MWD Run 2
30	2944.00	3.42	330.52	2939.29	-85.57	118.77	-86.41	40.00	0.38	118.40	146.88	323.96	MWD Run 2
31	3067.00	3.57	329.36	3062.06	-89.28	125.25	-90.17	123.00	0.14	89.60	154.33	324.25	MWD Run 3
32	3162.00	3.51	325.57	3156.88	-92.39	130.19	-93.32	95.00	0.25	91.40	160.18	324.37	MWD Run 3
33	3256.00	3.50	321.72	3250.70	-95.77	134.82	-96.72	94.00	0.25	95.00	165.92	324.34	MWD Run 3
34	3351.00	3.31	327.32	3345.53	-99.01	139.41	-100.00	95.00	0.40	96.80	171.57	324.35	MWD Run 3
35	3445.00	3.90	0.48	3439.36	-100.41	144.89	-101.44	94.00	2.27	100.40	176.87	325.00	MWD Run 3
36	3539.00	3.85	355.54	3533.14	-100.59	151.23	-101.66	94.00	0.36	102.20	182.23	326.09	MWD Run 3
37	3634.00	3.97	350.82	3627.92	-101.32	157.66	-102.43	95.00	0.36	105.80	188.01	326.99	MWD Run 3
38	3728.00	4.05	348.95	3721.69	-102.43	164.13	-103.59	94.00	0.17	107.60	194.08	327.74	MWD Run 3
39	3823.00	4.08	345.77	3816.45	-103.85	170.70	-105.06	95.00	0.24	107.60	200.44	328.39	MWD Run 3
40	3917.00	4.04	342.20	3910.22	-105.64	177.09	-106.90	94.00	0.27	107.60	206.86	328.88	MWD Run 3
41	4012.00	4.32	337.15	4004.96	-108.01	183.58	-109.31	95.00	0.49	109.40	213.66	329.23	MWD Run 3
42	4106.00	4.40	332.89	4098.69	-110.98	190.05	-112.33	94.00	0.35	109.40	220.76	329.42	MWD Run 3
43	4200.00	4.37	330.98	4192.42	-114.31	196.39	-115.71	94.00	0.16	111.20	227.94	329.49	MWD Run 3
44	4295.00	4.12	331.16	4287.16	-117.67	202.54	-119.11	95.00	0.26	113.00	234.97	329.54	MWD Run 3
45	4389.00	4.14	332.18	4380.91	-120.84	208.50	-122.32	94.00	0.08	114.80	241.74	329.60	MWD Run 3
46	4484.00	4.05	336.01	4475.67	-123.77	214.61	-125.29	95.00	0.30	116.60	248.50	329.72	MWD Run 3
47	4578.00	3.85	338.50	4569.45	-126.23	220.58	-127.79	94.00	0.28	118.40	254.92	329.91	MWD Run 3
48	4673.00	3.82	341.72	4664.23	-128.35	226.55	-129.95	95.00	0.23	118.40	261.17	330.16	MWD Run 3
49	4768.00	3.83	341.23	4759.02	-130.32	232.55	-131.97	95.00	0.04	118.40	267.39	330.43	MWD Run 3

50	4863.00	3.98	336.23	4853.80	-132.63	238.58	-134.32	95.00	0.39	120.20	273.79	330.62	MWD Run 3
51	4957.00	3.74	334.70	4947.59	-135.21	244.33	-136.94	94.00	0.28	120.20	280.09	330.73	MWD Run 3
52	5052.00	3.04	336.82	5042.42	-137.49	249.45	-139.26	95.00	0.75	123.80	285.68	330.83	MWD Run 3
53	5146.00	3.30	336.42	5136.28	-139.52	254.22	-141.32	94.00	0.28	123.80	290.86	330.93	MWD Run 3
54	5241.00	3.63	339.21	5231.11	-141.64	259.54	-143.48	95.00	0.39	125.60	296.56	331.06	MWD Run 3
55	5335.00	3.06	345.24	5324.94	-143.30	264.75	-145.18	94.00	0.71	125.60	301.95	331.26	MWD Run 3
56	5430.00	2.21	350.75	5419.84	-144.21	269.01	-146.12	95.00	0.94	127.40	306.13	331.49	MWD Run 3
57	5525.00	2.95	346.94	5514.75	-145.03	273.20	-146.97	95.00	0.80	129.20	310.22	331.72	MWD Run 3
58	5619.00	3.48	347.80	5608.60	-146.14	278.34	-148.12	94.00	0.56	129.20	315.30	331.98	MWD Run 3
59	5714.00	2.38	351.94	5703.47	-147.00	283.11	-149.00	95.00	1.17	129.20	319.93	332.24	MWD Run 3
60	5808.00	0.33	47.33	5797.44	-147.05	285.23	-149.07	94.00	2.35	127.40	321.84	332.41	MWD Run 3
61	5903.00	0.38	355.63	5892.44	-146.87	285.73	-148.90	95.00	0.33	129.20	322.20	332.48	MWD Run 3
62	5997.00	0.38	347.74	5986.44	-146.96	286.34	-148.98	94.00	0.05	129.20	322.78	332.51	MWD Run 3
63	6091.00	0.63	333.82	6080.44	-147.24	287.10	-149.28	94.00	0.29	131.00	323.59	332.53	MWD Run 3
64	6186.00	0.79	329.39	6175.43	-147.80	288.12	-149.84	95.00	0.18	129.20	324.76	332.52	MWD Run 3
65	6280.00	0.76	311.71	6269.42	-148.59	289.10	-150.63	94.00	0.26	129.20	325.99	332.48	MWD Run 3
66	6374.00	0.70	331.33	6363.41	-149.32	290.02	-151.38	94.00	0.27	127.40	327.15	332.44	MWD Run 3
67	6468.00	0.48	317.65	6457.41	-149.86	290.81	-151.92	94.00	0.28	114.80	328.10	332.42	MWD Run 4
68	6563.00	0.41	328.12	6552.41	-150.31	291.40	-152.37	95.00	0.11	116.60	328.83	332.40	MWD Run 4
69	6657.00	0.59	328.47	6646.40	-150.73	292.10	-152.80	94.00	0.19	118.40	329.65	332.39	MWD Run 4
70	6752.00	0.42	326.34	6741.40	-151.18	292.81	-153.25	95.00	0.17	120.20	330.49	332.37	MWD Run 4
71	6846.00	0.68	265.91	6835.39	-151.92	293.06	-154.00	94.00	0.64	122.00	331.06	332.28	MWD Run 4
72	6941.00	0.90	217.02	6930.39	-152.94	292.42	-155.01	95.00	0.72	127.40	330.97	332.07	MWD Run 4
73	7035.00	1.22	194.01	7024.37	-153.63	290.87	-155.69	94.00	0.56	129.20	329.91	331.84	MWD Run 4
74	7129.00	1.84	198.22	7118.34	-154.36	288.46	-156.41	94.00	0.67	132.80	328.14	331.53	MWD Run 4
75	7224.00	1.84	192.67	7213.29	-155.19	285.53	-157.22	95.00	0.19	132.80	325.95	331.16	MWD Run 4
76	7318.00	1.33	183.44	7307.25	-155.61	282.97	-157.61	94.00	0.60	136.40	323.91	330.88	MWD Run 4
77	7413.00	0.94	208.32	7402.23	-156.06	281.19	-158.05	95.00	0.65	136.40	322.56	330.66	MWD Run 4
78	7507.00	0.58	5.96	7496.23	-156.37	280.98	-158.36	94.00	1.59	138.20	322.54	330.59	MWD Run 4
79	7602.00	0.85	73.62	7591.22	-155.64	281.66	-157.64	95.00	0.87	140.00	322.77	330.77	MWD Run 4
80	7696.00	1.17	72.46	7685.21	-154.05	282.15	-156.05	94.00	0.34	140.00	322.43	331.05	MWD Run 4
81	7791.00	1.28	64.53	7780.19	-152.16	282.90	-154.17	95.00	0.21	141.80	322.18	331.41	MWD Run 4
82	7886.00	1.41	71.68	7875.16	-150.09	283.72	-152.10	95.00	0.23	141.80	321.92	331.80	MWD Run 4
83	7980.00	1.11	87.25	7969.14	-148.07	284.13	-150.09	94.00	0.48	143.60	321.33	332.16	MWD Run 4
84	8075.00	0.80	121.33	8064.13	-146.59	283.83	-148.60	95.00	0.67	143.60	320.37	332.37	MWD Run 4
85	8193.00	0.17	1.81	8182.12	-145.88	283.57	-147.89	118.00	0.76	125.60	319.82	332.46	MWD Run 5
86	8287.00	9.74	92.22	8275.67	-137.92	283.40	-139.93	94.00	10.36	127.40	316.06	333.72	MWD Run 5
87	8382.00	20.51	91.34	8367.25	-113.19	282.69	-115.19	95.00	11.34	129.20	305.26	337.83	MWD Run 5
88	8476.00	30.91	79.93	8451.88	-72.80	286.54	-74.82	94.00	12.21	132.80	296.15	345.37	MWD Run 5
89	8571.00	36.24	85.76	8531.02	-20.67	292.89	-22.74	95.00	6.55	134.60	293.77	355.56	MWD Run 5
90	8665.00	42.79	91.41	8603.52	39.05	294.16	36.97	94.00	7.94	136.40	296.48	7.16	MWD Run 5
91	8697.00	44.67	90.26	8626.64	61.16	293.85	59.08	32.00	6.37	134.60	299.73	11.37	MWD Run 5
92	8728.00	47.74	89.52	8648.10	83.53	293.89	81.46	31.00	10.04	134.60	304.97	15.49	MWD Run 5
93	8760.00	50.96	88.70	8668.94	107.81	294.28	105.73	32.00	10.27	132.80	312.69	19.76	MWD Run 5
94	8854.00	62.82	88.07	8720.19	186.39	296.52	184.30	94.00	12.63	132.80	349.13	31.86	MWD Run 5
95	8949.00	74.67	88.24	8754.57	274.74	299.36	272.63	95.00	12.47	134.60	404.90	42.32	MWD Run 5
96	9043.00	87.37	88.28	8769.21	367.37	302.17	365.24	94.00	13.52	136.40	474.04	50.40	MWD Run 5
97	9138.00	91.46	87.75	8770.18	462.31	305.46	460.16	95.00	4.34	140.00	552.32	56.42	MWD Run 5
98	9232.00	91.55	87.97	8767.72	556.23	308.97	554.06	94.00	0.25	143.60	634.39	60.85	MWD Run 5
99	9327.00	91.63	88.04	8765.08	651.16	312.28	648.97	95.00	0.11	145.40	720.20	64.30	MWD Run 5
100	9421.00	92.13	88.28	8762.00	745.08	315.30	742.87	94.00	0.59	145.40	807.01	67.00	MWD Run 5
101	9515.00	93.83	87.59	8757.12	838.91	318.68	836.68	94.00	1.96	147.20	895.31	69.15	MWD Run 5
102	9610.00	93.95	87.36	8750.67	933.63	322.84	931.37	95.00	0.27	149.00	985.74	70.88	MWD Run 5
103	9704.00	94.18	87.30	8744.01	1027.32	327.21	1025.03	94.00	0.25	149.00	1075.99	72.30	MWD Run 5
104	9798.00	90.40	88.39	8740.26	1121.18	330.74	1118.87	94.00	4.17	150.80	1166.73	73.53	MWD Run 5
105	9893.00	90.93	88.70	8739.15	1216.16	333.15	1213.83	95.00	0.64	150.80	1258.72	74.65	MWD Run 5
106	9988.00	91.64	90.82	8737.02	1311.13	333.55	1308.80	95.00	2.36	150.80	1350.63	75.70	MWD Run 5
107	10083.00	92.40	90.99	8733.67	1406.04	332.04	1403.73	95.00	0.81	152.60	1442.47	76.69	MWD Run 5
108	10177.00	91.25	90.44	8730.68	1499.97	330.87	1497.67	94.00	1.35	141.80	1533.79	77.54	MWD Run 6
109	10272.00	90.00	89.70	8729.65	1594.96	330.75	1592.67	95.00	1.53	143.60	1626.65	78.27	MWD Run 6
110	10366.00	89.96	89.53	8729.68	1688.96	331.39	1686.66	94.00	0.18	145.40	1718.91	78.88	MWD Run 6
111	10461.00	89.03	88.59	8730.52	1783.95	332.95	1781.64	95.00	1.39	145.40	1812.49	79.41	MWD Run 6
112	10555.00	89.34	88.52	8731.85	1877.93	335.31	1875.60	94.00	0.34	147.20	1905.34	79.86	MWD Run 6
113	10649.00	90.04	87.86	8732.36	1971.90	338.28	1969.56	94.00	1.03	149.00	1998.39	80.25	MWD Run 6
114	10744.00	89.05	86.71	8733.11	2066.81	342.78	2064.44	95.00	1.59	150.80	2092.71	80.57	MWD Run 6
115	10839.00	87.47	87.80	8736.00	2161.69	347.32	2159.29	95.00	2.02	150.80	2187.04	80.86	MWD Run 6
116	10933.00	88.34	88.82	8739.44	2255.60	350.08	2253.18	94.00	1.42	152.60	2280.22	81.17	MWD Run 6
117	11028.00	89.84	89.23	8740.95	2350.58	351.70	2348.15	95.00	1.64	152.60	2374.34	81.48	MWD Run 6

118	11122.00	88.16	90.00	8742.59	2444.56	352.33	2442.13	94.00	1.96	154.40	2467.42	81.79	MWD Run 6
119	11217.00	88.27	89.95	8745.55	2539.51	352.37	2537.09	95.00	0.12	156.20	2561.44	82.09	MWD Run 6
120	11311.00	88.44	88.60	8748.25	2633.47	353.56	2631.04	94.00	1.44	158.00	2654.69	82.35	MWD Run 6
121	11405.00	88.74	90.17	8750.57	2727.44	354.57	2725.00	94.00	1.69	156.20	2747.97	82.59	MWD Run 6
122	11499.00	91.77	91.06	8750.15	2821.41	353.57	2818.98	94.00	3.36	156.20	2841.07	82.85	MWD Run 6
123	11594.00	92.77	91.12	8746.38	2916.30	351.77	2913.89	95.00	1.05	159.80	2935.04	83.12	MWD Run 6
124	11688.00	91.54	90.96	8742.84	3010.20	350.06	3007.80	94.00	1.32	158.00	3028.11	83.36	MWD Run 6
125	11783.00	89.02	90.88	8742.38	3105.17	348.54	3102.78	95.00	2.66	159.80	3122.30	83.59	MWD Run 6
126	11877.00	87.47	90.98	8745.26	3199.10	347.02	3196.72	94.00	1.65	159.80	3215.50	83.80	MWD Run 6
127	11972.00	87.58	90.79	8749.36	3293.98	345.56	3291.62	95.00	0.23	163.40	3309.71	84.01	MWD Run 6
128	12066.00	87.48	90.14	8753.41	3387.89	344.80	3385.53	94.00	0.69	163.40	3403.05	84.18	MWD Run 6
129	12160.00	87.69	89.36	8757.37	3481.80	345.21	3479.45	94.00	0.86	163.40	3496.53	84.33	MWD Run 6
130	12255.00	87.98	88.60	8760.96	3576.73	346.91	3574.36	95.00	0.86	163.40	3591.16	84.46	MWD Run 6
131	12350.00	86.40	89.98	8765.62	3671.61	348.09	3669.24	95.00	2.21	163.40	3685.71	84.58	MWD Run 6
132	12445.00	86.83	89.71	8771.23	3766.44	348.35	3764.07	95.00	0.53	165.20	3780.16	84.71	MWD Run 6
133	12539.00	86.76	89.22	8776.49	3860.29	349.22	3857.92	94.00	0.52	167.00	3873.69	84.83	MWD Run 6
134	12634.00	86.32	90.22	8782.22	3955.12	349.68	3952.74	95.00	1.15	165.20	3968.18	84.94	MWD Run 6
135	12728.00	88.02	91.15	8786.86	4048.98	348.56	4046.62	94.00	2.06	163.40	4061.60	85.08	MWD Run 6
136	12823.00	88.00	90.81	8790.16	4143.90	346.94	4141.55	95.00	0.35	167.00	4156.05	85.21	MWD Run 6
137	12917.00	88.39	90.68	8793.12	4237.83	345.71	4235.49	94.00	0.43	167.00	4249.58	85.33	MWD Run 6
138	13011.00	88.71	90.54	8795.51	4331.78	344.71	4329.46	94.00	0.37	168.80	4343.16	85.45	MWD Run 6
139	13106.00	85.90	89.13	8799.98	4426.67	344.98	4424.34	95.00	3.30	170.60	4437.77	85.54	MWD Run 6
140	13200.00	86.13	88.81	8806.52	4520.43	346.67	4518.10	94.00	0.43	172.40	4531.38	85.61	MWD Run 6
141	13294.00	86.34	88.53	8812.69	4614.22	348.85	4611.87	94.00	0.38	172.40	4625.04	85.67	MWD Run 6
142	13389.00	86.51	88.18	8818.61	4709.01	351.57	4706.64	95.00	0.40	174.20	4719.76	85.73	MWD Run 6
143	13483.00	86.41	87.89	8824.42	4802.80	354.79	4800.41	94.00	0.33	176.00	4813.50	85.77	MWD Run 6
144	13548.00	86.56	87.41	8828.41	4867.64	357.45	4865.23	65.00	0.77	174.20	4878.34	85.80	MWD Run 6
145	13608.00	86.56	87.41	8832.01	4927.48	360.16	4925.06	60.00	0.00	0.00	4938.21	85.82	MWD Run 6