

Minimum Radius of Curvature

API: 34-013-21542 **Well: Echo S3H** **Wellhead Location** **Lat : 40.163015**
Operator: Ascent Resources **Area: Utica** **Long : -81.021595**
Rig: Patterson 581 **Type: U-Lateral** **Magnetic Declination: -8.00**
TD: 19,214' **Plane of Proposal: 329.86**

Measured Depth Ft	Drift Angle Deg	Azimuth Direction Deg	Course Length Ft	TVD Ft	Vertical Section Ft	COORDINATES		CLOSURE		Dog Leg Severity Deg/100'	Build / Drop Deg/100'	Left / Right Deg/100'
						N-S Ft	E-W Ft	Distance FT	Direction Deg			
0.00	0.00	0.00		0.0	0.00	0.00	0.00	0.00	0.00			
100	0.00	0.00	100	100.0	0.00	0.00	0.00	0.00	#DIV/0!	0.00		
200	0.00	0.00	100	200.0	0.00	0.00	0.00	0.00	#DIV/0!	0.00		
300	0.00	0.00	100	300.0	0.00	0.00	0.00	0.00	#DIV/0!	0.00		
400	0.00	0.00	100	400.0	0.00	0.00	0.00	0.00	#DIV/0!	0.00		
500	0.00	0.00	100	500.0	0.00	0.00	0.00	0.00	#DIV/0!	0.00		
600	2.00	302.83	100	600.0	1.55	0.95	-1.47	1.75	302.83	2.00	2.00	302.83
700	4.00	302.83	100	699.8	6.22	3.78	-5.86	6.98	302.83	2.00	2.00	0.00
750	5.00	302.83	50	749.7	9.71	5.91	-9.16	10.90	302.83	2.00	2.00	0.00
800	5.00	302.83	50	799.5	13.59	8.27	-12.82	15.26	302.83	0.00	0.00	0.00
900	5.00	302.83	100	899.1	21.36	13.00	-20.15	23.97	302.83	0.00	0.00	0.00
1000	5.00	302.83	100	998.7	29.12	17.72	-27.47	32.69	302.83	0.00	0.00	0.00
1100	5.00	302.83	100	1098.4	36.88	22.45	-34.79	41.41	302.83	0.00	0.00	0.00
1200	5.00	302.83	100	1198.0	44.65	27.17	-42.12	50.12	302.83	0.00	0.00	0.00
1300	5.00	302.83	100	1297.6	52.41	31.90	-49.44	58.84	302.83	0.00	0.00	0.00
1400	5.00	302.83	100	1397.2	60.17	36.62	-56.76	67.55	302.83	0.00	0.00	0.00
1500	5.00	302.83	100	1496.8	67.94	41.35	-64.09	76.27	302.83	0.00	0.00	0.00
1600	5.00	302.83	100	1596.4	75.70	46.07	-71.41	84.98	302.83	0.00	0.00	0.00
1700	5.00	302.83	100	1696.1	83.46	50.80	-78.73	93.70	302.83	0.00	0.00	0.00
1800	5.00	302.83	100	1795.7	91.23	55.52	-86.06	102.41	302.83	0.00	0.00	0.00
1881	6.63	302.83	81	1876.7	98.57	59.99	-92.99	110.66	302.83	2.00	2.00	0.00
1900	6.63	302.83	19	1895.1	100.49	61.16	-94.79	112.81	302.83	0.00	0.00	0.00
2000	6.63	302.83	100	1994.5	110.77	67.42	-104.49	124.36	302.83	0.00	0.00	0.00
2100	6.63	302.83	100	2093.8	121.06	73.68	-114.20	135.90	302.83	0.00	0.00	0.00
2200	6.63	302.83	100	2193.1	131.34	79.94	-123.90	147.45	302.83	0.00	0.00	0.00
2300	6.63	302.83	100	2292.5	141.63	86.20	-133.60	158.99	302.83	0.00	0.00	0.00
2400	6.63	302.83	100	2391.8	151.91	92.46	-143.30	170.54	302.83	0.00	0.00	0.00
2500	6.63	302.83	100	2491.1	162.19	98.72	-153.00	182.08	302.83	0.00	0.00	0.00
2600	6.63	302.83	100	2590.5	172.48	104.98	-162.70	193.63	302.83	0.00	0.00	0.00
2700	6.63	302.83	100	2689.8	182.76	111.24	-172.41	205.18	302.83	0.00	0.00	0.00
2800	6.63	302.83	100	2789.1	193.05	117.49	-182.11	216.72	302.83	0.00	0.00	0.00
2900	6.63	302.83	100	2888.5	203.33	123.75	-191.81	228.27	302.83	0.00	0.00	0.00
3000	6.63	302.83	100	2987.8	213.62	130.01	-201.51	239.81	302.83	0.00	0.00	0.00
3100	6.63	302.83	100	3087.1	223.90	136.27	-211.21	251.36	302.83	0.00	0.00	0.00
3200	6.63	302.83	100	3186.4	234.19	142.53	-220.91	262.90	302.83	0.00	0.00	0.00
3300	6.63	302.83	100	3285.8	244.47	148.79	-230.62	274.45	302.83	0.00	0.00	0.00
3400	6.63	302.83	100	3385.1	254.76	155.05	-240.32	286.00	302.83	0.00	0.00	0.00
3500	6.63	302.83	100	3484.4	265.04	161.31	-250.02	297.54	302.83	0.00	0.00	0.00
3600	6.63	302.83	100	3583.8	275.32	167.57	-259.72	309.09	302.83	0.00	0.00	0.00
3700	6.63	302.83	100	3683.1	285.61	173.83	-269.42	320.63	302.83	0.00	0.00	0.00
3800	6.63	302.83	100	3782.4	295.89	180.09	-279.12	332.18	302.83	0.00	0.00	0.00
3900	6.63	302.83	100	3881.8	306.18	186.35	-288.83	343.72	302.83	0.00	0.00	0.00
4000	6.63	302.83	100	3981.1	316.46	192.61	-298.53	355.27	302.83	0.00	0.00	0.00
4100	6.63	302.83	100	4080.4	326.75	198.87	-308.23	366.82	302.83	0.00	0.00	0.00
4200	6.63	302.83	100	4179.8	337.03	205.13	-317.93	378.36	302.83	0.00	0.00	0.00
4300	6.63	302.83	100	4279.1	347.32	211.39	-327.63	389.91	302.83	0.00	0.00	0.00
4400	6.63	302.83	100	4378.4	357.60	217.65	-337.33	401.45	302.83	0.00	0.00	0.00
4500	6.63	302.83	100	4477.8	367.89	223.91	-347.04	413.00	302.83	0.00	0.00	0.00
4600	6.63	302.83	100	4577.1	378.17	230.17	-356.74	424.54	302.83	0.00	0.00	0.00
4700	6.63	302.83	100	4676.4	388.46	236.43	-366.44	436.09	302.83	0.00	0.00	0.00
4800	6.63	302.83	100	4775.7	398.74	242.68	-376.14	447.64	302.83	0.00	0.00	0.00
4900	6.63	302.83	100	4875.1	409.02	248.94	-385.84	459.18	302.83	0.00	0.00	0.00
5000	6.63	302.83	100	4974.4	419.31	255.20	-395.54	470.73	302.83	0.00	0.00	0.00
5100	6.63	302.83	100	5073.7	429.59	261.46	-405.25	482.27	302.83	0.00	0.00	0.00
5200	6.63	302.83	100	5173.1	439.88	267.72	-414.95	493.82	302.83	0.00	0.00	0.00
5300	6.63	302.83	100	5272.4	450.16	273.98	-424.65	505.36	302.83	0.00	0.00	0.00
5400	6.63	302.83	100	5371.7	460.45	280.24	-434.35	516.91	302.83	0.00	0.00	0.00
5500	6.63	302.83	100	5471.1	470.73	286.50	-444.05	528.46	302.83	0.00	0.00	0.00

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TD: 19,214' **Plane of Proposal: 329.86**

Measured Depth Ft	Drift Angle Deg	Azimuth Direction Deg	Course Length Ft	TVD Ft	Vertical Section Ft	COORDINATES		CLOSURE		Dog Leg Severity Deg/100'	Build / Drop Deg/100'	Left / Right Deg/100'
						N-S Ft	E-W Ft	Distance FT	Direction Deg			
5600	6.63	302.83	100	5570.4	481.02	292.76	-453.75	540.00	302.83	0.00	0.00	0.00
5700	6.63	302.83	100	5669.7	491.30	299.02	-463.46	551.55	302.83	0.00	0.00	0.00
5800	6.63	302.83	100	5769.1	501.59	305.28	-473.16	563.09	302.83	0.00	0.00	0.00
5900	6.63	302.83	100	5868.4	511.87	311.54	-482.86	574.64	302.83	0.00	0.00	0.00
6000	6.63	302.83	100	5967.7	522.15	317.80	-492.56	586.18	302.83	0.00	0.00	0.00
6100	6.63	302.83	100	6067.1	532.44	324.06	-502.26	597.73	302.83	0.00	0.00	0.00
6200	6.63	302.83	100	6166.4	542.72	330.32	-511.96	609.28	302.83	0.00	0.00	0.00
6300	6.63	302.83	100	6265.7	553.01	336.58	-521.67	620.82	302.83	0.00	0.00	0.00
6400	6.63	302.83	100	6365.0	563.29	342.84	-531.37	632.37	302.83	0.00	0.00	0.00
6500	6.63	302.83	100	6464.4	573.58	349.10	-541.07	643.91	302.83	0.00	0.00	0.00
6600	6.63	302.83	100	6563.7	583.86	355.36	-550.77	655.46	302.83	0.00	0.00	0.00
6700	6.63	302.83	100	6663.0	594.15	361.62	-560.47	667.00	302.83	0.00	0.00	0.00
6800	6.63	302.83	100	6762.4	604.43	367.87	-570.17	678.55	302.83	0.00	0.00	0.00
6900	6.63	302.83	100	6861.7	614.72	374.13	-579.88	690.10	302.83	0.00	0.00	0.00
7000	6.63	302.83	100	6961.0	625.00	380.39	-589.58	701.64	302.83	0.00	0.00	0.00
7100	6.63	302.83	100	7060.4	635.28	386.65	-599.28	713.19	302.83	0.00	0.00	0.00
7200	6.63	302.83	100	7159.7	645.57	392.91	-608.98	724.73	302.83	0.00	0.00	0.00
7300	6.63	302.83	100	7259.0	655.85	399.17	-618.68	736.28	302.83	0.00	0.00	0.00
7400	6.63	302.83	100	7358.4	666.14	405.43	-628.38	747.82	302.83	0.00	0.00	0.00
7500	6.63	302.83	100	7457.7	676.42	411.69	-638.09	759.37	302.83	0.00	0.00	0.00
7600	6.63	302.83	100	7557.0	686.71	417.95	-647.79	770.92	302.83	0.00	0.00	0.00
7700	6.63	302.83	100	7656.4	696.99	424.21	-657.49	782.46	302.83	0.00	0.00	0.00
7800	6.63	302.83	100	7755.7	707.28	430.47	-667.19	794.01	302.83	0.00	0.00	0.00
7900	6.63	302.83	100	7855.0	717.56	436.73	-676.89	805.55	302.83	0.00	0.00	0.00
8000	6.63	302.83	100	7954.3	727.85	442.99	-686.59	817.10	302.83	0.00	0.00	0.00
8100	6.63	302.83	100	8053.7	738.13	449.25	-696.30	828.64	302.83	0.00	0.00	0.00
8193	6.63	302.83	93	8146.0	747.69	455.07	-705.31	839.37	302.83	0.00	0.00	0.00
8200	7.14	304.91	7	8153.0	748.45	455.54	-706.01	840.22	302.83	8.03	7.21	29.42
8250	10.89	313.92	50	8202.4	755.81	460.59	-711.97	847.97	302.90	7.99	7.50	18.02
8300	14.77	318.29	50	8251.1	766.60	468.63	-719.61	858.75	303.07	7.99	7.76	8.74
8350	18.70	320.87	50	8299.0	780.77	479.61	-728.92	872.55	303.34	8.00	7.86	5.16
8400	22.66	322.57	50	8345.8	798.25	493.48	-739.83	889.31	303.70	8.01	7.92	3.40
8450	26.63	323.79	50	8391.2	818.95	510.18	-752.31	908.99	304.14	8.00	7.94	2.44
8500	30.60	324.71	50	8435.1	842.78	529.62	-766.29	931.50	304.65	7.99	7.94	1.84
8550	34.58	325.44	50	8477.2	869.61	551.70	-781.70	956.78	305.21	8.00	7.96	1.46
8600	38.57	326.04	50	8517.4	899.32	576.32	-798.46	984.72	305.82	8.01	7.98	1.20
8650	42.55	326.54	50	8555.3	931.76	603.36	-816.49	1015.24	306.46	7.99	7.96	1.00
8700	46.54	326.96	50	8591.0	966.78	632.69	-835.72	1048.20	307.13	8.00	7.98	0.84
8750	50.53	327.34	50	8624.1	1004.20	664.16	-856.03	1083.47	307.81	8.00	7.98	0.76
8800	54.52	327.68	50	8654.5	1043.84	697.63	-877.34	1120.90	308.49	8.00	7.98	0.68
8850	58.52	327.98	50	8682.1	1085.51	732.93	-899.54	1160.32	309.17	8.02	8.00	0.60
8900	62.51	328.26	50	8706.7	1129.00	769.88	-922.52	1201.56	309.85	7.99	7.98	0.56
8950	66.50	328.52	50	8728.2	1174.11	808.31	-946.17	1244.42	310.51	7.99	7.98	0.52
9000	70.50	328.76	50	8746.5	1220.61	848.02	-970.37	1288.71	311.15	8.01	8.00	0.48
9050	74.49	328.99	50	8761.5	1268.28	888.84	-995.02	1334.20	311.77	7.99	7.98	0.46
9100	78.48	329.21	50	8773.2	1316.88	930.54	-1019.98	1380.67	312.37	7.99	7.98	0.44
9150	82.48	329.43	50	8781.5	1366.18	972.94	-1045.13	1427.91	312.95	8.01	8.00	0.44
9200	86.47	329.64	50	8786.3	1415.93	1015.83	-1070.36	1475.66	313.50	7.99	7.98	0.42
9252	90.60	329.86	52	8787.6	1467.57	1060.43	-1096.37	1525.30	314.05	8.01	7.99	0.43
9300	90.60	329.86	48	8787.1	1515.90	1102.24	-1120.64	1571.86	314.53	0.00	0.00	0.00
9400	90.60	329.86	100	8786.1	1615.90	1188.71	-1170.85	1668.51	315.43	0.00	0.00	0.00
9500	90.60	329.86	100	8785.0	1715.89	1275.19	-1221.06	1765.53	316.24	0.00	0.00	0.00
9600	90.60	329.86	100	8784.0	1815.89	1361.66	-1271.27	1862.86	316.97	0.00	0.00	0.00
9700	90.60	329.86	100	8782.9	1915.88	1448.14	-1321.47	1960.46	317.62	0.00	0.00	0.00
9800	90.60	329.86	100	8781.9	2015.88	1534.61	-1371.68	2058.29	318.21	0.00	0.00	0.00
9900	90.60	329.86	100	8780.8	2115.87	1621.09	-1421.89	2156.32	318.75	0.00	0.00	0.00
10000	90.60	329.86	100	8779.8	2215.87	1707.56	-1472.10	2254.52	319.24	0.00	0.00	0.00
10100	90.60	329.86	100	8778.7	2315.86	1794.04	-1522.31	2352.87	319.68	0.00	0.00	0.00

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10200	90.60	329.86	100	8777.7	2415.85	1880.51	-1572.52	2451.36	320.10	0.00	0.00	0.00
10300	90.60	329.86	100	8776.6	2515.85	1966.99	-1622.73	2549.96	320.48	0.00	0.00	0.00
10400	90.60	329.86	100	8775.6	2615.84	2053.46	-1672.94	2648.67	320.83	0.00	0.00	0.00
10500	90.60	329.86	100	8774.5	2715.84	2139.94	-1723.14	2747.47	321.16	0.00	0.00	0.00
10600	90.60	329.86	100	8773.5	2815.83	2226.42	-1773.35	2846.35	321.46	0.00	0.00	0.00
10700	90.60	329.86	100	8772.5	2915.83	2312.89	-1823.56	2945.31	321.75	0.00	0.00	0.00
10800	90.60	329.86	100	8771.4	3015.82	2399.37	-1873.77	3044.33	322.01	0.00	0.00	0.00
10900	90.60	329.86	100	8770.4	3115.82	2485.84	-1923.98	3143.42	322.26	0.00	0.00	0.00
11000	90.60	329.86	100	8769.3	3215.81	2572.32	-1974.19	3242.57	322.49	0.00	0.00	0.00
11100	90.60	329.86	100	8768.3	3315.81	2658.79	-2024.40	3341.76	322.71	0.00	0.00	0.00
11200	90.60	329.86	100	8767.2	3415.80	2745.27	-2074.61	3441.00	322.92	0.00	0.00	0.00
11300	90.60	329.86	100	8766.2	3515.79	2831.74	-2124.81	3540.28	323.12	0.00	0.00	0.00
11400	90.60	329.86	100	8765.1	3615.79	2918.22	-2175.02	3639.60	323.30	0.00	0.00	0.00
11500	90.60	329.86	100	8764.1	3715.78	3004.69	-2225.23	3738.96	323.48	0.00	0.00	0.00
11600	90.60	329.86	100	8763.0	3815.78	3091.17	-2275.44	3838.35	323.64	0.00	0.00	0.00
11700	90.60	329.86	100	8762.0	3915.77	3177.64	-2325.65	3937.77	323.80	0.00	0.00	0.00
11800	90.60	329.86	100	8760.9	4015.77	3264.12	-2375.86	4037.22	323.95	0.00	0.00	0.00
11900	90.60	329.86	100	8759.9	4115.76	3350.60	-2426.07	4136.70	324.09	0.00	0.00	0.00
12000	90.60	329.86	100	8758.8	4215.76	3437.07	-2476.27	4236.20	324.23	0.00	0.00	0.00
12100	90.60	329.86	100	8757.8	4315.75	3523.55	-2526.48	4335.72	324.36	0.00	0.00	0.00
12200	90.60	329.86	100	8756.7	4415.75	3610.02	-2576.69	4435.27	324.48	0.00	0.00	0.00
12300	90.60	329.86	100	8755.7	4515.74	3696.50	-2626.90	4534.83	324.60	0.00	0.00	0.00
12400	90.60	329.86	100	8754.6	4615.73	3782.97	-2677.11	4634.41	324.71	0.00	0.00	0.00
12500	90.60	329.86	100	8753.6	4715.73	3869.45	-2727.32	4734.01	324.82	0.00	0.00	0.00
12600	90.60	329.86	100	8752.6	4815.72	3955.92	-2777.53	4833.63	324.93	0.00	0.00	0.00
12700	90.60	329.86	100	8751.5	4915.72	4042.40	-2827.74	4933.26	325.03	0.00	0.00	0.00
12800	90.60	329.86	100	8750.5	5015.71	4128.87	-2877.94	5032.91	325.12	0.00	0.00	0.00
12900	90.60	329.86	100	8749.4	5115.71	4215.35	-2928.15	5132.57	325.21	0.00	0.00	0.00
13000	90.60	329.86	100	8748.4	5215.70	4301.82	-2978.36	5232.24	325.30	0.00	0.00	0.00
13100	90.60	329.86	100	8747.3	5315.70	4388.30	-3028.57	5331.92	325.39	0.00	0.00	0.00
13192	90.60	329.86	92	8746.4	5407.35	4467.56	-3074.59	5423.30	325.46	0.00	0.00	0.00
13200	90.60	330.69	8	8746.3	5415.69	4474.80	-3078.73	5431.61	325.47	9.95	0.00	9.95
13250	90.60	335.69	50	8745.7	5465.59	4519.41	-3101.27	5481.15	325.54	10.00	0.00	10.00
13300	90.59	340.68	50	8745.2	5515.04	4565.82	-3119.84	5529.93	325.66	9.98	-0.02	9.98
13350	90.58	345.67	50	8744.7	5563.68	4613.66	-3134.31	5577.61	325.81	9.98	-0.02	9.98
13400	90.56	350.66	50	8744.2	5611.13	4662.58	-3144.56	5623.87	326.00	9.98	-0.04	9.98
13450	90.54	355.66	50	8743.7	5657.04	4712.20	-3150.51	5668.39	326.23	10.00	-0.04	10.00
13500	90.52	0.65	50	8743.3	5701.05	4762.16	-3152.12	5710.87	326.50	9.98	-0.04	-710.02
13550	90.49	5.64	50	8742.8	5742.83	4812.07	-3149.38	5751.05	326.80	9.98	-0.06	9.98
13600	90.45	10.63	50	8742.4	5782.07	4861.55	-3142.31	5788.67	327.12	9.98	-0.08	9.98
13650	90.42	15.62	50	8742.0	5818.47	4910.22	-3130.96	5823.50	327.48	9.98	-0.06	9.98
13700	90.38	20.62	50	8741.7	5851.74	4957.73	-3115.41	5855.33	327.85	10.00	-0.08	10.00
13750	90.34	25.61	50	8741.4	5881.65	5003.70	-3095.79	5883.95	328.25	9.98	-0.08	9.98
13800	90.29	30.60	50	8741.1	5907.95	5047.79	-3072.24	5909.22	328.67	9.98	-0.10	9.98
13850	90.25	35.59	50	8740.9	5930.46	5089.66	-3044.95	5930.97	329.11	9.98	-0.08	9.98
13900	90.20	40.58	50	8740.7	5949.00	5129.00	-3014.12	5949.08	329.56	9.98	-0.10	9.98
13950	90.15	45.58	50	8740.5	5963.43	5165.51	-2979.98	5963.46	330.02	10.00	-0.10	10.00
14000	90.10	50.57	50	8740.4	5973.64	5198.91	-2942.79	5974.00	330.49	9.98	-0.10	9.98
14050	90.04	55.56	50	8740.4	5979.56	5228.95	-2902.84	5980.66	330.96	9.98	-0.12	9.98
14085	90.01	59.06	35	8740.3	5981.12	5247.89	-2873.31	5983.00	331.30	9.97	-0.09	9.97
14100	89.99	60.31	15	8740.3	5981.16	5255.42	-2860.44	5983.44	331.44	8.38	-0.13	8.38
14150	89.95	64.48	50	8740.4	5978.95	5278.58	-2816.14	5982.82	331.92	8.34	-0.08	8.34
14200	89.91	68.65	50	8740.4	5973.11	5298.46	-2770.28	5978.98	332.40	8.34	-0.08	8.34
14250	89.87	72.82	50	8740.5	5963.68	5314.96	-2723.09	5971.93	332.87	8.34	-0.08	8.34
14300	89.82	76.99	50	8740.7	5950.71	5327.98	-2674.82	5961.71	333.34	8.34	-0.10	8.34
14350	89.78	81.16	50	8740.8	5934.26	5337.45	-2625.74	5948.35	333.81	8.34	-0.08	8.34
14400	89.74	85.33	50	8741.0	5914.41	5343.33	-2576.10	5931.90	334.26	8.34	-0.08	8.34
14450	89.70	89.50	50	8741.3	5891.29	5345.58	-2526.16	5912.42	334.71	8.34	-0.08	8.34

Minimum Radius of Curvature

API: 34-013-21542 **Well: Echo S3H** **Wellhead Location** **Lat : 40.163015**
Operator: Ascent Resources **Area: Utica** **Long : -81.021595**
Rig: Patterson 581 **Type: U-Lateral** **Magnetic Declination: -8.00**
TD: 19,214' **Plane of Proposal: 329.86**

Measured Depth Ft	Drift Angle Deg	Azimuth Direction Deg	Course Length Ft	TVD Ft	Vertical Section Ft	COORDINATES		CLOSURE		Dog Leg Severity Deg/100'	Build / Drop Deg/100'	Left / Right Deg/100'
						N-S Ft	E-W Ft	Distance FT	Direction Deg			
14500	89.67	93.67	50	8741.6	5865.00	5344.20	-2476.19	5889.99	335.14	8.34	-0.06	8.34
14550	89.63	97.85	50	8741.9	5835.69	5339.18	-2426.46	5864.69	335.56	8.36	-0.08	8.36
14600	89.60	102.02	50	8742.2	5803.51	5330.56	-2377.22	5836.61	335.97	8.34	-0.06	8.34
14650	89.57	106.19	50	8742.6	5768.63	5318.38	-2328.74	5805.87	336.35	8.34	-0.06	8.34
14700	89.54	110.36	50	8743.0	5731.24	5302.70	-2281.27	5772.60	336.72	8.34	-0.06	8.34
14750	89.51	114.53	50	8743.4	5691.54	5283.62	-2235.07	5736.91	337.07	8.34	-0.06	8.34
14800	89.49	118.70	50	8743.8	5649.73	5261.22	-2190.38	5698.97	337.40	8.34	-0.04	8.34
14850	89.47	122.87	50	8744.3	5606.05	5235.64	-2147.44	5658.92	337.70	8.34	-0.04	8.34
14900	89.45	127.04	50	8744.7	5560.71	5207.00	-2106.47	5616.94	337.97	8.34	-0.04	8.34
14950	89.43	131.21	50	8745.2	5513.96	5175.46	-2067.69	5573.21	338.22	8.34	-0.04	8.34
15000	89.42	135.39	50	8745.7	5466.05	5141.18	-2031.31	5527.92	338.44	8.36	-0.02	8.36
15050	89.41	139.56	50	8746.2	5417.22	5104.34	-1997.52	5481.28	338.63	8.34	-0.02	8.34
15100	89.40	143.73	50	8746.7	5367.75	5065.14	-1966.51	5433.49	338.78	8.34	-0.02	8.34
15150	89.40	147.90	50	8747.3	5317.89	5023.79	-1938.42	5384.79	338.90	8.34	0.00	8.34
15174	89.40	149.86	24	8747.5	5294.39	5003.67	-1926.28	5361.65	338.94	8.34	0.00	8.34
15200	89.40	149.86	27	8747.8	5267.90	4980.76	-1912.97	5335.49	338.99	0.00	0.00	0.00
15300	89.40	149.86	100	8748.8	5167.90	4894.28	-1862.76	5236.78	339.16	0.00	0.00	0.00
15400	89.40	149.86	100	8749.9	5067.91	4807.81	-1812.55	5138.13	339.34	0.00	0.00	0.00
15500	89.40	149.86	100	8750.9	4967.91	4721.33	-1762.35	5039.53	339.53	0.00	0.00	0.00
15600	89.40	149.86	100	8752.0	4867.92	4634.86	-1712.14	4940.98	339.73	0.00	0.00	0.00
15700	89.40	149.86	100	8753.0	4767.92	4548.38	-1661.93	4842.50	339.93	0.00	0.00	0.00
15800	89.40	149.86	100	8754.1	4667.93	4461.91	-1611.72	4744.07	340.14	0.00	0.00	0.00
15900	89.40	149.86	100	8755.1	4567.93	4375.43	-1561.51	4645.72	340.36	0.00	0.00	0.00
16000	89.40	149.86	100	8756.2	4467.94	4288.96	-1511.30	4547.44	340.59	0.00	0.00	0.00
16100	89.40	149.86	100	8757.2	4367.95	4202.48	-1461.09	4449.23	340.83	0.00	0.00	0.00
16200	89.40	149.86	100	8758.3	4267.95	4116.00	-1410.88	4351.10	341.08	0.00	0.00	0.00
16300	89.40	149.86	100	8759.3	4167.96	4029.53	-1360.68	4253.06	341.34	0.00	0.00	0.00
16400	89.40	149.86	100	8760.4	4067.96	3943.05	-1310.47	4155.12	341.62	0.00	0.00	0.00
16500	89.40	149.86	100	8761.4	3967.97	3856.58	-1260.26	4057.27	341.90	0.00	0.00	0.00
16600	89.40	149.86	100	8762.5	3867.97	3770.10	-1210.05	3959.53	342.21	0.00	0.00	0.00
16700	89.40	149.86	100	8763.5	3767.98	3683.63	-1159.84	3861.91	342.52	0.00	0.00	0.00
16800	89.40	149.86	100	8764.6	3667.98	3597.15	-1109.63	3764.41	342.86	0.00	0.00	0.00
16900	89.40	149.86	100	8765.6	3567.99	3510.68	-1059.42	3667.05	343.21	0.00	0.00	0.00
17000	89.40	149.86	100	8766.6	3467.99	3424.20	-1009.21	3569.83	343.58	0.00	0.00	0.00
17100	89.40	149.86	100	8767.7	3368.00	3337.73	-959.01	3472.77	343.97	0.00	0.00	0.00
17200	89.40	149.86	100	8768.7	3268.01	3251.25	-908.80	3375.88	344.38	0.00	0.00	0.00
17300	89.40	149.86	100	8769.8	3168.01	3164.78	-858.59	3279.17	344.82	0.00	0.00	0.00
17400	89.40	149.86	100	8770.8	3068.02	3078.30	-808.38	3182.67	345.29	0.00	0.00	0.00
17500	89.40	149.86	100	8771.9	2968.02	2991.82	-758.17	3086.40	345.78	0.00	0.00	0.00
17600	89.40	149.86	100	8772.9	2868.03	2905.35	-707.96	2990.36	346.31	0.00	0.00	0.00
17700	89.40	149.86	100	8774.0	2768.03	2818.87	-657.75	2894.60	346.87	0.00	0.00	0.00
17800	89.40	149.86	100	8775.0	2668.04	2732.40	-607.55	2799.13	347.46	0.00	0.00	0.00
17900	89.40	149.86	100	8776.1	2568.04	2645.92	-557.34	2703.98	348.11	0.00	0.00	0.00
18000	89.40	149.86	100	8777.1	2468.05	2559.45	-507.13	2609.21	348.79	0.00	0.00	0.00
18100	89.40	149.86	100	8778.2	2368.06	2472.97	-456.92	2514.83	349.53	0.00	0.00	0.00
18200	89.40	149.86	100	8779.2	2268.06	2386.50	-406.71	2420.91	350.33	0.00	0.00	0.00
18300	89.40	149.86	100	8780.3	2168.07	2300.02	-356.50	2327.49	351.19	0.00	0.00	0.00
18400	89.40	149.86	100	8781.3	2068.07	2213.55	-306.29	2234.64	352.12	0.00	0.00	0.00
18500	89.40	149.86	100	8782.4	1968.08	2127.07	-256.08	2142.43	353.14	0.00	0.00	0.00
18600	89.40	149.86	100	8783.4	1868.08	2040.60	-205.88	2050.95	354.24	0.00	0.00	0.00
18700	89.40	149.86	100	8784.4	1768.09	1954.12	-155.67	1960.31	355.45	0.00	0.00	0.00
18800	89.40	149.86	100	8785.5	1668.09	1867.65	-105.46	1870.62	356.77	0.00	0.00	0.00
18900	89.40	149.86	100	8786.5	1568.10	1781.17	-55.25	1782.03	358.22	0.00	0.00	0.00
19000	89.40	149.86	100	8787.6	1468.10	1694.69	-5.04	1694.70	359.83	0.00	0.00	0.00
19100	89.40	149.86	100	8788.6	1368.11	1608.22	45.17	1608.85	1.61	0.00	0.00	0.00
19114	89.40	149.86	14	8788.8	1354.61	1596.54	51.95	1597.39	1.86	0.00	0.00	0.00
19200	89.40	149.86	87	8789.7	1268.12	1521.74	95.38	1524.73	3.59	0.00	0.00	0.00
19214	89.40	149.86	14	8789.8	1254.22	1509.72	102.36	1513.19	3.88	0.00	0.00	0.00