



**Altitude Energy Partners**  
SURVEY CALCULATION REPORT  
Minimum Curvature Calculations

Operator: Pioneer Natural Resources  
Lease Name: University 7-14L 112H  
Job Number: AEP-PB-230897  
Survey Calc: Minimum Curvature  
Survey Company: Altitude Energy Partners

Vertical Section AZM 345.90  
Bit to Survey Offset: 56  
Bit to Gamma Offset: 43.99

Survey	Measured	Inclination	Azimuth	Course	TVD	Vertical	+N/-S	+E/-W	Closure	DLS	BUR
T/I	0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	26.50	0.00	0.00	26.50	26.50	#DIV/0!	0.00 N	0.00 E	0.00	0.00	0.00
2	154.50	0.20	315.40	128.00	154.50	0.19	0.16 N	-0.16 W	0.22	0.16	0.16
3	244.50	0.30	280.30	90.00	244.50	0.43	0.31 N	-0.50 W	0.59	0.20	0.11
4	331.50	0.20	13.30	87.00	331.50	0.65	0.50 N	-0.69 W	0.85	0.42	-0.11
5	417.50	0.20	341.80	86.00	417.50	0.94	0.79 N	-0.70 W	1.06	0.13	0.00
6	513.50	0.40	305.60	96.00	513.50	1.36	1.14 N	-1.03 W	1.54	0.28	0.21
7	608.50	1.10	40.90	95.00	608.49	2.14	2.03 N	-0.70 W	2.14	1.27	0.74
8	704.50	2.10	62.00	96.00	704.45	3.09	3.55 N	1.46 E	3.84	1.19	1.04
9	798.50	3.50	62.00	94.00	798.34	4.19	5.70 N	5.51 E	7.93	1.49	1.49
10	893.50	4.80	57.00	95.00	893.09	6.17	9.23 N	11.41 E	14.67	1.42	1.37
11	989.50	5.00	58.30	96.00	988.74	8.74	13.62 N	18.33 E	22.84	0.24	0.21
12	1085.50	5.10	59.90	96.00	1084.36	11.18	17.96 N	25.59 E	31.26	0.18	0.10
13	1181.50	5.30	63.90	96.00	1179.97	13.28	22.05 N	33.26 E	39.90	0.43	0.21
14	1276.50	4.20	67.60	95.00	1274.64	14.69	25.30 N	40.42 E	47.68	1.20	-1.16
15	1372.50	4.00	69.40	96.00	1370.39	15.58	27.82 N	46.80 E	54.44	0.25	-0.21
16	1467.50	4.10	63.40	95.00	1465.16	16.69	30.51 N	52.94 E	61.10	0.46	0.11
17	1563.50	4.90	53.50	96.00	1560.86	19.00	34.48 N	59.30 E	68.60	1.16	0.83
18	1657.50	5.30	53.00	94.00	1654.49	22.21	39.48 N	66.00 E	76.91	0.43	0.43
19	1752.50	5.40	52.00	95.00	1749.08	25.73	44.87 N	73.02 E	85.71	0.14	0.11
20	1848.50	5.00	53.70	96.00	1844.68	29.14	50.13 N	79.96 E	94.37	0.45	-0.42
21	1912.50	4.90	53.40	64.00	1908.44	31.24	53.41 N	84.40 E	99.88	0.16	-0.16
22	2040.00	3.61	50.54	127.50	2035.59	35.05	59.21 N	91.87 E	109.30	1.03	-1.01
23	2135.00	4.03	54.58	95.00	2130.38	37.54	63.05 N	96.90 E	115.60	0.52	0.44
24	2230.00	6.56	66.08	95.00	2224.97	39.68	67.18 N	104.58 E	124.30	2.87	2.66
25	2325.00	8.04	69.46	95.00	2319.19	41.35	71.71 N	115.76 E	136.18	1.62	1.56
26	2420.00	9.70	68.51	95.00	2413.06	43.13	76.98 N	129.43 E	150.59	1.75	1.75
27	2515.00	11.47	67.13	95.00	2506.44	45.60	83.58 N	145.58 E	167.87	1.88	1.86
28	2610.00	10.68	67.69	95.00	2599.67	48.29	90.59 N	162.43 E	185.99	0.84	-0.83
29	2705.00	11.83	63.14	95.00	2692.84	51.70	98.34 N	179.26 E	204.46	1.53	1.21
30	2800.00	11.84	60.41	95.00	2785.82	56.46	107.55 N	196.42 E	223.94	0.59	0.01
31	2894.00	11.52	60.47	94.00	2877.87	61.53	116.94 N	212.98 E	242.97	0.34	-0.34
32	2989.00	11.62	60.78	95.00	2970.94	66.55	126.28 N	229.58 E	262.02	0.12	0.11
33	3084.00	11.22	55.74	95.00	3064.06	72.23	136.16 N	245.57 E	280.79	1.13	-0.42
34	3179.00	11.15	54.04	95.00	3157.26	78.83	146.75 N	260.64 E	299.12	0.35	-0.07
35	3274.00	9.97	52.92	95.00	3250.65	85.47	157.11 N	274.64 E	316.40	1.26	-1.24
36	3369.00	9.45	50.95	95.00	3344.29	91.97	166.98 N	287.26 E	332.26	0.65	-0.55
37	3464.00	9.41	50.86	95.00	3438.00	98.54	176.79 N	299.34 E	347.65	0.04	-0.04
38	3559.00	9.35	52.41	95.00	3531.73	104.91	186.40 N	311.48 E	362.99	0.27	-0.06
39	3654.00	8.73	51.61	95.00	3625.55	110.95	195.59 N	323.24 E	377.81	0.67	-0.65
40	3749.00	8.88	50.66	95.00	3719.43	117.04	204.71 N	334.56 E	392.23	0.22	0.16
41	3844.00	8.47	50.29	95.00	3813.35	123.19	213.83 N	345.62 E	406.42	0.44	-0.43
42	3939.00	8.79	61.96	95.00	3907.28	127.96	221.71 N	357.41 E	420.59	1.87	0.34
43	4034.00	8.62	64.82	95.00	4001.19	131.08	228.15 N	370.26 E	434.91	0.49	-0.18
44	4129.00	9.11	60.08	95.00	4095.05	134.50	234.93 N	383.22 E	449.50	0.93	0.52
45	4224.00	9.41	60.37	95.00	4188.81	138.63	242.53 N	396.49 E	464.78	0.32	0.32
46	4319.00	8.91	58.05	95.00	4282.60	142.96	250.26 N	409.48 E	479.90	0.65	-0.53
47	4414.00	8.73	55.70	95.00	4376.48	147.71	258.21 N	421.68 E	494.46	0.42	-0.19
48	4509.00	7.90	55.07	95.00	4470.48	152.52	266.02 N	432.99 E	508.18	0.88	-0.87
49	4603.00	9.10	62.16	94.00	4563.45	156.58	273.19 N	444.86 E	522.04	1.69	1.28
50	4698.00	9.88	64.72	95.00	4657.15	159.95	280.17 N	458.87 E	537.64	0.93	0.82
51	4793.00	9.42	65.41	95.00	4750.80	162.94	286.89 N	473.31 E	553.47	0.50	-0.48
52	4888.00	10.64	67.77	95.00	4844.35	165.60	293.44 N	488.50 E	569.86	1.35	1.28
53	4983.00	11.12	68.02	95.00	4937.64	168.09	300.19 N	505.11 E	587.58	0.51	0.51
54	5078.00	11.03	61.17	95.00	5030.88	171.66	308.00 N	521.57 E	605.72	1.39	-0.09
55	5173.00	11.22	59.02	95.00	5124.09	176.66	317.14 N	537.45 E	624.05	0.48	0.20
56	5268.00	10.65	60.28	95.00	5217.37	181.70	326.25 N	553.00 E	642.07	0.65	-0.60
57	5363.00	11.25	53.69	95.00	5310.64	187.57	336.09 N	568.09 E	660.07	1.46	0.63
58	5458.00	10.79	51.58	95.00	5403.89	194.73	347.10 N	582.53 E	678.10	0.64	-0.48
59	5553.00	10.44	52.20	95.00	5497.26	201.86	357.91 N	596.30 E	695.46	0.39	-0.37
60	5648.00	9.74	49.62	95.00	5590.79	208.87	368.39 N	609.22 E	711.94	0.88	-0.74
61	5743.00	9.46	49.48	95.00	5684.46	215.91	378.67 N	621.28 E	727.58	0.30	-0.29
62	5838.00	9.39	50.93	95.00	5778.18	222.65	388.62 N	633.23 E	742.97	0.26	-0.07
63	5933.00	9.22	50.39	95.00	5871.93	229.20	398.36 N	645.11 E	758.19	0.20	-0.18
64	6028.00	8.67	51.44	95.00	5965.77	235.44	407.68 N	656.57 E	772.84	0.60	-0.58
65	6123.00	8.73	48.97	95.00	6059.68	241.67	416.87 N	667.61 E	787.07	0.40	0.06
66	6313.00	8.15	48.02	190.00	6247.62	254.50	435.35 N	688.50 E	814.59	0.31	-0.31
67	6408.00	7.50	46.57	95.00	6341.74	260.69	444.11 N	698.00 E	827.31	0.72	-0.68

68	6503.00	6.88	46.96	95.00	6435.99	266.48	452.26	N	706.67	E	839.00	0.65	-0.65
69	6544.00	6.52	47.74	41.00	6476.71	268.76	455.50	N	710.18	E	843.71	0.91	-0.88
70	6683.00	6.28	45.61	139.00	6614.84	276.32	466.12	N	721.46	E	858.94	0.24	-0.17
71	6778.00	5.45	48.34	95.00	6709.35	281.03	472.76	N	728.54	E	868.49	0.92	-0.87
72	6873.00	4.69	48.18	95.00	6803.97	284.93	478.35	N	734.81	E	876.79	0.80	-0.80
73	6968.00	3.71	51.17	95.00	6898.72	288.02	482.86	N	740.09	E	883.68	1.06	-1.03
74	7063.00	2.83	37.52	95.00	6993.56	290.76	486.65	N	743.92	E	888.96	1.23	-0.93
75	7157.00	4.30	93.44	94.00	7087.40	291.14	488.28	N	748.85	E	893.98	3.81	1.56
76	7252.00	3.66	99.21	95.00	7182.18	288.87	487.58	N	755.40	E	899.09	0.79	-0.67
77	7347.00	3.27	163.07	95.00	7277.03	284.96	484.50	N	759.18	E	900.61	3.87	-0.41
78	7442.00	1.01	67.34	95.00	7371.98	282.38	482.23	N	760.74	E	900.71	3.70	-2.38
79	7537.00	1.25	45.08	95.00	7466.96	283.03	483.29	N	762.25	E	902.55	0.52	0.25
80	7632.00	1.13	30.99	95.00	7561.94	284.22	484.82	N	763.47	E	904.40	0.33	-0.13
81	7727.00	0.83	37.40	95.00	7656.93	285.31	486.17	N	764.37	E	905.88	0.34	-0.32
82	7822.00	0.99	18.21	95.00	7751.92	286.44	487.50	N	765.04	E	907.16	0.36	0.17
83	7917.00	1.96	10.64	95.00	7846.88	288.60	489.87	N	765.60	E	908.91	1.04	1.02
84	8012.00	1.63	302.65	95.00	7941.85	291.06	492.20	N	764.76	E	909.46	2.13	-0.35
85	8107.00	0.64	233.95	95.00	8036.83	291.85	492.62	N	763.19	E	908.37	1.60	-1.04
86	8202.00	0.51	261.25	95.00	8131.82	291.69	492.24	N	762.35	E	907.45	0.32	-0.14
87	8297.00	0.70	332.12	95.00	8226.82	292.29	492.69	N	761.66	E	907.12	0.76	0.20
88	8392.00	1.10	356.76	95.00	8321.81	293.75	494.11	N	761.33	E	907.62	0.58	0.42
89	8487.00	0.49	29.76	95.00	8416.80	294.94	495.38	N	761.48	E	908.44	0.78	-0.64
90	8582.00	0.35	74.45	95.00	8511.80	295.24	495.81	N	761.96	E	909.07	0.36	-0.15
91	8677.00	0.51	145.39	95.00	8606.79	294.85	495.54	N	762.48	E	909.36	0.54	0.17
92	8772.00	0.63	129.99	95.00	8701.79	294.03	494.85	N	763.12	E	909.53	0.20	0.13
93	8867.00	0.40	323.18	95.00	8796.79	293.92	494.78	N	763.33	E	909.66	1.08	-0.24
94	8962.00	13.14	329.94	95.00	8890.93	304.65	504.43	N	757.70	E	910.25	13.41	13.41
95	9057.00	24.53	327.42	95.00	8980.70	333.83	530.48	N	741.61	E	911.81	12.02	11.99
96	9103.00	28.24	326.44	46.00	9021.90	353.16	547.60	N	730.45	E	912.92	8.12	8.07
97	9186.00	32.37	328.75	83.00	9093.54	392.92	582.98	N	708.06	E	917.18	5.17	4.98
98	9281.00	43.14	329.55	95.00	9168.55	448.55	632.87	N	678.32	E	927.71	11.35	11.34
99	9376.00	48.84	327.89	95.00	9234.52	513.78	691.21	N	642.82	E	943.92	6.13	6.00
100	9471.00	54.10	328.83	95.00	9293.68	584.62	754.47	N	603.87	E	966.37	5.59	5.54
101	9566.00	62.22	330.21	95.00	9343.76	662.00	823.98	N	563.00	E	997.96	8.64	8.55
102	9662.00	71.58	331.36	96.00	9381.38	747.16	900.98	N	519.98	E	1040.26	9.81	9.75
103	9757.00	78.83	331.67	95.00	9405.63	836.07	981.66	N	476.21	E	1091.06	7.64	7.63
104	9852.00	84.01	334.42	95.00	9419.80	927.61	1065.36	N	433.66	E	1150.24	6.16	5.45
105	9947.00	88.98	336.68	95.00	9425.60	1020.86	1151.65	N	394.43	E	1217.32	5.74	5.23
106	10042.00	88.47	335.90	95.00	9427.72	1114.50	1238.60	N	356.24	E	1288.82	0.98	-0.54
107	10137.00	89.96	337.79	95.00	9429.02	1208.30	1325.94	N	318.89	E	1363.75	2.53	1.57
108	10232.00	92.90	345.09	95.00	9426.65	1302.91	1415.90	N	288.68	E	1445.03	8.28	3.09
109	10327.00	94.16	346.50	95.00	9420.80	1397.73	1507.81	N	265.42	E	1530.99	1.99	1.33
110	10422.00	91.16	346.00	95.00	9416.39	1492.61	1599.98	N	242.86	E	1618.31	3.20	-3.16
111	10517.00	91.02	342.27	95.00	9414.58	1587.53	1691.33	N	216.90	E	1705.18	3.93	-0.15
112	10612.00	90.01	346.26	95.00	9413.73	1682.47	1782.75	N	191.14	E	1792.96	4.33	-1.06
113	10707.00	91.13	347.96	95.00	9412.78	1777.44	1875.34	N	169.95	E	1883.03	2.14	1.18
114	10802.00	91.86	348.05	95.00	9410.30	1872.34	1968.24	N	150.22	E	1973.96	0.77	0.77
115	10897.00	91.55	347.18	95.00	9407.48	1967.26	2060.98	N	129.85	E	2065.07	0.97	-0.33
116	10992.00	91.02	345.99	95.00	9405.35	2062.22	2153.36	N	107.82	E	2156.06	1.37	-0.56
117	11087.00	91.72	347.52	95.00	9403.07	2157.18	2245.81	N	86.06	E	2247.46	1.77	0.74
118	11182.00	92.03	346.88	95.00	9399.97	2252.11	2338.40	N	65.02	E	2339.30	0.75	0.33
119	11275.00	90.77	344.23	93.00	9397.69	2345.07	2428.42	N	41.83	E	2428.78	3.15	-1.35
120	11370.00	91.25	344.91	95.00	9396.02	2440.02	2519.98	N	16.56	E	2520.04	0.88	0.51
121	11465.00	89.82	342.98	95.00	9395.13	2534.96	2611.26	N	-9.71	W	2611.28	2.53	-1.51
122	11560.00	90.01	348.51	95.00	9395.27	2629.92	2703.30	N	-33.09	W	2703.51	5.82	0.20
123	11653.00	89.59	348.47	93.00	9395.60	2722.83	2794.43	N	-51.65	W	2794.91	0.45	-0.45
124	11749.00	90.43	350.95	96.00	9395.58	2818.60	2888.88	N	-68.80	W	2889.70	2.73	0.88
125	11843.00	90.29	351.74	94.00	9394.99	2912.18	2981.81	N	-82.94	W	2982.96	0.85	-0.15
126	11939.00	91.58	350.77	96.00	9393.42	3007.74	3076.68	N	-97.54	W	3078.22	1.68	1.34
127	12032.00	92.37	345.48	93.00	9390.22	3100.58	3167.60	N	-116.65	W	3169.75	5.75	0.85
128	12123.00	92.56	342.96	91.00	9386.30	3191.45	3255.08	N	-141.38	W	3258.15	2.77	0.21
129	12218.00	91.53	343.41	95.00	9382.91	3286.28	3345.96	N	-168.84	W	3350.22	1.18	-1.08
130	12313.00	90.80	341.93	95.00	9380.98	3381.11	3436.63	N	-197.13	W	3442.27	1.74	-0.77
131	12408.00	91.41	340.50	95.00	9379.15	3475.77	3526.55	N	-227.72	W	3533.89	1.64	0.64
132	12503.00	88.98	341.86	95.00	9378.82	3570.44	3616.46	N	-258.36	W	3625.67	2.93	-2.56
133	12598.00	89.34	345.54	95.00	9380.22	3665.34	3707.61	N	-285.01	W	3718.55	3.89	0.38
134	12693.00	89.34	346.42	95.00	9381.31	3760.34	3799.78	N	-308.03	W	3812.24	0.93	0.00
135	12787.00	89.20	346.51	94.00	9382.51	3854.32	3891.16	N	-330.03	W	3905.13	0.18	-0.15
136	12882.00	89.09	346.41	95.00	9383.93	3949.31	3983.51	N	-352.26	W	3999.05	0.16	-0.12
137	12977.00	89.09	346.32	95.00	9385.44	4044.29	4075.82	N	-374.66	W	4093.00	0.09	0.00
138	13072.00	90.29	346.47	95.00	9385.95	4139.29	4168.15	N	-397.00	W	4187.01	1.27	1.26
139	13167.00	91.75	347.94	95.00	9384.26	4234.24	4260.77	N	-418.04	W	4281.23	2.18	1.54
140	13262.00	89.82	344.06	95.00	9382.96	4329.21	4352.92	N	-441.01	W	4375.20	4.56	-2.03
141	13357.00	91.02	345.56	95.00	9382.26	4424.19	4444.59	N	-465.90	W	4468.94	2.02	1.26
142	13452.00	90.35	343.77	95.00	9381.12	4519.15	4536.20	N	-491.02	W	4562.70	2.01	-0.71
143	13547.00	90.04	343.27	95.00	9380.80	4614.07	4627.30	N	-517.97	W	4656.20	0.62	-0.33
144	13642.00	92.11	345.02	95.00	9379.02	4709.00	4718.66	N	-543.92	W	4749.90	2.85	2.18

145	13737.00	91.47	346.17	95.00	9376.05	4803.95	4810.62	N	-567.54	W	4843.99	1.38	-0.67
146	13832.00	91.33	344.95	95.00	9373.73	4898.92	4902.59	N	-591.23	W	4938.11	1.29	-0.15
147	13927.00	91.05	344.28	95.00	9371.76	4993.87	4994.17	N	-616.42	W	5032.07	0.76	-0.29
148	14022.00	89.90	347.05	95.00	9370.97	5088.86	5086.20	N	-639.94	W	5126.30	3.16	-1.21
149	14117.00	90.10	349.76	95.00	9370.97	5183.76	5179.25	N	-659.03	W	5221.01	2.86	0.21
150	14212.00	90.35	350.35	95.00	9370.60	5278.51	5272.82	N	-675.44	W	5315.91	0.67	0.26
151	14307.00	90.85	350.48	95.00	9369.60	5373.21	5366.49	N	-691.26	W	5410.83	0.54	0.53
152	14402.00	89.20	345.92	95.00	9369.56	5468.10	5459.45	N	-710.68	W	5505.51	5.10	-1.74
153	14497.00	89.09	344.89	95.00	9370.98	5563.09	5551.38	N	-734.61	W	5599.77	1.09	-0.12
154	14592.00	90.88	345.56	95.00	9371.00	5658.08	5643.23	N	-758.84	W	5694.02	2.01	1.88
155	14687.00	92.23	345.69	95.00	9368.42	5753.04	5735.22	N	-782.42	W	5788.34	1.43	1.42
156	14782.00	92.67	344.87	95.00	9364.36	5847.94	5827.02	N	-806.53	W	5882.57	0.98	0.46
157	14877.00	93.26	344.12	95.00	9359.45	5942.79	5918.44	N	-831.89	W	5976.62	1.00	0.62
158	14972.00	94.50	343.15	95.00	9353.02	6037.49	6009.38	N	-858.60	W	6070.40	1.66	1.31
159	15067.00	91.27	344.35	95.00	9348.24	6132.29	6100.45	N	-885.14	W	6164.33	3.63	-3.40
160	15162.00	90.94	344.76	95.00	9346.41	6227.25	6192.00	N	-910.44	W	6258.58	0.55	-0.35
161	15257.00	89.01	345.37	95.00	9346.45	6322.23	6283.79	N	-934.92	W	6352.96	2.13	-2.03
162	15352.00	90.07	345.40	95.00	9347.21	6417.22	6375.71	N	-958.89	W	6447.42	1.12	1.12
163	15447.00	89.96	345.02	95.00	9347.19	6512.22	6467.56	N	-983.14	W	6541.86	0.42	-0.12
164	15542.00	91.13	345.93	95.00	9346.28	6607.21	6559.52	N	-1006.97	W	6636.36	1.56	1.23
165	15637.00	90.07	344.25	95.00	9345.29	6702.19	6651.31	N	-1031.41	W	6730.81	2.09	-1.12
166	15732.00	91.53	345.58	95.00	9343.96	6797.16	6743.03	N	-1056.13	W	6825.23	2.08	1.54
167	15827.00	91.58	344.71	95.00	9341.38	6892.12	6834.82	N	-1080.47	W	6919.69	0.92	0.05
168	15922.00	92.31	344.06	95.00	9338.16	6987.03	6926.26	N	-1106.03	W	7014.01	1.03	0.77
169	16017.00	89.03	346.53	95.00	9337.05	7081.99	7018.12	N	-1130.14	W	7108.53	4.32	-3.45
170	16112.00	88.14	346.72	95.00	9339.39	7176.96	7110.51	N	-1152.11	W	7203.24	0.96	-0.94
171	16207.00	89.15	347.54	95.00	9341.64	7271.91	7203.10	N	-1173.26	W	7298.02	1.37	1.06
172	16302.00	90.69	347.93	95.00	9341.77	7366.86	7295.93	N	-1193.44	W	7392.89	1.67	1.62
173	16397.00	91.13	347.20	95.00	9340.26	7461.80	7388.69	N	-1213.89	W	7487.74	0.90	0.46
174	16492.00	88.73	344.76	95.00	9340.38	7556.79	7480.84	N	-1236.91	W	7582.41	3.60	-2.53
175	16587.00	88.92	344.16	95.00	9342.33	7651.74	7572.35	N	-1262.35	W	7676.85	0.66	0.20
176	16682.00	90.66	345.46	95.00	9342.68	7746.71	7664.02	N	-1287.24	W	7771.37	2.29	1.83
177	16777.00	90.13	343.99	95.00	9342.02	7841.69	7755.66	N	-1312.27	W	7865.90	1.64	-0.56
178	16872.00	89.09	345.29	95.00	9342.67	7936.66	7847.26	N	-1337.43	W	7960.42	1.75	-1.09
179	16966.00	89.34	346.92	94.00	9343.96	8030.65	7938.50	N	-1360.00	W	8054.16	1.75	0.27
180	17061.00	89.71	347.02	95.00	9344.74	8125.63	8031.05	N	-1381.42	W	8149.00	0.40	0.39
181	17156.00	89.06	346.09	95.00	9345.76	8220.61	8123.44	N	-1403.51	W	8243.79	1.19	-0.68
182	17251.00	89.90	348.74	95.00	9346.63	8315.57	8216.15	N	-1424.20	W	8338.67	2.93	0.88
183	17346.00	89.73	348.61	95.00	9346.93	8410.46	8309.30	N	-1442.86	W	8433.64	0.23	-0.18
184	17441.00	93.32	349.12	95.00	9344.41	8505.28	8402.46	N	-1461.20	W	8528.56	3.82	3.78
185	17537.00	94.41	348.75	96.00	9337.93	8600.92	8496.46	N	-1479.58	W	8624.32	1.20	1.14
186	17632.00	92.79	346.74	95.00	9331.97	8695.68	8589.10	N	-1499.70	W	8719.05	2.71	-1.71
187	17726.00	89.57	346.32	94.00	9330.03	8789.64	8680.48	N	-1521.59	W	8812.84	3.45	-3.43
188	17821.00	90.15	346.75	95.00	9330.27	8884.64	8772.87	N	-1543.71	W	8907.66	0.76	0.61
189	17916.00	90.38	346.29	95.00	9329.83	8979.63	8865.25	N	-1565.86	W	9002.48	0.54	0.24
190	18011.00	86.93	345.39	95.00	9332.06	9074.59	8957.33	N	-1589.09	W	9097.19	3.75	-3.63
191	18106.00	86.06	345.15	95.00	9337.86	9169.40	9049.03	N	-1613.20	W	9191.70	0.95	-0.92
192	18201.00	87.61	345.96	95.00	9343.11	9264.25	9140.89	N	-1636.86	W	9286.29	1.84	1.63
193	18297.00	88.19	345.60	96.00	9346.63	9360.19	9233.88	N	-1660.42	W	9381.98	0.71	0.60
194	18392.00	87.83	345.54	95.00	9349.93	9455.13	9325.83	N	-1684.08	W	9476.67	0.38	-0.38
195	18487.00	89.82	347.07	95.00	9351.87	9550.10	9418.10	N	-1706.57	W	9571.47	2.64	2.09
196	18582.00	89.23	345.78	95.00	9352.66	9645.09	9510.44	N	-1728.86	W	9666.31	1.49	-0.62
197	18677.00	90.94	346.70	95.00	9352.52	9740.08	9602.71	N	-1751.46	W	9761.13	2.04	1.80
198	18772.00	90.55	345.34	95.00	9351.28	9835.07	9694.89	N	-1774.41	W	9855.93	1.49	-0.41
199	18867.00	88.95	343.45	95.00	9351.70	9930.03	9786.38	N	-1799.96	W	9950.53	2.61	-1.68
200	18962.00	91.67	347.62	95.00	9351.19	10025.00	9878.34	N	-1823.68	W	10045.26	5.24	2.86
201	19057.00	92.00	348.94	95.00	9348.14	10119.86	9971.30	N	-1842.97	W	10140.19	1.43	0.35
202	19152.00	91.89	348.35	95.00	9344.92	10214.70	10064.39	N	-1861.66	W	10235.12	0.63	-0.12
203	19247.00	92.45	347.85	95.00	9341.32	10309.56	10157.28	N	-1881.24	W	10330.03	0.79	0.59
204	19342.00	88.47	347.04	95.00	9340.56	10404.50	10249.99	N	-1901.88	W	10424.94	4.28	-4.19
205	19437.00	87.49	346.86	95.00	9343.91	10499.43	10342.48	N	-1923.32	W	10519.79	1.05	-1.03
206	19532.00	86.40	346.46	95.00	9348.97	10594.28	10434.78	N	-1945.21	W	10614.54	1.22	-1.15
207	19627.00	89.68	346.49	95.00	9352.22	10689.21	10527.08	N	-1967.41	W	10709.35	3.45	3.45
208	19722.00	90.04	347.03	95.00	9352.45	10784.20	10619.55	N	-1989.17	W	10804.24	0.68	0.38
209	19810.00	90.24	347.19	88.00	9352.24	10872.18	10705.33	N	-2008.80	W	10892.17	0.29	0.23
210	19866.00	90.24	347.19	56.00	9352.00	10928.16	10759.94	N	-2021.21	W	10948.13	0.00	0.00