



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

February 18, 2026

Dave Kester
Manager of Public Works
Municipality of Bluewater
14 Mill Ave
Zurich, ON N0M 2T0

Re: Requirement under the Safe Drinking Water Act for a Summary Report

Dear Mr. Kester;

Attached is the 2025 Summary Report for the Varna Drinking Water System for January 1st to December 31st, 2025. This report has been completed in accordance with Section 11 and Schedule 22 of O. Reg. 170/03, under the Safe Drinking Water Act.

This Summary Report is to be provided to the members of council by March 31st, 2026.

Section 12 of O. Reg. 170/03, requires the Annual Report required under Section 11 of O. Reg. 170/03 to be made available for inspection by any member of the public during normal business hours, without charge. The reports should be made available for inspection at the office of the Municipality, or at a location that is reasonably convenient to the users of the water system.

Please feel free to contact me should you require any additional information regarding these reports. I can be reached at 519-441-0441.

Sincerely,

Katelyn Barrowcliffe
Process and Compliance Technician
Midwest Region
Ontario Clean Water Agency

cc. Sam Smith, OCWA Regional Hub Manager
Paul Sherban, OCWA Senior Operations Manager
Maegan Garber, OCWA Safety, Process and Compliance Manager

Varna Drinking Water System

Waterworks # 260019630
System Category – Small Municipal Residential

Annual Drinking Water Report

Prepared For: The Municipality of Bluewater

Reporting Period of January 1 – December 31, 2025 Issued:

February 18, 2026

Revision: 0

Operating Authority:



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Overview

This report fulfills requirements of Ontario Regulation 170/03 Section 11 and Schedule 22. The report must be made available to anyone that requests a copy of the report. By March 31, 2026 the report must be provided to members of municipal council.

Report Availability

This system does not serve more than 10 000 residences. The annual report will be available to residents at the Municipal Office as well as on the municipal website. Notification will be at the Municipal Office and copies provided free of charge, if requested. The Municipal Office is located at 14 Mill Ave, Zurich, Ontario, N0M 2T0.

System Process Description

The Varna Drinking Water System serves the community of Varna located in the Municipality of Bluewater. The population served is approximately 154.

Water is sourced from a 73 m deep well. The well has a 15.2 cm diameter casing installed to a depth of 57.3 m and extends above grade approximately 33 cm. A 100 mm diameter sleeve is installed from 57.3 m to 73 m and is equipped with a 1.6 L/s submersible pump. The well pump was installed at a depth of 65.8 m with 32 mm diameter galvanized steel discharge piping.

There are three 450 L chlorine contact tanks in the pump house to achieve primary disinfection requirements. A 12 kW standby propane generator provides backup power to the system. Other equipment includes: three pressure tanks, a 60 L chlorine storage tank, two chlorine pumps, and various other pressure gauges, meters, chlorine analyzer, sample taps and data logger.

The normal operating pressure in the system is set by the pressure switch in the well house to be between 275 and 415 kPa; typical operating pressures in this system are in the range of 250 to 400 kPa.

A 50 mm diameter watermain is installed throughout the distribution system. There are no fire hydrants on the Varna Drinking Water System, however, there is a connection for emergency supply and multiple blow-offs for flushing.

Treatment Chemicals

Table 1 below provides a list of water treatment chemicals used by the system during the period covered by the report.

Table 1: *Treatment Chemicals in the Varna Drinking Water System*

Chemical Name	Use	Supplier
Sodium Hypochlorite 12%	Primary Disinfection	Jutzi

Summary of Non-Compliance

Adverse Water Quality Incidents

Under the Safe Drinking Water Act, O. Reg 170/03, any adverse water quality incidents (AWQI) are required to be reported to the Ministry of the Environment, Conservation and Parks (MECP) and corrective action taken. Refer to Table 2 below for a summary of AWQI incidents in 2025.

Table 2: *Adverse Water Quality Incidents*

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
There were no AWQI's reported during the reporting period.						

Non-Compliance

Under the Safe Drinking Water Act, O. Reg 170/03, any events where legislative requirements were not met are required to be reported to the MECP and corrective actions taken. Refer to Table 3 below for a summary of non-compliance incidents in 2025.

Table 3: *Summary of Non-Compliance Incidents*

Legislation	Requirement(s) system failed to meet	Duration of the failure (ie. Dates(s))	Corrective Action
There were no Non-Compliances reported during the reporting period.			

Non-Compliance Identified in a Ministry Inspection

The routine MECP Inspections have an Inspection Rating Record. This record evaluates the system to provide information for the owner/operator on areas that need to be improved. The particular areas that were evaluated for the Varna Drinking Water System were: Capacity Assessment, Certification and Training, Distribution System, Logbooks, Operations Manuals, Reporting and Corrective Actions, Treatment Processes, Source, and Water Quality Monitoring. The Varna Drinking Water System inspection was conducted on September 12th, 2025 by Dwayne Reid of the Ministry of the Environment, Conservation and Parks (MECP). The inspection review period was November 1, 2024 to August 31, 2025. An inspection rating of 100% was received. Refer to Table 4 below for non-compliances identified in the report.

Table 1: *Non-Compliances Identified in a Ministry Inspection*

Item #	Issue Identified in Report/Order	Required Action Identified in Report	Comply by Date as per the Report	Status
There were no non-compliance issues reported during the reporting period.				

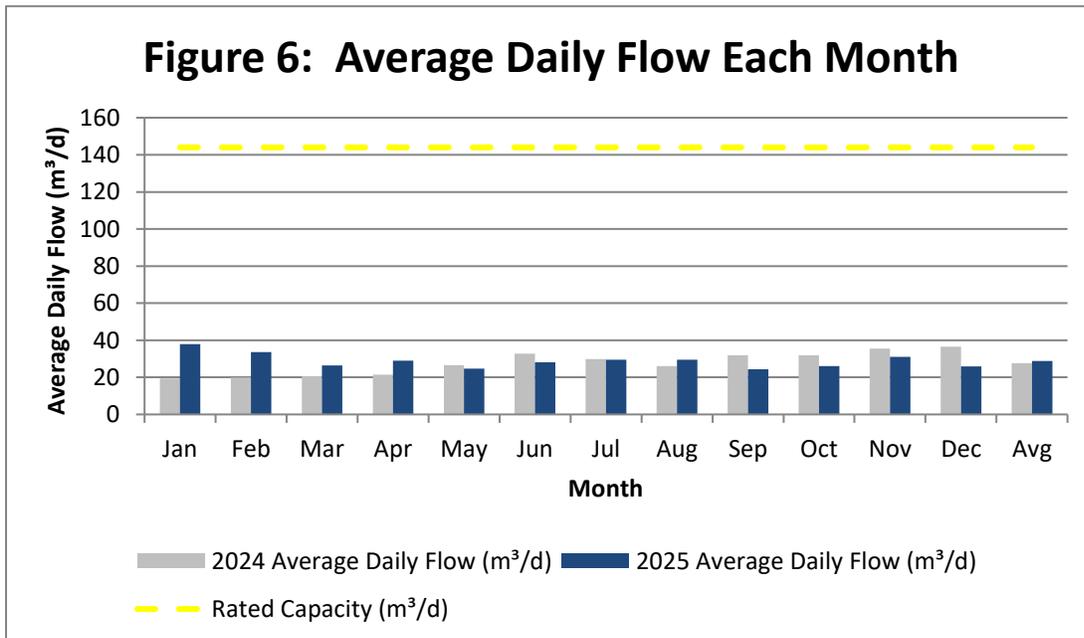
Flows

Raw and Treated Water Flows

The raw and treated water flows are regulated under the Permit to Take Water (PTTW #0266-AE9NRG) and Municipal Drinking Water Licence (MDWL #045-106). The 2025 daily raw water taking volumes were submitted to the Ministry electronically under the PTTW number. A copy of the data that was submitted is attached in Appendix A.

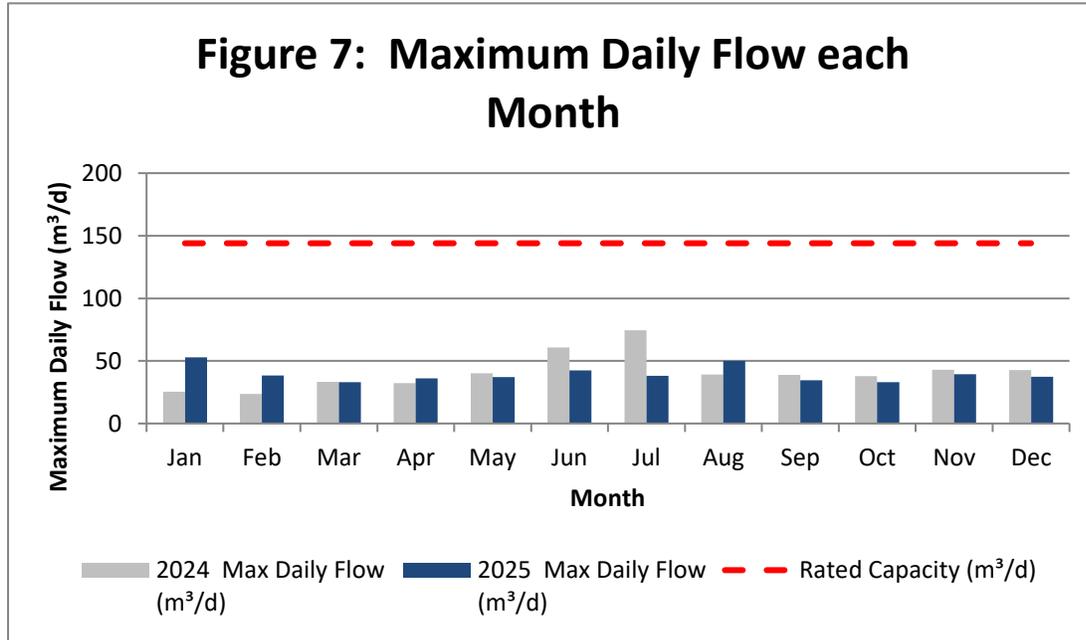
The total volume of water treated in 2025 was 10 511 m³. In 2024, the total volume was 10 136 m³. The Varna DWS pumps water from its onsite well where the flow is measured. This flow measures the raw water for the PTTW and the treated water for the rated capacity identified in the MDWL. Both of these (PTTW and MDWL) limit the flow to 144 m³/d. The average daily flow in 2025 was 29 m³ compared to 28 m³ in 2024 (Figure 1). The system is currently operating at 20% of its rated capacity. Figure 1 below details the monthly average daily flows in 2025 compared to 2024.

Figure 1: Average Daily Flows



The maximum daily flow in 2025 was 53 m³/d compared to 74 m³/d in 2024 (Figure 2). The limit for water taking, as per the PTTW, is 100 L/min or 144 m³/d. This limit was not exceeded in 2025. Refer to Figure 2 below for the monthly maximum water takings in 2025 compared to 2024.

Figure 2: Maximum Daily Flow



Regulatory Sample Results Summary

Microbiological Testing

To meet regulatory requirements, raw water (RW) is sampled monthly and distribution water (DW) weekly to test for E. coli, Total Coliforms and heterotrophic plate count (HPC). The regulatory limit for Total Coliform and E. coli is zero, whereas heterotrophic plate count (HPC) does not have a limit. Additional treated water samples were taken for monitoring purposes. Refer to Table 5 below for a summary of testing results.

Table 5: Microbiological Testing Summary

	No. of Samples Collected	Range of E.Coli Results (cfu/100mL)		Range of Total Coliform Results		No. of HPC Samples Collected	Range of HPC Results (cfu/mL)	
		Min	Max	Min	Max		Min	Max
Raw Water	13	0	0	0	0	n/a	n/a	n/a
*Treated Water	3	0	0	0	0	n/a	n/a	n/a
Distribution Water	54	0	0	0	0	52	10	70

*no regulatory requirement

Operational Testing

As per the Safe Drinking Water Act, O. Reg 170/03, raw water turbidity is required to be monitored monthly with an aesthetic objective less than 1 NTU. Free chlorine residuals are required to be continuously monitored with an online chlorine analyzer. Free chlorine residuals are also monitored throughout the distribution system to ensure adequate secondary disinfection is provided. The

regulatory requirement for free chlorine residual is a minimum of 0.05 mg/L with an objective of 0.20 mg/L throughout the distribution system. Refer to Table 6 for turbidity and free chlorine residual results.

Table 6: Turbidity and Free Chlorine Residual Monitoring

Parameter	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, grab (NTU) – RW	12	0.20	0.63
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.74	2.08
Free Chlorine Residual, grab (mg/L) - DW	104	0.96	1.85

Inorganic Parameters

Inorganic parameters are tested as a requirement under O. Reg. 170/03 every 60 months, including Sodium and Fluoride. Inorganic parameters were last sampled for in 2022 and are required in 2027. Nitrate and Nitrite are tested quarterly as required under O. Reg. 170/03. In the event any of the parameters (except Sodium and Fluoride) exceed half of the maximum allowable concentration, the parameter is required to be sampled quarterly. Refer to Table 7 below.

Table 7: Inorganic Parameter Testing

Treated Water (TW)	Sample Date (yyyy/mm/dd)	Sample Result	MAC (ug/L)	Number of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L) - TW	2022/11/01	<MDL 0.6	6.0	0	0
Arsenic: As (ug/L) - TW	2022/11/01	1.5	10.0	0	0
Barium: Ba (ug/L) - TW	2022/11/01	123.0	1000.0	0	0
Boron: B (ug/L) - TW	2022/11/01	69.0	5000.0	0	0
Cadmium: Cd (ug/L) - TW	2022/11/01	0.005	5.0	0	0
Chromium: Cr (ug/L) - TW	2022/11/01	<MDL 0.08	50.0	0	0
Mercury: Hg (ug/L) - TW	2022/11/01	<MDL 0.01	1.0	0	0
Selenium: Se (ug/L) - TW	2022/11/01	0.11	50.0	0	0
Uranium: U (ug/L) - TW	2022/11/01	1.11	20.0	0	0
Additional Inorganics					
Fluoride (mg/L) - TW	2022/11/01	1.15	1.5	0	n/a
Nitrite (mg/L) - TW	2025/01/14	< MDL 0.006	10	0	0
Nitrite (mg/L) - TW	2025/04/08	< MDL 0.006	10	0	0
Nitrite (mg/L) - TW	2025/07/08	< MDL 0.006	10	0	0
Nitrite (mg/L) - TW	2025/10/07	< MDL 0.006	10	0	0
Nitrate (mg/L) - TW	2025/01/14	< MDL 0.003	1	0	0
Nitrate (mg/L) - TW	2025/04/08	< MDL 0.003	1	0	0
Nitrate (mg/L) - TW	2025/07/08	< MDL 0.003	1	0	0
Nitrate (mg/L) - TW	2025/10/07	< MDL 0.003	1	0	0
Sodium: Na (mg/L) - TW	2022/11/01	10.6	200*	n/a	n/a

MAC = Maximum Allowable Concentration as per O.Reg 169/03

MDL = Below the laboratory method detection level

*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 20 mg/L. The local Medical Officer of Health should be notified mg/L when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium-restricted diets.

Schedule 15.1 Sampling:

Schedule 15.1 sampling is required under O. Reg 170/03. This includes sampling for lead, alkalinity and pH. The Varna Drinking Water System is under reduced sampling. As such, no residential plumbing samples are required to be collected. Monitoring the pH and alkalinity in the distribution system is essential to ensure adequate buffering for corrosion control and to minimize exposure to metals such as lead. Refer to Table 8 below.

Table 8: Schedule 15.1 Sampling Results

Distribution System	Number of Sampling Points	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	2	4	228	269	n/a	n/a
pH	2	4	7.02	7.45	n/a	n/a
Lead (ug/l)	2	4	0.03	0.30	10	0

Organic Parameters

Organic parameters are tested every 60 months as a requirement under O. Reg 170/03. In the event any of the parameters exceed half of the maximum allowable concentration (MAC) the parameter is required to be sampled quarterly. Organic parameter test results for treated water are listed below in Table 9.

Disinfection byproducts including Trihalomethanes and Haloacetic acids are tested quarterly in the distribution system. Results are listed in Table 9 below.

Table 9: Organic Parameter Testing

Treated Water (TW)	Sample Date (yyyy/mm/dd)	Sample Result	MAC (ug/L)	Number of Exceedances	
				MAC	1/2 MAC
Alachlor (ug/L) - TW	2022/11/01	<MDL 0.02	5.0	0	0
Atrazine + N-dealkylated metabolites (ug/L) - TW	2022/11/01	<MDL 0.01	5.0	0	0
Azinphos-methyl (ug/L) – TW	2022/11/01	<MDL 0.05	20.0	0	0
Benzene (ug/L) – TW	2022/11/01	<MDL 0.32	1.0	0	0
Benzo(a)pyrene (ug/L) – TW	2022/11/01	<MDL 0.004	0.01	0	0
Bromoxynil (ug/L) – TW	2022/11/01	<MDL 0.33	5.0	0	0
Carbaryl (ug/L) – TW	2022/11/01	<MDL 0.05	90.0	0	0
Carbofuran (ug/L) - TW	2022/11/01	<MDL 0.01	90.0	0	0
Carbon Tetrachloride (ug/L) - TW	2022/11/01	<MDL 0.17	2.0	0	0
Chlorpyrifos (ug/L) - TW	2022/11/01	<MDL 0.02	90.0	0	0
Diazinon (ug/L) – TW	2022/11/01	<MDL 0.02	20.0	0	0
Dicamba (ug/L) – TW	2022/11/01	<MDL 0.2	120.0	0	0
1,2-Dichlorobenzene (ug/L) – TW	2022/11/01	<MDL 0.41	200.0	0	0
1,4-Dichlorobenzene (ug/L) – TW	2022/11/01	<MDL 0.36	5.0	0	0
1,2-Dichloroethane (ug/L) – TW	2022/11/01	<MDL 0.35	5.0	0	0
1,1-Dichloroethylene (ug/L) – TW	2022/11/01	<MDL 0.33	14.0	0	0
Dichloromethane (ug/L) – TW	2022/11/01	<MDL 0.35	50.0	0	0
2,4-Dichlorophenol (ug/L) – TW	2022/11/01	<MDL 0.15	900.0	0	0
2,4-Dichlorophenoxy acetic acid (ug/L) – TW	2022/11/01	<MDL 0.19	100.0	0	0
Diclofop-methyl (ug/L) – TW	2022/11/01	<MDL 0.4	9.0	0	0

Treated Water (TW)	Sample Date (yyyy/mm/dd)	Sample Result	MAC (ug/L)	Number of Exceedances	
				MAC	1/2 MAC
Dimethoate (ug/L) – TW	2022/11/01	<MDL 0.06	20.0	0	0
Diquat (ug/L) – TW	2022/11/01	<MDL 1.0	70.0	0	0
Diuron (ug/L) – TW	2022/11/01	<MDL 0.03	150.0	0	0
Glyphosate (ug/L) – TW	2022/11/01	<MDL 1.0	280.0	0	0
Malathion (ug/L) – TW	2022/11/01	<MDL 0.02	190.0	0	0
2-Methyl-4chlorophenoxyacetic Acid (MCPA)	2022/11/01	<MDL 0.01	50.0	0	0
Metolachlor (ug/L) – TW	2022/11/01	<MDL 0.02	80.0	0	0
Metribuzin (ug/L) – TW	2022/11/01	<MDL 0.3	80.0	0	0
Monochlorobenzene (Chlorobenzene) (ug/L) -	2022/11/01	<MDL 1.0	10.0	0	0
Paraquat (ug/L) – TW	2022/11/01	<MDL 0.04	3.0	0	0
PCB (ug/L) – TW	2022/11/01	<MDL 0.15	60.0	0	0
Pentachlorophenol (ug/L) – TW	2022/11/01	<MDL 0.01	2.0	0	0
Phorate (ug/L) – TW	2022/11/01	<MDL 1.0	190.0	0	0
Picloram (ug/L) – TW	2022/11/01	<MDL 0.03	1.0	0	0
Prometryne (ug/L) – TW	2022/11/01	<MDL 0.01	10.0	0	0
Simazine (ug/L) – TW	2022/11/01	<MDL 0.01	1.0	0	0
Terbufos (ug/L) – TW	2022/11/01	<MDL 0.35	10.0	0	0
Tetrachloroethylene (ug/L) – TW	2022/11/01	<MDL 0.2	100.0	0	0
2,3,4,6-Tetrachlorophenol (ug/L) – TW	2022/11/01	<MDL 0.01	230.0	0	0
Triallate (ug/L) - TW	2022/11/01	<MDL 0.44	5.0	0	0
Trichloroethylene (ug/L) – TW	2022/11/01	<MDL 0.25	5.0	0	0
2,4,6-Trichlorophenol (ug/L) – TW	2022/11/01	<MDL 0.12	100.0	0	0
Trifluralin (ug/L) – TW	2022/11/01	<MDL 0.02	45.0	0	0
Vinyl Chloride (ug/L) – TW	2022/11/01	<MDL 0.17	1.0	0	0
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average	2025	1.95	100.0	0	0
Haloacetic Acid: Total (ug/L) Annual Average	2025	5.3	80.0	0	0

MAC = Maximum Allowable Concentration as per O. Reg 169/03

MDL = Below the laboratory method detection level

Additional Legislated Samples

There are no additional sampling requirements specified for the Varna Drinking Water System.

Major Maintenance and Capital Summary

The Varna Drinking Water System completed repairs and replacements as listed below in Table 10. These represent the major expenses incurred in 2025.

Table 10: Major Maintenance

Item	Description
1	Chlorine Pump #2 Replaced
2	Replaced internal piping and 2 pressure tanks
3	Replaced Chlorine Pump #1
4	Replaced Online Analyzer
5	Replaced injectors and stenner tubes

Revision History

Date	Revision #	Revision
2026-02-18	0	Issued Report

Appendix A

Permit to Take Water (PTTW) Data

Ontario Clean Water Agency
Annual Water Taking and Transfer Report
From 1/1/2025 To 12/31/2025
PTTW # 0266-AE9NRG
VARNA DRINKING WATER SYSTEM - 1388
Flow Recorded in L/d

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	37909.0004	34768.00156	33123.0011	27888.00049	26503.00026	24777.00043	29895.00046	40284.0004	22601.99928	23549.99924	37279.99878	26107.9998
2	38513.00049	37553.0014	28552.00005	27452.99911	26017.0002	27753.00026	27937.00027	28056.99921	21581.00072	22926.00006	32784.0004	30479.99954
3	36798.99979	35266.99829	19101.99928	28358.99925	27347.99957	34823.00186	26902.99988	28267.99965	22075.00076	22076.00021	27363.00087	33053.0014
4	36027.00043	35191.00189	18049.99924	26764.99939	27530.00069	24944.00024	25302.00005	39449.00131	21715.00015	29082.00073	25836.99989	29521.99936
5	40308.99811	34291.99982	22128.99971	28097.00012	32391.99829	24025.99907	38129.00162	34243.99948	17761.99913	29753.00026	23656.99959	32158.00095
6	35325.00076	33766.99829	25062.00027	30995.00084	28190.00053	21978.00064	32541.99982	34375.0000	29440.99998	25281.00014	24969.99931	37319.00024
7	35909.0004	35002.99835	20777.00043	27627.00081	26929.00085	31648.00072	29236.99951	30888.00049	31757.99942	19971.00067	29847.00012	36465.00015
8	35368.99948	34347.00012	23447.0005	27058.00056	25538.99956	30610.00061	27913.99956	29471.00067	22259.00078	28093.00041	38745.99838	26958.00018
9	36202.99911	35480.99899	26565.99998	27111.00006	26847.00012	24006.99997	24438.99918	38789.00146	20136.99913	29457.00073	34769.00101	22371.99974
10	42777.99988	33778.99933	21957.00073	27952.99911	37063.99918	22707.00073	27729.99954	49990.00168	24284.0004	19218.00041	28885.99968	34367.00058
11	52825.00076	32219.00177	24100.00038	26285.9993	28697.99995	27752.00081	24611.99951	27964.0007	19909.0004	21961.99989	23754.99916	28892.99965
12	49542.99927	32823.00186	23888.00049	29750.99945	25270.99991	24811.00082	30500.99945	28808.00056	24177.9995	18125.99945	28392.0002	21034.0004
13	36037.9982	36407.0015	23563.99918	27122.99919	23304.00085	25488.00087	30780.00069	26922.99922	26733.99925	23110.00061	25468.00041	23232.9998
14	37381.00052	35226.00174	23174.0009	26618.00003	26815.00053	30089.0007	26902.99988	24940.00053	28063.99918	24790.00092	31662.00066	23458.99963
15	37966.99905	35258.99887	25347.99957	26068.00079	28965.9996	31270.99991	29604.99954	22983.99925	23441.99944	26066.99944	38715.00015	25496.99974
16	40568.00079	34926.99814	26736.99951	25818.00079	22475.99983	42356.99844	25818.00079	35308.99811	25771.99936	28101.99928	36957.00073	21472.00012
17	36159.99985	36917.99927	24711.99989	27541.00037	26614.99977	38478.00064	27261.99913	33966.99905	24451.99966	23094.99931	24643.9991	25728.00064
18	35417.99927	34945.99915	31254.99916	29047.00089	25306.99921	28486.00006	25774.00017	24659.0004	31468.99986	22915.00092	31090.9996	23236.99951
19	36672.00089	35715.00015	26193.00079	30381.00052	27774.00017	22208.00018	30353.00064	24107.9998	18253.99971	32987.99896	34277.99988	23996.00029
20	37464.0007	34226.00174	30145.00046	32240.00168	21663.99956	21311.00082	36044.99817	28097.99957	21138.99994	26049.99924	33728.00064	25795.00008
21	35354.99954	32548.00034	29010.99968	26829.99992	20691.99944	21357.9998	32841.99905	26472.99957	26506.00052	24763.00049	35062.00027	26052.00005
22	35596.00067	35402.00043	30277.00043	31774.00017	20231.0009	23083.00018	32115.00168	27927.9995	20170.00008	24322.0005	32506.00052	23379.99916
23	39166.99982	38335.99854	31288.99956	29666.00037	20343.99986	29184.99947	28533.00095	30739.00032	26447.99995	28482.9998	39318.00079	19173.00034
24	36658.00095	31274.00017	29103.00064	36051.99814	20096.00067	28357.9998	29361.00006	25660.9993	34630.00107	25378.99971	29677.00005	24294.00063
25	36484.00116	33243.00003	29393.0007	28826.00021	22715.00015	23604.00009	26952.99911	25118.00003	21170.99953	31513.00049	28673.99979	22143.9991
26	41453.99857	30840.9996	26792.99927	26599.00093	20791.99982	27929.00085	27215.9996	23628.00026	21250	31931.99921	31607.9998	22900.99907
27	36116.00113	18642.0002	29709.99908	33202.99911	21798.00034	28624.00055	28215.00015	24176.0006	28219.99931	30830.99937	32238.99841	21582.00073
28	34441.00189	21510.00023	27027.00043	33189.99863	19520.99991	32437.99973	32770.99991	24827.99911	23872.99919	30393.9991	28270.00046	23482.9998
29	34898.99826		31173.99979	35625	19336.99989	33014.99939	37293.99872	24035.9993	29097.00012	28563.99918	33039.00146	24059.99947
30	35154.99878		30535.9993	26287.00066	19611.99951	34604.00009	28045.00008	26169.00063	23951.00021	27589.0007	27443.00079	23257.99942
31	32908.00095		27722.00012		21913.99956		32361.99951	23197.99995		26229.99954		21920.99953

