



EXETER PUBLIC WORKS DEPARTMENT

13 NEWFIELDS ROAD • EXETER, NH • 03833-4540 • (603) 773-6157 • FAX (603) 772-1355

www.exeternh.gov

January 4, 2019

United States Environmental Protection Agency
Region I – New England
5 Post Office Square – Suite 100
Boston, MA 02109-3912
Attn: Joy Hilton, Water Technical Unit (Mail Code: OES04-3)

Re: CMOM Program Implementation Annual Report for 2018; per Administrative Order Docket # 010-024, Town of Exeter.

Dear Ms. Joy Hilton:

This report is being made as required on the Town's Administrative Order, page 8, IV. Order, item 11, *CMOM Program Implementation Annual Report*, and is for the calendar year ending December 31, 2018. This report details actions taken to reduce, and ultimately prevent, Combined Sewer Overflow (CSOs) and Sanitary Sewer Overflows (SSOs).

The Town of Exeter has made great efforts to reduce the frequency of Sanitary Sewer Overflows (SSOs) & Combined Sewer Overflows (CSOs) according to Administrative Order Docket No. 10-024. Investments over the previous 6 years have included private I/I identification in residential neighborhoods and commercial businesses, private I/I removal from the sanitary sewer, public & private sewer lines replacement in Jady Hill Inflow Pilot residential neighborhood, new sewer line replacement on Portsmouth Avenue, and sewer pipe re-lining & manhole rehabilitation. The Town has also refined and redeveloped the sewer line cleaning and televising programs, so all sewer lines are reviewed for conditions assessment every 5 years. The data will be reviewed periodically to determine degradation ratings, decide the best rehabilitation methods, and prioritize the repair schedule.

The Town of Exeter has also invested \$53.5 million dollars, to construct a new Wastewater Treatment Facility (WWTF), a new Main Sewer Pump Station, and install two new 16" Sewer Force mains to connect the two facilities to help reduce CSOs. The planned improvements to the Main Pump Station and the force mains to achieve a 10 MGD pumping capacity will reduce CSO discharges and should continue to be included as part of the CSO LTCP. The Town will also continue its I/I mitigation program including Pilot Areas, but will defer the majority of the \$26M gravity sewer rehabilitation/replacement projects. The Town agrees with the CSO LTCP recommendation to defer some projects until pilot area work is completed and focus on the private I/I mitigation program in the near term until the Main Pump Station project is complete and additional reliable CSO flow information becomes available to evaluate the improvements.

The proposed update to the Long-Term Control Plan (LTCP) Table 14-1 Implementation Schedule was accepted by US EPA in December 2017, and incorporated into the AO schedule. The Capacity, Management, Operation and Maintenance (CMOM) Program Document was updated in June 2018.

Combined Sewer Overflow (CSOs) this calendar year/Five Events for 2018:

Q1-No events

Q2-Three events

A): As previously reported by the Town Senior Operator, Steve Dalton, on Tuesday, April 16, 2018, there were one wet weather CSO discharge from the Spring St and two wet weather CSO discharges from Water Street CSO structures.

Spring Street CSO:

- 1) Spring Street CSO of 260,790 gallons from 4:10 pm to 10:50 pm

Water Street CSO:

- 1) Water Street CSO of 26,380 gallons from 5:05 pm to 6:20 pm
- 2) Water Street CSO of 106,610 gallons from 7:25 pm to 9:50 pm

The total volume from both CSO Discharge structures was 132,990 gallons.

The total measured precipitation (from *Flow Assessment Services, LLC* automated bailer located at Water Street lift station) was 2.07". CSO flow charts and tabulation sheets from *Flow Assessment Services, LLC*, were attached.

The total flow from the Water Street Main Pump Station on the day of the wet weather event, Monday, April 15, 2018, was 3.1 MGD.

Per the NPDES permit (effective November 8, 2017), the once annually required sampling was done at Clemson Pond CSO inlet (outfall 003) as soon as possible at 5:26 pm, 1 hour and 16 minutes after the start of the event. The *Escherichia coli* test was run in the WWTP lab using the Idexx Colilert method and had a geometric mean result of 14 MPN/100mL.

Q3-Four events

A): As previously reported by the Town Senior Operator, Steve Dalton, on Friday, August 3, 2018, there were two wet weather CSO discharges from the Spring St CSO structure:

- 1) Spring Street CSO of 7,270 gallons from 4:30 p.m. to 4:50 p.m
- 2) Spring Street CSO of 5,490 gallons from 7:10 p.m. to 7:40 p.m.

The total volume for both of the discharges from the Spring Street CSO structure was 12,760 gallons.

The total measured precipitation (from *Flow Assessment Services, LLC* automated bailer located at Webster Street lift station) for Friday August 3, 2018 was 2.81". CSO flow charts and tabulation sheets from *Flow Assessment Services, LLC*, are attached.

The total flow from the Water Street Main Pump Station bypass pumps on the day of the wet weather event, Friday, August 3, 2018, was 2.1 MGD.

No samples were collected at outfall 003 (Clemson Pond) due to the facts that the annual required samples and testing were performed during the April 16, 2018 CSO event and the August 3, 2018 events occurred after hours and ended before on-call personnel arrived.

B): As previously reported by the Town Senior Operator, Steve Dalton, on Tuesday, September 18, 2018, there were two wet weather CSO discharges from the Spring Street and Water Street CSO structures:

- 1) Spring Street CSO of 291,390 gallons from 8:50 a.m. to 13:25 p.m.
- 2) Water Street CSO of 227,400 gallons from 9:05 a.m. to 12:45 p.m.

The total volume of the discharges from both of the CSO structures was 518,790 gallons.

The total measured precipitation (from *Flow Assessment Services, LLC* automated bailer located at Webster Street lift station) for Tuesday, September 18, 2018 was 4.36". CSO flow charts and tabulation sheets from *Flow Assessment Services, LLC*, are attached.

The total flow from the Water Street Main Pump Station bypass pumps on the day of the wet weather event, Tuesday, September 18, 2018, was 3.2 MGD with a maximum flow rate of 5.1 MGD during the event.

An E.coli sample was collected at outfall 003 (Clemson Pond) Tuesday, September 18, 2018 at 0905 (15 minutes after the CSO event started). The test was performed using the Idexx Colilert method, and had a result of 261.3 MPN/100m/L.

Q4-Five events

A): As previously reported by the Town Senior Operator, Steve Dalton, on Saturday, November 3, 2018, there were wet weather CSO discharges from the Spring Street and Water Street CSO structures:

- 1) Spring Street CSO of 9,250 gallons from 7:25 a.m. to 12:35 p.m.
- 2) Water Street CSO of 1,670 gallons from 7:40 a.m. to 9:05 a.m.

The total volume of the discharges from both of the CSO structures was 10,920 gallons.

The total measured precipitation (from *Flow Assessment Services, LLC* automated bailer located at Webster Street lift station) for Saturday, November 3, 2018 was 2.32". CSO flow charts and tabulation sheets from *Flow Assessment Services, LLC*, were attached with previous report.

The total flow from the Water Street Main Pump Station bypass pumps on the day of the wet weather event, Saturday, November 3, 2018, was 4.2 MGD with a maximum flow rate of 5.0 MGD during the event.

No samples were collected at outfall 003 (Clemson Pond). The annual required samples and testing were performed during both the April 16, 2018 CSO and September 18, 2018 events. The November 3, 2018 events occurred on a Saturday, outside of normal Monday to Friday operating hours.

B): As previously reported by the Town Senior Operator, Steve Dalton, on Tuesday, November 27, 2018, there were wet weather CSO discharges from the Spring Street and Water Street CSO structures:

- 1) Spring Street CSO of 1,325,510 gallons from 1:20 a.m. to 10:50 p.m.

2) Water Street CSO of 309,940 gallons from 2:00 a.m. to 8:45 p.m.

On Wednesday, November 28, 2018, there was a CSO discharge from the Spring Street structure:

1) Spring Street CSO of 25,660 gallons from 6:05 a.m. to 10:15 a.m.

The total volume of the discharges from both of the CSO structures for all events was 1,661,110 gallons.

The total measured precipitation (from *Flow Assessment Services, LLC* automated bailer located at Webster Street lift station) from Monday, November 26, 2018 through Tuesday, November 27, 2018 was 2.96". CSO flow charts and tabulation sheets from *Flow Assessment Services, LLC*, were attached with previous report.

The total flow from the Water Street Main Pump Station bypass pumps on the first day of the wet weather event, Tuesday, November 27, 2018, was 4.8 MG with a maximum flow rate of 5.02 MGD during the event.

The total flow from the Water Street Main Pump Station bypass pumps on the second day of the Spring Street event, Wednesday, November 28, 2018, was 4.3 MG with a maximum flow rate of 5.03 MGD during the event.

There have been issues with the Spring Street CSO structure telemetry that *Flow Assessment Services, LLC* maintains for the town. The sensors in the manhole capture all the CSO data but the cellular transmitter does not send the data as it should. I have been in contact with *Flow Assessment Services, LLC*, and they have informed me that the cellular company they use is not supporting the cellular equipment that we have in that structure anymore because it uses old 1G technology. They are working on getting new, updated cellular equipment as quickly as possible to install into this structure. *Flow Assessment Services, LLC* is able to manually download the saved data from the CSO event and upload it to their web service. They did a manual download on Wednesday, November 28, 2018 and uploaded the data to the web service on Thursday, November 29, 2018 in the afternoon. I was unaware until I saw this data today that the second CSO event from Spring St, on November 28, 2018, had occurred.

No samples were collected at outfall 003 (Clemson Pond). The annual required samples and testing were performed during both the April 16, 2018 CSO and September 18, 2018 events. The November 27, 2018 events started outside of normal Monday to Friday operating hours.

Sanitary Sewer Overflows (SSOs) this calendar year/Three events for 2018:

Q1-No events

Q2-Two events

As was previously reported by the Town Senior Operator, Stephen Dalton, there were two non-wet weather SSO events.

Event 1: On Tuesday, June 5, 2018, there was a break in the sewer force main on Newfields Rd approximately a ¼ mile from the DPW entrance. The break was reported at 6:45 am. There was an approximate volume of 50 gallons per minute flowing from the break into a field adjacent to Newfields Rd and ultimately into the Squamscott River. The flow lasted for approximately 50

minutes before a decision was made to shut off the pumps that feed the force main. An estimated volume of 2500 gallons was discharged from the break from the time it was reported to the time the pumps were shut off.

Severino Construction was hired to assist with the repair of the broken force main. They arrived on-site at 9:15 am. Severino's crew, and the town's water/sewer street crew, worked together to locate and repair the damaged force main. The force main was excavated and it was discovered that there was a small hole in the bottom that appeared to have been caused by a rock that was buried under it. A stainless steel wrap around repair clamp was used to repair the damaged section. The sewer force main was put back in service at 11:00 am. Lime was spread on the affected area by town employees after the repair was made.

This section of force main conveys the entire town's sewer to the wastewater treatment plant. It is a closed system with no access via manholes or other means. It is a force main that is under pumping pressure and cannot have any open to atmosphere structures (like a gravity sewer main would have) because sewerage would flow out constantly. A repair to this force main could not be done with flow going through it. Because it is a closed system, there is no reasonable way to bypass the damaged section in a timely manner to keep the sewerage going to the treatment plant. The best, most efficient, way to make the repair was to shut off the pumps at the main pump station construction site and allow the sewer flow to go through the CSO structures to the Clemson Pond outfall.

On Tuesday, June 8, 2018, there were two discharges from the CSO structures into Clemson Pond Outfall 003:

- 1) Spring Street CSO structure flow volume of 10,250 gallons from 8:05 a.m. to 11:00 am.
- 2) Water Street CSO structure flow volume of 410,022 gallons from 7:45 a.m. to 11:05 a.m.

The total volume for the discharges from both CSO structures was 420,272 gallons.

The main pump station located at 279 Water Street, between 277 Water St and the Swasey Parkway is currently under construction. The main pump station is off-line and the construction company has bypass pumps set up on location to pump the town's sewer to the treatment plant. One of the bypass pumps discharge hose had to be relocated to a different manhole to divert flow to the Water Street CSO structure and away from the broken sewer force main to allow for the repair. After the hose was moved, the pump was restarted but had difficulty priming. It took several minutes to get the pump working properly and during that time, at 8:30 a.m., approximately 500 gallons of sewerage overflowed out of the manhole that the pumps suction hose was in. The towns Vactor truck was on-site and able to collect most of that overflow immediately and town employees spread lime over the affected area.

Addendum Letter to Event 1: This is an addendum to the original SSO letter dated June 8, 2018. I want to make sure I fully explain why the decision was made to shut off the pumps that were at the main pump station construction area and allow 420,272 gallons of sewerage to go to the permitted wet weather CSO area known as Clemson Pond. This decision was not made lightly.

When the SSO was reported to the Town at 6:45 am, a crew of Town water/sewer employees went to the site to investigate shortly after 7:00 am. It was estimated that approximately 50 gallons per minute of sewerage was flowing from the break. The field the sewerage was flowing into has a drainage system with catch basins that takes storm water directly to the Squamscott River. Knowing

this, the Town wanted to make the repair as soon as possible to stop raw wastewater from going directly to the river.

There was a discussion between Steven Tucker (Town of Exeter Water/Sewer Utilities Foreman), Matthew Berube (Acting Water/ Sewer Managing Engineer), and myself (Senior Wastewater Treatment Plant Operator) on the best way to repair the break. We all agreed, because of the volume of water coming from the break, the repair could not be done with the sewerage still being pumped through the broken force main. It would make the repair job very difficult (or impossible) and be very dangerous (possibly life threatening) for a person to enter a trench with that volume of sewerage coming from the broken pipe. When the crew from Severino arrived, they agreed the flow needed to be stopped to make the repair.

This force main is approximately 1.2 miles long from the main pump station to the wastewater treatment plant. There are no manholes to use to be able to bypass the broken section of pipe. It would not be feasible to locate and set up 1.2 miles of above ground bypass piping to go from the pump station site to the treatment plant.

Another option would have been to excavate and have insertion valves installed into the force main on either side of the break, and bypass pump around the break. This would be very time consuming to excavate and locate a company that could come do the job immediately. Usually installation of bypass insertion valves are a planned event to ensure the company has all the parts and tools required to complete the job.

The last option discussed was using septage haulers. At the time of the break, we know the flows to the treatment plant are at their highest. As I reported, 420,272 gallons of sewerage went to Clemson Pond during the 3 hours and 20 minutes the pumps were shut off. That is a flow of 2101 gallons per minute. The average septic truck holds approximately 4000 gallons and fills at a rate much less than 2101 gallons per minute. The amount of septage trucks that would be required to carry all the sewerage to the treatment plant without causing any flow to go to Clemson Pond would have been unobtainable. In addition, the only route to the treatment plant is Newfields Road, which was reduced to one lane of traffic because of the excavation to repair the break. The septage haulers would have been stuck in a traffic jam trying to go back and forth to load and unload their trucks, most likely causing flow to go to Clemson Pond.

All the options discussed were very time consuming or impossible, and the threat of the break getting worse was a real possibility. The decision to shut off the pumps and allow the flow to go to Clemson Pond seemed to us to be the best, safest, most environmentally conscious choice. After the pumps were shut off, the flow of 50 gallons per minute, stopped going into the field, and ultimately into the Squamscott River. The broken force main was excavated, repaired, and put back in service in significantly less time than it would have taken to execute any of the other options.

Event 2: On Wednesday, June 20, 2018, at approximately 10:00 am, the Department of Public Works received a phone call stating that there was sewerage leaking out of a manhole at 30 Charter Street. This is a privately owned sewer system that is managed by CP Management. Matthew Berube went to investigate and then made a phone call to me. I went to the site with Gary Lord to see the issue first hand.

When we arrived we saw the manhole in question, it was slowly leaking. An estimated 5 gallons of sewerage had overflowed on the ground, but had not made it to any drainage system. We had the Town's Vactor truck come to the site and evacuate the sewerage from the manhole to stop it from overflowing. Gary Lord and I went to the CP Management office to notify them of the issue. I spoke with Mark Aubin who fully understood the urgency to get the issue corrected. I gave him my contact information and asked him to keep me updated on the situation.

Mark was able to hire Felix Septic to come and resolve the problem. They arrived around 12:30 pm and discovered that there was a backup in the system. They were successful in clearing the backup and the system was returned to good working order. Mark also stated that Felix Septic was great to work with and CP Management will most likely be signing a regular maintenance agreement with them to monitor the properties they manage.

Q3-no events

Q4-one event

A): As previously reported by the Town Senior Operator, Steve Dalton, on Tuesday, November 27, at approximately 10:30 am:

The Department of Public Works was notified that there was water leaking out of a manhole at the intersection of Gary Lane and Linden Street (SMH-0455). The Highway Department General Foreman, Jason Rucker, was notified because it was originally thought to be a storm water manhole that was overflowing due to the heavy rain we had received. When Jason arrived, he realized it was sewerage and called the Water/Sewer Street Crew Foreman, Robby Souza.

Robby and his crew deployed to investigate and correct the issue. When they arrived, they saw that an estimated 20 gallons per minute of sewerage was overflowing on the ground, and running off the road into a drainage swale. There is a cross-country sewer main that follows an unmaintained trail through the woods to the Court Street Pump Station. The sewer street crew opened all the manholes starting with the overflowing, SMH-0455, and worked upstream to SMH-0463 in order to determine where the blockage was. It was discovered that the blockage was between manholes SMH-0463 and SMH-0462. They were able to get the Vactor jet truck down the trail to manhole SMH-0463 and used the sewer jet to clean the sewer main upstream to sewer manhole SMH-0461. This removed the blockage and the CSO ended at 12:20 pm. At an estimated rate of 20 gpm for a duration of 110 minutes, the total volume of the CSO was 2,200 gallons.

Later the same day, Police Dispatch called the sewer on-call staff at 6:40 p.m. to notify them they received a phone call that sewer was coming out of the manhole at Linden St and Gary Ln (SMH-0455). When on-call personnel arrived there was no sewerage overflowing. It is unclear if another SSO actually occurred, or if the person who called police dispatch saw spill residuals and lime from the earlier SSO. As a precautionary measure, the on-call crew opened the same manholes as earlier to check to see if they were flowing properly. They saw that the sewer was running slow between manholes SMH-0461 and SMH-0460. They were able to get the Vactor back down the trail to sewer manhole SMH-0461 and used the sewer jet to clean upstream to sewer manhole SMH-0459. They did remove some more debris from the main and the flow returned to normal.

When the flow increases it can tend to scour the sewer main and cause all the sediment to build up in a small area and eventually cause a blockage. The crew returned to that neighborhood on Wednesday, November 28, 2018, and used the Vactor to jet and clean all the lines in that area to

ensure we would not have any more issues due to blockages. They did remove a substantial amount of debris that we believe was caused from the heavy rain and a drastic increase of sewer flow.

A map was previously submitted, and attached with all the sewer manholes that were referenced with this letter. As always, if you need more information or have any questions, please do not hesitate to contact me.

Operation & Maintenance Measures and Programs Implemented by the Town in 2018 to Reduce CMOM Deficiencies, SSOs and CSOs:

- **Quarterly “High Maintenance” Cleaning (jetting) Activities:** The Town continued cleaning (jetting) of the Town’s “high maintenance” areas. The total footage of these areas is now about 7,000 linear feet. This is generally done every quarter unless other prioritized work changes the work schedule, and the details were reported in the 2018 quarterly reports. In addition to the high maintenance cleaning (26,730 ft), additional sewer line jetting was done to 21,879 linear feet, for a total of 48,609 ft. The total televised sewer line was 21,879 linear feet.
- **Town-wide I&I Investigations** Limited consultant I&I investigations were planned and conducted for 2018. The focus of the remaining FY18 sewer collection budget was used for manhole rehabilitation and sewer pipe relining.
- **Collection System Mapping and GIS System:** The Town previously updated its collection system mapping and geographical information systems (GIS) as required for the June 30th, 2015 deadline. The Town continues to update the Town GIS system with gps locating of sewer system manholes that were previously “lost” and/or inaccurately located in the data base.
- **Sewer Manhole Repairs & Pipe Re-lining Completed:** We are identifying rehabilitation areas for manhole and pipeline repairs. The street crew has identified a manhole and RCP pipe that needs to be rehabilitated. It is under the downtown streets, downstream from the major sewer collapse on High Street. Due to the severity of the previous collapse and the cost of open trench repairs, we have contracted with Green Mountain Pipeline to rehab 1 manhole and reline 714 feet of pipe for \$92K. This work is scheduled for early January 2019.
- **Grease Interceptor and Water/Oil Separator Inspections:** There are a total of seventy (70) food service establishments (FSEs) and commercial oil/water separators to be inspected by the wastewater treatment operators annually. Three other establishments send us reports when the interceptors are clean. Please note that this has been an ongoing and increased program since the inception of the 2010 AO Docket, and continue to optimize the program. The operators inspected 50 establishments. The establishments not done were due to changing of ownership (closed for most of year), or other prioritized work that took precedence. In June and October 2018, the Town hired two new operators in anticipation of the new WWTP, and we intend on training all new hires to be able to do grease interceptor inspections.

Capital Improvement Projects, Measures and Programs Implemented or Planned by the Town and/or Private Collection systems in 2018 to Resolve CMOM Deficiencies:

Lincoln Street Water & Sewer Project: As previously reported in the 2015 annual AO report, this capital improvement project for fall 2015/spring 2016 was primarily a water project. A capital improvement project warrant article for sewer replacement design at \$75,000 and \$790,000 for replacement construction was approved by Town vote on March 14th of 2017. Design for the sewer portion of the project commenced the fall of 2017, and construction for the sewer portion has begun June 2018. Since the project was started late in 2018, the project will fall into two digging seasons and therefore split into two portion. Partial installation of sewer pipe was installed this year in 2018 on Lincoln Street.

As part of the project, Tremont and Daniel Streets have both been upgraded with new drainage, water, and sewer mains, with new services extended to the property lines for water and sewer. This portion of the project is completed for the season once the new road is constructed. During this portion of the project, a commercial property's roof drains were found to be connected to the sanitary sewer, and were separated from the sanitary sewer.

Long Term Control Plan Infiltration and Inflow (I&I) Investigations: No consultant I&I investigations were planned in the fourth quarter of 2018. The CMOM document, with assistance from Underwood Engineers, has been updated. Then, the remaining FY18 sewer collection budget is planned to be used for manhole rehabilitation and sewer pipe relining in quarter 4.

Private Infiltration & Inflow Reduction Status: There were no fourth quarter activities to report on this topic. We will be re-lining 15" to 18" sewer mains through the downtown in early January 2019. We have Green Mountain Pipeline in town Jan 2nd and 3rd to do some inspection and cleaning before the manhole and pipeline rehabilitation work begins.

Collection System Operation & Maintenance Budgeting and Staffing:

A copy of the preliminary 2019 proposed budget is included as an addendum to this report. This budget has not been approved by the Select Board, but a meeting is scheduled on January 8th to review the complete proposed budget. The budget must pass Town vote on March 12, 2019, as part of the Town's overall budget. The sewage collection operations & maintenance preliminary budget is \$664,681, with \$20,000 for I&I abatement, \$40,000 for sewer pipe relining, and \$30,000 for manhole rehabilitation. Should the Town budget not pass the vote in March, the default collection system budget would be \$661,323. The Town of Exeter's water and sewer funding is by the enterprise system. Currently there is not an established capital replacement fund. Capital improvement funding currently goes on the March voter's ballot project by project.

Currently there are six (6) field personnel involved in collection system maintenance as well as water distribution (aka "the Water & Sewer Street Crew"). All positions are filled at this time.

There are four (4) wastewater operators and two (2) maintenance technicians who assist with collection system maintenance/emergencies as necessary. The two W&S Maintenance Techs perform all the maintenance for the ten sewage lift stations. Generator maintenance is contracted out. There is one part-time Water & Sewer Utility Clerk at 24 hours/week and a fulltime Clerk at 40 hours/week.

Management and Engineering for collection system maintenance (as one of several responsibilities) include the DPW Director, Town Engineer, Assistant Town Engineer, DPW Engineering Tech, W&S Engineering Tech and the W&S Manager. A current organizational chart is included as an addendum.

Sincerely,

A handwritten signature in blue ink, appearing to read "Matthew Berube".

Matthew Berube
Water & Sewer Manager
Town of Exeter, New Hampshire

Cc: Tracy Wood, NHDES-WWEB
Russ Dean, Town Manager
Jennifer Perry, Public Works Director
Steve Dalton, Senior Operator
Paul Vlasich, PE, Town Engineer