

# Minimum Radius of Curvature

**API: 42-297-36401**      **Well: H.T. Chapman 02 201H**      **Wellhead Location**    **Lat : 28.674164**  
**Operator: Silverbow Resources**    **Area: Midland**      **Long : -98.196733**  
**Rig: Cactus 165**      **Type: U Lateral**      **Magnetic Declination: 3.05**  
**TD: 22,493'**      **Plane of Proposal: 270.67**

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			
235	0.38	173.47	235	235.0	-0.10	-0.77	0.09	0.78	173.47	0.16	0.16	73.82
423	0.31	144.00	188	423.0	-0.48	-1.81	0.46	1.86	165.75	0.10	-0.04	-15.68
517	0.43	208.97	94	517.0	-0.46	-2.32	0.44	2.36	169.33	0.44	0.13	69.12
612	0.60	196.51	95	612.0	-0.16	-3.11	0.12	3.11	177.73	0.21	0.18	-13.12
707	0.54	235.62	95	707.0	0.34	-3.84	-0.39	3.86	185.77	0.41	-0.06	41.17
801	0.53	195.48	94	801.0	0.82	-4.51	-0.87	4.59	190.92	0.39	-0.01	-42.70
896	0.37	236.49	95	896.0	1.18	-5.10	-1.24	5.25	193.69	0.37	-0.17	43.17
990	0.26	268.11	94	990.0	1.65	-5.27	-1.71	5.54	197.95	0.21	-0.12	33.64
1085	0.42	348.82	95	1085.0	1.93	-4.94	-1.99	5.33	201.96	0.48	0.17	84.96
1178	0.55	357.35	93	1178.0	2.03	-4.16	-2.08	4.65	206.55	0.16	0.14	9.17
1273	0.34	38.14	95	1273.0	1.88	-3.48	-1.93	3.98	208.94	0.39	-0.22	-336.01
1367	0.69	355.48	94	1367.0	1.77	-2.70	-1.80	3.24	213.67	0.53	0.37	337.60
1463	0.57	352.02	96	1463.0	1.89	-1.65	-1.91	2.52	229.17	0.13	-0.13	-3.60
1556	0.46	345.08	93	1556.0	2.06	-0.83	-2.07	2.23	248.13	0.14	-0.12	-7.46
1651	0.29	51.77	95	1651.0	1.98	-0.31	-1.98	2.00	261.00	0.46	-0.18	-308.75
1746	0.25	63.72	95	1746.0	1.60	-0.07	-1.60	1.61	267.39	0.07	-0.04	12.58
1841	0.53	22.25	95	1841.0	1.26	0.43	-1.25	1.32	288.76	0.40	0.29	-43.65
1936	0.54	29.90	95	1935.9	0.88	1.22	-0.86	1.49	324.74	0.08	0.01	8.05
2030	0.57	64.81	94	2029.9	0.24	1.80	-0.22	1.82	353.08	0.36	0.03	37.14
2125	0.52	18.43	95	2124.9	-0.32	2.41	0.35	2.44	8.14	0.45	-0.05	-48.82
2220	0.62	291.77	95	2219.9	0.03	3.01	0.00	3.01	0.08	0.83	0.11	287.73
2314	0.84	286.34	94	2313.9	1.17	3.40	-1.13	3.58	341.60	0.25	0.23	-5.78
2409	0.69	237.85	95	2408.9	2.32	3.29	-2.28	4.00	325.23	0.68	-0.16	-51.04
2503	0.76	239.71	94	2502.9	3.33	2.67	-3.30	4.25	308.99	0.08	0.07	1.98
2598	0.70	248.21	95	2597.9	4.41	2.14	-4.38	4.88	296.01	0.13	-0.06	8.95
2693	0.51	229.29	95	2692.9	5.26	1.65	-5.24	5.49	287.44	0.29	-0.20	-19.92
2787	0.66	237.55	94	2786.9	6.03	1.08	-6.02	6.11	280.21	0.18	0.16	8.79
2882	0.84	248.75	95	2881.9	7.13	0.54	-7.13	7.15	274.31	0.24	0.19	11.79
2976	0.48	202.81	94	2975.9	7.92	-0.08	-7.92	7.92	269.46	0.65	-0.38	-48.87
3071	0.69	198.58	95	3070.9	8.25	-0.98	-8.26	8.32	263.20	0.23	0.22	-4.45
3165	0.44	172.48	94	3164.9	8.37	-1.88	-8.39	8.60	257.38	0.38	-0.27	-27.77
3260	0.75	191.33	95	3259.9	8.43	-2.85	-8.47	8.93	251.39	0.38	0.33	19.84
3355	0.28	170.11	95	3354.9	8.50	-3.69	-8.55	9.31	246.66	0.53	-0.49	-22.34
3450	0.27	227.48	95	3449.9	8.62	-4.07	-8.67	9.58	244.87	0.28	-0.01	60.39
3544	0.66	219.58	94	3543.9	9.13	-4.64	-9.18	10.28	243.21	0.42	0.41	-8.40
3639	0.39	186.90	95	3638.9	9.50	-5.38	-9.57	10.98	240.66	0.41	-0.28	-34.40
3734	0.49	188.66	95	3733.9	9.60	-6.10	-9.67	11.43	237.75	0.11	0.11	1.85
3829	0.79	180.37	95	3828.8	9.65	-7.16	-9.73	12.08	233.67	0.33	0.32	-8.73
3923	0.50	183.39	94	3922.8	9.67	-8.21	-9.76	12.76	229.92	0.31	-0.31	3.21
4112	0.41	209.85	189	4111.8	10.03	-9.62	-10.15	13.99	226.52	0.12	-0.05	14.00
4301	0.38	255.55	189	4300.8	10.97	-10.37	-11.09	15.18	226.93	0.16	-0.02	24.18
4396	0.91	260.61	95	4395.8	12.02	-10.57	-12.14	16.10	228.96	0.56	0.56	5.33
4491	0.49	317.18	95	4490.8	13.04	-10.39	-13.16	16.77	231.70	0.80	-0.44	59.55
4586	0.85	33.87	95	4585.8	12.93	-9.51	-13.04	16.14	233.90	0.92	0.38	-298.22
4680	0.99	41.61	94	4679.8	12.02	-8.32	-12.12	14.70	235.51	0.20	0.15	8.23
4775	0.79	15.26	95	4774.8	11.32	-7.08	-11.40	13.42	238.16	0.47	-0.21	-27.74
4870	0.45	20.43	95	4869.8	11.02	-6.10	-11.10	12.66	241.21	0.36	-0.36	5.44
4964	0.58	0.82	94	4963.8	10.90	-5.28	-10.96	12.16	244.30	0.23	0.14	-20.86
5059	0.31	2.65	95	5058.8	10.89	-4.54	-10.94	11.85	247.47	0.28	-0.28	1.93
5154	0.64	25.20	95	5153.8	10.66	-3.80	-10.70	11.36	250.45	0.39	0.35	23.74
5249	0.88	357.52	95	5248.8	10.48	-2.59	-10.51	10.82	256.14	0.45	0.25	349.81
5343	0.56	7.68	94	5342.8	10.46	-1.42	-10.48	10.58	262.30	0.37	-0.34	-372.17
5438	0.81	348.30	95	5437.8	10.55	-0.30	-10.55	10.56	268.38	0.36	0.26	358.55
5533	0.51	335.12	95	5532.7	10.88	0.74	-10.87	10.89	273.91	0.35	-0.32	-13.87
5627	0.55	304.10	94	5626.7	11.43	1.37	-11.42	11.50	276.87	0.30	0.04	-33.00
5735	0.34	328.01	108	5734.7	12.04	1.94	-12.02	12.17	279.16	0.26	-0.19	22.14
5829	0.72	285.77	94	5828.7	12.76	2.33	-12.73	12.94	280.39	0.55	0.40	-44.94

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**Rig: Cactus 165**      **Type: U Lateral**      **Magnetic Declination: 3.05**  
**TD: 22,493'**      **Plane of Proposal: 270.67**

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			
5924	0.60	309.26	95	5923.7	13.72	2.81	-13.69	13.98	281.60	0.31	-0.13	24.73
6019	1.06	288.84	95	6018.7	14.95	3.41	-14.91	15.29	282.88	0.57	0.48	-21.49
6113	1.27	306.59	94	6112.7	16.62	4.31	-16.57	17.12	284.59	0.44	0.22	18.88
6208	1.43	349.08	95	6207.7	17.71	6.10	-17.64	18.66	289.09	1.04	0.17	44.73
6398	0.86	319.74	190	6397.6	19.12	9.52	-19.01	21.26	296.60	0.42	-0.30	-15.44
6492	1.41	356.60	94	6491.6	19.66	11.21	-19.53	22.52	299.86	0.94	0.59	39.21
6587	1.21	14.68	95	6586.6	19.50	13.35	-19.35	23.51	304.60	0.48	-0.21	-359.92
6681	1.90	35.42	94	6680.6	18.37	15.58	-18.19	23.95	310.57	0.94	0.73	22.06
6776	2.21	46.67	95	6775.5	16.16	18.12	-15.95	24.14	318.65	0.53	0.33	11.84
6871	1.90	60.95	95	6870.4	13.47	20.14	-13.24	24.10	326.68	0.63	-0.33	15.03
6965	2.36	66.28	94	6964.4	10.36	21.68	-10.11	23.92	335.01	0.53	0.49	5.67
7060	4.49	58.84	95	7059.2	5.42	24.39	-5.13	24.92	348.12	2.29	2.24	-7.83
7155	3.89	62.62	95	7153.9	-0.59	27.79	0.91	27.81	1.88	0.69	-0.63	3.98
7249	2.59	27.14	94	7247.8	-4.35	31.15	4.71	31.50	8.60	2.48	-1.38	-37.74
7343	2.66	352.21	94	7341.7	-4.97	35.20	5.39	35.61	8.70	1.68	0.07	345.82
7438	3.37	356.47	95	7436.6	-4.44	40.17	4.91	40.47	6.98	0.78	0.75	4.48
7533	4.98	0.13	95	7531.3	-4.20	47.08	4.75	47.32	5.76	1.72	1.69	-375.09
7628	6.07	13.09	95	7625.9	-5.24	56.10	5.90	56.41	6.00	1.74	1.15	13.64
7723	6.38	21.26	95	7720.3	-8.18	65.91	8.95	66.52	7.73	0.99	0.33	8.60
7817	7.16	36.11	94	7813.7	-13.41	75.51	14.30	76.85	10.72	2.03	0.83	15.80
7911	7.44	41.78	94	7906.9	-20.81	84.78	21.80	87.54	14.42	0.82	0.30	6.03
8005	6.59	40.00	94	8000.2	-28.23	93.45	29.33	97.95	17.42	0.93	-0.90	-1.89
8100	7.89	44.93	95	8094.5	-36.24	102.25	37.44	108.88	20.11	1.52	1.37	5.19
8194	7.63	45.37	94	8187.6	-45.13	111.20	46.43	120.50	22.66	0.28	-0.28	0.47
8289	6.01	45.17	95	8281.9	-53.05	119.14	54.45	130.99	24.56	1.71	-1.71	-0.21
8384	6.84	45.77	95	8376.3	-60.55	126.59	62.03	140.97	26.11	0.88	0.87	0.63
8478	5.81	38.63	94	8469.7	-67.44	134.21	69.01	150.91	27.21	1.38	-1.10	-7.60
8573	7.57	33.75	95	8564.1	-73.81	143.17	75.49	161.85	27.80	1.95	1.85	-5.14
8667	7.37	32.00	94	8657.3	-80.33	153.43	82.13	174.03	28.16	0.32	-0.21	-1.86
8762	6.63	31.39	95	8751.6	-86.30	163.28	88.21	185.58	28.38	0.78	-0.78	-0.64
8856	7.45	40.10	94	8844.9	-92.94	172.57	94.96	196.98	28.82	1.43	0.87	9.27
8951	6.60	41.95	95	8939.2	-100.45	181.35	102.58	208.35	29.50	0.93	-0.89	1.95
9046	7.31	38.62	95	9033.5	-107.77	190.13	110.00	219.66	30.05	0.86	0.75	-3.51
9141	6.77	38.01	95	9127.8	-114.88	199.26	117.22	231.19	30.47	0.57	-0.57	-0.64
9236	5.49	39.05	95	9222.2	-121.10	207.20	123.53	241.23	30.80	1.35	-1.35	1.09
9330	6.05	23.75	94	9315.7	-125.84	215.23	128.36	250.60	30.81	1.74	0.60	-16.28
9425	7.29	28.38	95	9410.1	-130.60	225.12	133.24	261.59	30.62	1.42	1.31	4.87
9519	5.77	31.47	94	9503.5	-135.80	234.39	138.55	272.28	30.59	1.66	-1.62	3.29
9614	6.32	27.80	95	9598.0	-140.63	243.09	143.48	282.28	30.55	0.71	0.58	-3.86
9709	5.51	25.73	95	9692.4	-144.94	251.83	147.90	292.04	30.43	0.88	-0.85	-2.18
9803	7.52	29.93	94	9785.8	-149.86	261.22	152.93	302.69	30.35	2.20	2.14	4.47
9898	8.62	28.69	95	9879.9	-156.24	272.86	159.44	316.03	30.30	1.17	1.16	-1.31
9993	7.89	28.21	95	9973.9	-162.60	284.85	165.94	329.66	30.22	0.77	-0.77	-0.51
10088	6.48	32.47	95	10068.2	-168.44	295.12	171.91	341.53	30.22	1.59	-1.48	4.48
10182	5.63	33.47	94	10161.6	-173.74	303.44	177.30	351.44	30.30	0.91	-0.90	1.06
10276	5.29	35.69	94	10255.2	-178.72	310.80	182.37	360.36	30.40	0.43	-0.36	2.36
10371	3.47	40.34	95	10349.9	-183.07	316.55	186.78	367.55	30.54	1.95	-1.92	4.89
10465	2.53	31.32	94	10443.8	-185.94	320.49	189.70	372.43	30.62	1.12	-1.00	-9.60
10559	2.26	27.19	94	10537.7	-187.83	323.92	191.63	376.35	30.61	0.34	-0.29	-4.39
10654	1.66	95.22	95	10632.7	-190.04	325.46	193.85	378.82	30.78	2.37	-0.63	71.61
10737	1.54	117.10	83	10715.6	-192.23	324.84	196.05	379.41	31.11	0.75	-0.14	26.36
10861	0.59	108.79	124	10839.6	-194.33	323.87	198.13	379.67	31.46	0.77	-0.77	-6.70
10956	9.71	273.55	95	10934.2	-186.78	324.21	190.58	376.08	30.45	10.82	9.60	173.43
11050	21.24	273.20	94	11024.6	-161.76	325.66	165.58	365.34	26.95	12.27	12.27	-0.37
11144	31.63	268.02	94	11108.7	-120.01	325.76	123.83	348.50	20.81	11.31	11.05	-5.51
11239	39.39	268.34	95	11186.0	-64.92	324.02	68.72	331.23	11.97	8.17	8.17	0.34
11334	45.04	268.71	95	11256.3	-1.16	322.39	4.93	322.43	0.88	5.95	5.95	0.39
11428	52.56	271.08	94	11318.2	69.50	322.35	-65.73	328.98	348.47	8.22	8.00	2.52

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						N-S Ft	E-W Ft	Distance FT	Direction Deg			
11523	60.82	273.39	95	11370.3	148.78	325.51	-144.99	356.34	335.99	8.93	8.69	2.43
11617	61.48	271.59	94	11415.7	231.07	329.09	-227.24	399.92	325.37	1.82	0.70	-1.91
11712	68.21	270.38	95	11456.0	317.01	330.54	-313.16	455.33	316.55	7.18	7.08	-1.27
11807	77.97	272.50	95	11483.6	407.77	332.86	-403.91	523.39	309.49	10.49	10.27	2.23
11901	91.36	271.99	94	11492.3	501.12	336.52	-497.22	600.39	304.09	14.25	14.24	-0.54
11996	93.63	271.83	95	11488.2	596.00	339.68	-592.07	682.59	299.84	2.40	2.39	-0.17
12090	92.09	271.07	94	11483.5	689.87	342.06	-685.92	766.48	296.50	1.83	-1.64	-0.81
12185	90.21	271.07	95	11481.6	784.84	343.83	-780.88	853.22	293.76	1.98	-1.98	0.00
12280	89.99	270.90	95	11481.4	879.84	345.46	-875.86	941.53	291.53	0.29	-0.23	-0.18
12375	91.16	271.78	95	11480.5	974.83	347.68	-970.83	1031.21	289.70	1.54	1.23	0.93
12469	91.58	274.47	94	11478.2	1068.71	352.81	-1064.65	1121.59	288.33	2.90	0.45	2.86
12564	91.25	273.10	95	11475.9	1163.54	359.08	-1159.42	1213.75	287.21	1.48	-0.35	-1.44
12658	91.39	272.46	94	11473.7	1257.45	363.63	-1253.28	1304.97	286.18	0.70	0.15	-0.68
12753	90.80	271.81	95	11471.9	1352.40	367.17	-1348.20	1397.30	285.23	0.92	-0.62	-0.68
12848	91.61	271.88	95	11469.9	1447.36	370.23	-1443.12	1489.86	284.39	0.86	0.85	0.07
12943	89.57	270.34	95	11468.9	1542.34	372.07	-1538.09	1582.46	283.60	2.69	-2.15	-1.62
13037	88.89	268.78	94	11470.2	1636.31	371.35	-1632.08	1673.79	282.82	1.81	-0.72	-1.66
13132	89.96	269.92	95	11471.2	1731.28	370.27	-1727.07	1766.31	282.10	1.65	1.13	1.20
13227	89.62	269.49	95	11471.5	1826.26	369.78	-1822.06	1859.21	281.47	0.58	-0.36	-0.45
13322	89.15	271.64	95	11472.5	1921.25	370.72	-1917.05	1952.56	280.94	2.32	-0.49	2.26
13414	90.21	271.50	92	11473.0	2013.24	373.24	-2009.01	2043.39	280.52	1.16	1.15	-0.15
13509	89.99	270.72	95	11472.9	2108.23	375.08	-2103.99	2137.16	280.11	0.85	-0.23	-0.82
13604	90.46	270.27	95	11472.5	2203.23	375.90	-2198.99	2230.88	279.70	0.68	0.49	-0.47
13698	91.33	270.67	94	11471.0	2297.22	376.67	-2292.97	2323.70	279.33	1.02	0.93	0.43
13793	90.13	273.40	95	11469.8	2392.17	380.04	-2387.89	2417.95	279.04	3.14	-1.26	2.87
13888	89.51	271.18	95	11470.1	2487.13	383.84	-2482.81	2512.30	278.79	2.43	-0.65	-2.34
13982	90.77	273.04	94	11469.9	2581.09	387.30	-2576.74	2605.68	278.55	2.39	1.34	1.98
14077	91.95	275.54	95	11467.6	2675.87	394.40	-2671.44	2700.39	278.40	2.91	1.24	2.63
14172	89.54	275.56	95	11466.4	2770.51	403.59	-2765.98	2795.27	278.30	2.54	-2.54	0.02
14266	88.53	275.11	94	11468.0	2864.18	412.33	-2859.56	2889.13	278.21	1.18	-1.07	-0.48
14361	87.44	274.13	95	11471.3	2958.89	419.98	-2954.19	2983.89	278.09	1.54	-1.15	-1.03
14456	86.85	271.86	95	11476.1	3053.69	424.93	-3048.93	3078.40	277.93	2.47	-0.62	-2.39
14551	87.04	271.54	95	11481.1	3148.54	427.75	-3143.75	3172.72	277.75	0.39	0.20	-0.34
14645	87.16	270.95	94	11485.9	3242.42	429.79	-3237.61	3266.01	277.56	0.64	0.13	-0.63
14740	85.50	272.13	95	11492.0	3337.20	432.33	-3332.38	3360.31	277.39	2.14	-1.75	1.24
14835	87.04	272.30	95	11498.1	3431.97	436.00	-3427.10	3454.72	277.25	1.63	1.62	0.18
14929	89.06	271.77	94	11501.3	3525.88	439.33	-3520.98	3548.29	277.11	2.22	2.15	-0.56
15024	89.82	270.82	95	11502.3	3620.87	441.48	-3615.95	3642.80	276.96	1.28	0.80	-1.00
15119	89.96	270.01	95	11502.4	3715.87	442.17	-3710.95	3737.20	276.79	0.87	0.15	-0.85
15214	90.99	271.53	95	11501.7	3810.86	443.44	-3805.93	3831.68	276.65	1.93	1.08	1.60
15308	91.27	271.97	94	11499.8	3904.82	446.31	-3899.87	3925.33	276.53	0.55	0.30	0.47
15403	91.95	271.22	95	11497.1	3999.77	448.96	-3994.80	4019.94	276.41	1.07	0.72	-0.79
15497	92.31	271.78	94	11493.6	4093.70	451.42	-4088.70	4113.54	276.30	0.71	0.38	0.60
15592	91.95	272.06	95	11490.1	4188.61	454.60	-4183.58	4208.20	276.20	0.48	-0.38	0.29
15687	90.88	270.09	95	11487.8	4283.57	456.38	-4278.53	4302.80	276.09	2.36	-1.13	-2.07
15781	90.49	270.67	94	11486.6	4377.56	457.00	-4372.52	4396.33	275.97	0.74	-0.41	0.62
15876	91.27	272.64	95	11485.2	4472.53	459.75	-4467.46	4491.06	275.88	2.23	0.82	2.07
15971	90.83	272.38	95	11483.4	4567.47	463.91	-4562.35	4585.88	275.81	0.54	-0.46	-0.27
16065	91.08	272.59	94	11481.9	4661.41	467.98	-4656.25	4679.71	275.74	0.35	0.27	0.22
16160	90.71	272.80	95	11480.4	4756.34	472.45	-4751.14	4774.57	275.68	0.45	-0.39	0.22
16254	90.43	272.96	94	11479.5	4850.26	477.17	-4845.01	4868.45	275.62	0.34	-0.30	0.17
16349	91.30	267.34	95	11478.0	4945.21	477.42	-4939.96	4962.98	275.52	5.99	0.92	-5.92
16444	93.04	258.67	95	11474.4	5039.20	465.87	-5034.09	5055.60	275.29	9.30	1.83	-9.13
16539	89.99	249.15	95	11471.9	5130.01	439.58	-5125.22	5144.04	274.90	10.52	-3.21	-10.02
16634	88.67	238.10	95	11473.0	5214.49	397.45	-5210.20	5225.33	274.36	11.71	-1.39	-11.63
16728	90.35	230.45	94	11473.8	5290.09	342.61	-5286.44	5297.53	273.71	8.33	1.79	-8.14
16823	90.99	221.54	95	11472.7	5357.57	276.68	-5354.70	5361.85	272.96	9.40	0.67	-9.38
16918	91.47	212.45	95	11470.7	5413.77	200.90	-5411.80	5415.52	272.13	9.58	0.51	-9.57

# Minimum Radius of Curvature

**API: 42-297-36401**      **Well: H.T. Chapman 02 201H**      **Wellhead Location**    **Lat : 28.674164**  
**Operator: Silverbow Resources**    **Area: Midland**      **Long : -98.196733**  
**Rig: Cactus 165**      **Type: U Lateral**      **Magnetic Declination: 3.05**  
**TD: 22,493'**      **Plane of Proposal: 270.67**

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			
17012	92.34	201.93	94	11467.5	5455.67	117.45	-5454.67	5455.93	271.23	11.22	0.93	-11.19
17107	91.98	191.78	95	11463.9	5482.09	26.72	-5482.15	5482.22	270.28	10.68	-0.38	-10.68
17202	91.08	182.84	95	11461.4	5493.06	-67.38	-5494.22	5494.64	269.30	9.45	-0.95	-9.41
17296	90.38	172.66	94	11460.2	5488.28	-161.17	-5490.54	5492.90	268.32	10.85	-0.74	-10.83
17391	89.29	162.44	95	11460.5	5466.74	-253.82	-5470.08	5475.97	267.34	10.82	-1.15	-10.76
17486	84.96	152.22	95	11465.2	5429.23	-341.23	-5433.59	5444.29	266.41	11.67	-4.56	-10.76
17580	83.56	143.19	94	11474.7	5378.40	-420.21	-5383.68	5400.05	265.54	9.67	-1.49	-9.61
17675	84.83	136.62	95	11484.3	5316.72	-492.47	-5322.84	5345.57	264.71	7.01	1.34	-6.92
17770	83.41	124.56	95	11494.1	5244.39	-553.85	-5251.22	5280.35	263.98	12.72	-1.49	-12.69
17864	85.84	115.37	94	11502.9	5162.86	-600.52	-5170.23	5204.99	263.37	10.07	2.59	-9.78
17959	88.11	106.07	95	11507.9	5073.84	-634.04	-5081.60	5121.00	262.89	10.06	2.39	-9.79
18054	88.72	98.55	95	11510.5	4980.90	-654.27	-4988.89	5031.61	262.53	7.94	0.64	-7.92
18148	89.93	96.28	94	11511.6	4887.56	-666.40	-4895.69	4940.83	262.25	2.74	1.29	-2.41
18243	92.31	90.21	95	11509.8	4792.73	-671.78	-4800.91	4847.68	262.03	6.86	2.51	-6.39
18338	91.75	90.85	95	11506.4	4697.79	-672.65	-4705.97	4753.80	261.87	0.89	-0.59	0.67
18432	88.64	91.02	94	11506.1	4603.80	-674.19	-4612.00	4661.01	261.68	3.31	-3.31	0.18
18526	88.11	91.85	94	11508.8	4509.85	-676.54	-4518.07	4568.44	261.48	1.05	-0.56	0.88
18621	88.11	92.36	95	11511.9	4414.93	-680.03	-4423.18	4475.15	261.26	0.54	0.00	0.54
18716	88.70	91.04	95	11514.5	4319.98	-682.85	-4328.26	4381.80	261.03	1.52	0.62	-1.39
18811	88.67	90.92	95	11516.7	4225.01	-684.47	-4233.30	4288.28	260.82	0.13	-0.03	-0.13
18905	88.08	90.89	94	11519.4	4131.05	-685.95	-4139.35	4195.80	260.59	0.63	-0.63	-0.03
19000	87.61	89.40	95	11523.0	4036.12	-686.19	-4044.42	4102.22	260.37	1.64	-0.49	-1.57
19094	89.96	87.55	94	11525.0	3942.22	-683.69	-3950.49	4009.21	260.18	3.18	2.50	-1.97
19189	89.62	85.95	95	11525.3	3847.45	-678.31	-3855.64	3914.86	260.02	1.72	-0.36	-1.68
19284	92.24	87.49	95	11523.8	3752.70	-672.87	-3760.82	3820.54	259.86	3.20	2.76	1.62
19379	91.92	90.29	95	11520.3	3657.82	-671.03	-3665.91	3726.82	259.63	2.96	-0.34	2.95
19473	91.75	91.15	94	11517.3	3563.87	-672.22	-3571.97	3634.67	259.34	0.93	-0.18	0.91
19567	90.85	90.34	94	11515.2	3469.89	-673.44	-3478.00	3542.60	259.04	1.29	-0.96	-0.86
19662	90.85	92.37	95	11513.8	3374.91	-675.68	-3383.05	3449.86	258.71	2.14	0.00	2.14
19756	91.19	93.47	94	11512.1	3281.00	-680.47	-3289.19	3358.84	258.31	1.22	0.36	1.17
19851	90.66	91.30	95	11510.6	3186.06	-684.42	-3194.29	3266.79	257.91	2.35	-0.56	-2.28
19945	91.58	98.67	94	11508.7	3092.41	-692.58	-3100.72	3177.13	257.41	7.90	0.98	7.84
20040	87.18	93.73	95	11509.7	2997.91	-702.84	-3006.34	3087.40	256.84	6.96	-4.63	-5.20
20135	87.05	92.30	95	11514.5	2903.12	-707.83	-2911.59	2996.40	256.34	1.51	-0.14	-1.51
20230	88.39	91.94	95	11518.3	2808.22	-711.34	-2816.74	2905.17	255.83	1.46	1.41	-0.38
20324	89.87	91.68	94	11519.7	2714.26	-714.31	-2722.80	2814.93	255.30	1.60	1.57	-0.28
20419	89.79	90.70	95	11520.0	2619.26	-716.28	-2627.82	2723.69	254.75	1.04	-0.08	-1.03
20514	91.49	88.97	95	11519.0	2524.29	-716.01	-2532.83	2632.09	254.21	2.55	1.79	-1.82
20608	91.90	86.40	94	11516.2	2430.46	-712.21	-2438.96	2540.82	253.72	2.77	0.44	-2.73
20702	91.90	86.61	94	11513.1	2336.76	-706.49	-2345.18	2449.29	253.24	0.22	0.00	0.22
20797	91.89	87.54	95	11509.9	2242.00	-701.64	-2250.36	2357.21	252.68	0.98	-0.01	0.98
20891	91.69	88.83	94	11507.0	2148.14	-698.67	-2156.46	2266.81	252.05	1.39	-0.21	1.37
20986	89.90	85.39	95	11505.7	2053.35	-693.88	-2061.60	2175.24	251.40	4.08	-1.88	-3.62
21080	89.85	86.44	94	11505.9	1959.67	-687.18	-1967.84	2084.38	250.75	1.12	-0.05	1.12
21175	89.48	86.82	95	11506.4	1864.91	-681.60	-1873.01	1993.17	250.00	0.56	-0.39	0.40
21269	89.15	87.70	94	11507.5	1771.09	-677.10	-1779.13	1903.62	249.16	1.00	-0.35	0.94
21364	88.93	88.76	95	11509.1	1676.19	-674.17	-1684.19	1814.11	248.18	1.14	-0.23	1.12
21458	88.58	88.72	94	11511.2	1582.26	-672.10	-1590.23	1726.43	247.09	0.37	-0.37	-0.04
21553	88.82	90.36	95	11513.3	1487.31	-671.34	-1495.26	1639.06	245.82	1.74	0.25	1.73
21647	88.30	90.74	94	11515.7	1393.34	-672.24	-1401.30	1554.20	244.37	0.69	-0.55	0.40
21741	87.70	90.86	94	11519.0	1299.40	-673.55	-1307.36	1470.67	242.74	0.65	-0.64	0.13
21836	87.15	90.82	95	11523.2	1204.49	-674.70	-1212.47	1387.55	240.91	0.68	-0.58	-0.36
21930	86.99	90.03	94	11528.0	1110.62	-675.15	-1118.59	1306.55	238.89	0.55	-0.17	-0.52
22025	89.93	90.15	95	11530.6	1015.67	-675.30	-1023.63	1226.32	236.59	3.10	3.09	0.13
22119	88.86	89.20	94	11531.6	921.69	-674.76	-929.64	1148.71	234.03	1.52	-1.14	-1.01
22214	87.47	87.74	95	11534.6	826.81	-672.23	-834.73	1071.76	231.15	2.12	-1.46	-1.54
22309	90.32	90.31	95	11536.5	731.89	-670.61	-739.78	998.50	227.81	4.04	3.00	2.71
22403	89.62	91.13	94	11536.5	637.89	-671.79	-645.79	931.85	223.87	1.15	-0.74	0.87