

# Minimum Radius of Curvature

**API: 42-389-39373**      **Well: Old Monarch State 2 A2HU**      **Wellhead Location N+/S- : 31.738535**  
**Operator: PDC**      **Area: Orla**      **E+/W- : -103.914560**  
**Rig: H&P 629**      **Type: U-Lateral**      **Magnetic Declination: 6.62**  
**TD: 20,559'**      **Plane of Proposal: 1.00**

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			
272	1.15	150.61	272	272.0	-32.27	-2.38	1.34	2.73	150.61	0.42	0.42	55.37
333	1.30	188.79	61	333.0	-33.49	-3.60	1.53	3.91	156.89	1.33	0.25	62.59
425	2.63	216.07	92	424.9	-36.25	-6.33	0.13	6.33	178.81	1.73	1.45	29.65
519	3.28	236.95	94	518.8	-39.52	-9.54	-3.39	10.13	199.57	1.33	0.69	22.21
612	4.42	260.71	93	611.6	-41.65	-11.57	-9.16	14.76	218.36	2.08	1.23	25.55
706	5.66	272.32	94	705.2	-42.19	-11.97	-17.37	21.09	235.42	1.70	1.32	12.35
799	5.58	277.33	93	797.8	-41.59	-11.21	-26.43	28.71	247.02	0.53	-0.09	5.39
892	6.16	277.48	93	890.3	-40.53	-9.98	-35.86	37.23	254.45	0.62	0.62	0.16
984	6.75	276.33	92	981.7	-39.47	-8.74	-46.13	46.95	259.27	0.66	0.64	-1.25
1078	7.54	274.99	94	1075.0	-38.52	-7.60	-57.77	58.26	262.51	0.86	0.84	-1.43
1171	8.52	270.13	93	1167.1	-38.20	-7.05	-70.74	71.09	264.31	1.28	1.05	-5.23
1264	9.58	265.85	93	1258.9	-39.00	-7.59	-85.34	85.68	264.91	1.35	1.14	-4.60
1357	9.85	261.00	93	1350.6	-41.08	-9.40	-100.92	101.36	264.68	0.93	0.29	-5.22
1439	10.65	260.76	82	1431.3	-43.64	-11.71	-115.33	115.92	264.20	0.98	0.98	-0.29
1534	9.83	260.21	95	1524.7	-46.72	-14.50	-131.98	132.78	263.73	0.87	-0.86	-0.58
1630	10.70	256.26	96	1619.2	-50.52	-18.01	-148.71	149.80	263.09	1.17	0.91	-4.11
1726	11.15	254.97	96	1713.5	-55.36	-22.54	-166.34	167.86	262.28	0.53	0.47	-1.34
1821	11.03	254.35	95	1806.7	-60.50	-27.37	-183.96	185.98	261.54	0.18	-0.13	-0.65
1917	11.08	254.60	96	1900.9	-65.73	-32.30	-201.70	204.26	260.90	0.07	0.05	0.26
2012	11.62	254.03	95	1994.1	-71.10	-37.35	-219.69	222.85	260.35	0.58	0.57	-0.60
2108	11.24	254.78	96	2088.2	-76.54	-42.47	-238.02	241.78	259.88	0.43	-0.40	0.78
2203	10.11	253.47	95	2181.5	-81.63	-47.27	-254.95	259.29	259.50	1.22	-1.19	-1.38
2299	10.19	252.65	96	2276.0	-86.85	-52.20	-271.13	276.11	259.10	0.17	0.08	-0.85
2394	10.96	255.04	95	2369.4	-91.97	-57.04	-287.87	293.47	258.79	0.93	0.81	2.52
2490	11.77	254.87	96	2463.5	-97.20	-61.95	-306.14	312.35	258.56	0.84	0.84	-0.18
2585	12.27	254.82	95	2556.4	-102.71	-67.12	-325.24	332.09	258.34	0.53	0.53	-0.05
2681	11.56	254.54	96	2650.4	-108.28	-72.36	-344.36	351.88	258.13	0.74	-0.74	-0.29
2776	12.09	254.97	95	2743.3	-113.72	-77.48	-363.14	371.31	257.96	0.57	0.56	0.45
2872	11.68	254.48	96	2837.3	-119.26	-82.68	-382.21	391.05	257.79	0.44	-0.43	-0.51
2967	12.52	254.95	95	2930.2	-124.84	-87.93	-401.42	410.94	257.64	0.89	0.88	0.49
3062	12.40	255.29	95	3022.9	-130.45	-93.19	-421.23	431.42	257.52	0.15	-0.13	0.36
3158	11.25	256.11	96	3116.9	-135.65	-98.06	-440.29	451.08	257.44	1.21	-1.20	0.85
3254	10.92	252.63	96	3211.1	-140.92	-103.02	-458.06	469.50	257.32	0.78	-0.34	-3.63
3349	12.29	252.35	95	3304.2	-146.99	-108.77	-476.28	488.55	257.14	1.44	1.44	-0.29
3444	12.08	251.92	95	3397.0	-153.47	-114.92	-495.37	508.52	256.94	0.24	-0.22	-0.45
3540	11.65	252.16	96	3491.0	-159.89	-121.01	-514.14	528.19	256.76	0.45	-0.45	0.25
3635	12.38	256.10	95	3583.9	-165.60	-126.40	-533.16	547.94	256.66	1.16	0.77	4.15
3731	12.91	256.02	96	3677.6	-171.02	-131.46	-553.56	568.95	256.64	0.55	0.55	-0.08
3826	12.02	256.02	95	3770.3	-176.32	-136.41	-573.45	589.46	256.62	0.94	-0.94	0.00
3922	11.75	254.53	96	3864.3	-181.68	-141.44	-592.58	609.22	256.58	0.43	-0.28	-1.55
4017	11.20	255.38	95	3957.4	-186.90	-146.34	-610.83	628.11	256.53	0.61	-0.58	0.89
4113	10.00	254.77	96	4051.7	-191.74	-150.89	-627.89	645.77	256.49	1.26	-1.25	-0.64
4209	10.05	256.28	96	4146.3	-196.20	-155.06	-644.07	662.47	256.46	0.28	0.05	1.57
4304	10.90	255.39	95	4239.7	-200.72	-159.30	-660.81	679.74	256.45	0.91	0.89	-0.94
4400	12.39	255.27	96	4333.7	-205.96	-164.20	-679.56	699.12	256.42	1.55	1.55	-0.12
4495	12.32	253.96	95	4426.5	-211.69	-169.60	-699.16	719.43	256.37	0.30	-0.07	-1.38
4591	11.75	256.10	96	4520.4	-217.21	-174.77	-718.49	739.44	256.33	0.75	-0.59	2.23
4686	12.49	259.88	95	4613.3	-221.68	-178.90	-737.99	759.37	256.37	1.14	0.78	3.98
4781	12.42	259.67	95	4706.0	-225.66	-182.54	-758.16	779.82	256.46	0.09	-0.07	-0.22
4877	12.09	259.36	96	4799.8	-229.72	-186.25	-778.19	800.17	256.54	0.35	-0.34	-0.32
4972	11.65	259.21	95	4892.8	-233.69	-189.88	-797.39	819.69	256.61	0.46	-0.46	-0.16
5068	11.25	258.88	96	4986.9	-237.63	-193.50	-816.10	838.73	256.66	0.42	-0.42	-0.34
5163	10.75	258.70	95	5080.2	-241.47	-197.02	-833.88	856.84	256.71	0.53	-0.53	-0.19
5259	10.11	258.92	96	5174.6	-245.14	-200.40	-850.93	874.21	256.75	0.67	-0.67	0.23
5354	9.79	259.38	95	5268.1	-248.51	-203.49	-867.05	890.61	256.79	0.35	-0.34	0.48
5450	9.91	260.26	96	5362.7	-251.69	-206.39	-883.22	907.01	256.85	0.20	0.13	0.92
5545	9.17	260.43	95	5456.4	-254.61	-209.03	-898.74	922.73	256.91	0.78	-0.78	0.18

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5641	8.39	260.66	96	5551.3	-257.27	-211.44	-913.19	937.35	256.96	0.81	-0.81	0.24
5736	7.51	258.97	95	5645.4	-259.80	-213.75	-926.13	950.47	257.00	0.96	-0.93	-1.78
5832	7.25	258.02	96	5740.6	-262.47	-216.21	-938.21	962.80	257.02	0.30	-0.27	-0.99
5927	5.98	259.87	95	5834.9	-264.77	-218.33	-948.94	973.74	257.04	1.36	-1.34	1.95
6022	5.52	259.71	95	5929.5	-266.62	-220.01	-958.31	983.24	257.07	0.48	-0.48	-0.17
6118	5.04	262.75	96	6025.1	-268.13	-221.37	-967.04	992.05	257.11	0.58	-0.50	3.17
6213	3.59	271.57	95	6119.8	-268.70	-221.81	-974.15	999.09	257.17	1.67	-1.53	9.28
6309	3.13	278.40	96	6215.6	-268.33	-221.35	-979.75	1004.44	257.27	0.63	-0.48	7.11
6404	1.78	278.82	95	6310.5	-267.80	-220.74	-983.77	1008.23	257.35	1.42	-1.42	0.44
6499	1.63	275.74	95	6405.5	-267.49	-220.38	-986.57	1010.89	257.41	0.18	-0.16	-3.24
6595	1.35	286.23	96	6501.5	-267.08	-219.93	-989.02	1013.18	257.46	0.41	-0.29	10.93
6691	1.23	284.91	96	6597.4	-266.53	-219.35	-991.10	1015.08	257.52	0.13	-0.13	-1.37
6786	1.21	283.28	95	6692.4	-266.07	-218.86	-993.06	1016.89	257.57	0.04	-0.02	-1.72
6881	0.70	290.57	95	6787.4	-265.67	-218.42	-994.58	1018.28	257.61	0.55	-0.54	7.67
6977	0.65	14.46	96	6883.4	-264.94	-217.69	-994.99	1018.53	257.66	0.94	-0.05	-287.61
7072	0.38	313.03	95	6978.4	-264.20	-216.95	-995.09	1018.47	257.70	0.61	-0.28	314.28
7168	0.52	273.08	96	7074.4	-263.98	-216.71	-995.76	1019.07	257.72	0.35	0.15	-41.61
7263	0.64	23.02	95	7169.4	-263.47	-216.20	-995.98	1019.18	257.75	1.00	0.13	-263.22
7359	1.11	232.14	96	7265.4	-263.55	-216.28	-996.51	1019.71	257.75	1.77	0.49	217.83
7454	1.00	231.29	95	7360.4	-264.66	-217.36	-997.88	1021.28	257.71	0.12	-0.12	-0.89
7549	1.22	216.88	95	7455.3	-266.01	-218.69	-999.13	1022.79	257.65	0.37	0.23	-15.17
7644	1.32	206.75	95	7550.3	-267.82	-220.47	-1000.23	1024.24	257.57	0.26	0.11	-10.66
7740	0.71	100.43	96	7646.3	-268.91	-221.57	-1000.14	1024.39	257.51	1.73	-0.64	-110.75
7835	0.43	128.14	95	7741.3	-269.22	-221.89	-999.29	1023.63	257.48	0.41	-0.29	29.17
7930	0.74	78.97	95	7836.3	-269.31	-222.00	-998.40	1022.79	257.46	0.59	0.33	-51.76
8026	0.89	69.07	96	7932.3	-268.90	-221.61	-997.10	1021.43	257.47	0.21	0.16	-10.31
8121	1.23	62.42	95	8027.3	-268.14	-220.88	-995.51	1019.71	257.49	0.38	0.36	-7.00
8217	0.95	82.82	96	8123.3	-267.53	-220.30	-993.80	1017.93	257.50	0.49	-0.29	21.25
8312	1.02	174.33	95	8218.3	-268.26	-221.04	-992.94	1017.24	257.45	1.49	0.07	96.33
8408	1.72	186.76	96	8314.2	-270.54	-223.32	-993.02	1017.83	257.33	0.79	0.73	12.95
8504	2.15	171.06	96	8410.2	-273.75	-226.53	-992.91	1018.43	257.15	0.71	0.45	-16.35
8599	2.38	173.05	95	8505.1	-277.46	-230.25	-992.40	1018.76	256.94	0.26	0.24	2.09
8695	2.04	170.87	96	8601.0	-281.11	-233.92	-991.88	1019.09	256.73	0.36	-0.35	-2.27
8790	1.99	172.03	95	8696.0	-284.41	-237.22	-991.39	1019.37	256.54	0.07	-0.05	1.22
8886	2.13	172.98	96	8791.9	-287.82	-240.64	-990.94	1019.74	256.35	0.15	0.15	0.99
8981	0.69	213.51	95	8886.9	-290.05	-242.87	-991.04	1020.36	256.23	1.75	-1.52	42.66
9077	0.66	219.65	96	8982.9	-290.97	-243.78	-991.71	1021.23	256.19	0.08	-0.03	6.40
9172	0.84	205.54	95	9077.9	-292.03	-244.83	-992.36	1022.12	256.14	0.27	0.19	-14.85
9268	0.97	208.13	96	9173.8	-293.39	-246.18	-993.05	1023.11	256.08	0.14	0.14	2.70
9363	1.15	205.74	95	9268.8	-294.98	-247.75	-993.84	1024.25	256.00	0.20	0.19	-2.52
9395	1.11	202.61	32	9300.8	-295.56	-248.32	-994.10	1024.64	255.97	0.23	-0.12	-9.78
9459	0.87	210.26	64	9364.8	-296.56	-249.32	-994.58	1025.35	255.93	0.43	-0.38	11.95
9555	6.97	9.37	96	9460.6	-291.42	-244.19	-994.00	1023.55	256.20	8.11	6.35	-209.26
9650	15.36	4.28	95	9553.7	-273.12	-225.92	-992.12	1017.52	257.17	8.88	8.83	-5.36
9745	25.40	4.75	95	9642.7	-240.15	-192.99	-989.49	1008.13	258.96	10.57	10.57	0.49
9841	36.72	3.01	96	9724.8	-190.76	-143.65	-986.26	996.67	261.71	11.83	11.79	-1.81
9936	48.57	3.39	95	9794.5	-126.56	-79.51	-982.65	985.86	265.37	12.48	12.47	0.40
10032	55.27	3.33	96	9853.7	-51.10	-4.11	-978.23	978.24	269.76	6.98	6.98	-0.06
10127	56.46	4.63	95	9907.0	27.42	74.33	-972.76	975.60	274.37	1.69	1.25	1.37
10222	57.49	4.36	95	9958.8	106.92	153.73	-966.52	978.67	279.04	1.11	1.08	-0.28
10318	60.60	0.95	96	10008.2	189.18	235.94	-962.75	991.24	283.77	4.45	3.24	-3.55
10413	68.05	1.17	95	10049.3	274.74	321.49	-961.16	1013.50	288.49	7.84	7.84	0.23
10509	76.82	2.48	96	10078.2	366.17	412.87	-958.23	1043.39	293.31	9.23	9.14	1.36
10598	83.59	3.03	89	10093.4	453.78	500.42	-954.01	1077.29	297.68	7.63	7.61	0.62
10663	87.65	1.46	65	10098.3	518.56	565.17	-951.47	1106.67	300.71	6.69	6.25	-2.42
10758	88.18	1.16	95	10101.8	613.49	660.08	-949.30	1156.24	304.81	0.64	0.56	-0.32
10854	88.52	1.04	96	10104.6	709.45	756.02	-947.46	1212.13	308.59	0.38	0.35	-0.13
10949	88.85	1.00	95	10106.7	804.43	850.98	-945.77	1272.26	311.98	0.35	0.35	-0.04

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11045	88.46	359.78	96	10109.0	900.39	946.95	-945.12	1337.89	315.06	1.33	-0.41	373.73
11140	89.30	0.13	95	10110.8	995.36	1041.93	-945.19	1406.77	317.79	0.96	0.88	-378.58
11236	89.08	359.92	96	10112.2	1091.33	1137.92	-945.15	1479.25	320.29	0.32	-0.23	374.78
11331	88.94	0.69	95	10113.8	1186.31	1232.91	-944.64	1553.19	322.54	0.82	-0.15	-378.14
11427	88.60	0.36	96	10115.9	1282.29	1328.88	-943.76	1629.91	324.62	0.49	-0.35	-0.34
11522	88.38	0.77	95	10118.4	1377.25	1423.84	-942.83	1707.70	326.49	0.49	-0.23	0.43
11617	88.68	0.72	95	10120.8	1472.22	1518.80	-941.59	1787.00	328.20	0.32	0.32	-0.05
11713	88.38	359.99	96	10123.3	1568.18	1614.77	-941.00	1868.94	329.77	0.82	-0.31	374.24
11809	88.35	0.83	96	10126.0	1664.13	1710.73	-940.31	1952.12	331.20	0.88	-0.03	-374.13
11904	88.18	1.45	95	10128.9	1759.09	1805.66	-938.42	2034.96	332.54	0.68	-0.18	0.65
11999	87.39	0.63	95	10132.6	1854.02	1900.57	-936.70	2118.87	333.76	1.20	-0.83	-0.86
12095	87.51	1.25	96	10136.9	1949.92	1996.47	-935.13	2204.62	334.90	0.66	0.13	0.65
12190	87.37	1.37	95	10141.1	2044.83	2091.35	-932.96	2290.01	335.96	0.19	-0.15	0.13
12285	86.50	1.33	95	10146.2	2139.69	2186.18	-930.72	2376.06	336.94	0.92	-0.92	-0.04
12381	86.80	1.42	96	10151.8	2235.52	2281.99	-928.42	2463.63	337.86	0.33	0.31	0.09
12476	86.91	1.52	95	10157.0	2330.37	2376.82	-925.99	2550.83	338.71	0.16	0.12	0.11
12572	88.71	1.89	96	10160.7	2426.29	2472.70	-923.13	2639.40	339.53	1.91	1.88	0.39
12667	89.47	1.67	95	10162.2	2521.27	2567.64	-920.18	2727.55	340.28	0.83	0.80	-0.23
12763	90.00	1.13	96	10162.6	2617.27	2663.61	-917.84	2817.31	340.99	0.79	0.55	-0.56
12858	88.43	1.60	95	10163.9	2712.25	2758.57	-915.57	2906.54	341.64	1.73	-1.65	0.49
12954	88.74	0.33	96	10166.3	2808.22	2854.53	-913.96	2997.27	342.25	1.36	0.32	-1.32
13049	88.49	358.88	95	10168.6	2903.16	2949.50	-914.61	3088.05	342.77	1.55	-0.26	377.42
13145	88.77	357.83	96	10170.9	2999.03	3045.43	-917.37	3180.60	343.24	1.13	0.29	-1.09
13241	88.43	356.96	96	10173.2	3094.81	3141.30	-921.73	3273.73	343.65	0.97	-0.35	-0.91
13336	90.11	357.95	95	10174.5	3189.62	3236.19	-925.95	3366.05	344.03	2.05	1.77	1.04
13373	88.66	357.31	37	10174.8	3226.55	3273.16	-927.48	3402.02	344.18	4.28	-3.92	-1.73
13385	88.24	357.25	12	10175.2	3238.52	3285.14	-928.05	3413.71	344.23	3.54	-3.50	-0.50
13480	93.78	359.80	95	10173.5	3333.37	3380.05	-930.49	3505.79	344.61	6.42	5.83	2.68
13512	94.18	359.78	32	10171.3	3365.29	3411.97	-930.61	3536.61	344.74	1.25	1.25	-0.06
13576	93.59	2.15	64	10166.9	3429.14	3475.81	-929.53	3597.96	345.03	3.81	-0.92	-558.80
13608	93.28	2.85	32	10165.0	3461.07	3507.72	-928.14	3628.44	345.18	2.39	-0.97	2.19
13671	91.99	3.13	63	10162.1	3523.96	3570.57	-924.86	3688.40	345.48	2.10	-2.05	0.44
13703	87.79	4.42	32	10162.2	3555.92	3602.49	-922.75	3718.79	345.63	13.73	-13.13	4.03
13767	89.05	5.27	64	10164.0	3619.75	3666.24	-917.35	3779.26	345.95	2.37	1.97	1.33
13862	89.36	5.67	95	10165.3	3714.45	3760.79	-908.29	3868.92	346.42	0.53	0.33	0.42
13958	89.72	5.72	96	10166.0	3810.12	3856.32	-898.77	3959.67	346.88	0.38	0.37	0.05
14053	87.90	1.06	95	10168.0	3904.99	3951.10	-893.15	4050.79	347.26	5.26	-1.92	-4.91
14149	87.56	353.60	96	10171.8	4000.65	4046.85	-897.62	4145.21	347.49	7.77	-0.35	367.23
14244	91.37	348.19	95	10172.7	4094.12	4140.60	-912.64	4239.98	347.57	6.96	4.01	-5.69
14340	89.30	341.37	96	10172.2	4186.24	4233.17	-937.83	4335.81	347.51	7.42	-2.16	-7.10
14435	91.04	335.06	95	10171.9	4273.78	4321.34	-973.07	4429.54	347.31	6.89	1.83	-6.64
14531	89.52	324.95	96	10171.4	4355.96	4404.37	-1020.99	4521.16	346.95	10.65	-1.58	-10.53
14626	91.20	317.12	95	10170.8	4428.71	4478.17	-1080.68	4606.72	346.43	8.43	1.77	-8.24
14722	91.01	308.14	96	10168.9	4492.41	4543.11	-1151.23	4686.70	345.78	9.35	-0.20	-9.35
14817	91.85	300.03	95	10166.6	4544.21	4596.29	-1229.82	4757.98	345.02	8.58	0.88	-8.54
14912	91.29	292.92	95	10164.0	4585.03	4638.60	-1314.77	4821.33	344.18	7.50	-0.59	-7.48
15008	91.15	283.98	96	10161.9	4613.78	4668.94	-1405.72	4875.97	343.24	9.31	-0.15	-9.31
15103	91.85	279.01	95	10159.4	4631.07	4687.86	-1498.75	4921.62	342.27	5.28	0.74	-5.23
15199	91.90	275.64	96	10156.3	4641.64	4700.09	-1593.91	4963.00	341.27	3.51	0.05	-3.51
15294	90.03	268.99	95	10154.7	4643.82	4703.93	-1688.76	4997.88	340.25	7.27	-1.97	-7.00
15390	90.67	262.13	96	10154.1	4634.72	4696.50	-1784.41	5024.06	339.20	7.18	0.67	-7.15
15485	90.03	256.08	95	10153.5	4615.15	4678.55	-1877.65	5041.27	338.13	6.40	-0.67	-6.37
15581	91.06	248.72	96	10152.6	4584.55	4649.55	-1969.09	5049.32	337.05	7.74	1.07	-7.67
15676	94.74	241.81	95	10147.8	4543.40	4609.89	-2055.20	5047.27	335.97	8.23	3.87	-7.27
15772	92.63	235.90	96	10141.6	4492.44	4560.36	-2137.15	5036.29	334.89	6.52	-2.20	-6.16
15867	90.50	228.59	95	10139.0	4433.04	4502.25	-2212.17	5016.37	333.83	8.01	-2.24	-7.69
15963	90.70	222.71	96	10138.0	4364.78	4435.18	-2280.79	4987.26	332.79	6.13	0.21	-6.12
16058	90.08	211.82	95	10137.4	4288.30	4359.69	-2338.22	4947.14	331.79	11.48	-0.65	-11.46

# Minimum Radius of Curvature

**API: 42-389-39373**      **Well: Old Monarch State 2 A2HU**      **Wellhead Location N+/S- : 31.738535**  
**Operator: PDC**      **Area: Orla**      **E+/W- : -103.914560**  
**Rig: H&P 629**      **Type: U-Lateral**      **Magnetic Declination: 6.62**  
**TD: 20,559'**      **Plane of Proposal: 1.00**

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			
16154	90.53	202.88	96	10136.9	4202.36	4274.51	-2382.28	4893.53	330.87	9.32	0.47	-9.31
16249	91.93	189.87	95	10134.8	4110.98	4183.58	-2409.00	4827.59	330.07	13.77	1.47	-13.69
16294	89.78	182.93	45	10134.1	4066.22	4138.90	-2414.01	4791.44	329.75	16.14	-4.78	-15.42
16345	90.36	182.59	51	10134.1	4015.24	4087.96	-2416.47	4748.76	329.41	1.32	1.14	-0.67
16393	91.40	182.37	48	10133.3	3967.26	4040.01	-2418.55	4708.61	329.09	2.21	2.17	-0.46
16489	91.90	181.77	96	10130.6	3871.32	3944.11	-2422.01	4628.41	328.45	0.81	0.52	-0.62
16584	92.16	182.20	95	10127.2	3776.39	3849.23	-2425.30	4549.58	327.79	0.53	0.27	0.45
16680	91.40	181.53	96	10124.2	3680.45	3753.33	-2428.42	4470.42	327.10	1.06	-0.79	-0.70
16775	91.46	181.46	95	10121.8	3585.49	3658.39	-2430.90	4392.39	326.40	0.10	0.06	-0.07
16871	91.26	181.66	96	10119.6	3489.52	3562.45	-2433.51	4314.28	325.66	0.29	-0.21	0.21
16966	91.04	181.62	95	10117.7	3394.54	3467.51	-2436.23	4237.79	324.91	0.24	-0.23	-0.04
17062	90.78	180.82	96	10116.1	3298.56	3371.54	-2438.28	4160.83	324.13	0.88	-0.27	-0.83
17157	90.90	180.69	95	10114.7	3203.57	3276.56	-2439.53	4084.99	323.33	0.19	0.13	-0.14
17252	90.56	180.61	95	10113.5	3108.58	3181.58	-2440.61	4009.86	322.51	0.37	-0.36	-0.08
17348	90.76	180.91	96	10112.4	3012.58	3085.59	-2441.88	3934.93	321.64	0.38	0.21	0.31
17444	90.34	181.39	96	10111.5	2916.59	2989.61	-2443.81	3861.34	320.74	0.66	-0.44	0.50
17539	90.00	181.28	95	10111.2	2821.59	2894.64	-2446.02	3789.72	319.80	0.38	-0.36	-0.12
17635	90.17	181.46	96	10111.1	2725.59	2798.67	-2448.31	3718.44	318.82	0.26	0.18	0.19
17730	90.31	181.59	95	10110.7	2630.60	2703.70	-2450.84	3649.20	317.81	0.20	0.15	0.14
17825	90.73	181.86	95	10109.8	2535.61	2608.75	-2453.70	3581.37	316.75	0.53	0.44	0.28
17921	90.39	182.25	96	10108.9	2439.63	2512.82	-2457.14	3514.51	315.64	0.54	-0.35	0.41
18017	90.76	182.02	96	10107.9	2343.66	2416.89	-2460.72	3449.13	314.49	0.45	0.39	-0.24
18112	90.76	181.93	95	10106.7	2248.68	2321.95	-2463.99	3385.67	313.30	0.09	0.00	-0.09
18208	90.06	182.00	96	10106.0	2152.69	2226.01	-2467.29	3323.05	312.06	0.73	-0.73	0.07
18303	90.25	181.73	95	10105.7	2057.71	2131.06	-2470.38	3262.55	310.78	0.35	0.20	-0.28
18398	90.76	182.30	95	10104.9	1962.72	2036.13	-2473.72	3203.92	309.46	0.81	0.54	0.60
18494	90.28	182.06	96	10104.0	1866.75	1940.20	-2477.37	3146.70	308.07	0.56	-0.50	-0.25
18589	90.78	183.19	95	10103.1	1771.79	1845.31	-2481.72	3092.59	306.63	1.30	0.53	1.19
18685	90.59	182.73	96	10102.0	1675.86	1749.44	-2486.68	3040.41	305.13	0.52	-0.20	-0.48
18780	90.78	182.47	95	10100.8	1580.90	1654.55	-2490.99	2990.41	303.59	0.34	0.20	-0.27
18876	90.95	183.95	96	10099.4	1484.99	1558.71	-2496.36	2943.03	301.98	1.55	0.18	1.54
18971	90.98	183.76	95	10097.8	1390.12	1463.94	-2502.75	2899.46	300.32	0.20	0.03	-0.20
19067	90.70	182.32	96	10096.4	1294.19	1368.09	-2507.84	2856.73	298.61	1.53	-0.29	-1.50
19162	90.28	181.87	95	10095.6	1199.21	1273.15	-2511.31	2815.60	296.88	0.65	-0.44	-0.47
19258	89.66	181.07	96	10095.6	1103.22	1177.19	-2513.77	2775.76	295.09	1.05	-0.65	-0.83
19354	90.03	180.60	96	10095.9	1007.22	1081.20	-2515.17	2737.71	293.26	0.62	0.39	-0.49
19449	90.50	180.45	95	10095.4	912.22	986.20	-2516.04	2702.42	291.40	0.52	0.49	-0.16
19545	91.06	180.17	96	10094.1	816.24	890.21	-2516.56	2669.38	289.48	0.65	0.58	-0.29
19640	91.34	180.32	95	10092.2	721.27	795.24	-2516.97	2639.61	287.53	0.33	0.29	0.16
19736	90.87	180.69	96	10090.3	625.29	699.26	-2517.81	2613.11	285.52	0.62	-0.49	0.39
19832	90.92	180.77	96	10088.8	529.30	603.28	-2519.04	2590.27	283.47	0.10	0.05	0.08
19927	90.92	180.91	95	10087.3	434.32	508.30	-2520.43	2571.17	281.40	0.15	0.00	0.15
20023	91.15	181.21	96	10085.5	338.33	412.33	-2522.21	2555.69	279.28	0.39	0.24	0.31
20118	91.43	180.92	95	10083.4	243.36	317.37	-2523.97	2543.85	277.17	0.42	0.29	-0.31
20214	91.06	180.92	96	10081.3	147.38	221.41	-2525.51	2535.20	275.01	0.39	-0.39	0.00
20309	91.34	181.10	95	10079.3	52.40	126.44	-2527.19	2530.35	272.86	0.35	0.29	0.19
20405	91.12	180.79	96	10077.3	-43.58	30.48	-2528.77	2528.95	270.69	0.40	-0.23	-0.32
20500	91.43	180.36	95	10075.2	-138.55	-64.49	-2529.72	2530.54	268.54	0.56	0.33	-0.45
20514	91.48	180.73	14	10074.8	-152.55	-78.49	-2529.85	2531.07	268.22	2.67	0.36	2.64
20559	91.48	180.73	45	10073.6	-197.53	-123.47	-2530.43	2533.44	267.21	0.00	0.00	0.00