ADDENDUM # 5
June 17, 2019

REQUEST FOR PHASE II PROPOSALS FOR REGIONAL BIOSOLIDS FACILITY, WASTEWATER TREATMENT FACILITY AND SANITARY SEWER COLLECTION SYSTEM NAUGATUCK, CONNECTICUT

Response to Questions

1. **Please extend the Proposal due date to Tuesday, July 9th.** The Proposal due date is hereby extended to 3PM Local Time, Tuesday July 9th. There will be no further extensions. Other dates in the RFP as presented in Addendum #4 will be maintained.

2. Attached is the modified permit to construct and operate Zimpro Fluidized Bed Sewage Sludge Incinerator.

3. Attached is the EPA CMOM comment letter and revised CMOM documentation

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

JUN 0 3 2019

Mr. James Stewart
Director of Public Works
Borough of Naugatuck
229 Church Street
Naugatuck, CT 06770

Dear Mr. Stewart:

Enclosed is a copy of your modified permit to construct and operate Zimpro Fluidized Bed Sewage Sludge Incinerator at 500 Cherry Street Extension, Naugatuck, CT 06770.

This letter does not relieve you of the responsibility to comply with the requirements of other appropriate Federal, State, and municipal agencies. This permit is not transferable from one permittee to another without prior written approval, from one location to another, or from one piece of equipment to another. The permit must be made available at the site of operation throughout the period that such permit is in effect.

Pursuant to Section 22a-174-3a of the Regulations of Connecticut State Agencies (RCSA), Borough of Naugatuck must apply for a permit modification/revision in writing if it plans any physical change, change in method of operation, or addition to this source which constitutes a modification or revision pursuant to RCSA sections 22a-174-1 and 22a-174-2a, respectively. Any such changes should first be discussed with Ms. Valerie Galo of the Bureau of Air Management, by calling (860) 424-4152. Such changes shall not commence prior to the issuance of a permit modification.

Sincerely,

Jaimeson Sinclair
Director, Engineering Division
Bureau of Air Management

JS: vag
cc (via electronic mail): Keith Hill, Air Enforcement
Christopher Makuch, Naugatuck Environmental Technology, LLC
Enclosure

Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

BUREAU OF AIR MANAGEMENT
NEW SOURCE REVIEW PERMIT
TO CONSTRUCT AND OPERATE A STATIONARY SOURCE

Issued pursuant to Title 22a of the Connecticut General Statutes (CGS) and Section 22a-174-3a of the Regulations of Connecticut State Agencies (RCSA).

Owner/Operator	Borough of Naugatuck
Address	229 Church Street, Naugatuck, CT 06770
Equipment Location	500 Cherry Street Extension, Naugatuck, CT 06770
Equipment Description	Zimpro Fluidized Bed Sewage Sludge Incinerator
Town-Permit Numbers	109-0081
Premises Number	11
Stack Number	4
Modification Issue Date	JUN 0 3 2019
Prior Permit Issue Dates	4/1/02, 9/6/05, 4/23/09 and 5/7/10
Expiration Date	None

Tracy R. Babbidge
For Betsey C. Wingfield
Deputy Commissioner

June 3, 2019
Date

I CERTIFY THAT THIS IS A TRUE COPY OF THE ORIGINAL
Sharon Rowe Johnson
6/3/19

79 Elm Street, Hartford, CT 06106-5127
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Affirmative Action/Equal Opportunity Employer

ORIGINAL

This permit specifies necessary terms and conditions for the operation of this equipment to comply with state and federal air quality standards. The Permittee shall at all times comply with the terms and conditions stated herein.

PART I. DESIGN SPECIFICATIONS

A. General Description

The Zimpro fluidized bed incinerator (FBI) has a sludge design feed rate of 3.5 dry tons sludge per hour (DT/hr). Sludge is fed to the bottom of the sand bed where air is injected at high pressure under the bed, fluidizing the sand and the sludge. Processing of sludge within the sand bed consists of evaporation of water and pyrolysis of organic material. The remaining carbon and combustible gases are burned in the freeboard area above the sand bed. Oil lances are located within the sand bed in order to deliver auxiliary fuel to maintain the desired combustion temperature if necessary. All ash generated in the combustion chamber leaves the top of the incinerator.

The incinerator includes a sludge dryer system integral to the incinerator, to reduce the consumption of auxiliary fuel. The sludge dryer system is used to evaporate water from the sludge prior to injecting the sludge into the incinerator. A waste heat recovery unit extracts heat from the incinerator flue gas to generate steam or heat a thermal oil transfer fluid. The steam or hot oil is used to indirectly heat the sludge in the dryer. Water is evaporated from the heated sludge and is collected by cooling. The non-condensable exhaust gases from the dryer are fed to the incinerator; therefore, the dryer does not generate any air emissions directly to the atmosphere. The dried sludge is then fed to the incinerator where it is combusted with a reduced need for auxiliary fuel.

A single burner is located near the air injection at the bottom of the bed. This burner is used to pre-heat the incinerator during start up. Lances are used to inject fuel into the bed to control bed temperature. Higher fuel injection rates are necessary when sludge solids content are lowest and moisture highest.

After the flue gas passes through the waste heat recovery unit, particulate is removed by an EnviroCare VenturiPak scrubber and an Envirocare SPC Mercury Module Vessel. The VenturiPak scrubber consists of an initial quench section to cool the exhaust gases and remove the bulk of the ash or metal particles and acid gases from the incoming gas, a tray section which further removes particulate and the associated metals and acid gases, a multi-venturi section to capture the finest particulate from the exhaust gas, and a mist eliminator. The VenturiPak tray section and venturi section uses plant water to remove particulate and acid gases in the tray section. Potable water is used for the mist eliminator sprays. The GORE Mercury adsorber has a series of GORE modules to remove the mercury. This adsorber has four sections of modules in series. Each section consists of two layers of nine GORE modules. Periodically the modules are sprayed with water to flush any particulate from the surface.

A System Control and Data Acquisition System (SCADA) is used to control the incineration system and to historically log operations. Air, sludge feed rate, and auxiliary fuel feed rate are automatically controlled to maintain the process in balance. Significant features of the process instrumentation and control include:

- Automatic control of auxiliary fuel based on incinerator combustion temperature;

- Manual adjustment of sludge feed rate and required combustion and excess air;

- An alarm system to proactively warn the operator of system imbalances, including, for example, low air flow to the incinerator, high incinerator outlet temperature, and low scrubber water flow; and,

- Electrical interlocks to prevent improper sequencing of startup and to prevent the system from operating outside of certain permitted limits.

B. Equipment Design Specifications

1. Fluidized Bed Incinerator
   a. Manufacturer: U.S. Filter/Zimpro Products
   b. Materials Charged: Sewage sludge
   c. Incinerator Rated Capacity: 3.5 DT/hr
   d. Gas Flow Rate: 11,050-14,250 scfm @ 68°F, wet at stack exit
   e. Incinerator Combustion Temperature: 1300 - 1500°F typical during normal steady state or quasi-steady state operations
   f. Incinerator Residence Time: 3-6 seconds during normal steady state or quasi-steady state operations
   g. Sludge Heat Content: 7,000-8,000 Btu/lb, moisture free basis, typical

2. Auxiliary Burner System
   a. Auxiliary Fuel Type: No. 2 oil and natural gas (Liquefied Petroleum Gas (LPG)) may be used for pilot lighting)
   b. Start Up Burner Auxiliary Fuel Rate: ≤ 85 gal/hr for No. 2 oil; ≤ 12,070 cf/hr for natural gas
   c. Lance Burner Auxiliary Fuel Rate: ≤ 225 gal/hr for No. 2 oil; ≤ 32,000 cf/hr for natural gas

C. Control Equipment Design Specifications

1. Scrubber
   a. Make and Model: EnviroCare VenturiPak Scrubber
   b. Reagent: Plant water and potable water
   c. Reagent Flow Rate: To Be Determined gpm
   d. Minimum Pressure Drop: 32 inches H_2O (12-hour average)
   e. pH: To Be Determined

2. Adsorber
   a. Make and Model: Envirocare SPC Mercury Module Vessel
   b. Adsorbent: GORE Module
   c. Flow Rate: 12,975 scfm
   d. Minimum Inlet Gas Temperature: 108 °F (24-hour average)
   e. Maximum Pressure Drop: 3 inches H_2O

D. Stack Parameters

1. Minimum Stack Height: 150 ft
2. Exhaust Gas Flow Rate: 1761,671-20,166 acfm (Normal range)
3. Stack Exit Temperature: 150-250°F (Typical at normal operating conditions)
4. Minimum Distance from Stack to Nearest Property Line: 206 ft

PART II. OPERATIONAL CONDITIONS

A. Equipment

1. Fluidized Bed Incinerator (normal or quasi-steady state operating conditions)
   a. Material Charged: Only sewage sludge, No. 2 fuel oil, natural gas and LPG may be fired in this unit.
      i. For the purpose of this permit, sewage sludge is defined as any solid, semi-solid or liquid residue from the pretreatment or primary, secondary or advanced treatment by a Publicly Owned Treatment Works (POTW) of domestic sewage, industrial wastewater, septage, portable toilet pumpings, and grease traps.
      ii. Any substance which is considered "municipal-type solid waste," as defined in Title 40 of the Code of Federal Regulations (CFR) Part 60, Section 60.51a, or "hazardous waste," as defined in Section 22a-115 of the Connecticut General Statutes is prohibited from being introduced to this unit.
   b. Maximum Sludge Charging Rate: 3.5 DT/hr
   c. Maximum Quantity of Sludge Burned over any consecutive 12 month period: 30,660 DT
   d. Operation of a sewage sludge incinerator (SSI) shall not cause the operating combustion temperature for the sewage sludge incinerator to exceed the performance test combustion temperature by more than 20%. [40 CFR §503.45(e)]
   e. Combustion Temperature Range (in the sand bed, normal or quasi-steady state): 1300-1500°F
   f. Combustion Temperature Range (in the freeboard volume and the exhaust duct, normal or quasi-steady state): 1400-1750°F
   g. The Permittee shall terminate sludge feed if the exhaust duct temperature is less than 1400°F for a five minute period on a rolling basis or greater than 1750°F (instantaneous) during normal operating conditions.

2. Auxiliary Burner System
   a. Auxiliary Fuel Type: No. 2 oil or natural gas. (LPG may be used for pilot lighting)
   b. Maximum Auxiliary Fuel Oil Sulfur Content (by weight, dry basis): 0.0015%
   c. Maximum Auxiliary Fuel Usage over any consecutive 12 month period: 1.97 MMgal of No. 2 oil; 280 MMcf of natural gas; but the combination of No. 2 oil and natural gas usage shall not exceed 280,000 MMBTU

3. Furnace Exhaust Duct Oxygen Content
   a. Oxygen Content Range: 3-3.5%, wet (at normal or quasi-steady state)
   b. Sewage sludge shall cease being introduced into the incinerator if the percent oxygen is less than 2% wet, based on a 5-minute rolling average. Sewage may be reintroduced to the incinerator when the oxygen percent is at least 2% wet, based on a 5-minute rolling average

B. Control Equipment

1. The overall control efficiency shall be at least 99.91% for the removal of particulate matter. The efficiency is based on the VenturiPak Scrubber and GORE mercury adsorber.

2. Multi-venturi scrubber (normal steady state or quasi-steady state operating conditions):
   a. The pressure drop across each wet scrubber used to meet the PM, Pb and Cd emission limits in 40 CFR Part 62 Subpart LLL, Table 2, shall be no less than the lowest 4-hour average pressured drop across each such wet scrubber measured during the most recent performance test demonstrating compliance with the PM, Pb and Cd emission limits. [40 CFR §62.15985(b)]

   b. The scrubber liquid flow rate (measured at the inlet to each wet scrubber), shall be no less than the lowest 4-hour average liquid flow rate measured during the most recent performance test demonstrating compliance with all applicable emission limits.
   [40 CFR §62.15985(c)]

   c. The scrubber liquid pH for each wet scrubber used to meet the SO_x or HCl emission limits in 40 CFR Part 62 Subpart LLL, Table 2, is shall be no less than the lowest 1-hour average scrubber liquid pH measured during the most recent performance test demonstrating compliance with the SO_x and HCl emission limits. [40 CFR §62.15985(d)]

3. Mercury Adsorber (normal steady state or quasi-steady state operating conditions):
   a. The Permittee shall test each level of mercury modules for mercury content a minimum of twice per year.
   b. The Permittee shall replace mercury modules prior to reaching 5% mercury loading.

PART III. ALLOWABLE EMISSION LIMITS

The Permittee shall not cause or allow this equipment to exceed the emission limits stated herein at any time.

A. Criteria Pollutants

Pollutant	lb/DT	Dry Sludge Content	mg/dscm @ 7% O_2	ppmdv @ 7% O_2	tpy
PM_{10}			18[b]		7.4
PM_{10}	0.41	< 30 % ash			

PM_{10}	0.48	≥ 30% ash			
SO_2				15[b]	55.0
SO_2	2.7	< 1.5% sulfur			
SO_2	3.6	≥ 1.5% sulfur			
NO_x	2.9			150[b]	44.0
VOC	0.32				4.9
CO	1.4			64[b]	22.0
Lead[a] (Pb)	0.021		7.4E-03[b]		0.32

Note:

[a] The average daily concentration for lead in sewage sludge fed to a sewage sludge incinerator shall not exceed the concentration calculated using Equation No. 4 in 40 CFR §503.43. [40 CFR §503.43(c)]

[b] The Permittee shall meet the emission limits and standards specified in Table 2 to 40 CFR Part 62 Subpart LLL by the final compliance date specified in 40 CFR §62.15875. The emission limits and standards apply at all times the unit is operating and during periods of malfunction. The emission limits and standards apply to emissions from a bypass stack or vent while sewage sludge in the combustion chamber (i.e., until the sewage sludge feed to the combustor has been cut off for a period of time not less than the sewage sludge incineration residence time). [40 CFR §62.15955; 40 CFR §503.40(c)(2)]

B. Hazardous Air Pollutants

Pollutant	lb/DT	lb/24-hr period	mg/dscm @ 7% O_2	ppmdv @ 7% O_2	ng/dscm @ 7% O_2
Beryllium (Be)		0.022			
Cadmium (Cd)			1.6E-03[a]		
Dioxins/Furans					1.2[a] (total mass basis) or 0.10[a] (toxic equivalency basis)
Hydrogen Chloride (HCl)	0.32			0.51[a]	
Mercury (Hg)		7.1	3.7E-02[a]		
Sulfuric Acid (H_2SO_4)	0.32				

Note:

[a] The Permittee shall meet the emission limits and standards specified in Table 2 to 40 CFR Part 62 Subpart LLL by the final compliance date specified in 40 CFR §62.15875. The emission limits and standards apply at all times the unit is operating and during periods of malfunction. The emission limits and standards apply to emissions from a bypass stack or vent while sewage sludge in the combustion chamber (i.e., until the sewage sludge feed to the combustor has been cut off for a period of time not less than the sewage sludge

incineration residence time). [40 CFR §62.15955]

C. The average daily concentration for arsenic, cadmium, chromium, and nickel in sewage sludge fed to a sewage incinerator each shall not exceed the concentration calculated using Equation No. 5 in 40 CFR §503.43. [40 CFR §503.43(d)]

D. This equipment shall not cause an exceedance of the Maximum Allowable Stack Concentration (MASC) for any hazardous air pollutant (HAP) emitted and listed in RCSA §22a-174-29. [STATE ONLY REQUIREMENT]

E. Demonstration of compliance with the above emission limits may be met by calculating the emission rates using emission factors from the following sources:

- *Criteria Pollutants: Most recent stack test*
- *CO: As measured by the CEM system (ppmvd @ 7% O_2)*
- *HAP (Be, Cd, Dioxins/Furans, HCl, Hg, H_2SO_4): Most recent stack test*

F. Opacity

1. On and after the date on which the performance test required to be conducted by 40 CFR §60.8 is completed, the Permittee shall not discharge or cause the discharge into the atmosphere any gases which exhibit 20% opacity or greater. [40 CFR §60.152(a)(2)]

2. The Permittee shall meet the following emission limit: Visible emissions of combustion ash from an ash conveying system (including conveyor transfer points) for no more than 5% of any compliance test hourly observation period. The Permittee shall determine compliance using a visible emission test (40 CFR Part 60, Appendix A-7, Method 22). [40 CFR §62.15955 and 40 CFR Part 62 Subpart LLL, Table 2]

The commissioner may require other means (e.g. stack testing) to demonstrate compliance with the above emission limits, as allowed by state or federal statute, law or regulation.

PART IV. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS

A. Monitoring

1. The Permittee shall comply with the CEM requirements as set forth in RCSA §22a-174-4. CEM shall be required for the following pollutant/operational parameters and enforced on the following basis:

Pollutant/Operational Parameter	Averaging Times	Emission Limit	Units
Opacity	six minute block	20	%
CO	24-hour block	64[a]	ppmvd @ 7% O_2
O_2	1-hour block		
SSI-Minimum combustion chamber operating temperature	12-hour block	The Permittee shall meet a site-specific operating limit established per 40 CFR	°F

		[40 CFR §62.15960(a)]	
Scrubber-Minimum pressure drop	12-hour block	The Permittee shall meet a site-specific operating limit established per 40 CFR §62.15985 [40 CFR §62.15960(b)]	inches H_2O
Scrubber- Minimum liquid flow rate	12-hour block	The Permittee shall meet a site-specific operating limit established per 40 CFR §62.15985 [40 CFR §62.15960(b)]	gpm
Scrubber-Minimum liquid pH	3-hour block	The Permittee shall meet a site-specific operating limit established per 40 CFR §62.15985 [40 CFR §62.15960(b)]	Not Applicable

Note:

[a] For determining compliance with the CO concentration limit using CO CEMS, the correction to 7% O_2 does not apply during periods of startup or shutdown. Use the measured CO concentration without correcting for O_2 concentration in averaging with other CO concentrations (corrected to 7% O_2) to determine the 24-hour average value. [40 CFR §62.15970]

2. The Permittee shall install, calibrate, maintain and operate a CO monitor. [RCSA §22a-174-4; 40 CFR §503.40(c)(1)]

3. The Permittee shall provide access to the sludge charged so that a well-mixed representative grab sample of the sludge can be obtained. [40 CFR §60.153(a)(2)]

4. The Permittee shall install, calibrate, maintain and operate a monitoring device that continuously measures and records the pressure drop of the gas flow through the wet scrubbing device. Where a combination of wet scrubbers is used in series, the pressure drop of the gas flow through the combined system shall be continuously monitored. The device used to monitor scrubber pressure drop shall be certified by the manufacturer to be accurate within ±1 inch of water gauge and shall be calibrated on an annual basis in accordance with the manufacturer's instructions. [40 CFR §60.153(b)(1)]

5. The Permittee shall install, calibrate, maintain and operate a monitoring device that continuously measures and records the oxygen content (wet) of the incinerator exhaust gas. The oxygen monitoring device shall be located upstream of any rabble shaft cooling air inlet into the incinerator exhaust gas stream, fan ambient air recirculation damper, or any other source of dilution air. The oxygen monitoring device shall be certified by the manufacturer to have an accuracy of ±5% over its operating range and shall be calibrated according to methods prescribed by the manufacturer at least once each 24-hour operating period. [40 CFR §60.153(b)(2); 40 CFR §503.45(b)]

6. The Permittee may demonstrate initial compliance using a continuous emissions monitoring system or continuous automated sampling system. The option to use a continuous emission monitoring system for HCl, dioxins/furans, Cd, or Pb take effect on the date a final performance specification applicable to HCl, dioxins/furans, Cd, or Pb is published in the FEDERAL REGISTER. The option to use a continuous automated sampling system for dioxins/furans takes effect on the date a final performance specification for such a continuous automated sampling system is published in the FEDERAL REGISTER. Collect data as specified in 40 CFR §62.16015(b)(6) and use the procedures in 40 CFR §§62.15980(b)(1-4). [40 CFR §62.15980(b)]

7. The minimum combustion chamber operating temperature (or minimum afterburner temperature), is equal to the lowest 4-hour average combustion chamber operating temperature (or afterburner temperature) measured during the most recent performance test demonstrating compliance with all applicable emission limits. [40 CFR §62.15985(e)]

8. For each continuous monitoring system, the Permittee's monitoring plan shall address the elements and requirements specified in 40 CFR §§62.15995(a)(1) through (8). The Permittee shall operate and maintain the continuous monitoring system in continuous operation according to the site-specific monitoring plan. [40 CFR §62.15995(a)]

9. The Permittee shall conduct an initial performance evaluation of each continuous monitoring system in accordance with the monitoring plan and to 40 CFR §60.13(c). The Permittee shall conduct the initial performance evaluation of each continuous monitoring system within 60 days of installation of the monitoring system. [40 CFR §62.15995(c)]

10. The Permittee shall meet the requirements of 40 CFR §§62.16000(a) and (b) as applicable, and 40 CFR §§62.16000(c) through (e), according to the performance testing, monitoring, and calibration requirements in 40 CFR §§62.16015(a) and (b). [40 CFR §62.16000]

11. The Permittee shall continuously monitor operating parameters as specified in 40 CFR §62.16005(a) and meet the requirements of 40 CFR §§62.16005(b) and (c), according to the monitoring and calibration requirements in 40 CFR §62.16020. The Permittee shall confirm and re-establish operating limits as specified in 40 CFR §62.16005(d). [40 CFR §62.16005]

12. The Permittee shall meet, as applicable, the performance testing requirements specified in 40 CFR §62.16015(a), the monitoring requirements specified in 40 CFR §62.1615(b), the air pollution control device inspections requirements specified in 40 CFR §62.16015(c) and the bypass stack provisions specified in 40 CFR §62.16015(d). [40 CFR §62.16015]

13. The Permittee shall install, calibrate, maintain and operate an instrument that continuously measures and records information used to determine the moisture content in the sewage sludge incinerator stack exit gas. [40 CFR §503.45(c)]

14. The Permittee shall install, calibrate, maintain and operate an instrument that continuously measures and records combustion temperatures. [40 CFR §503.45(d)]

B. Record Keeping

1. The Permittee shall make and keep records of the hourly, daily, monthly and consecutive 12 month quantity of sludge combusted. The consecutive 12 month quantity of sludge combusted shall be determined by adding the current month's quantity to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of each month.

2. The Permittee shall make and keep records of the daily, monthly and consecutive 12 month auxiliary fuel consumption. The consecutive 12 month fuel consumption shall be determined by adding (for each fuel) the current month's fuel consumption to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of each month.

3. The Permittee shall keep records of the fuel certification for each delivery of fuel oil from a bulk petroleum provider or a copy of the current contract with the fuel supplier supplying the fuel used by this equipment that includes the applicable sulfur content of the fuel as a condition of each shipment. The shipping receipt or contract shall include the date of delivery, the name of the fuel supplier, type of fuel delivered, the percentage of sulfur in such fuel, by weight, dry basis, and the method used to determine the sulfur content of such fuel.

4. The Permittee shall calculate and record the monthly and consecutive 12 month PM, PM_{10}, $PM_{2.5}$, SO_2, NOx, VOC, and CO emissions in units of tons. The consecutive 12 month emissions shall be determined by adding (for each pollutant) the current month's emissions to that of the previous 11 months. Such records shall include a sample calculation for each pollutant. The Permittee shall make these calculations within 30 days of the end of the previous month.

5. The Permittee shall keep calibration and maintenance records and original instrument chart recordings for all continuous monitoring instruments and equipment.

6. The Permittee shall keep records of any incinerator performance test results.

7. The Permittee shall make and keep a record of the measured pressure drop of the gas flow through the wet scrubbing device. [40 CFR §60.153(c)(1)]

8. The Permittee shall make and keep a record of the measured oxygen content of the incinerator exhaust gas. [40 CFR §60.153(c)(2)]

9. The Permittee shall maintain at the facility the documentation of the operator training procedures specified under 40 CFR §62.15920(c)(1) and make the documentation readily accessible to all SSI unit operators. [40 CFR §62.15950(a)]

10. The Permittee shall establish a program for reviewing the information listed in 40 CFR §62.15920(c)(1) with each qualified incinerator operator and other plant personnel who may operate the unit according to the provisions of 40 CFR §62.15945(a),

according to the following schedule: [40 CFR §§62.15950(b)(1) and (2)]

a. The initial review of the information listed in 40 CFR §62.15920(c)(1) shall be conducted prior to an employee's assumption of responsibilities for operation of the SSI unit; and
b. Subsequent annual reviews of the information listed in 40 CFR §62.15920(c)(1) shall be conducted no later than 12 months following the previous review.

11. The Permittee shall maintain the items (as applicable) specified in 40 CFR §§62.16025(a) through (n) for a period of at least five years. All records shall be available on site in either paper copy or computer-readable format that can be printed upon request, unless an alternative format is approved by the Administrator: [40 CFR §62.16025]
    a. Calendar date of each record [40 CFR §62.16025(a)]
    b. Copies of the final control plan and any additional notifications, reported under 40 CFR §62.16030 [40 CFR §62.16025(b)]
    c. Documentation of the operator training procedures and records specified in 40 CFR §§62.16025(c)(1) through (4). The Permittee shall make available and readily accessible at the facility at all times for all SSI unit operators the documentation specified in 40 CFR §62.16025(c)(1). [40 CFR §62.16025(c)]
    d. Records of the results of initial and annual air pollution control device inspections conducted as specified in 40 CFR §62.15990 and 40 CFR §62.16015(c), including any required maintenance and any repairs not completed within ten days of an inspection or the timeframe established by the Administrator [40 CFR §62.16025(d)]
    e. Performance test reports [40 CFR §62.16025(e)]
    f. Continuous monitoring data [40 CFR §62.16025(f)]
    g. Other records for continuous monitoring systems [40 CFR §62.16025(g)]
    h. Records of any deviation reports submitted under 40 CFR §§62.16030(e) and (f) [40 CFR §62.16025(h)]
    i. Equipment specifications and related operation and maintenance requirements received from vendors for the incinerator, emission controls and monitoring equipment [40 CFR §62.16025(i)]
    j. Records of inspections, calibration and validation checks of any monitoring devices as required under 40 CFR §62.16015 and 40 CFR §62.16020 [40 CFR §62.16025(j)]
    k. Records of the monitoring plans required under 40 CFR §62.15995, and records of performance evaluations required under 40 CFR §62.16000(b)(5) [40 CFR §62.16025(k)]
    l. Less frequent testing [40 CFR §62.16025(l)]
    m. Records indicating use of bypass stack, including date, times and durations as required under §62.16020(d) [40 CFR §62.16025(m)]
    n. If a malfunction occurs, the Permittee shall keep a record of the information submitted in the annual report in 40 CFR §62.16030(c)(16). [40 CFR §62.16025(n)]

12. The Permittee shall make and keep the following records and shall retain the information for five years: [40 CFR §503.40(c)(3)]
    a. The CO concentrations in the exit gas; and
    b. A calibration and maintenance log for the instrument used to measure the CO concentration.

13. The Permittee shall develop the information in 40 CFR §§503.47(b, d-m) and shall retain that information for five years: [40 CFR §503.47(a)]
    a. The concentration of lead, arsenic, cadmium, chromium, and nickel in the sewage sludge fed to the sewage sludge incinerator [40 CFR §503.47(b)]
    b. Information that indicates the requirements in the National Emission Standard for beryllium in 40 CFR Part 61 Subpart C are met [40 CFR §503.47(d)]
    c. Information that indicates the requirements in the National Emission Standard for mercury in 40 CFR Part 61 Subpart E are met [40 CFR §503.47(e)]
    d. The operating combustion temperatures for the sewage sludge incinerator [40 CFR §503.47(f)]
    e. Values for the air pollution control device operating parameters [40 CFR §503.47(g)]
    f. The oxygen concentration and information used to measure moisture content in the exit gas from the sewage sludge incinerator stack [40 CFR §503.47(h)]
    g. The hourly sludge feed rate determination results [40 CFR §503.47(i)]
    h. The stack height for the sewage sludge incinerator [40 CFR §503.47(j)]
    i. The dispersion factor for the site where the sewage sludge incinerator is located [40 CFR §503.47(k)]
    j. The control efficiency for lead, arsenic, cadmium, chromium, and nickel for each sewage sludge incinerator [40 CFR §503.47(l)]
    k. The risk specific concentration for chromium calculated using Equation No. 6 in 40 CFR §503.43, if applicable [40 CFR §503.47(m)]

14. The Permittee shall keep all records required by this permit for a period of no less than five years and shall submit such records to the commissioner upon request.

C. Reporting

1. Opacity and CO CEMs-Each calendar quarter, the Permittee shall submit the following information to the commissioner. Submissions shall be made no later than 30 days following the end of each calendar quarter: [RCSA §22a-174-4(d)(4)]
    a. The data obtained through such equipment during the preceding calendar quarter that is required to determine compliance with an emission limitation or standard;
    b. A summary of such data;
    c. A copy of the quality assurance audit conducted for that calendar quarter; and
    d. A summary of all corrective actions take in response to a failed CEM equipment audit.

2. The Permittee shall submit, to the commissioner, reports of the results of all performance tests conducted for this incinerator.
3. The Permittee shall submit to the Administrator semi-annually a report in writing which contains the following: [40 CFR §60.155(a)]
    a. A record of average scrubber pressure drop measurements for each period of 15 minutes duration or more during which the pressure drop of the scrubber was less than, by a percentage specified in 40 CFR §60.155(a)(1)(i) or (ii), the average scrubber pressure drop measured during the most recent performance test.
    [40 CFR §60.155(a)(1)]
    b. A record of average oxygen content in the incinerator exhaust gas for each period of 1-hour duration or more that the oxygen content of the incinerator

exhaust gas exceeds the average oxygen content measured during the most recent performance test by more than 3%. [40 CFR §60.155(a)(2)]

4. The Permittee shall submit a final control plan as specified in 40 CFR §§62.15875 and 62.15900.
[40 CFR §62.15875; 40 CFR §62.15900; 40 CFR §62.16030(a)(1); 40 CFR Part 62 Subpart LLL, Table 6]

5. The Permittee shall submit the notification of achievement of submitting the final control plan and achieving final compliance no later than ten business days after the compliance date as specified in 40 CFR §§62.15885 and 62.15890.
[40 CFR §62.15885; 40 CFR §62.15890; 40 CFR §62.16030(a)(2); 40 CFR Part 62 Subpart LLL, Table 6]

6. The Permittee shall submit the initial compliance report as specified in 40 CFR §62.16030(b) no later than 60 days following the initial performance test.
[40 CFR §62.15980(d); 40 CFR §62.16030(b); 40 CFR Part 62 Subpart LLL, Table 6]

7. The Permittee shall submit a monitoring plan specifying the ash handling system operating procedures that they will follow to ensure that they meet the fugitive emission limit specified in 40 CFR Part 62 Subpart LLL, Table 2.
[40 CFR §62.15995(d)]

8. The Permittee shall submit their monitoring plans required in 40 CFR §§62.15995(a) and (b) at least 60 days before the initial performance evaluations of the continuous monitoring systems. [40 CFR §62.15995(f)]

9. The Permittee shall submit their monitoring plan for the ash handling system, as required in 40 CFR §62.15995(d), at least 60 days before the initial compliance test date. [40 CFR §62.15995(g)]

10. The Permittee shall update and resubmit their monitoring plan if there are any changes or potential changes in the monitoring procedures or if there is a process change, as defined in 40 CFR §62.16045. [40 CFR §62.15995(h)]

11. The Permittee shall submit an annual compliance report that includes the items listed in 40 CFR §§62.16030(c)(1-16) for the reporting period specified in 40 CFR §62.16030(c)(3). The Permittee shall submit the first annual compliance report no later than 12 months following the submission of the initial compliance report in 40 CFR §62.16030(b). The Permittee shall submit subsequent annual compliance reports no more than 12 months following the previous annual compliance report.
[40 CFR §62.16000(d); 40 CFR §62.16030(c); 40 CFR Part 62 Subpart LLL, Table 6]

12. The Permittee shall submit a deviation report if:
[40 CFR §62.16000(d); 40 CFR §§62.16030(d)(1)(i), (iii-vii); 40 CFR Part 62 Subpart LLL, Table 6]

    a. Any recorded operating parameter, based on the averaging time specified in 40 CFR Part 62 Subpart LLL, Table 4, is above the maximum operating limit or below the minimum operating limit established under 40 CFR Part 62 Subpart LLL.

b. Any recorded 24-hour block average emissions level is above the emission limit, if a continuous monitoring system is used to comply with an emission limit.
c. There are visible emissions of combustion ash from an ash conveying system for more than 5% of any compliance test hourly observation period.
d. A performance test was conducted that deviated from any emission limit in 40 CFR Part 62 Subpart LLL, Table 2.
e. A continuous monitoring system was out of control.
f. The Permittee had a malfunction (e.g., continuous monitoring system malfunction) that caused or may have caused any applicable emission limit to be exceeded.

13. The deviation report shall be submitted by August 1 of that year for data collected during the first half of the calendar year (January 1 to June 30), and by February 1 of the following year for data collected during the second half of the calendar year (July 1 to December 31).
[40 CFR §62.16030(d)(2); 40 CFR Part 62 Subpart LLL, Table 6]

14. For each deviation where the Permittee is using a continuous monitoring system to comply with an associated emission limit, report the items described in 40 CFR §§62.16030(d)(3)(i-viii).
[40 CFR §62.16030(d)(3); 40 CFR Part 62 Subpart LLL, Table 6]

15. If the unit was shut down by the Administrator, under the provisions of 40 CFR §62.15945(b)(2)(i), due to failure to provide and accessible qualified operator, the Permittee shall notify the Administrator within five days of meeting 40 CFR §62.15945(b)(2)(ii) that the Permittee is resuming operation.
[40 CFR §62.16030(e)(2); 40 CFR Part 62 Subpart LLL, Table 6]

16. If a force majeure is about to occur, occurs, or has occurred for which the Permittee intends to assert a claim of force majeure:
[40 CFR §62.16000(e); 40 CFR §§62.16030(f)(1) and (2); 40 CFR Part 62 Subpart LLL, Table 6]
    a. The Permittee shall notify the Administrator, in writing as soon as practicable following the date the Permittee first knew, or through the diligence, should have known that the event may cause or caused a delay in conducting a performance test beyond the regulatory deadline, but the notification shall occur before the performance test deadline unless the initial force majeure or a subsequent force majeure event delays the notice, and in such cases, the notification shall occur as soon as practicable.
    b. The Permittee shall provide to the Administrator a written description of the force majeure event and rationale for attributing the delay in conducting the performance test beyond the regulatory deadline to the force majeure; describe the measures take or to be taken to minimize the delay; and identify a date by which the Permittee proposes to conduct the performance test.

17. The Permittee shall submit other notifications as provided by 40 CFR §60.7 and as follows:
[40 CFR §§62.16030(g)(1-3); 40 CFR Part 62 Subpart LLL, Table 6]
    a. The Permittee shall notify the Administrator one month before starting or stopping use of a continuous monitoring system for determining compliance with any emission limit.
    b. The Permittee shall notify the Administrator at least 30 days prior to any

performance test conducted to comply with the provisions of 40 CFR Part 62 Subpart LLL, to afford the Administrator the opportunity to have an observer present.

c. As specified in 40 CFR §62.16015(a)(8), the Permittee shall notify the Administrator at least seven days prior to the date of a rescheduled performance test for which notification was previously made in 40 CFR §62.16030(g)(2).

18. The Permittee shall submit reports in the format as specified in 40 CFR §62.16030(h). [40 CFR §62.16030(h)]

PART V. STACK EMISSION TEST REQUIREMENTS

A. Stack emission testing shall be performed in accordance with the Emission Test Guidelines available on the DEEP website.

B. Stack testing shall be required for the following pollutant(s):

☐ PM ☒ PM_{10} ☐ $PM_{2.5}$ ☒ SO_2 ☒ NOx ☒ CO
☒ VOC/HC ☒ Opacity
☒ Other (NSPS): Be, Hg
☒ Other (HAPs): Pb, HCl, H_2SO_4, Dioxins/Furans
☒ Other (Metals): As, Cd, Cr, Cu, Pb, Mn, Ni, Se, Zn

1. Recurrent stack testing for the following pollutants shall be conducted within five years from the date of the previous stack test: SO_x, NO_x, PM_{10}, CO, VOC/HC and Pb.

2. The Permittee shall submit test results within 60 days after completion of testing.

3. The stack emission testing for SO_x shall include determination of the percent sulfur content in the sludge.

4. Each stack emission test shall include determination of:
   a. sludge hourly feed rate;
   b. auxiliary fuel hourly feed rate;
   c. percent oxygen, wet, in the fluidized bed incinerator exhaust duct, based on a five minute rolling average

5. Stack test results shall be reported in the following units:
   a. PM_{10}, SO_2, NO_x, VOC/HC, CO, Pb , HCl, H_2SO_4,: lb/DT
   b. Ash, sulfur content: %
   c. PM_{10}, Pb, Cd: mg/dscm @ 7% O_2
   d. SO_2, NO_x, CO, HCl: ppmvd @ 7% O_2
   e. Be, Hg: lb/24-hr period
   f. Dioxins/Furans (total mass basis or toxic equivalency basis): ng/dscm @ 7% O_2
   g. VOC/HC, HAPs, metals: $\mu g/m^3$

6. The Permittee shall stack test annually for mercury, metals and hydrocarbons in the incinerator exhaust gas. [CGS §22a-191a(b)]

7. The stack emissions testing for PM_{10} shall include determination of:

a. percent ash content in the sludge;
b. compliance with the PM_{10} emission limit; and [40 CFR §60.152(a)(1)]
c. PM_{10} control efficiency measurement-the uncontrolled particulate matter mass rate shall be determined based on sludge ash content and the amount of sludge introduced into the incinerator during the particulate matter stack emissions testing.

8. Stack testing is required to determine compliance with the beryllium (Be) emission limit. [40 CFR §61.33(a)]

9. Stack testing is required to determine compliance with the mercury (Hg) emission limit. [40 CFR §61.53(d)]

10. The Permittee shall demonstrate initial compliance using the performance test required in 40 CFR §60.8. The Permittee shall demonstrate that the SSI unit meets the emission limits and standards specified in 40 CFR Part 62 Subpart LLL, Table 2 for PM, HCl, CO, dioxins/furans (total mass basis or toxic equivalency basis), Hg, NO_x, SO_2, Cd, Pb and fugitive emissions form ash handling using the performance test. The initial performance test shall be conducted using the test methods, averaging methods, and minimum sampling volumes or durations specified in 40 CFR Part 62 Subpart LLL, Table 2 and according to the testing, monitoring, and calibration requirements specified in 40 CFR §62.16015(a). [40 CFR §62.15980(a)]

11. To demonstrate initial compliance with the dioxins/furans toxic equivalency emission limit in 40 CFR Part 62 Subpart LLL, Table 2, determine dioxins/furans toxic equivalency as specified in 40 CFR §§62.15980(c)(1-3). [40 CFR §62.15980(c)]

12. If a force majeure is about to occur, occurs, or has occurred for which the Permittee intends to assert a claim of force majeure, the Permittee shall notify the Administrator in writing as specified in 40 CFR §62.16030(f). The Permittee shall conduct the initial performance test as soon as practicable after the force majeure occurs. The Administrator will determine whether or not to grant the extension to the initial performance test deadline and will notify the Permittee in writing of approval or disapproval of the request for an extension as soon as practicable. Until an extension of the performance test deadline has been approved by the Administrator, the Permittee remains strictly subject to the requirements of 40 CFR Part 62 Subpart LLL. [40 CFR §62.15980(e)]

PART VI. OPERATION AND MAINTENANCE REQUIREMENTS

A. The Permittee shall operate and maintain this equipment in accordance with the manufacturer's specifications and written recommendations.

B. The Permittee shall properly operate the control equipment at all times that this equipment is in operation and emitting air pollutants.

C. An SSI unit cannot be operated unless a fully trained and qualified SSI unit operator is accessible, either at the facility or can be at the facility within one hour. The trained and qualified SSI unit operator may operate the SSI unit directly or be the direct supervisor of one or more other plant personnel who operate the unit. If all qualified SSI unit operators are temporarily not accessible, the Permittee shall follow the procedures in 40 CFR

§62.15945. [40 CFR §62.15920(a)]

D. Operator training and qualification shall be obtained through a state approved program or by completing the requirements included in 40 CFR §62.15920(c). [40 CFR §62.15920(b)]

E. If a qualified operator is not at the facility and cannot be at the facility within one hour, the Permittee shall meet the criteria specified in either 40 CFR §62.15945(a) or (b), depending on the length of time that a qualified operator is not accessible. [40 CFR §62.15945]

F. The Permittee shall conduct an air pollution control device inspection according to 40 CFR §62.16015(c) by the final compliance date as specified in 40 CFR §62.15875. For air pollution control devices installed after the final compliance date, the Permittee shall conduct the air pollution control device inspection within 60 days after installation of the control device. [40 CFR §62.15990(a)]

G. Within ten operating days following the air pollution control device inspection under 40 CFR §62.15990(a), all necessary repairs shall be completed unless the Permittee obtains written approval from the Administrator establishing a date whereby all necessary repairs of the SSI unit shall be completed. [40 CFR §62.15990(b); 40 CFR §62.16010(b)]

H. The Permittee shall conduct an annual inspection of each air pollution control device used to comply with the emission limits, according to 40 CFR §62.16015(c), no later than 12 months following the previous annual air pollution control device inspection. [40 CFR §62.16010(a)]

I. If all qualified operators are not accessible for two weeks or more, the Permittee shall take the two actions in 40 CFR §§62.16030(e)(1)(i) and (ii).
[40 CFR §62.16030(e)(1); 40 CFR Part 62 Subpart LLL, Table 6]

PART VII. SPECIAL REQUIREMENTS

A. The Permittee shall comply with all applicable sections of the following New Source Performance Standard(s) at all times.

Title 40 CFR Part 60 Subparts O and A

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.

B. The Permittee shall comply with all applicable sections of the following National Emission Standards for Beryllium and Mercury at all times.

Title 40 CFR Part 61 Subparts C, E and A

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.

C. The Permittee shall comply with all applicable sections of the following Federal Plan Requirements for Sewage Sludge Incineration Units at all times.

Title 40 CFR Part 62 Subpart LLL

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.

D. The Permittee shall comply with all applicable sections of the following Technical Standards for the Use and Disposal of Sewage Sludge at all times.

Title 40 CFR Part 503 Subpart E

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.

E. Premises Emissions Summary

1. On January 1st of each calendar year, if the potential emissions of NO_x and/or VOC from the premises are equal to or greater than 25 tons per year per pollutant, then for such pollutant(s), the Permittee shall:
   a. Monitor NO_x and/or VOC emissions, as applicable, from the premises for such calendar year.
   b. Calculate and record annual NO_x and/or VOC emissions, as applicable, from the premises for such calendar year, in units of tons. The Permittee shall make these calculations on or before February 1st of the following year with respect to the previous calendar year. Such records shall include a sample calculation(s).
   c. If actual NO_x and/or VOC emissions, as applicable, from the premises are equal to or greater than 25 tons for such calendar year, the Permittee shall submit to the commissioner, on or before March 1st of the following year, an annual emissions summary with respect to the premises for the previous calendar year. Such summary shall be submitted on forms prescribed or provided by the commissioner.

2. A Permittee with either of the following premises is exempt from Part VII.E requirements of this permit if, on January 1st of the subject year, the:
   a. Premises is operating in accordance with a valid Title V permit issued pursuant to RCSA section 22a-174-33; or
   b. Premises is operating in accordance with a valid Approval of Registration issued pursuant to the General Permit to Limit Potential to Emit from Major Stationary Sources of Air Pollution issued on November 9, 2015.

F. The Permittee shall not cause or permit the emission of any substance or combination of substances which creates or contributes to an odor beyond the property boundary of the premises that constitutes a nuisance as set forth in RCSA Section 22a-174-23. [STATE ONLY REQUIREMENT]

G. The Permittee shall operate this facility at all times in a manner so as not to violate or contribute significantly to the violation of any applicable state noise control regulations, as set forth in RCSA Sections 22a-69-1 through 22a-69-7.4. [STATE ONLY REQUIREMENT]

PART VIII. ADDITIONAL TERMS AND CONDITIONS

A. This permit does not relieve the Permittee of the responsibility to conduct, maintain and operate the regulated activity in compliance with all applicable requirements of any federal, municipal or other state agency. Nothing in this permit shall relieve the Permittee

of other obligations under applicable federal, state and local law.

B. Any representative of the DEEP may enter the Permittee's site in accordance with constitutional limitations at all reasonable times without prior notice, for the purposes of inspecting, monitoring and enforcing the terms and conditions of this permit and applicable state law.

C. This permit may be revoked, suspended, modified or transferred in accordance with applicable law.

D. This permit is subject to and in no way derogates from any present or future property rights or other rights or powers of the State of Connecticut and conveys no property rights in real estate or material, nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the facility or regulated activity affected thereby. This permit shall neither create nor affect any rights of persons of municipalities who are not parties to this permit.

E. Any document, including any notice, which is required to be submitted to the commissioner under this permit shall be signed by a duly authorized representative of the Permittee and by the person who is responsible for actually preparing such document, each of whom shall certify in writing as follows: "I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information may be punishable as a criminal offense under Section 22a-175 of the Connecticut General Statutes, under Section 53a-157b of the Connecticut General Statutes, and in accordance with any applicable statute."

F. Nothing in this permit shall affect the commissioner's authority to institute any proceeding or take any other action to prevent or abate violations of law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for violations of law, including but not limited to violations of this or any other permit issued to the Permittee by the commissioner.

G. Within 15 days of the date the Permittee becomes aware of a change in any information submitted to the commissioner under this permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the Permittee shall submit the correct or omitted information to the commissioner.

H. The date of submission to the commissioner of any document required by this permit shall be the date such document is received by the commissioner. The date of any notice by the commissioner under this permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" means calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.

I. Any document required to be submitted to the commissioner under this permit shall, unless otherwise specified in writing by the commissioner, be directed to: Office of Director; Engineering & Enforcement Division; Bureau of Air Management; Department of Energy and Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

May 20, 2019

James Stewart, Director of Public Works
Borough of Naugatuck
246 Rubber Avenue
Naugatuck, CT 06770-4145

Re: Administrative Order on Consent, Docket No. CWA-AO-R01-FY17-07

Dear Mr. Stewart:

Pursuant to the above-referenced Administrative Order ("Order"), the Environmental Protection Agency ("EPA") and the Connecticut Department of Energy and Environmental Protection ("CT DEEP") have received the following documents from the Borough of Naugatuck ("Borough"):

- CMOM Annual Report, dated April 5, 2019;
- Letter responding to EPA's December 13, 2018, letter, dated April 17, 2019;
- Updated Capacity, Management, Operations, and Maintenance ("CMOM") Program Self-Assessment Checklist, dated April 2019; and
- CMOM Program Manual, dated April 2019.

The Borough's letter dated April 17, 2019, the Borough's Corrective Action Plan, and the CMOM Program Manual state that an I/I Control Plan will be developed after the costs of the new contract for operations are determined and negotiated and will be implemented by the contract operator. The new contract will be developed by the end of 2020 and the new contract will commence in August 2022.

EPA and CT DEEP encourage the Borough to develop and implement some elements of an I/I Control Plan prior to the selection of a new contract operator. Certain items in the Borough's CMOM Correction Action Plan are activities that would seem to be appropriate for the Borough itself, rather than a contract operator, to implement. The CMOM Corrective Action Plan identifies the following such action items:

- Checklist item VI.A.5 – Develop process and legal tools to allow inspection for illicit connections during property transfers;
- Checklist item VI.A.6 – Establish procedures and requirements for encouraging residents to disconnect roof leaders and sump pumps;
- Checklist item VI.A.9 – Disincentive program to encourage residents to disconnect roof leaders and sump pumps; and
- Checklist item III.F.5 – Ordinance dealing with storm water connections.

Please revise the CMOM Correction Action Plan to include short-term (1-2 years) actions to address the above-listed items and submit the revised document in an electronic format to EPA and DEEP within 30 days of receipt of this letter.

Please contact John Melcher, Compliance Officer, at telephone number (617) 918-1663 or melcher.john@epa.gov regarding any technical issues relating to this letter. Legal issues should be directed to Jeffrey Kopf, Senior Enforcement Counsel, at (617) 918-1796.

Sincerely,

Denny Dart, Manager
Water Compliance Section
Enforcement and Compliance Assurance Division

Electronic carbon copy:
James Stewart, Borough of Naugatuck
Pamela Westgate, Kleinfelder
John Melcher, EPA
Jeffrey Kopf, EPA
Ann Straut, CT DEEP

June 12, 2019

John Melcher, EPA
U.S Environmental Protection Agency
5 Post Office Square- Suite 100
Boston, MA 02109-3912

RE: CMOM Corrective Action Plan

Dear Mr. Melcher,

This letter and attachments are submitted on behalf of the Borough of Naugatuck in partial response to the Administrative Order on Consent ("Order"), Docket No. CWA -AO-R01-FY17-07 and comments in a letter from EPA, received by the Borough on December 13, 2018, in response to the following submittals:

- CMOM Program Self-Assessment checklist (September 11, 2018), and
- Collection System by-pass summary (September 2018).

Inflow and Infiltration Control Plan (Order Item #4)
EPA Comment: Please prepare an I/I Control Plan that addresses all the requirements of Paragraph IV.4. of the Order. Please include schedules in descriptions of corrective actions planned.

Response: Naugatuck currently has an RFP out for a new contract operator to maintain and operate the Naugatuck WWTF and collection system. Responses to the RFP are due in May 2019 and a new contract will be developed by the end of 2020; the new contract operations contract will commence in August 2022. The I/I Control Plan will be developed after the costs of the new contract for operations are determined and negotiated and will be implemented by the contract operator.

CMOM Program Self-Assessment (Order Item #5)
*EPA Comment (**Letter Item 2a**): revise the CMOM Program Self-Assessment Checklist to indicate which program areas the Borough is planning improvements.*

Response: A revised checklist with an "A" in the final column to indicate areas in which further action is planned is included as Attachment 1 to this letter.

KLEINFELDER 200 Corporate Place, Suite 310, Rocky Hill, CT 06067 p | 860.563.7775 f | 860.563.6744

*EPA Comment (**Letter Item 2b**): provide additional detail regarding the time period associated with the O&M budget of $7.2M*.

Response: The $7.2 M listed is the annual O&M budget for the wastewater treatment and collection systems. Detailed budget information is provided in Attachment 2 of this letter.

Collection System By-pass Summary (Order #2)
EPA Comment (Letter Item 3): provide an explanation of the October 30, 2017 event and clarify whether the bypass reached a receiving water.

Response: The bypass that occurred on October 30th, 2017 did reach the Naugatuck River. An updated Bypass Map for CY2018 has been added to the city website.

CMOM Corrective Action Plan (Order #6)
Naugatuck's CMOM Corrective Action Plan (CAP) is attached to this letter (Attachment 3). The CAP is presented in table format with short and long-term actions identified. Short term actions are those that will be initiated within the next 3 years, under the existing operations contract between Naugatuck and Veolia. The long-term actions will be initiated after the next contract for operations of the wastewater treatment and collection systems is in place.

Respectfully yours,

KLEINFELDER

Pamela Westgate, PE

cc: Ann Straut, CT DEEP
Tom Loto, PE, Kleinfelder
Neil Kulikauskas, PE, Kleinfelder
Jim Stewart, PE, Naugatuck DPW Director
file

Attachments:
Attachment 1- Updated CMOM Self- Assessment Checklist
Attachment 2- Annual O&M Budget
Attachment 3- CMOM Corrective Action Plan

Attachment 1
Updated CMOM Self-Assessment Checklist

Attachment

United States Environmental Protection Agency, EPA New England

Wastewater Collection System CMOM Program Self-Assessment Checklist

Name of your system: **Borough of Naugatuck, CT wastewater collection system**

Date of Self-Assessment: **September 2018,** Updated **April 2019**

Put an "A" in the final column for an issue you intend to address with future action, or leave blank if you have evaluated your program as sufficient.

I. General Information – Collection System Description

I	Question	Response	*Act
1	How many people are served by your wastewater collection system?	90% of population. Population 2017 was 31,862. Served by collection system is 28,676	
2	What is the number of service connections to your collection system? How many: Manholes? Pump stations? Feet (or miles) of sewer? Force mains? Siphons?	Service connections: 90% of 12,000 = 156 Miles of Sewer Line 2589 Manholes 5 pump Station 5 force mains 4 siphons	
3	What is the age of your system (e.g., 30% over 30 years, 20% over 50 years, etc.)?	50% over 50 years 35% over 30 years 15% over 10 years	
4	What type(s) of collection system map is/are available and what percent of the system is mapped by each method (e.g., paper only, paper scanned into electronic, digitized, interactive GIS, etc.)? When was the map(s) last updated?	Paper 98% GIS 75% Scanned 98% Documents are continually updated	
5	If you have a systematic numbering and identification method/system established to identify sewer system manhole, sewer lines, and other items (pump stations, etc.), please describe.	Pump Stations are named Manholes Numbed by section map # and Manhole # I.E. 10-41 = Plate/map 10 MH#41	
6	Are "as-built" plans (record drawings) or maps available and used by field crews in the office and in the field?	Yes- All as-built Plans are scanned and available to personnel	
7	Describe the type of asset management (AM) system you use (e.g. card catalog, spreadsheets, AM software program, etc.)	OWAM system that generates work orders and keeps track.	**A**

* Put an "A" in the final column if this is an issue you intend to address with future action.

II. Continuing Sewer Assessment Plan

II	Question	Response	*Act
1	Under what conditions, if any, does the collection system overflow? Does it overflow during wet and/or dry weather? Has your system had problems with: □ hydraulic issues, □ debris, □ roots, □ Fats, Oils & Grease (FOG), □ vandalism blockages resulting in manhole overflows, □ basement backups, □ other (specify)? Describe your system's history of structural collapses, and PS or force main failures.	During very high wet weather events. Biggest issues are roots and grease. We do have a 6 month jetting list for trouble areas. We do also have a root control program. In 2014 a SSO occurred due to vandalism. In 2016 a SSO occurred due to a broken of sewer line.	
2	How many SSOs have occurred in each of the last three calendar years? What is the most frequent cause?	2016 – 4 2017 – 6 2018 – 0 Most frequent causes are roots and grease.	
3	Of those SSOs, how many basement backups occurred in each of the last three calendar years? How are they documented?	2016 – 2 2017 – 3 2018 – 0 On back up report it is documented if lateral issue or main line issue.	
4	What is the ratio of peak wet-weather flow to average dry-weather flow at the wastewater treatment plant (or municipal boundary for satellite collection systems)?	Peak 21 MGD Average dry 4 MGD Ratio 1:5.25	
5	What short-term measures have been implemented or plan to be implemented to mitigate the overflows? If actions are planned, when will they be implemented?	Borough has completed SSES and I/I Studies and Reports. 1 hour Overflow Response times Strict Record keeping Completed Emergency Response Plan	
6	What long-term measures have been implemented or plan to be implemented to mitigate the overflows? If actions are planned, when will they be implemented?	Reducing I/I as discussed in I/I Report Continue CCTV inspection Continue to make repairs as problems are discovered	**A**
7	Describe your preventive maintenance program; how do you track it (e.g., card files, electronically, with specific software)?	CCTV 20,000 feet/year Clean/inspect 34 Miles of Pipe/year Areas on 6 month Cleaning list are jetted twice yearly work orders generated by OWAM system Root Control once per year 4,000 ft Mechanical Root control As required All preventative maintenance on the sanitary sewer system is tracked on monthly reports to the Water Pollution Control Authority	

* Put an "A" in the final column if this is an issue you intend to address with future action.

8	How do you prioritize investigations, repairs and rehabilitation? What critical and priority problem areas are addressed more frequently than the remainder of your system? How frequently are these areas evaluated?	Repairs of sanitary sewer system are addressed as soon as they are discovered. Areas with root and grease issues are revisited every 6 months until problem is resolved.	
9	Are septage haulers required to declare the origin of their “load”? Are records of these declarations maintained? Do any of the declarations provide evidence of SSOs?	Yes all septage received at the plant are documented with origin of load. Yes records are kept in filing system. No evidence of SSO’s is provided on these documents.	

* Put an “A” in the final column if this is an issue you intend to address with future action.

III.A. Collection System Management Organizational Structure

III.A	Question	Response	*Act
1	Do you have an organizational chart that shows the overall personnel structure for collection system operations, including operation and maintenance staff? Please attach your chart.	There are 2 employees dedicated to the collection system and they report to the assistant plant manager. No chart	**A**
2	For which jobs do you have up-to-date job descriptions that delineate responsibilities and authority for each position?	All positions	
3	How many staff members are dedicated to collection system maintenance? Of those, how many are responsible for any other duties, (e.g., road repair or maintenance, O&M of the storm water collection system)? If so, describe other duties.	There are two staff members dedicated to the sanitary sewer collection system. They do not have any other duties than this collection system. Repairs on the collection system is done by private contractor.	
4	Are there any collection system maintenance position vacancies? How long has the position(s) been vacant?	There are no vacancies for the collection system.	
5	For which, if any, maintenance activities do you use an outside contractor?	All main line and pump station force main repairs. Root control CCTV for Large diameter Pipes PMs for pump stations Emergency generators Major Pump Station Repairs	
6	Describe any group purchase contracts you participate in.	Veolia has Various Purchasing agreements including, utilities and equipment	

III.B. Collection System Management: Training

III.B	Question	Response	*Act
1	What types of training are provided to staff?	Vactor truck operations, safe work practices on the collection system	
2	Is training provided in the following areas: general safety, routine line maintenance, confined space entry, MSDS, lockout/tagout, biologic hazards, traffic control, record keeping, electrical and instrumentation, pipe repair, public relations, SSO/emergency response, pump station operations and maintenance, trench/shoring, other (describe)?	Veolia has a safety program implemented for all employees that ranges through various safety topics including all referenced. A different topic is covered every month on either JJ Keller videos or in-classroom group training. Collection system employees must possess a CDL and therefore have to follow federal safety guidelines for CDL Motor carriers	
3	Which training requirements are mandatory for key employees?	Vactor truck safe operations, all Osha related training	
4	How many collection system employees are certified (e.g, NEWEA certification program) and at what grade are they certified?	One employee is a Grade III and the other is a Grade II collections system operator.	

* Put an “A” in the final column if this is an issue you intend to address with future action.

III.C. Collection System Management: Communication and Customer Service

III.C	Question	Response	*Act
1	Describe your public education/outreach programs (e.g., for user rates, FOG, extraneous flow, SSOs etc.)	Information is available on the Borough web site.	
2	What are the most common collection system complaints? How many complaints have you received in each of the past three calendar years?	Residential lateral issues. 2018 - 2 to date 2017 - 17 2016 - 14	
3	Are formal procedures in place to evaluate and respond to complaints?	Yes in emergency response plan	
4	How are complaint records maintained (i.e., computerized)? How are complaints tied to emergency response and operations and maintenance programs?	Records are maintained on paper	**A**

III.D. Collection System Management: Management Information Systems

III.D	Question	Response	*Act
1	How do you manage collection system information? (Commercial software package, spreadsheets, data bases, SCADA, etc). What information and functions are managed electronically?	Paper and Spreadsheets, OWAM work order tracking system	**A**
2	What procedures are used to track and plan collection system maintenance activities?	Activates are tracked on monthly reports. OWAM system	
3	Who is responsible for establishing maintenance priorities? What records are maintained for each piece of mechanical equipment within the collection system?	Borough and Veolia Staff determine priorities and weekly inspection reports for pump stations.	
4	What is the backlog for various types of work orders?	No Backlog	
5	How do you track emergencies and your response to emergencies? How do you link emergency responses to your maintenance activities?	All emergencies are tracked on state forms and completed immediately and Inspected following	

* Put an “A” in the final column if this is an issue you intend to address with future action.

6	What written policies/protocols do you have for managing and tracking the following information: complaint work orders, scheduled work orders, customer service, scheduled preventative maintenance, scheduled inspections, sewer system inventory, safety incidents, emergency responses, scheduled monitoring/sampling, compliance/overflow tracking, equipment/tools tracking, parts inventory?	All work orders are tracked in the OWAM work order tracking system. Work is prioritized by environmental impact level. IE: A line that is leaking or has the potential to leak sewage into the environment or into a residential home has a higher priority than an issue that has no immediate environmental impact.	

III.E. Collection System Management: SSO Notification Program

III.E	Question	Response	*Act
1	What are your procedures, including time frames, for notifying state agencies, health agencies, regulatory authorities, and the drinking water authorities of overflow events?	There is a 2hr. notification time to state and health agencies upon discovery of bypass. 5 days complete full report. All of this is done electronically.	
2	Do you use the state standard form for recording/reporting overflow events? If not, provide a sample copy of the form that is used.	Reports are completed electronically on the state DEEP.BOG site.	

III.F. Collection System Management: Legal Authority

III.F	Question	Response	*Act
1	Are discharges to the sewer regulated by a sewer use ordinance (SUO)? Does the SUO contain procedures for controlling and enforcing the following: □ FOG; □ Infiltration/ Inflow (I/I); □ building structures over the sewer lines; □ storm water connections to sanitary lines; □ defects in service laterals located on private property; □ sump pumps?	The Borough has a sewer ordinance that covers: FOG, Building Structures and sewer lines, Sump pump, and storm Water connection to sanitary lines.	
2	Who is responsible for enforcing various aspects of the SUO? Does this party communicate with your department on a regular basis?	The sewer inspector, Town Engineer, Public Works Director all are responsible for enforcing the SUO? Communication is ongoing.	
3	Summarize any SUO enforcement actions/activities that have occurred in the last three calendar years.	FOG enforcement, Illicit connections, I/I elimination, sewer Lateral reconnections.	

* Put an “A” in the final column if this is an issue you intend to address with future action.

4	Do you have a program to control FOG entering the collection system? If so, which of the following does it include: □ permits, □ inspection □ enforcement? Are commercial grease traps inspected regularly and who is responsible for conducting inspections?	Fog Program includes permits, inspection, and enforcement. Grease traps are inspected by the sewer inspector and department of Health.	
5	Is there an ordinance dealing with storm water connections or requirements to remove storm water connections?	Yes. Section 19-81 of the current Sewer Use Ordinance prohibits the discharge of stormwater to the sewer system.	**A**
6	Does the collection system receive flow from satellite communities? Which communities? How are flows from these satellite communities regulated? Are satellite flow capacity issues periodically reviewed?	Yes, Oxford and Middlebury. Each community has their own metering station prior to connection to Naugatuck. Yes Small flow from Prospect not metered.	
7	Does the collection system receive flow from private collection systems? If yes, how is flow from these private sources regulated? How are overflows dealt with? Provide details, including contact information for these private systems.	Yes. Only systems with associations are permitted to have private collection systems. The Town only responses when the association or private owner does not take responsibility and a public health emergency exists.	

IV.A. Collection System Operation: Financing

IV.A	Question	Response	*Act
1	Has an enterprise (or other) fund been established and what does it include: wastewater collection and treatment operations; collection system maintenance; long-term infrastructure improvements; etc.? Are the funds sufficient to properly fund future system needs?	The town has an enterprise fund covering the collection system and treatment plant.	
2	How are rates calculated (have you done a rate analysis)? What is the current sewer charge rate? When was it last increased? How much was the increase?	No rates	
3	What is your O&M budget?	$7,200,000 annually for wastewater treatment and collection system operations and maintenance.	
4	If an enterprise fund has not been established, how are collection system maintenance operations funded?	Contracted amounts through system operator as well as budgeted repair account. O&M from Taxes	

* Put an “A” in the final column if this is an issue you intend to address with future action.

5	Does a Capital Improvement Plan (CIP) that provides for system repair/replacement on a prioritized basis exist? What is the collection system's average annual CIP budget?	CIP $118,000, recommended improvements are documented in the SSES and I/I reports completed recently.	
6	How do you account for the value of your system infrastructure for the Government Accounting Standards Board standard 34 (GASB 34)?	At the inception of GASB 34, an inventory of the infrastructure was taken and indexed to historical actual cost. Currently, capital improvement expenditures to the infrastructure are analyzed and reported at cost.	

IV.B. Collection System Operation: Hydrogen Sulfide Monitoring and Control

IV.B	Question	Response	*Act
1	Are odors a frequent source of complaints? How many have been received in the last calendar year?	Odors from the collection system are not a frequent source of complaints. We have received 0 complaints this past calendar year.	
2	Do you have a hydrogen sulfide problem, and if so, do you have corrosion control programs? What are the major elements of the program?	No	
3	Does your system contain air relief valves at the high points of the force main system? How often are they inspected? How often are they exercised?	No	

IV.C. Collection System Operation: Safety

IV.C	Question	Response	*Act
1	Do you have a formal Safety Training Program? How do you maintain safety training records?	Yes. Records are maintained in both electronic and paper form.	

* Put an "A" in the final column if this is an issue you intend to address with future action.

2	Which of the following equipment items are available and in adequate supply: □ rubber/disposable gloves; □ confined space ventilation equipment; □ hard hats, □ safety glasses, □ rubber boots; □ antibacterial soap and first aid kit; □ tripods or non-entry rescue equipment; □ fire extinguishers; □ equipment to enter manholes; □ portable crane/hoist; □ atmospheric testing equipment and gas detectors; □ oxygen sensors; □ H2S monitors; □ full body harness; □ protective clothing; □ traffic/public access control equipment; □ 5-minute escape breathing devices; □ life preservers for lagoons; □ safety buoy at activated sludge plants; □ fiberglass or wooden ladders for electrical work; □ respirators and/or self-contained breathing apparatus; □ methane gas or OVA analyzer; □ LEL metering?	The following are readily available to all employees: rubber/disposable gloves; □ confined space ventilation equipment; □ hard hats, □ safety glasses, □ rubber boots; □ antibacterial soap and first aid kit; □ tripods or non-entry rescue equipment; □ fire extinguishers; □ equipment to enter manholes; □ portable crane/hoist; □ atmospheric testing equipment and gas detectors; □ oxygen sensors; □ H2S monitors; □ full body harness; □ protective clothing; □ traffic/public access control equipment □ fiberglass or wooden ladders for electrical work; □ respirators and/or self-contained breathing apparatus; LEL metering	

IV.D. Collection System Operation: Emergency Preparedness and Response

IV.D	Question	Response	*Act
1	Do you have a written collection system emergency response plan? When was the plan last updated? What departments are included in your emergency planning?	Yes. March 15, 2018. WWTP Contractor, Public Works Department, Engineering Department, and the WPCA are included.	
2	Which of the following issues are considered: □ vulnerable points in the system, □ severe natural events (see also Section VII, below), □ failure of critical system components, □ vandalism or other third party events (specify), □ other types of incidents (specify)?	The emergency response plan discusses safety procedures for the failure of critical system components (bypass, overflow, blockage, etc). The plan also identifies possible mitigation procedures and dispatch of personnel and equipment during an emergency.	
3	How do you train staff to respond to emergency situations? Where are responsibilities detailed for personnel who respond to emergencies?	Employees are trained with the ERP and on the job as well as OSHA requirements.	
4	How many emergency calls have you had in the past calendar year?	0 All calls were related to private laterals.	

IV.E. Collection System Operation: Engineering – Capacity

IV.E	Question	Response	*Act
1	How do you evaluate the capacity of your system and what capacity issues have you identified, if any? What is your plan to remedy the identified capacity issues?	The Town has not evaluated the capacity of the system as a whole and is not expecting significant increases in discharges from outlying areas of the system. Capacity evaluations of specific areas in the collection system are required of developers prior to consideration for approval of development plans.	
2	What procedures do you use to determine whether the capacity of existing gravity sewer system, pump stations and force mains are adequate for new connections? Who does this evaluation?	The WPCA required a capacity analysis for all proposed significant increases in flow.	
3	Do you charge hook-up fees for new development and if so, how are they calculated?	$5000 per unit or $0.50 per SF for Commercial development.	
4	Do you have a hydraulic model of your collection system? Is it used to predict the effects of system remediation and new connections?	No	

* Put an “A” in the final column if this is an issue you intend to address with future action.

IV.F. Collection System Operation: Pump Stations - Inspection

IV.F	Question	Response	*Act
1	How many pump stations are in the system? How often are pump stations inspected? How many are privately owned, and how are they inspected? Do you use an inspection checklist?	5 pump stations inspected weekly. They are inspected by collections personnel using a checklist.	
2	Is there sufficient redundancy of equipment at all pump stations?	Yes	
3	How are pump stations monitored? If a SCADA system is used, what parameters are monitored?	Pump stations are monitored by a private alarm company. Parameters monitored are loss of power, high and low wet well levels.	
4	How many pump station/force main failures have you had in each of the last three years? Who responds to pump station/force main failures and overflows? How are the responders notified?	1 force main failure in 2016. Collections crew responds to pump station failures. The collection crew is supplied with a company cell phone and the alarm company notifies them.	
5	How many pump stations are equipped with backup power sources? How many require portable generators? How many portable generators does your system own? Explain how the portable generators will be deployed during a system-wide electrical outage.	Each pump station has its own generator. Portable generators are available from the DPW and rented from Local vendor as needed.	
6	Are operation logs maintained for all pump stations? Are the lead, lag, and backup pumps rotated regularly?	Yes, Yes	
7	Is there a procedure to modify pump operations (manually, or automatically), during wet weather to increase in-line storage of wet weather flows? If so, describe.	No	

V.A. Equipment and Collection System Maintenance: Sewer Cleaning

V.A	Question	Response	*Act
1	What is your schedule for cleaning sewer lines on a system-wide basis? At this frequency, how long will it take to clean the system? How are sewer cleaning efforts documented?	Sewer lines on the 6-month list are cleaned twice a year. The rest of the system is divided into grids and clean on a five year reoccurring time frame.	
2	How many linear miles of the collection system were cleaned in each of the past 3 calendar years?	June 2017 to July 2018 - 33.52 miles July 2016 to June 2017 - 33.13 miles July 2015 June 2016 - 36.03 miles	

* Put an “A” in the final column if this is an issue you intend to address with future action.

3	How do you identify sewer line segments that have chronic problems and should be cleaned more frequently? Is a list of these areas maintained and cleaning frequencies established?	6-month cleaning list Sections are added to the list as identified.	
4	Approximately, how many collection system blockages have occurred during the last calendar year, and what were the causes?	There have been 0 blockages this past calendar year.	
5	Has the number of blockages increased, decreased, or stayed the same over the past five years?	They have been decreasing.	
6	What equipment is available to clean sewers? Is any type of cleaning contracted to other parties? If yes, under what circumstances?	The collection department has a Vactor/Jetting truck. Root control is applied once a year by a private company.	
7	Do you have a root control program? Describe its critical components.	4,000 ft of sewer line has root treatment applied once per year. Root cutter is used as needed.	

V.B. Equipment and Collection System Maintenance: Maintenance Right-of-Way

V.B	Question	Response	*Act
1	Is scheduled maintenance performed on Rights-of-Way and Easements? At what frequency? How many manholes in easement areas can not be located?	Easements are cleared on a rotational basis once a year. Usually in the Fall. All easement are located.	
2	Are road paving projects coordinated with the collection system operators? Have manholes been paved over? How many manholes in paved areas can not be located? Describe any systems in place for locating and raising manholes that have been paved over.	Yes the Borough coordinates all paving projects with the collection system employees. There have been paved over manholes. Manholes are raised as located. Our camera system has a beacon that gives off a certain frequency and we locate the manhole with a wand that picks up the frequency.	

V.C. Equipment and Collection System Maintenance: Parts Inventory

V.C	Question	Response	*Act
1	Do you have a central location for the storage of spare parts?	No, Contractor maintains spare parts.	
2	How have critical spare parts been identified?	Have critical parts including spare pumps, pipe, connectors. Electrical parts, but no formal method or list.	
3	How to you determine if adequate supplies on hand? Has an inventory tracking system been implemented?	No system, replace parts as used,	**A**

* Put an “A” in the final column if this is an issue you intend to address with future action.

VI.A. SSES: System Assessment

VI.A	Question	Response	*Act
1	Do POTW flow records or prior I/I or SSES programs indicate the presence of public/private inflow sources or sump pumps? Please Explain.	Yes, I/I and SSES show I/I and propose repairs/rehabilitation.	
2	If problems are related to I/I, has a Sewer System Evaluation Survey (SSES) been conducted? When? What is the status of the recommendations?	I/I Completed 2017, Recommendation are scheduled 2022	
3	Do you have a program to identify and eliminate sources of I/I into the system including private service laterals and illegal connections? If so, describe.	No program, Just Completed I/I study and purchased Smoke test equipment.	**A**
4	Have private residences been inspected for sump pumps and roof leader connections?	Yes certain areas have been smoked tested as part of I/I Study.	
5	Are inspections to identify illicit connections conducted during the property transfer process?	No.	**A**
6	How many sump pumps and roof leaders have been identified? How many have been removed?	Some Identified in I/I Report no follow-up completed yet.	**A**
7	Have follow-up homeowner inspections been conducted?	Not applicable.	
8	What incentive programs exist to encourage residences to disconnect roof leaders & sump pumps? (i.e. matching funds, etc.)	None	
9	What disincentive programs exist to encourage residences to disconnect roof leaders & sump pumps? (i.e. fines, surcharges)	None	**A**

VI.B. SSES: Manhole Inspection

VI.B	Question	Response	*Act
1	Do you have a manhole inspection and assessment program?	Completed in SSES, manholes are inspected when opened for cleaning/CCTV	
2	Has a formal manhole inspection checklist been developed?	No	**A**
3	How many manholes were inspected during the past calendar year?	Approximately 500	

* Put an “A” in the final column if this is an issue you intend to address with future action.

VII. Flood Resilience

VII	Question	Response	*Act
1	Have you prepared plans and procedures for responding to extreme weather events that may result in flooding and loss of power? Have you reviewed the report "Preparing for Extreme Weather at Wastewater Utilities: Strategies and Tips," published by the New England Interstate Water Pollution Control Commission (NEIWPCC) in September 2016?	No, No	**A**
2	Do you have sewer lines that are within a flood area displayed in the Flood Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Agency (FEMA)? What types of flood areas? Do the manholes on these sewer lines have water-tight manhole covers?	Yes, yes water tight covers are used in all of the flood type areas. The Borough has facilities in all flood zones.	
3	Are any of your pump stations located within FEMA FIRM flood areas? What types of flood areas? Have you implemented any structural measures to provide flood resilience?	Yes. Platts Mill- Zone X Hop Brook- Zone X No Special measures.	
4	Are upgrades or expansions being considered for any pump stations located within FEMA FIRM flood areas? Have you considered flood risk mitigation measures such as those listed in Section 1.2.1.h of the 2016 revision of Technical Report #16 Guides for the Design of Wastewater Treatment Works (TR-16) published by the NEIWPCC in your designs?	No	
5	Are any of your treatment plant facilities located within FEMA FIRM flood areas? What types of flood areas? Have you implemented any structural measures to provide flood resilience?	Yes. – Zone X	
6	Are upgrades or expansions being considered for any treatment plant facilities located within FEMA FIRM flood areas? Have you considered flood risk mitigation measures such as those listed in Section 1.2.1.h of TR-16 in your designs?	Future improvements to the WWTF will incorporate flood risk mitigation as determined appropriate.	

* Put an "A" in the final column if this is an issue you intend to address with future action.

VIII. Energy Use

VII	Question	Response	*Act
1	What is your annual energy cost for operating your system? For which pieces of equipment do you track energy use?	Yearly pump station electrical usage a) Horton Hill: 11,000 kwh b) 490 Maple Hill: 12,000 kwh c) Platts Mill: 3,600 kwh d) 615 North Church: 4,500 kwh e) 354 Maple Hill: 23,000 kwh	
2	Have you upgraded any of your pumps and motors to more energy efficient models? If so, please describe.	Yes. Energy efficient blowers for aeration system. Energy efficient raw sewage and return activated sludge pumps	
3	Have you performed an energy audit in the past three years?	Completed as part of recent facilities plan	
4	Where do you use the most energy (fuel, electricity) in operating your collection system?	Electricity for Pump stations	
5	If you have a treatment plant, would you be interested in participating in EnergyStar benchmarking of your treatment plant?	no	

IX. Other Actions

VIII	Question	Response	*Act
1	Describe any other actions that you plan to take to improve your CMOM Program that are not discussed above.	CMOM responsibilities will be included in the Phase 2 operations contract for operations and maintenance of the WWTF and wastewater collection system.	**A**

* Put an “A” in the final column if this is an issue you intend to address with future action.

Attachment 2
Annual O & M Budget

		2018-2019 ADOPTED
WATER POLLUTION CONTROL AUTHORITY		
Personal Services		
Salaries & Wages		
3004-0401-0000-0000	Regular Payroll	79,322
3004-0402-0000-0000	Overtime	323
		79,645
Contractual Services		
3004-0422-0000-0000	Legal	25,000
3004-0439-0000-0000	Postage	121
3004-0441-0000-0000	Advertising	113
3004-0470-0000-0000	Grading WWTF Access Road	3,000
3004-0487-0000-0000	Waterbury Platts Mill Sewer	8,000
3004-0506-0000-0000	Consultant Fees	200,000
3004-0508-0000-0000	Railroad Crossing	1,500
3004-0513-0000-0000	Penn Central License Fee	250
3004-0657-0000-0000	Chem Costs Phosphorous	200,000
3004-0668-0000-0000	Clean Water Fund	50,000
3004-0669-0000-0000	Veolia Service Fees / Other Payments	3,580,373
3004-0672-0000-0000	Veolia Collection System Maint. Fee	315,000
3004-0674-0000-0000	Insurance	150,000
		4,533,357
Goods		
3004-0550-0000-0000	Departmental Supplies	400
	TOTAL WATER POLLUTION CONTROL AUTHORITY	**4,613,402**
SENIOR CENTER		
Personal Services		
Salaries & Wages		
3005-0401-0000-0000	Regular Payroll	59,083
Contractual Services		
3005-0435-0000-0000	Repairs to Buildings	5,500
3005-0440-0000-0000	Service Contract - Building	8,110
3005-0450-0000-0000	Conference & Dues	250
3005-0525-0000-0000	Utilities	13,000
3005-0535-0000-0000	Municipal Agent	50
		26,910
Goods		
3005-0550-0000-0000	Departmental Supplies	1,500
3005-0554-0000-0000	Gas & Oil	150
3005-0599-0000-0000	Computers	400
		2,050
	TOTAL SENIOR CITIZENS	**88,043**
	GRAND TOTAL HEALTH AND WELFARE	**4,767,254**

		2018-2019 ADOPTED
ENGINEERING DEPARTMENT		
Personal Services		
Salaries & Wages		
4006-0401-0000-0000	Regular Payroll	252,976
4006-0402-0000-0000	Overtime	7,585
		260,561
Contractual Services		
4006-0442-0000-0000	Maintenance Equipment	150
4006-0450-0000-0000	Conference & Dues	850
4006-0467-0000-0000	Repairs to Motor Vehicles	600
4006-0531-0000-0000	Permitting Software	3,000
4006-0540-0000-0000	Phase II Storm Water	17,500
4006-0547-0000-0000	Environmental Testing & Compliance	17,000
4006-0590-0000-0000	Computer Licensing	3,150
		42,250
Goods		
4006-0550-0000-0000	Departmental Supplies	600
4006-0551-0000-0000	Office Supplies	360
4006-0554-0000-0000	Gas & Oil	1,800
4006-0560-0000-0000	Clothing & Uniforms	2,700
4006-0579-0000-0000	Safety Supplies	25
4006-0597-0000-0000	Communication	240
4006-0598-0000-0000	Ricoh Copy Paper	2,500
		8,225
Capital Outlay		
4006-0604-0000-0000	Flat File Folder	600
	TOTAL ENGINEERING	**311,636**
	GRAND TOTAL PUBLIC WORKS	**5,779,151**
	DEBT SERVICE	
Contractual Services		
5001-0483-0000-0000	WWTF Collection System COPS	2,046,683
5001-0700-0000-0000	Bond Redemption	3,103,933
5001-0701-0000-0000	Interest on Bonds	1,655,263
5001-0705-0000-0000	Misc. Borrowing Costs	20,000
5001-0706-0000-0000	Lease Payments	1,908,001
5001-0707-0000-0000	POB	3,485,470
	GRAND TOTAL DEBT SERVICE	**12,219,350**

Increase by $723,354

		2018-2019 ADOPTED
COMMUNITY SERVICES		
6003-0729-0000-0000	Naugatuck Valley Health	215,035
6003-0730-0000-0000	CT Conference of Municipalities	20,692
6003-0731-0000-0000	Library	591,217
6003-0732-0000-0000	Veterans Council	24,400
6003-0733-0000-0000	Northwest CT Public Safety Communications Center	209,651
6003-0735-0000-0000	Human Resources Development	105,162
6003-0736-0000-0000	N.O.W. Naugatuck Elderly Nutrition	13,281
6003-0739-0000-0000	Arts Commission	13,320
6003-0740-0000-0000	Council of Governments	11,913
6003-0741-0000-0000	Fourth of July Celebration	20,000
6003-0749-0000-0000	Elderly Program	9,000
6003-0750-0000-0000	Greater Waterbury Transit	724
	TOTAL COMMUNITY SERVICES	**1,234,395**
GENERAL		
6004-0743-0000-0000	Street Lighting	90,000
6004-0744-0000-0000	Settlement Legal Claims	55,000
6004-0745-0000-0000	Water Hydrant	927,406
6004-0746-0000-0000	Dog Fund	82,208
6004-0748-0000-0000	Municipal Audit	101,000
6004-0753-0000-0000	Jesse Camille's	500
	TOTAL GENERAL	**1,256,114**
RESERVE FUND		
6005-0758-0000-0000	DPW-Road Resurfacing	450,000
6005-0760-0000-0000	Police- Patrol Vehicles	75,030
6005-0767-0000-0000	Revaluation	50,000
6005-0817-0000-0000	Sanitary Sewer Reps/Rehab	118,000
6005-0824-0000-0000	Golf Cart Rotation- HBGC	15,405
6005-0832-0000-0000	Playground Equip R&R	25,000
6005-0880-0000-0000	DPW-Osbourne Rd Ballfield	140,000
6005-0907-0000-0000	Fire Panel Replacement NEC	32,000
6005-0909-0000-0000	IT PC Replacement Plan	110,600
6005-0911-0000-0000	IT Storage Server Replacement Plan-2	50,600
6005-0912-0000-0000	IT Switch Replacement	5,900
6005-0914-0000-0000	IT Backup Device Replacement	3,300
6005-0915-0000-0000	DPW-Construction Projects Sidewalk Lewis Park	62,000
6005-0916-0000-0000	DPW-Construction Projects Drainage Terrace Ave	58,000
6005-0917-0000-0000	DPW- Equipment Replace Excavator	66,666
6005-0922-0000-0000	DPW- Equipment Replace Tool Truck	48,000

Attachment 3
CMOM Corrective Action Plan

Naugatuck, CT
Collection System Capacity, Management, Operations and Maintenance (CMOM)
Corrective Action Plan (2019)

Deficiency Category	Assessment Checklist Number	Deficiency / Current Status	Planned Actions	
			Short-Term (1-2 years) Current Operations Contract	Long-Term (3+ years) Next Operations Contract
Capacity	II.6	Currently control grease by cleaning known problem areas 2x/year. Control roots with chemicals on 4,000 linear feet of pipe per year; mechanical clearing as needed.	1. Continue root and grease removal programs.	1. Actively investigate sources of grease. 2. Implement I/I removal plan to remove known sources of inflow.
	VI.A.3	No program; recently completed I/I study and purchased smoke test equipment.	1. Develop I/I Implementation Plan	1. Program for identifying and removing sources of I/I to be included in next operations contract.
	VI.A.5	Inspections to identity illicit connections are not currently conducted during property transfers.	1. Develop process and legal tools to allow inspections for illicit connections during property transfers.	
	VI.A.6	Some probable inflow sources from sump pumps and roof leaders have been identified, but not removed	1. Develop program for identifying and removing sources of I/I.	1. Begin program to remove identified inflow sources.
	VI.A.9	There are currently no programs to encourage residents to disconnect roof leaders and sump pumps.	1. Investigate and evaluate requirements for removal of illicit connections during property transfers. 2. Establish procedures and requirements.	
Operation	VII.1	There are no prepared plans and procedures for responding to extreme weather events that may result in flooding and loss of power.	1. Review "Preparing for Extreme Weather at Wastewater Utilities: Strategies and Tips," published by the New England Interstate Water Pollution Control Commission (NEIWPCC) in September 2016. Determine what actions might be necessary in the borough.	1. Develop plans and procedures for responding to extreme weather events.
	IX.1	The existing operations contract does not contain CMOM requirements. The contract will expire in August 2022.		1. CMOM responsibilities will be included in the Phase 2 operations contract for operations and maintenance of the WWTF and wastewater collection system.

Deficiency Category	Assessment Checklist Number	Deficiency / Current Status	Planned Actions	
			Short-Term (1-2 years) Current Operations Contract	Long-Term (3+ years) Next Operations Contract
Management	**III.A.1**	There is no organizational chart that shows overall personnel structure for collection systems O&M.	1. Create organizational chart.	
	III.C.4	Complaint records are currently maintained on paper by the contract operator.	1. Add collection system complaints to the Town complaint system for recording and tracking complaints. Accessible through the Borough of Naugatuck website. (http://www.naugatuck-ct.gov/content/77/2380/default.aspx)	
	III.D.1	Currently collection system data is maintained on paper and in spreadsheets. There is a work order tracking system (OWAM).	1. Create a list of information that is currently being collected and managed electronically. 2. Develop list of data that is collected and managed on paper for future conversion to electronic management.	1. Transition to contract operator managing all collection system data in an electronic format compatible with asset management software. Software/ details to be approved by Naugatuck.
	III.F.5	Section 19-81 of the Sewer Use Ordinance prohibits the discharge of stormwater to the wastewater collection system but does not provide a remedy.	1. Investigate potential procedure for requiring property owners to remove direct connections.	
Maintenance	**I.7**	Asset management limited to OWAM work order tracking system. Current contract operator has purchased InfoNet16 asset management software.	1. Train collection systems staff on use of InfoNet16 Software. 2. Provide staff with field computers to enable live updates and documentation of collection system data and repairs.	1. Incorporate known collection system updates into GIS associated with InfoNet16 (or other) software. 2. Initiate use of AM software in the field. 3. Implement Preventive Maintenance Program using this data.
	V.C.3	There is no electronic inventory tracking system: spare parts and supplies are replaced as used.	1. Create electronic inventory list for collection system tools, equipment, and spare parts.	1. Develop and implement inventory tracking system
	VI.B.2	There is no formal manhole inspection checklist.	1. Develop and initiate field use of manhole inspection checklist.	

CAPACITY, MANAGEMENT, OPERATION, AND MAINTENANCE (CMOM) PROGRAM DOCUMENT

BOROUGH OF NAUGATUCK, CONNECTICUT

June 2019

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF ACRONYMS

CAP- Corrective Action Plan
CCTV- Closed-Circuit Television
CDL- Commercial Driver's License
CMOM- Capacity, Management, Operation, and Maintenance
CTDEEP- CT Department of Energy and Environmental Protection
DPW- Department of Public Works
EPA- Environmental Protection Agency
GIS- Geographical Information Systems
IMA- Inter-Municipal Agreement
NPDES- National Pollution Discharge and Elimination System
OWAM- Oracle Work and Asset Management System
RFP- Request for Proposal
SSO- Sewer System Overflow
SUO- Sewer Use Ordinance
WPCA- Water Pollution Control Authority
WWTF- Wastewater Treatment Facility

EXECUTIVE SUMMARY

Detailed in this capacity, management, operation, and maintenance (CMOM) program document are the practices used to maintain and operate the wastewater collection system in Naugatuck. Development document included conducting a self-assessment by Naugatuck and the contract operator to determine areas in need of improvement in regard to the capacity, management, operations, and maintenance of the collection system. Areas in need of improvement are highlighted and include continuing to update the collection system GIS database, and developing and improving electronic record keeping practices.

This document was prepared in accordance with Environmental Protection Agency's Guide for Evaluating Capacity, Management, Operation and Maintenance Programs at Sanitary Sewer Collection Systems (EPA 305-B-05-002, January 2005). The document is to be maintained at a location that is readily accessible to collection system maintenance staff, the Department of Public Works (DPW), the Engineering Department, the Water Pollution Control Authority (WPCA), and is available for inspection by EPA and CTDEEP.

1. COLLECTION SYSTEM MANAGEMENT

1.1 Organizational Structure

Operations and maintenance of the Naugatuck Wastewater Treatment Facility (WWTF) and the associated wastewater collection, pumping, and interceptor infrastructure are conducted by a contract operations company, and overseen by the Borough of Naugatuck's Water Pollution Control Authority (WPCA). The organizational structure related to the collection system operation and maintenance consists of the Naugatuck WPCA, the Department of Public Works Director, the contractor operator superintendent, a database manager, and two collection system operators. A staff electrician and other plant staff may assist in collection system operations and maintenance as necessary. Most of the daily maintenance and operation of the collection system is performed by the two collection system operators. The organizational chart is shown in **Appendix A**.

The collection system operators, formally referred to as 'Collection System Technicians' are responsible for all aspects of wastewater collection system and pump station inspection and maintenance under the guidance of the superintendent. They must have, or have the ability to obtain within one month, a class B Commercial Driver's License (CDL) with Tanker Endorsement and a NEWEA Collection System Operator Grade II License within three years. The full job description is included as **Appendix B**. There are currently no job vacancies within the collection system maintenance staff; the average length of time positions remain vacant is unknown at this time.

Occasionally outside contractors are hired for internal pipe cleaning, CCTV inspections, small repairs, and large capital projects.

1.2 Training

Well-trained staff are an important facet of a successful utility, and training programs should align with the mission, goals and policies of the utility. All collection system operators are required to complete the following trainings:

- mandatory vacuum truck operation upon initial employment,
- OSHA 10-hour,
- confined space entry,
- hazard communication, and
- lockout tag training.

In addition, all staff must be trained to have a Class B CDL with Tanker Endorsement and have the ability to obtain a NEWEA Collection System Operator Grade II license within three years.

1.2.1 *Safety*

Like training, safety is a very important aspect to a functional and smooth-running collection system. The contract operator provides quarterly online and classroom safety classes to discuss topics such as fire prevention, lockout/tagout, and respiratory protection. The safety class schedule and the Collection System Safety Manual are included in **Appendix C.** All new staff are

trained on the *Emergency Response Plan*, discussed further in Section 2.4, and existing staff are required to review the plan annually.

1.3 Internal Communication

The collection system employees use a company-wide (contractor specific) email service for internal communications. All Naugatuck employees that may be included in collection system maintenance (electrician, DPW, etc.) use a borough-wide email service for internal communication (@naugatuck-ct.gov). Email and telephones are used to increase communication between key personnel.

1.4 Customer Service

The wastewater contract operator receives and logs all customer service inquiries regarding the collection system. Complaints and follow up responses are logged in a paper-based format. During 2019 the existing system will be transitioned to be incorporated into the web-site based complaint system used by the Naugatuck for other municipal matters. Naugatuck staff will work with the contract operator to establish notifications of customer reports. Additionally, customer service of the collection system also includes a notification prior to work being completed in an area, affected homeowners are notified with flyers or by going door-to-door.

Additional contracts, documents and forms pertaining to the collection system operation such as the current Fats, Oils and Grease Pretreatment Ordinance, previous monthly reports, permits, the current incineration lease agreement, etc. are available to the public on the Naugatuck website under the 'Forms & Documents' section.

http://www.naugatuck-ct.gov/content/166/2685.aspx

1.5 Management Information Systems

The current maintenance database used by the contract operator is the Oracle Work and Asset Management system. The database manager inputs maintenance requests into the system as they are received and creates a 6-month work order schedule based on the severity of the issue. All preventative maintenance on the wastewater collection system is reported in monthly reports to the WPCA.

Additionally, the contract operations superintendent has purchased a license for InfoNet, an asset management software program, and is working to implement this software into the everyday procedures of the collection system operators. InfoNet links locational information derived from Geographical Information Systems (GIS) with data storage. The program displays a map of the collection system components, which is linked to a database that contains information about each component ("attribute"), such as pipe length, pipe material, date of installation, manhole number, last inspection date, etc. Data entry and training of collection system technicians are planned, and required prior to successful implementation of this system.

The contract operator will be required to use InfoNet or a similar GIS-based asset management system for the collection system in the next contract.

1.6 SSO Notification Program

Naugatuck is required to submit notification of all sewer system overflows (SSOs). The Connecticut Department of Energy and Environmental Protection (DEEP) manages the required

Municipal bypass reporting. Electronic reporting forms are provided on the CT DEEP website: https://www.ct.gov/deep/cwp/view.asp?A=2719&Q=578824

1.7 Legal Authority

Naugatuck regulates use of the wastewater collection system by residential, industrial, and commercial customers, as well as satellite communities, by means of a Sewer Use Ordinance (SUO) and Inter-Municipal Agreements (IMAs).

1.7.1 *Sewer Use Ordinance*

The SUO regulates use of the wastewater collection system. The SUO has the following Table of Contents and is included in its entirety as **Appendix D**.

SUO Table of Contents

Sec. 19-89. Permit required for industrial wastes.

Sec. 19-90. Special Agreement with Industrial Concerns.

Sec. 19-91-19-105. Reserved.

Sec. 19-121. Repealing clause.

Sec. 19-122. Establishment and designation.

Sec. 19-123. Members.

Sec. 19-124. Reserved.

Sec. 19-125. Specific powers.

Sec. 19-126. Preparation of budgets.

Sec. 19-127. Rules and regulations.

Sec. 19-128. Reserved.

Sec. 19-129. Hiring of personnel.

Sec. 19-130. Repealing clause.

Sees. 19-131-19-135. Reserved.

RATES AND CHARGES

Sec. 19-136. Sewer use charge; connection charge.; permit fee, application fee

1.7.2 *Inter-Municipal Agreement*

Naugatuck has IMAs that regulate wastewater flows from satellite communities into Naugatuck's wastewater collection system. The IMAs outline the terms and details of the agreement, including the term, fees, payment, design, construction, use, permits, repairs and alterations, access, measuring devices and records, insurance, amendment of agreement and payment schedules, disputes and waivers.

Naugatuck has agreements with the following towns:

- Town of Middlebury, dated April, 2011
- Town of Oxford, dated May 20th, 1987
- Town of Beacon Falls, dated August 8th, 1973
- Town of Prospect, dated January 18th, 2005
- Town of Waterbury, dated January 28th, 1985

These IMAs are included as **Appendix E.**

1.7.3 *Industrial Agreements*

Crompton Manufacturing Company, Inc. (CMC), an industrial user, and Naugatuck entered into a Discharge and Access Agreement in April 2001 which allows CMC to discharge pretreated effluent to the Naugatuck wastewater collection system.[1] All industrial users who send waste to

[1] 'WWTS Service Contract Appendices' October 2001, Borough of Naugatuck Website,.

the WWTF are required to obtain a discharge permit from Connecticut DEEP, which includes meeting certain discharge criteria set by the permit.

1.7.4 *Industrial Pretreatment Program*

The Borough does not have a formal Industrial Pretreatment Program; however, the SUO includes multiple regulations that industrial waste producers must follow in order to connect to the sewer network. A few examples are shown below:

Sec. 19-87. Control Manholes.

> When required by the borough, the owner of any property serviced by a building sewer carrying industrial wastes shall install a suitable control manhole together with such necessary meters and other appurtenances in the building sewer to facilitate observation, sampling, and measurement of the wastes. An approved valve or gate shall also be provided in the manhole to prevent the industrial waste from being discharged into the borough sewerage system if it becomes necessary for the borough to reject the industrial waste in accordance with section 19-69.

Sec. 19-89. Permit required for industrial wastes.

> All establishments discharging industrial wastes into the borough's sewerage system shall obtain a permit from the borough. Acceptable average and peak rates of flow and concentrations of pollutants shall be as determined by the borough.

Sec. 19-90. Special Agreement with Industrial Concerns.

> No statement contained in this division shall be construed as preventing any special agreement between the borough and any industrial concern whereby an industrial waste of unusual strength, volume or character may be accepted by the borough for treatment, subject to payment, therefore, by the industrial concern.

Further regulation on industrial sewer production use can be found in the Naugatuck SUO (**Attachment D**).

Accessed March 13, 2018. http://www.naugatuck-ct.gov/filestorage/166/5007/7806/WWTS_Service_Contract_Appendices.pdf

2. COLLECTION SYSTEM OPERATION

2.1 Budgeting

The WPCA's Annual Budget covers all salaries and wages as well as contractual services for the wastewater collection and treatment system. The contract operator is paid annually for the maintenance and operation of the collection system and sanitary sewer rehabilitation. Additionally, collection system spending may be included in debt service to pay back loans that funded collection system projects (i.e. inflow and infiltration investigations, sewer rehab, etc.). A previous budget is included for reference as **Appendix F.**

Naugatuck collects funds for operation and maintenance of the collection system through the tax base for properties on the tax role, and through an annual user fee for IMA communities. The WPCA also collects connection fees for all new connections. A schedule of the connection and IMA user fees is shown on the first two pages of **Appendix D**.

2.2 Monitoring

Monitoring the collection system is imperative in order to keep all pipes clean, clear and minimize the risk of SSOs. In addition to large system-wide studies such as inflow and infiltration (I/I) investigations and the Sewer System Evaluation Study (SSES) discussed further in Section 4.1, approximately 30 miles of pipeline is cleaned and then examined each year using closed-circuit television video (CCTV). Eventually these videos will be linked to the InfoNet database system for the collection system. Sections of pipeline identified as needing repair during the CCTV inspections are added to a project list.

The National Pollution Discharge and Elimination System (NPDES) Permit for the WWTF requires monitoring of the effluent. The NPDES Permit for the WWTF, included as **Appendix G**, specifies the sampling locations, frequencies, and record requirements. No other discharges from the collection system are allowed.

2.3 Hydrogen Sulfide Monitoring and Control

There are two hydrogen sulfide vent filters within the Naugatuck wastewater collection system: one located at the Inwood Pump Station and one where the Town of Middlebury's sewer connects with Naugatuck, off Gun Town rd. Naugatuck does not have any known hydrogen sulfide issues, although the Inwood Pump Station has some signs of corrosion. If needed, rented meters with data storage for temporary monitoring can be obtained by the collection system technicians. Odors from the collection system are not a frequent source of complaint, therefore no hydrogen sulfide monitoring or control has been implemented in the collection system.

2.4 Emergency Preparedness and Response

Naugatuck and the contract operator completed a *Collection System Emergency Response Plan* in March 2018. This document was developed to ensure that should a collection system bypass occur, the volume of untreated wastewater discharged to the environment and the impact of the discharge to the environment and public health will be minimized. This plan includes response procedures, written notices, training procedures, dispatch of personnel, required equipment, etc. Collection system staff is internally trained on emergency response, and a collection system operator is on-call 24 hours a day. The *Collection System Emergency Response Plan* can be found in **Appendix H.**

2.5 Mapping

Naugatuck maintains a GIS database containing the following features:

- Roads
- Parcels
- Sewer service areas
- Sewer Lines

The current sewer lines layer in the database is being updated with more accurate geospatial references, improved manhole identification numbers, and other overall data enhancements. Ninety-eight percent (98%) of the existing collection system is recorded on paper maps, a large majority of which have been scanned into electronic format (PDF). As-built plans are scanned and exist as electronic pdfs and are available to appropriate personnel. Adding additional information to Naugatuck's GIS database has been implemented as a long-term goal.

2.6 New Construction

Currently, no new construction is planned on the wastewater collection system.

2.7 Pump Stations

There are five (5) pump stations in the Naugatuck wastewater collection system:

- Hop Brook Pump Station - 615 Church Street
- Inwood Pump Station - 490 Maple Hill Road
- Horton Hill Pump Station - 541 Horton Hill Road
- Platts Mill Pump Station - 133 Platts Mill Road
- Maple & May Pump Station - 360 Maple Hill Road

Each pump station is inspected weekly. The two collection system operators follow a standard operating procedure for the pump station weekly inspection. The weekly inspection includes the following:

- Recording the run time hours on the pumps.
- Visual inspection of the wet well, pumps, and float system.
- Test of the pump station alarm and communication systems.
- Inspection of the emergency generator.
- Recording the run time for the emergency generator.

Pump station inspection reports are included in the Monthly Operating Reports and reported to the WPCA. A more detailed Pump Station Evaluation is provided in **Appendix I.**

3. EQUIPMENT AND COLLECTION SYSTEM MAINTENANCE

3.1 Maintenance Budgeting

Naugatuck develops a yearly budget for wastewater collection system maintenance. This includes inspecting, cleaning and repair of the wastewater collection system. The previous yearly maintenance costs, for DPW staff, contract operations staff, and subcontractors, are reviewed when setting the budgets for future years. Naugatuck uses this approach to ensure that the budget is based on representative costs from past years.

3.2 Planned and Unplanned Maintenance

3.2.1 *Collection System Inspection and Cleaning*

Approximately 30 miles of pipeline is inspected and cleaned each year. In addition, areas on the 6-month cleaning list are jetted twice yearly to prevent reoccurring issues such as grease build up; this includes about 150,000 feet of high velocity cleaning. Chemical root control is applied once per year to about 4,000 feet of wastewater piping and approximately 1,000 feet of mechanical root control is conducted, as required. Internal inspections with CCTV and the associated cleaning are currently sub-contracted by the contract operator to inspect problematic lines. When problems arise, cleaning, inspection, and repair requirements are determined on a case by case basis. All repair work is completed by local contractors.

Manholes are inspected on an as-needed basis, and rehabilitation maintenance is completed as problems arise. The manhole inspection checklist is included as **Appendix J**.

3.2.2 *VAC Trucks*

The contract operator currently operates one borough owned Vactor truck to aid maintenance and upkeep of the collection system. Naugatuck's DPW also operates an additional Vactor truck for storm sewer maintenance. Planned and unplanned maintenance for these trucks such as oil changes or tire replacements are done on-site at the WWTF. Major engine repairs are completed by a local contractor. Parts for the trucks are also handled through a local contractor.

3.3 Parts and Equipment Inventory

All pump stations have spare pumps, floats and relays on-site at each respective pump station. Spare manhole covers are kept at the WWTF and reordered as used. The collection system operators are currently working to improve inventory tracking. Creating an electronic list for tools, equipment, and spare parts has been implemented as a short-term goal by the contract operator in 2019. The long-term goal is to integrate the electronic list into the current asset management system.

4. SEWER SYSTEM CAPACITY EVALUATION

4.1 Hydraulic Modeling

No hydraulic models of the collection system have been developed however, the WPCA requires developers intending to connect a sanitary sewer lateral from his/her property to the public sewer to first obtain a permit to connect from the Engineering Department (SUO Section 19-64, h, 1).

4.2 New Construction

In order to obtain a sewer connection permit for new subdivision connections, developers are required to complete a wastewater collection system capacity analysis to ensure the collection system in that area of the borough has additional capacity. The application should be accompanied by a sketch or plan showing the proposed installation. Connections are allowed only after the permit has been issued by the Engineering Department and the plumbing in the building(s) has been approved by the Building Inspector.

4.3 Flow Monitoring

An Infiltration and Inflow (I/I) Analysis of the Borough of Naugatuck's sanitary sewer collection system was performed over an 11-week period from April to June 2013. Storm data was reviewed to determine the correlation between precipitation and wastewater flow in the collection system. Groundwater data was also collected during this time to improve monitoring results. This I/I study, completed in April 2015 and revised in October 2017, included a few different types of monitoring such as flow isolation, CCTV inspections, and manhole inspections. This I/I report is included as **Appendix K**.

The goal of the I/I study discussed above was to identify subsystems within the collection system that would require further investigations as part of a Sewer System Evaluation Survey (SSES). This report was completed in 2017, and included the following:

- A smoke testing program performed in four subareas, covering over 145,000 feet of sewer segments.
- Greater than 123 building inspections. • 206 manhole inspections.
- Dyed-water flood testing.
- 45,000 feet of flow isolation metering.
- 12,715 feet of internal CCTV inspections in areas of previously recorded high infiltration and/or inflow.

The results of this monitoring event can be found in the Final SSES Report, **Appendix L.**

4.4 Sewer System Testing

Flow isolation, CCTV and manhole inspections, and smoke testing have all been completed on portions of the Naugatuck wastewater collection system. Details are included in the I/I Analysis Report included in **Appendix K**.

4.5 Sewer System Inspection

This is discussed in-depth above in Section 3.2.1.

5. SEWER SYSTEM REHABILITATION

The development of an I/I Control Plan is included as a long-term goal in the Naugatuck CMOM Corrective Action Plan (CAP) **(Appendix M).** The I/I Control Plan will be developed and implemented to address the recommendations developed from the SSES study described in Section 4. Naugatuck currently has an RFP (Request for Proposal) out for a new contract operator to maintain and operate the WWTF and wastewater collection system. Responses to the RFP are due in May 2019, and a new contract will be developed by the end of 2020; the new operations contract will commence in August 2022. The I/I Control Plan will be developed after the costs of the new contract for operations are determined and negotiated. This I/I Control Plan could include projects such as manhole rehabilitation, separation and pipe improvements, investigating and repairing cross connections, a private inflow removal program, investigating suspect sources, catch basin repair, dye testing, building inspections, and anything else proven necessary and cost effective.

The Borough currently provides dedicated funding for Sanitary Sewer Repair and Rehabilitation. Current funding levels are sufficient to complete all emergency repairs as well as complete smaller rehabilitation projects, i.e. manhole repairs, line replacements, and point repairs. With the implementation of the short and long-term goals discussed in the CAP, Naugatuck will be able to continue to develop a proactive rehabilitation program that accounts for age, risk, capacity, and conditions of the current collection system.