innservices

## Wastewater Operations

# Annual Performance Report

***~ Lakeshore Wastewater Treatment Plant ~***

***ECA #6075-BDSKRR***

~ Town of Innisfil ~

Reporting Year - 2020

# Introduction

Effective January 1, 2016, the Town of Innisfil transferred ownership of its municipal sewage works 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 sewage works that service the Town of Innisfil.

InnServices has prepared this Performance Report for the operations conducted during the 2020 calendar year.

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

- To provide InnServices Utilities Inc. Board of Directors, as "Owners" of the sewage works, a summary of the operations and maintenance of the Lakeshore Wastewater Treatment January 1 to December 31, 2020; and
- To comply with Condition 11 of Environmental Compliance Approval (ECA) Number *6075-BDSKRR*.

This Performance Report, provided to the InnServices Board of Directors and Town of Innisfil Mayor and Council, conveys information related to the performance of operations and maintenance, which aids decision making related to system expansion needs.

The Lakeshore Wastewater Treatment Plant (WWTP) is an extended aeration facility. It is located at 1578 St. John's Road in Innisfil.
The collection system consists of approximately 110 km of gravity sewers, 10 km of force mains, and nine pumping stations servicing the Sandy Cove, Alcona, Belle Ewart, Friday Harbour and Lefroy areas of Innisfil.

## Environmental Compliance Approval (ECA)

For the reporting period covered in this report, InnServices Utilities Inc. was defined as the Operating Authority of Lakeshore Wastewater Treatment Plant (WWTP) and the associated collection system.

The treatment facility and collection system are operated under the following Certificates of Classification:

Class III Wastewater Treatment Certificate #267
Class II Wastewater Collection Certificate #2450

A Class Environmental Assessment (Class EA) was completed in 2011 that defined a two-stage increase in capacity of the Lakeshore WWTP, to 25 MLD and ultimately to 40 MLD. As an interim approach until the planned expansion is complete, InnServices engaged Cole Engineering to conduct an Optimization and Re-rating exercise.
An application for re-rating was submitted and approved. The amended ECA was issued July 31, 2019, Number *6075-BDSKRR,* and governs the operation of the facility.
The amended rated capacity is 17,000 $m^3$ per day. The Optimization and Re-rating Study Report states the Peak Daily Flow factor is 2.5; thus the Peak Daily Flow (PDF) is 42,500 $m^3$/day.

## Influent Monitoring

The 2020 average daily influent flow was 10,554 $m^3$, which equates to 62% of the plant's design rated capacity of 17,000 $m^3$ per day.

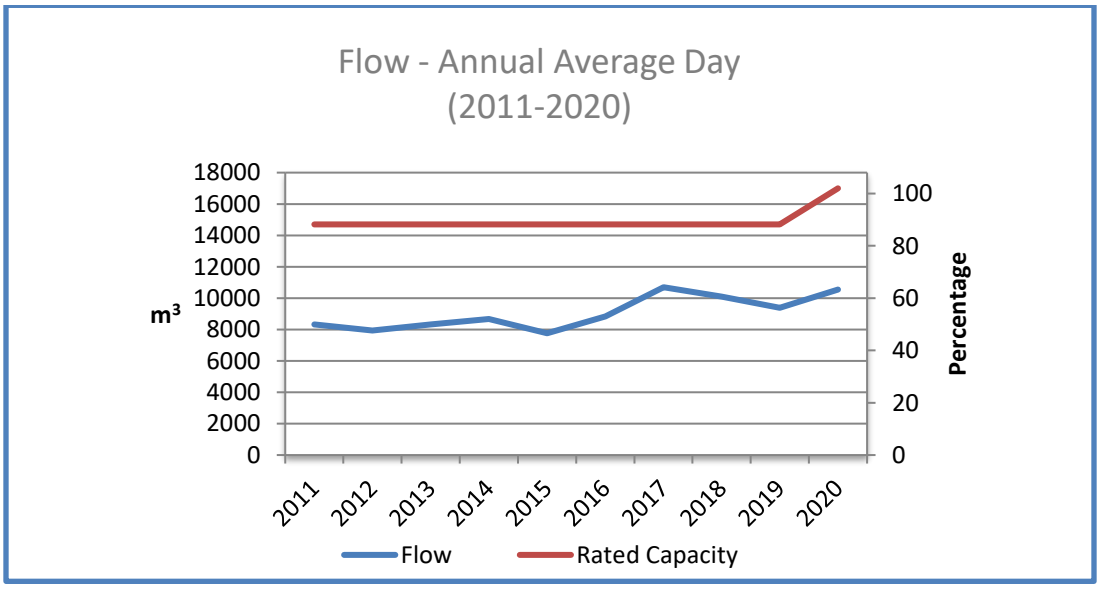
The 2020 maximum daily flow occurred on January 11, when the recorded flow was 34,011 $m^3$, equating to 80% of the plant's design peak flow rate of 42,500 $m^3$ per day.

The plant received a total raw influent flow of 3,852,336 $m^3$ in 2020.

The overall removal efficiency is 95.86%.

| Flows | Design Capacity | 80% of Rated Capacity | 2020 Flows | Performance |
|---|---|---|---|---|
| Daily Flow | 17,000 m³/ day | 13,600 | 10,554 m³/day Average Daily Flow | 62% of Design |
| Peak Flow | 42,500 m³/day | 34,000 | 34,011 m³/day (April 20, 2020) | 80% of Design |
| Annual Total | ----- | ------ | 3,852,336m³ | |

Figure 1 below provides a visual display of the annual average day influent flow trend for the ten year period of 2011 – 2020. (Note ADF increased from 14,700 m³ to 17,000 m³ July, 2019)



Monitoring of influent requires weekly composite sampling. The annual averages and removal efficiencies are depicted in this table:

| Parameter-Influent | Sample Type | Minimum Frequency | Monthly Average (mg/L) | Removal Efficiency |
|---|---|---|---|---|
| Total Suspended Solids (TSS) | 24 hour composite | Weekly | 205 | 98.5% |
| Total Phosphorus (TP) | 24 hour composite | Weekly | 2.5 | 96.4% |
| Total Kjeldahl Nitrogen (TKN) | 24 hour composite | Weekly | 26.5 | 92.7% |

**Hauled Wastewater Flow**

During the 2020 calendar year, the Lakeshore WWTP accepted 22,596 $m^3$ of hauled septic waste, which is included in the influent values discussed above. Here are the totals for the past four years:

| Year | Hauled Septic Waste $m^3$ |
|---|---|
| 2016 | 20,782 |
| 2017 | 24,503 |
| 2018 | 48,263 |
| 2019 | 24,728 |
| 2020 | 22,596 |

Samples are collected of each load delivered to the septic receiving station. Samples are chosen at random for analysis for the development of a septage quality database. This is a summation of the annual averages for required parameters:

| Parameter-Import Sewage Receiving Station | Sample Type | Minimum Frequency | Monthly Average (mg/L) |
|---|---|---|---|
| BOD5 | Grab | Weekly | 4591 |
| Total Suspended Solids (TSS) | Grab | Weekly | 13,344 |
| Total Phosphorus (TP) | Grab | Weekly | 174.2 |
| Total Kjeldahl Nitrogen (TKN) | Grab | Weekly | 928.4 |

## Final Effluent Monitoring

The Lakeshore WWTP operated below the limits set out in the ECA Effluent parameters. Final Effluent is monitored by weekly 24 hour composite sampling.
Design Objectives were achieved more than 50% of the year, with no deterioration of the Final Effluent quality trending.
A summary of the plant's performance in 2020 relative to the amended ECA limits is reflected in tables on the following page.

| Effluent Parameter | ECA Effluent Limit: Monthly Avg Concentration (mg/L) | Design Objective Monthly Avg. Concentration (mg/L) | 2020 Treated Effluent Monthly Avg. Concentration (mg/L) |
|---|---|---|---|
| $CBOD_5$ | 10.0 | 5.0 | 2.14 |
| Total Suspended Solids | 15.0 | 5.0 | 2.98 |
| Total Phosphorus | 0.20 | 0.10 | 0.09 |
| Total Ammonia Nitrogen | 5.0 | 3.0 | 1.29 |
| *E. coli* | 200 CFU/100mL | 150 CFU/100 mL | 18.24 |
| pH | 6.0 to 9.5 inclusive | 6.5 – 8.5 inclusive | 7.53 – 7.75 inclusive |

| Effluent Parameter | ECA Effluent Limit: Monthly Avg Loading (kg/day unless otherwise indicated) | 2020 Effluent Loading (Avg. kg/day unless otherwise indicated) |
|---|---|---|
| $CBOD_5$ | 144 | 22.69 |
| Total Suspended Solids | 216 | 31.41 |
| Total Phosphorus | 1.72 (629 kg/yr) | 0.94 (343.95 kg/yr) |
| Total Ammonia Nitrogen | 72 | 13.53 |

There were no out-of-compliance events related to effluent quality in 2020. This can be attributed to operational process optimization, use of in-line monitoring instrumentation, and septic source restrictions.

## Operational Issues

In general, the accumulation of non-organic debris (i.e. wipes, personal hygiene products) are plugging pumps and causing pump failure. With the onset of COVID-19 and stay-at-home orders, the plant is also experiencing an increase of organic material such as grease. This has been compounded and continues to cause problems. A public education program through social media, launched in 2018, continues to raise awareness.

Much of the equipment, structures mechanisms and apparatus forming the Works are aging and require frequent assessment. Repair and/or replacement is completed when necessary, those items of larger scope are put forth as Capital Works Projects.

A significant rainfall event occurred January 11, led to historic excessive flow which overwhelmed PS #2 and the LS WPCP, requiring partial bypass at the WPCP. In the area of PS #2, 13 residents reported surcharging into their basements. Detailed reports submitted to the Ministry of Environment, Conservation & Parks (MECP) are attached.

In February, the Lystek operation was unexpectedly off-line for a number of hours due to an extensive power outage. It does not have a back-up power supply.

Though E.coli geometric mean for the months of April and May were in compliance, there were multiple events with high E. coli counts on individual samples. After identifying the sampler as the culprit, the issue was resolved.
In November, during Inlet modifications, power and communications were lost. Almost half of the WPCP had to run manually while the issue was diagnosed. Replacement of the Inlet South PLC Ethernet switch resolved the problem.

In late December, a few samples had to be re-sampled and sent to the lab when samples exceeded the holding period for some parameters. The courier's deliveries were delayed due COVID-19 and a heavier demand during the holiday season.

Odour complaints in the area of the Lakeshore WPCP were monitored and reported to the District MECP office. Further investigation into odour cause led to the developing strategy to reduce odour emissions from the site.

- Lystek process was suspended May 1, 2020. The storage tanks have been covered with a pre-fabricated roof which should reduce odour emissions. Re-commissioning should be in the latter part of Q1-2021.
- Odour Control units on the Septic Receiving Station will be installed Q1-2021, further reducing another source of odour emissions.

Installation of manhole odour eliminators were completed at locations with odour concerns.
At the Lakeshore WPCP, solids management was a challenge. Storage capacity was decreased due to the suspension of the Lystek process.

## Maintenance Activities

The Maintenance Mechanic and Operations Staff perform a variety of scheduled, preventative, predictive and reactive maintenance on a variety of equipment throughout the year. Equipment replacement and upgrades contribute to greater process control at the Plant and increased capacity in the collection system.
Notable maintenance activities in 2020 include:

At LS WPCP

- ABWF #1 backwash pump replaced
- Installation of new airlifts for CCF #1 & #2, effluent pump #1 and motor replaced, replaced 30 hp VFD for CCF #2
- Wash water pump #1 and motor replaced
- Screwlift #2 coupling rubber inserts replaced
- Clarifier #2 reduction gear box and motor replaced
- Sand filter ABWF #1 waste pump replaced
- Replaced west sand filter wash motor
- Sand filter Bridge #2 backwash system air bag repaired and bolt replaced
- Septic pumps #1 & #2 replaced
- Overload relay on Digester Blower #1 replaced
- Supernatant pump #1 replaced
- Grit Classifier liner replaced
- Screwlift #3 top bearing replaced
- Sampler repairs
- New fuel tank at the WPCP

At pump stations

- PS #1 discharge power valve O-rings replaced
- PS #2 generator- replaced #3 fuel injector, block heater
- PS #3 generator – replaced starting batteries
- PS #4 replaced pump #2
- PS #9 installed ¼ " vent pipes for pumps #1 & 2

Instrumentation

- Improvements to reporting and networking
- Connected the Weather Station to the internet

## Effluent Quality Assurance

Analytical tests to monitor required parameters are performed by SGS Environmental Services, which is accredited by Canadian Association for Laboratory Accreditation Inc. (CALA) in accordance with the recognized International Standard ISO/IEC 17025:2005. Plant operation and performance is monitored by licensed operators.

## Calibration

Annual verifications/calibrations of flow monitoring equipment were performed in October, 2020 by a third party instrumentation and controls technician. This included influent, effluent, septic receiving and the Parshall flume monitoring equipment.
All were found to be within the tolerance of the equipment as recommended by the manufacturer.

## Summary of efforts made to achieve Design Objective

Design Objectives were achieved more than 50% of the year, with no deterioration of the Final Effluent quality trending.
The 2020 average daily influent flow was 10,554 $m^3$, which equates to 62% of the plant's design rated capacity of 17,000 $m^3$ per day.

## Sludge generation and removal

The biosolids handling facility, Lystek, was commissioned in 2020. This process uses biosolids created by the system and processes into a marketable Class A (EQ) quality, fertilizer product which is hauled from the facility and injected into farm fields. Lystek is responsible for all aspects of the marketing and application of LysteGro fertilizer produced at the facility.
The amounts hauled and applied in 2020 totaled 2177 cubic meters. Estimate for volume to be generated and hauled in 2021 is 3400 cubic meters.

| Farmer | Volume ($m^3$) | Acres |
|---|---|---|
| Edwards | 240 | 15 |
| Bowman | 1937 | 135 |
| ***Total:*** | ***2177*** | ***145*** |

Wessuc Inc. held the contract for the removal and disposal of Non-Agricultural Source Material (NASM) from the Lakeshore WPCP. A total of 17,960.6 $m^3$ of NASM was removed from the Plant and applied on registered farms in Simcoe County. The table below tabulates sites and volumes.

| Site # | Volume ($m^3$) |
|---|---|
| S2015 | 2435.0 |
| S12077 | 720.0 |
| S12037 | 577.0 |
| S11035 | 405.0 |
| S11038 | 401.0 |
| S12027 | 532.0 |
| S5024 | 540.0 |
| S5048 | 585.0 |
| S11022 | 532.60 |
| S5001 | 798.0 |
| S2013 | 1530.0 |
| S2026 | 2411.0 |
| S2027 | 3311.0 |
| S12079 | 804.0 |
| S5041 | 675.0 |
| S11004 | 1170.0 |
| S11030 | 534.0 |
| **Total** | **17,960.6** |

## Complaints

Customer Service inquiries are received and logged through the Town of Innisfil. There were 85 inquiries related to operation of the Lakeshore WPCP and collection system in 2020. All incidents were resolved and logged.
Thirty-six (36) complaints were for foul odours related to the WPCP (referred to in Operational Challenges).
Of the twenty-eight (28) sewer back-ups, one involved the sewer main (build-up of grease), two (2) required repairs by IUI, and 13 were a result of the extreme weather event January 11 described above.
The remaining inquiries involved other sewer problems, requests for lateral locates and odour complaints not related to the WPCP and its processes.

## Bypass and Spills

There were two (2) and spills reported in 2020. Both incidents were related to an extreme weather event January 11, 2020.
Each incident was reported to the Spills Action Centre and followed up with detailed reports, which are attached to this report. As mentioned previously, thirteen (13) homes experienced basement flooding

## Notices of Modifications to Sewage Works

The ECA allows for certain pre-authorized modifications to be made to the facility. The Ministry is notified of these modifications via a *Notice of Modification to Sewage Works*. There were two (2) Notices of Modification submitted to the Water Supervisor as per Paragraph 1.d of Condition 10.

1. January 14, 2020. Installation of a temporary tertiary membrane pilot unit to demonstrate/confirm this technology can achieve the tertiary treatment requirement for the full-scale tertiary membrane system required as a part of the Lakeshore WPCP expansion project.
2. December 8, 2020. Sewage Pump Station #2: Replacement of the existing two (2) centrifugal submersible pumps with chopper submersible pumps, each having a rated capacity of 20.7 L/sec.

## Efforts to Achieve Conformance with Procedure F-5-1

InnServices Utilities Engineering group have been working on a number of projects and initiatives to eliminate Bypass/Overflow incidents. These include, but are not limited to the following in 2020:

- Civica Infrastructure Inc. had undertaken a 1 year monitoring program with 15 flow monitors located across the Lakeshore sanitary sewer system (Alcona, Lefroy, and Belle Ewart) to identify areas needing repairs. Final reporting has been received and is under peer review.
- IUI Engineering is working with TOI Development Engineering to ensure all un-assumed sanitary maintenance holes are equipped with bulkheads
- Regular flushing program
- Sewer laterals inspections are done with a portable hand camera and repairs made if deficiencies are discovered from the main to the home.
- External MH wrapping of horizontal joints on recent Capital projects
- Flow Monitoring of one active subdivision
- Condition assessment of manholes at multiple locations leading to a repair/replacement plan in 2021
- Inlet modification work done that included installation of new alum delivery system and new fuel tank for the generator, and other modifications
- Both pumps at Pump Station #2 upgraded

A new Sewer Use By-law is currently under legal review, with anticipated presentation to TOI Council in Q2-2021. The new by-law includes items such as

- temporary capping of existing laterals during demolition to eliminate future infiltration,
- mainline sewer lining of a lateral for permanent abandonment for a demolition to eliminate future infiltration, and
- right-of-entry (ROE) to ensure access to private property for future I&I investigation

The need for a detailed Bypass/Overflow procedure has been recognized. This will be developed in 2021.

## Monitoring Schedule

Influent sampling is required at a minimum frequency of weekly by 24 hour composite sampling. The influent sampling point is located near the grit tanks in the preliminary treatment system building (Inlet Building).
Imported sewage received at the Septic Receiving Station is required at a minimum frequency of weekly by grab sampling. Individual samples are obtained at the time of off-loading by the septic hauler. A single sample is randomly selected to be analyzed each week. A composite sample is taken by grab method from the storage cell.
The Final Effluent sampling is required at a minimum frequency of weekly. Sampling type is determined by the parameter and includes 24 hour composite, grab, probe or analyzer. The weekly Final Effluent composite sampler is located downstream of the disinfection channels.

Flow rates are monitored by continuous flow measuring devices for influent, effluent and imported sewage.

As per Condition 9.1.d of the ECA, effective July, 2020, Tuesday was designated as the scheduled day for sampling, except for statutory holidays when this shifts to the next appropriate day. This schedule will be maintained throughout 2020-21. The scheduled sample day will be rotated (July 2021) to Monday and is expected to be maintained in for the next year.

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# Lakeshore WPCP Spill/Overflow – January 11-12, 2020

Lakeshore Water Pollution Control Plant (WPCP)
Wastewater System # 110002586
ECA Number 6075-BDSKRR
1578 St. John's Road
Innisfil ON
Event Report # 903989

On January 11, 2020, a significant rainfall of approximately 65 mm over a 24-hour period resulted in flooding in some low lying areas within Innisfil.
Due to this severe weather event, the Continuous Contact Filters (CCF) and Automatic Backwash Filters (ABWF) were overwhelmed and began flooding within the Filter Building. As events unfolded, partially treated wastewater was directed to the storm manhole on site.
The Operator-in-Charge (OIC) took corrective actions to control the overflow. Additional operators were called in to assist. These actions are summarized in the table below.

The amount of partially treated discharge to the storm has been calculated at 4582 cubic meters over 18.5 hours. Sample reports from the lab are attached.
Septic Receiving pump over was exceeded both days to make room for the hauled sewage from Pump Station #2: January 11 = 848 $m^3$; January 12 = 248 $m^3$.

Notifications were communicated to Nick Lymer at MECP Spills Action Centre (SAC) and Felicia Rativ, Medical Officer of Health at the Simcoe-Muskoka District Health unit.

| Operational Issue | Corrective Action |
|---|---|
| CCF filters begin to overflow<br>Peak flow rating for Plant is 421 L/s<br>Peak flow reading 477 L/s at 9:15 am; | Set up 3 pumps (2- 3" trash pumps & submersible pump) to discharge into effluent channel before UV unit; sample taken at effluent sampler (11:30 am) |
| ABWFs overflowing to Site Pump Station<br>Influent flows reading 423 L/s | ABWFs taken out of service |
| On site manhole overflowing to storm | Sample taken at manhole (10:30 am) |
| Septic Receiving levels nearing high levels (result of septic trucks from PS#2 bypass) | Begin pump down in hand with Pump 2 to bring level down |
| ABWF overflowing into effluent channel | Using 6" trailer mounted trash pump to pump down ABWF |

| | |
|---|---|
| Outfall level 12" above Parshall flume, influent flows reading 484 L/s | All relief pumps running as influent flow meter maxes out at 500 L/s |
| Influent flows steadily reading >500 L/s (for 4 hours) ABWF overflowing | ABWF 6" trash pump now directed to storm, sample taken (15:45) |
| Clarifier 3& 4 overflowing into RAS sump, Splitter #3 & 4 nearing overflow | Screw Lift Pump #3 & 4 taken out of service to reduce flow |
| ABWF and Splitter #3 & 4 overflowing, Influent flow 428 L/s | Additional pumps started remotely at PS 3 & 4; Check barscreen room (channel not overflowing); 6" Pump in CCF directed to storm |
| CCF & ABWF & Effluent Channel overwhelmed | 6" pumps continue to discharge from CCF & ABWF to storm |
| Influent flows reducing – to 380 L/s, manhole no longer overflowing, clarifier #3&4 no longer overflowing | Screw Lift Pump #3 & 4 back in service, 6" trash pump in ABWF shut down |
| Influent flows reducing – 298 L/s | Cycling 6" trash pumps with levels |
| Septic Receiving level down to 1 m | Put Pump 2 back into Auto |
| CCF keeping up with flow | Bypass pump off |
| ABWF keeping up with flow | Bypass completed; composite and grab sample of effluent taken (10:30 ) |

A review of this event (along with the simultaneous bypass at Pump Station 2) was conducted, and here are some conclusions and actions taken:

- This extreme weather event, in conjunction with frozen ground, lead to historic excessive flows over a short term duration
- Under this circumstance, it is believed the Outfall was a limiting factor. Further research into possible solutions is needed, which may be addressed in the upcoming expansion
- There is an on-going Inflow & Infiltration study, InnServices' Engineering group is monitoring flows for a 1-year study
- Water tight maintenance hole lid installation in recorded flood-prone areas has been proposed
- A new Sewer Use Bylaw is under development
- TOI Council has approved a Municipal Backwater Valve Grant Pilot Program to assist current residents in flood prone areas with costs associated with the installation of Backwater Prevention Valves (Staff Report #DSR-027-20; Feb. 12, 2020)
- InnServices and TOI Development Engineering are working to address inspections of new infrastructure and expectations of Developers' responsibility
- InnServices' Emergency & Contingency plan is being assessed collaboratively with TOI
- Review and revision of InnServices' Emergency Communication Plan is underway

Submitted to MECP February 14, 2020

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# PS #2 Spill – January 11-12, 2020

Lakeshore Water Pollution Control Plant (WPCP)
Wastewater System Number 110002586
Sewage Pump Station #2, 690 6th Line, Innisfil, ON
Event Report # 903994

On January 11, 2020, a significant rainfall of approximately 65 mm over a 24-hour period resulted in flooding in some low lying areas within Innisfil.
A combination of events resulted in extremely high flows into the 6th Line Sanitary Main which lead to Sewage Pump Station 2 (690 6th Line), flooding the basements of 13 properties.
The Overall Responsible Operator (ORO), Dave Sparrow, took corrective actions to address this situation. Additional operators were called in to assist.
Approximately 1586 $m^3$ was hauled from PS #2 wet well and nearby manholes to the Lakeshore WPCP over a 21.6 hour period.
Flows from PS #2 were 2386.04 $m^3$ (Jan. 11) and 1280.23 $m^3$ (Jan 12). In the preceding 10 years, highest flows measured from PS #2 were 1202 $m^3$in 2018.
A summary of operational issues and corrective actions taken is in the table below.

Notifications were communicated to Nick Lymer at MECP Spills Action Centre (SAC) and Felicia Rativ, Medical Officer of Health at the Simcoe-Muskoka District Health Unit.

| Operational Issue | Corrective Action |
|---|---|
| Both pumps overloaded, followed by High level alarms<br>Note: Pumps are rated for 18-20 L/sec each, for a combined capacity of 35-40 L/s | ORO called septic hauler (Pump My Tank) to send trucks to PS#2; called for back-up operator to attend to reset pumps – both running at 32 L/s |
| Both pumps plugged with rags | Both pumps pulled and cleaned, put back into service within 30 minutes (combined); both pumps running at 28.77 L/s |
| Level in Wet Well rising | 2 septic trucks on site hauling from wet well to Lakeshore WPCP |

| | |
|---|---|
| Pump 2 overloading repeatedly | Reset numerous times; called in mechanic to assist in pulling & cleaning out pump; check manhole (MH) outside of PS – no surcharge |
| Heavy rain, wet well level increasing rapidly | Both pumps running at 34.61 L/s<br>Operations Manager alerted<br>2 septic trucks now hauling from MH in front of PS; called for 3rd septic truck (Pump My Tank) to assist |
| Station now above level sensor | Both pumps are running at 37.48 L/s; called in 4th septic truck (Innisfil Disposal) |
| First resident reported back up into basement, followed by more | 5th septic truck called (Regional Septic) to assist; hauling from 3 MH (1 in front of PS, 1 upstream, 1 downstream)<br>Pumps running at 37 L/s<br>Residents were advised to contact insurer and document everything |
| Wet well level remains above level sensor<br>Upstream flows measured at 200 L/s<br>Recorded flow through flow monitor in 6th line was 3000 m³ in 6 hours. | Operator and Operations Manager drove to upstream development to investigate.<br>Excessive flows observed at sanitary MH at the round-about on 6th line. The MH is to receive flows from future builds – should not be connected to live system<br>Operations Manager reached out to TOI Development engineers to confirm what corrective actions will be taken |
| Flows from 6th line recording 150-200 L/s steadily throughout afternoon (Flow meter at 6th Line & Emberton measured over 150 L/s from 10 am- 12 noon, and again from 3 – 9 pm) | Septic trucks still on site trying to match flows<br>Unsuccessful attempt to use 8” trash pump to pump storm water out of the manhole (at un-assumed-unoccupied phase of subdivision upstream) to storm retention pond on south side of 6th line |
| Heavy rain continues late into evening, easing up near midnight<br>Manholes on 6th Line surcharged | Both pumps running at 37 L/s<br>3 septic trucks still on site (1 Pump My Tank and Innisfil Disposal truck done for night) |
| Wet well level dropping steadily | Septic trucks dismissed<br>Station back into auto |

| | |
|---|---|
| Manhole levels down to benching (at bottom) | |
| Station cycling, keeping up with flows | ROHES on site to vacuum out basket in wet well; follow-up checks and reporting |

A review of this event (along with the spill/overflow at the Lakeshore WPCP) was conducted, and here are some conclusions and actions taken:

- This extreme weather, in conjunction with frozen ground, lead to historic excessive flows over a short term duration
- The pump station itself performed as it was designed
- There was excessive and significant flow from an unoccupied, un-assumed phase of a subdivision upstream. This phase had been pre-serviced and was not supposed to be connected to the live sanitary system.
- Concrete bulkheads have been installed in the manholes leaving this upstream development phase, including a manhole on the 6$^{th}$ line (see attached reports and photos)
- There is an on-going Inflow & Infiltration study, InnServices Engineering Group is monitoring flows for a 1-year study
- Water tight maintenance hole lid installation in recorded flood-prone areas has been proposed
- A new Sewer Use Bylaw is under development
- TOI Council has approved a Municipal Backwater Valve Grant Pilot Program to assist current residents in flood prone areas with costs associated with the installation of Backwater Prevention Valves (Staff Report #DSR-027-20; Feb. 12, 2020)
- InnServices and TOI Development Engineering are working to address inspections of new infrastructure and expectations of Developers' responsibility
- InnServices' Emergency & Contingency plan is being assessed collaboratively with TOI
- Review and revision of InnServices' Emergency Communication Plan is underway

Submitted to MECP February 14, 2020