innservices

Water Operations

Annual Summary Report

~ Innisfil Heights Drinking Water System ~

DWS # 220005081

~ Town of Innisfil ~

Reporting Year - 2023

InnServices Utilities Inc.

Innisfil Heights Drinking Water System

Introduction

Effective January 1, 2016, the Town of Innisfil transferred ownership of its municipal drinking water systems to InnServices Utilities Inc. (InnServices). InnServices is a municipal service corporation, wholly owned by the Town of Innisfil, charged with the responsibility to operate, maintain, and expand the municipal drinking water systems thatservice the Town of Innisfil.
The Innisfil Heights Drinking Water System services a population of approximately 400, on 120 residential connections. There is a mix of commercial and industrial properties as well, with 58 commercial and 21 industrial connections. The distribution system is comprised of approximately 21 kilometers of polyvinylchloride piping, 157 hydrants and 536 gate valves and curb stop valves.
The system relies on 2 drilled wells as its source of groundwater. The wells feed directly into the reservoir, which is equipped with a bulk water transfer station for water haulers.

InnServices has prepared this Summary Report for the operations conducted during the 2023 calendar year.

This Summary Report has been prepared to meet the following commitments:

- To provide InnServices Utilities Inc. Board of Directors, as “Owners” of the drinking water system, a summary of the operations and maintenance of the Innisfil Heights Drinking Water System that took place during the reporting period of January 1 to December 31, 2023.
- To provide a status update of the systems capabilities and capacities as of December 31, 2023.
- To satisfy the requirements of O. Reg 170/03 Section 11, and
- To satisfy the requirements of O. Reg. 170/03 Schedule 22
- Submitted to the InnServices Board of Directors and publicly posted in accordance with the Safe Drinking Water Act, 2002

The Annual Summary Report identifies specific details regarding the overall quality of the drinking water submitted to the Ministry of the Environment Conservation and Parks (MECP) for the Innisfil Heights Drinking Water System and is available on the InnServices website (https://innservices.co/regulatory) and at InnServices Headquarters at 7251 Yonge St., Innisfil, Ontario.

This report provides information to the InnServices Board of Directors related to the operations, maintenance, drinking water quality, and system capacities of the Innisfil Heights DWS, which aids decision making related to system expansion needs, and assists the Board in meeting their Statutory Standard of Care requirements. This report is provided to the Board of Directors by March 31 annually.

MECP Approvals

The Innisfil Heights Drinking Water System is classified as a Large Municipal Residential drinking water system, as defined by Ontario Regulation 170/03.

The **Safe Drinking Water Act, 2002** requires that the Owner of a municipal drinking water system have MECP approvals in the form of a Drinking Water Works Permit (DWWP) and a Municipal Drinking Water Licence (MDWL). The DWWP provides a description of the overall system and provides the authority to establish or alter the drinking water system. The MDWL provides the authority to use or operate the system.

The Innisfil Heights DWS operated under
DWWP # 120-205, Issue #5, issued December 15, 2020
MDWL # 120-105, Issue #3, issued December 15, 2020

For the reporting period covered in this report, InnServices Utilities Inc. was defined as the Operating Authority of the Innisfil Heights Drinking Water System.

InnServices Utilities Inc. has established and maintains accreditation to the Drinking Water Quality Management Standard Version 2-2017 (DWQMS) under Certificate of Accreditation # 0162550, issued December 13, 2024, by SAI Global.

Drinking Water System

The Innisfil Heights Drinking Water system relies on two drilled wells as its source of groundwater.
Sodium hypochlorite is used for primary disinfection.

A 200-kilowatt standby generator at the pump house and a 250-kilowatt generator at the reservoir ensures that the system is provided with water in the event of a power failure.
An in-ground water storage reservoir has a capacity of 2200 cubic meters and is also equipped with a bulk water transfer station for water haulers.

Significant expenses incurred in relation to installation, repair or replacement of required equipment amounted to approximately $47,883:

Item	Cost
Reservoir Cleaning	$9,554.05
Well 2 Pump Inspection and New Motor	$23,929.00
Turbidity analyzer replacement	14,400

Analytical Laboratory Water Quality Monitoring

Bacteriological Analysis

Bacteriological testing is completed to verify that no microbiological contamination of the treated drinking water can be detected. Raw water is also analyzed to inform operations of the level of microbiological contamination the drinking water system is contending with. Bacteriological monitoring for the reporting period was conducted as required by Ontario Regulation 170/03 or as amended.
SGS Environmental Services, Lakefield, Ontario, conducted the bacteriological analysis of the drinking water.

Zero (0) items of non-compliance with the Ontario Drinking Water Standards related to bacteriological analyses occurred during the reporting period.

Microbiological testing done under the Schedule 10 of Regulation 170/03, during the reporting period:

	Number of Samples	**Range of E.Coli Results (Min #) – (Max #) CFU/100mL**	**Range of Total Coliform Results (Min #) – (Max #) CFU/100mL**	**Number of HPC Samples**	**Range of HPC Results (Min #) – (Max #) CFU/1mL**
Raw	101	0-0	0-2	n/a	n/a
Treated	52	0-0	0-0	52	0-54
Distribution	208	0-0	0-0	208	0-30

Chemical Analysis

Chemical analysis of this water supply is conducted as required by Ontario Regulation 170/03.
SGS Environmental Services, Lakefield, Ontario, conducted the required chemical analyses for the drinking water system during the reporting period. This lab as well as any laboratories to which they sub-contract certain types of analyses are licensed by the MECP and accredited by the Canadian Association for Laboratory Accreditation (CALA) and/or Standard Council Canada (SCC).
Zero (0) incidents of non-compliance with Ontario Drinking Water Standards related to chemical analysis occurred during the reporting period.
A summary of all analytical results for Organic and Inorganic testing is attached in Appendix A.

Continuous Water Quality Monitoring

Free Chlorine Residual

The Innisfil Heights Drinking Water System utilizes NSF® certified 12% sodium hypochlorite to meet primary disinfection requirements and provide an adequate chlorine residual for secondary disinfection requirements.

A requirement of O.Reg. 170/03 and the Procedure for Disinfection of Drinking Water in Ontario is that the chlorine residual must be recorded at the point directly after primary disinfection is achieved, at a frequency of every 5 minutes. Grab samples are taken and analyzed for free chlorine residual (FCR) when microbiological samples are taken throughout the distribution system. Ontario Regulation 170/03 requires that sufficient residual be available in the water to achieve a residual of greater than 0.05 mg/L at all points in the distribution system.

Zero (0) incidents of non-compliance with the Procedure for Disinfection of Drinking Water in Ontario occurred during the reporting period.

A summary of the chlorination monitoring that took place directly after primary disinfection is achieved is depicted below:

	Number of GrabSamples	**Range of Results (Min #)-(Max #)**	**Unit of Measure**
Turbidity	N/A	N/A	N/A
Chlorine	8760	0.57-3.77	mg/L
Fluoride (If the DWS provides fluoridation)	N/A	N/A	N/A

All instances where Free Chlorine Residual (FCR) was less than 0.60 mg/L were investigated and confirmed to be isolated instantaneous readings, or coincide with a power outage, calibration activities, and/orappropriate corrective actions were taken to remove non-compliant water from the system.

Plant Flow Monitoring

Raw Water Takings

The Innisfil Heights Drinking Water System utilizes groundwater wells as its raw water source. The raw water takings from groundwater wells are authorized by the MECP through a Permit to Take Water (PTTW # 6777-B4GNWB, issued October 19, 2018).

Annual raw water takings were reported to the electronic Water Taking Recording System (WTRS).

There was one (1) item of non-compliance with Condition 4.2 of the Permit to Take Water. Operations had become aware of an operational issue with a well level measuring device. After investigation and out of an abundance of caution, this was reported to the MECP (incident # 1-4FTJCL). Corrective action was prescribed, and preventive measures were put in place.

Table 1, on the next page, provides a summary of the Innisfil Heights Drinking Water System's raw water takings for the reporting period.

Table 1: Summary of Raw Water Takings

	Units	Well #2	Well #3
PTTW Daily Maximum	**(m³/day)**	**2,937.60**	**3,110.40**
Maximum Day	(m³/day)	753	1385
Average Day	(m³/day)	221.78	356.52
Total AnnualTakings	(m³)	80948	130,128.69

Performance Summary

The volume of daily treated water delivered to the distribution system is authorized by the MECP through the designation of a Rated Capacity within the Municipal Drinking Water Licence (MDWL). The Treated Water volume is essentially the same as the Raw Water Takings. The well system is operating at approximately 16.75% of the rated capacityof 3110 m³/day. At the maximum flow, treated water demand flow in 2023 was 47.10% of the rated capacity.

Table 2 provides a summary of the Innisfil Heights Drinking WaterSystem's treated water demand for the reporting period.

Zero (0) incidents of non-compliance related to the rated capacity occurred during the reporting period.

Table 2: Summary of Treated Water Demand

	Innisfil Heights WellSystem
System Rated Capacity(m³/day)	3110
Maximum Day (m³/day)	1385
Average Day (m³/day)	578.29
Total Annual Demand (m³)	211,076.7
System Performance- ratedcapacity	18.59%
System Performance-atMaximum Flow	44.53%

It is interesting to note that annual water demand has been increasing steadily since 2020.

Year	Demand
2018	175,763
2019	167,131
2020	149,734
2021	151,946
2022	190,190
2023	211,077

Distribution Flow Monitoring

The Innisfil Heights Drinking Water System (DWS) produces water for distribution to homes and businesses within the Innisfil Heights area of the Town of Innisfil (TOI).

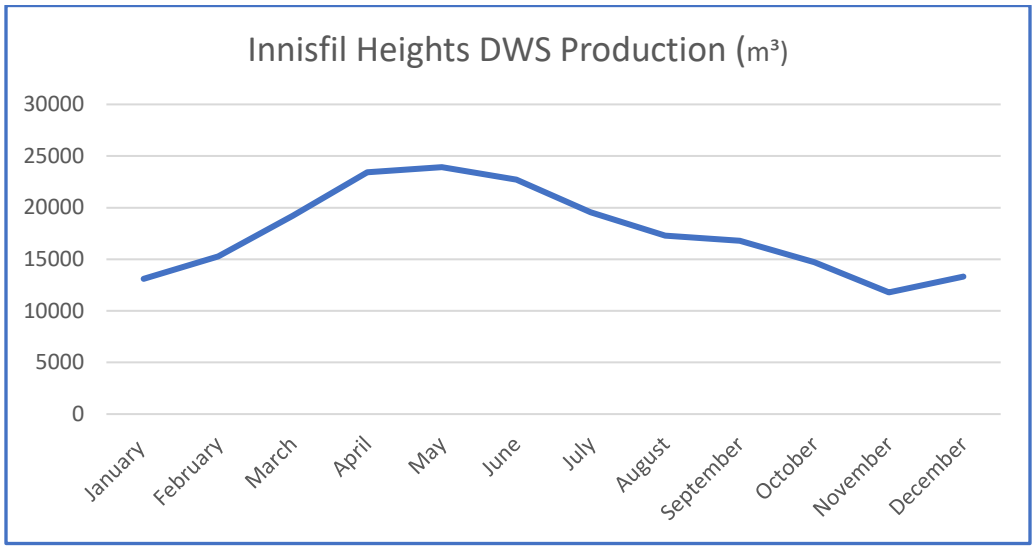
Table 3 and Graph 1(below and following page), demonstrate the monthly volumes of drinking water directed toward the Innisfil Heights distribution systems during the reporting period.

Table 3: Monthly Water Production

Month	Treated Water Produced (m^3)
January	13,098.51
February	15,266.98
March	19,195.69
April	23,441.36
May	23,923.01
June	22,713.77
July	19,538.25
August	17,284.99
September	16,786.90
October	14,704.23
November	11,791.99
December	13,331.01
Annual Total	**211,076.69**

The following graph provides a visual display of the information provided in Table 3

Graph 1: Monthly Water Demand



Distribution Sampling

Based on results of community lead sampling program conducted, Innisfil Heights DWS has qualified for reduced sampling protocol as per O. Reg .170/03 Schedule 15.1. Under this protocol, only alkalinity and pH are required from 2 sampling points for each summer and winter period. Lead is tested in the distribution system every third 12-month period.

Location Type	**Number of Samples**	**Range of Alkalinity Results Min. – Max.**	**Range of Lead Results**	**Number of Exceedances**
		Aesthetic Objective 30-500 Mg/L	*Maximum Concentration 10 µg/L (2023)*	
Distribution	4	194-202 Mg/L	0.09-0.15 µg/L	0

Trihalomethanes (THMs) and Haloacetic Acids (HAAs) are sampled on a quarterly basis in accordance with O. Reg. 170/03 Schedule 13. The most recent sample results:

Parameter	*Sample Date*	*Result Value*	*Maximum Allowable Concentration*
THM (latest rolling annual average)	Nov 23, 2023	22.75 µg/L	100 µg/L
HAA (latest rolling annual average)	Nov 23, 2023	6.90 µg/L	80 µg/L

Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards. (Lead and THM only)

Parameter	*Result Value*	*Unit of Measure*	*Date of Sample*
N/A			

Service Disruptions

There were zero service disruptions in the drinking water system during the reporting period.

MECP Annual Inspection

The primary focus of the inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry drinking water policies and guidelines during the inspection period. The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as management practices.

An MECP inspection was conducted January 31, 2024, which covered the period of January 25, 2023, to January 31, 2024.

There were zero items of non-compliance identified during the inspection.

No Provincial Officer's Orders were issued as a result of the conducted inspection.

This year the Innisfil Heights drinking water system received an Inspection Risk Rating of 0%, resulting in a Compliance Rating of 100%.

Appendix A – Chemical Analysis

Organic and Inorganic parameters testing is required at least once every 36 months from a raw water supply that is ground water. The next testing will be required in November 2024.

Inorganic Parameter	*Sample Date*	*Result Value*	*Unit of Measure*	*Exceedance*
Antimony	18-Nov-2021	<0.06	µg/L	No
Arsenic	18-Nov-2021	<0.2	µg/L	No
Barium	18-Nov-2021	136	µg/L	No
Boron	18-Nov-2021	22	µg/L	No
Cadmium	18-Nov-2021	<0.003	µg/L	No
Chromium	18-Nov-2021	0.10	µg/L	No
Mercury	18-Nov-2021	<0.01	µg/L	No
Selenium	18-Nov-2021	<0.04	µg/L	No
Uranium	18-Nov-2021	0.167	µg/L	No

Organic Parameter	*Sample Date*	*Result Value*	*Unit of Measure*	*Exceedance*
Alachlor	18-Nov-2021	<0.02	µg/L	No
Atrazine + N-dealkylated metobolites	18-Nov-2021	<0.01	µg/L	No
Azinphos-methyl	18-Nov-2021	<0.05	µg/L	No
Benzene	18-Nov-2021	<0.32	µg/L	No
Benzo(a)pyrene	18-Nov-2021	<0.004	µg/L	No
Bromoxynil	18-Nov-2021	<0.33	µg/L	No
Carbaryl	18-Nov-2021	<0.05	µg/L	No
Carbofuran	18-Nov-2021	<0.01	µg/L	No
Carbon Tetrachloride	18-Nov-2021	<0.17	µg/L	No
Chlorpyrifos	18-Nov-2021	<0.02	µg/L	No
Diazinon	18-Nov-2021	<0.02	µg/L	No
Dicamba	18-Nov-2021	<0.20	µg/L	No
1,2-Dichlorobenzene	18-Nov-2021	<0.41	µg/L	No
1,4-Dichlorobenzene	18-Nov-2021	<0.36	µg/L	No
1,2-Dichloroethane	18-Nov-2021	<0.35	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	18-Nov-2021	<0.33	µg/L	No

Dichloromethane	18-Nov-2021	<0.35	µg/L	No
2-4 Dichlorophenol	18-Nov-2021	<0.15	µg/L	No
2,4-Dichlorophenoxy acetic acid(2,4-D)	18-Nov-2021	<0.19	µg/L	No
Diclofop-methyl	18-Nov-2021	<0.40	µg/L	No
Dimethoate	18-Nov-2021	<0.06	µg/L	No
Diquat	18-Nov-2021	<1	µg/L	No
Diuron	18-Nov-2021	<0.03	µg/L	No
Glyphosate	18-Nov-2021	<1	µg/L	No
Malathion	18-Nov-2021	<0.02	µg/L	No
2-Methyl-4-chlorophenoxyaceticacid (MCPA)	18-Nov-2021	<0.00012	Mg/L	No
Metolachlor	18-Nov-2021	<0.01	µg/L	No
Metribuzin	18-Nov-2021	<0.02	µg/L	No
Monochlorobenzene	18-Nov-2021	<0.3	µg/L	No
Paraquat	18-Nov-2021	<1	µg/L	No
Pentachlorophenol	18-Nov-2021	<0.15	µg/L	No
Phorate	18-Nov-2021	<0.01	µg/L	No
Picloram	18-Nov-2021	<1	µg/L	No
Polychlorinated Biphenyls(PCB)	18-Nov-2021	<0.04	µg/L	No
Prometryne	18-Nov-2021	<0.03	µg/L	No
Simazine	18-Nov-2021	<0.01	µg/L	No
Terbufos	18-Nov-2021	<0.01	µg/L	No
Tetrachloroethylene	18-Nov-2021	<0.35	µg/L	No
2,3,4,6-Tetrachlorophenol	18-Nov-2021	<0.2	µg/L	No
Triallate	18-Nov-2021	<0.01	µg/L	No
Trichloroethylene	18-Nov-2021	<0.44	µg/L	No
2,4,6-Trichlorophenol	18-Nov-2021	<0.25	µg/L	No
Trifluralin	18-Nov-2021	<0.02	µg/L	No

Vinyl Chloride	18-Nov-2021	<0.17	µg/L	No

One water sample is taken every 60 months to test for Sodium and Fluoride

Parameter	*Date of Sample*	*Result*	*Unit of Measure*	*Exceedance*
Sodium	18-Nov-2021	19.5	mg/L	No
Fluoride	18-Nov-2021	0.12	mg/L	No

One water sample is taken every 3 months and tested for nitrate and nitrite

Parameter	*Date of latest Sample*	*Result*	*Unit of Measure*	*Exceedance*
Nitrite	Nov. 23, 2023	<0.003	mg/L	No
Nitrate	Nov. 23, 2023	<0.006	mg/L	No