

Memorandum

To: Mayor Elinor Carbone and Water Pollution Control Authority

CC: Ray Drew, DPW
Pennie Zucco, Purchasing Agent
Carol Anderson

From: Edward Tousey, Administrator WPCA

Date: 4/1/2021

Re: RFP #HMS-030-031221, HAULING AND DISPOSAL OF DEWATERED MUNICIPAL SEWAGE SLUDGE

1. Vote by City Council herein acting as the Water Pollution Control Authority to accept the recommendation of the WPCA Administrator, enter into contract negotiations with Naugatuck Environmental Technologies, LLC (Veolia) for Sludge hauling and disposal of Torrington WPCA's Dewatered Municipal sludge.

The unit bid prices presented in Naugatuck Environmental Technologies (NET) could not be compared to those provided by Synagro fairly; thus calculations were made utilizing some assumptions so the cost per wet ton of sludge picked up, transported, and disposed of could be compared fairly.

Assumptions made are as follows:

- Average of 17 wet tons per truckload in each 30 CY ROC
- Dewatered cake sludge ranges between 25% and 28%

Based on the average of the four calculated unit costs per wet ton of sludge ranging between 25% and 28%, NET has the lower cost per wet ton than Synagro (\$129.88/WT versus \$133/WT). Therefore, the City of Torrington has decided to award the contract to NET."

4/1/2021 1:02 PM

RECEIVED FOR RECORD
TORRINGTON TOWN CLERK

March 30, 2021
W-P Project No. 13164L

Edward F. Tousey III, WPCA Administrator
City of Torrington WPCF
252 Lower Bogue Road
Harwinton, CT 06791

Subject: Hauling and Disposal of Dewatered Municipal Sewage Sludge
RFP #HMS-030-031221
Evaluation of Bids

Dear Ed,

We have completed our review of the two RFP #HMS-030-031221 bid packages (Naugatuck Environmental Technologies, LLC and Synagro Northeast, LLC) that were received on March 25th, 2021 for the Hauling and Disposal of Dewatered Municipal Sewage Sludge. Based on our professional judgement, we are not aware of any apparent reason why this contract should not be awarded to Naugatuck Environmental Technologies, LLC (Veolia). Should the City decide to proceed with the contract award, at your request, we are able to assist with the contract execution.

Bid Packages Summary

Naugatuck Environmental Technologies, LLC provided a unit price of \$400 per dry ton of sludge disposed plus an additional \$406 per truckload of sludge transported. The permanent and temporary sludge hauling roll off containers were bid at \$40,000 and \$6,000 (both lump sums) respectively. Naugatuck Environmental Technologies would subcontract with H.I. Stone to fabricate and supply three temporary and permanent roll off containers. The primary disposal facility was listed as the Incinerator Facility at the Naugatuck Water Pollution Control leased and operated by Naugatuck Environmental Technologies, LLC (NET) located in Naugatuck, CT. The secondary disposal facility was listed as the Turnkey Landfill operated by Waste Management located in Rochester, NH.

Synagro Northeast, LLC provided a unit price of \$133.00 per wet ton (all inclusive) of dewatered sludge - pick-up, transport, and disposal. The permanent and temporary sludge hauling roll off containers were bid at \$41,500 and \$6,000 (both lump sums) respectively. Synagro Northeast indicated that the City of Torrington would be required to separately contract with H.I. Stone for the fabrication and supply of three temporary and permanent roll off containers. It is the City of Torrington's option to find this condition acceptable, or not, based on the City's financial and contractual preferences should the award go to Synagro. The primary disposal facility for listed as Synagro Northeast, LLC Incinerator Facility located in Waterbury, CT. The secondary disposal facility was listed as the Incinerator Facility located in Naugatuck, CT (NET).



Bid Evaluation / Comparison

The unit bid prices presented in NET's proposal could not be compared to those provided by Synagro fairly; thus calculations were made utilizing some assumptions so the cost per wet ton of sludge picked up, transported, and disposed of could be compared fairly.

Four different scenarios are presented below; assuming 17, 16, 15, and 14 wet tons per each 30 CY roll-off container (ROC). It is our understanding that *Comparison No. 1* appears to be the expected and average condition based on industry standard and previous experience by the hauler; 17 wet tons / 30 CY ROC is considered to be an optimized condition based on the expected weight of the custom fabricated ROCs planned for the Torrington project.

Comparison #1 – 17 Wet Tons

Assumptions made for NET's proposal, include:

- Average of 17 wet tons per “truckload” in each 30 CY roll off container
- Average cost of \$23.88 / wet ton for transport of sludge (NET)
- Dewatered cake sludge will (under full optimization of the sludge process) range between 25% and 28% as outlined in the RFP

**Table 1. FY2022 Summary of Costs Per Wet Ton (WT)
17 Wet Tons / 30 CY ROC**

% Solids	Naugatuck Environmental Technologies, LLC	Synagro Northeast, LLC (“Synagro”)
25%	\$123.88 / WT	\$133 / WT
26%	\$127.88 / WT	\$133 / WT
27%	\$131.88 / WT	\$133 / WT
28%	\$135.88 / WT	\$133 / WT

Based on the average of the four calculated unit costs per wet ton of sludge ranging between 25% and 28%, NET has the lower cost per wet ton than Synagro (\$129.88 / WT versus \$133 / WT).

Comparison #2 – 16 Wet Tons

Assumptions made for NET's proposal, include:

- Average of 16 wet tons per “truckload” in each 30 CY roll off container
- Average cost of \$25.38 / wet ton for transport of sludge (NET)
- Dewatered cake sludge will (under full optimization of the sludge process) range between 25% and 28% as outlined in the RFP



**Table 2. FY2022 Summary of Costs Per Wet Ton (WT)
 16 Wet Tons / 30 CY ROC**

% Solids	Naugatuck Environmental Technologies, LLC	Synagro Northeast, LLC (“Synagro”)
25%	\$125.38 / WT	\$133 / WT
26%	\$129.38 / WT	\$133 / WT
27%	\$133.38 / WT	\$133 / WT
28%	\$137.38 / WT	\$133 / WT

Based on the average of the four calculated unit costs per wet ton of sludge ranging between 25% and 28%, NET has the lower cost per wet ton than Synagro (\$131.38 / WT versus \$133 / WT).

Comparison #3 – 15 Wet Tons

Assumptions made for NETs proposal, include:

- Average of 15 wet tons per “truckload” in each 30 CY roll off container
- Average cost of \$27.07 / wet ton for transport of sludge (NET)
- Dewatered cake sludge will (under full optimization of the sludge process) range between 25% and 28% as outlined in the RFP

**Table 3. FY2022 Summary of Costs Per Wet Ton (WT)
 15 Wet Tons / 30 CY ROC**

% Solids	Naugatuck Environmental Technologies, LLC	Synagro Northeast, LLC (“Synagro”)
25%	\$127.07 / WT	\$133 / WT
26%	\$131.07 / WT	\$133 / WT
27%	\$135.07 / WT	\$133 / WT
28%	\$139.07 / WT	\$133 / WT

Based on the average of the four calculated unit costs per wet ton of sludge ranging between 25% and 28%, NET has a higher cost per wet ton than Synagro (\$133.07 / WT versus \$133 / WT).

Comparison #4 – 14 Wet Tons

Assumptions made for NETs proposal, include:

- Average of 14 wet tons per “truckload” in each 30 CY roll off container
- Average cost of \$27.07 / wet ton for transport of sludge (NET)
- Dewatered cake sludge will (under full optimization of the sludge process) range between 25% and 28% as outlined in the RFP



**Table 4. FY2022 Summary of Costs Per Wet Ton (WT)
14 Wet Tons / 30 CY ROC**

% Solids	Naugatuck Environmental Technologies, LLC	Synagro Northeast, LLC ("Synagro")
25%	\$129.00 / WT	\$133 / WT
26%	\$133.00 / WT	\$133 / WT
27%	\$137.00 / WT	\$133 / WT
28%	\$141.00 / WT	\$133 / WT

Based on the average of the four calculated unit costs per wet ton of sludge ranging between 25% and 28%, NET has a higher cost per wet ton than Synagro (\$135 / WT versus \$133 / WT).

In summary, Synagro and NET both provide comparable prices under some conditions. For instance, if the Torrington WPCF was expected to consistently produce 26.5% sludge cake and load 15 wet tons / 30 CY ROC, the price per wet ton from Synagro and NET are both the same. It is difficult to project expected dewatering operations as it will fluctuate as the process changes. NET offers some cost reduction potential because the sludge cake % solids is likely not meant to be consistent at all times. If the WPCF also desires to optimize polymer consumption, NET offers some cost reduction potential because the cost per wet ton will be cheaper if the sludge cake produced is lower than 25%.

Should you have any questions or require additional information, please do not hesitate to call.

Sincerely,
WRIGHT-PIERCE

Lisa M. Muscanell-DePaola, PE
Project Manager
lisa.muscanell@wright-pierce.com
(860) 852-1912

cc: Christine Kurtz, PE, Senior Project Manager – Wright-Pierce



March 25, 2021

City of Torrington
Office of the Purchasing Agent
Room 206, City Hall,
140 Main Street
Torrington, Connecticut 06790
Attention: Ms. Pennie Zucco - Purchasing Agent

Subject: **Bid/Proposal: RFP# HMS-030-031221: Bid/Proposal for Hauling and Disposal of Dewatered Municipal Sewage Sludge**

Dear Ms. Zucco:

Naugatuck Environmental Technologies, LLC (NET) has prepared this Bid/Proposal in response to the **City of Torrington's** Request for Bid/Proposal (RFP) and the Addenda to that.

As the current service provider to the City for this service under an agreement that has been in place since 2010, we understand the requirements for this new (renewal) agreement.

Our Bid/Proposal that follows has been prepared to meet the requirements of the City's Information for Bidders/Request for Proposal (IFB) and is based on the understanding that this new contract will be a three year term, starting on July 1, 2021, and will be automatically extended for two additional one year terms – with a total contract duration of five years.

The base contract will cover the continued removal of dewatered sludge from the City's Water Pollution Control Facility, and the transport and final disposal of the solids.

Our Proposal includes this Transmittal Letter, the attached RFP/Bid form, 7.0 – Sewage Sludge Hauling/ Disposal Fee Form (as reissued under Addendum No. 2), the attached Non-Collusion Affidavit Form, as well as other information that is requested as part of the RFP and Instructions to Bidders (all included as Attachments at the end of this letter).

This Proposal/Bid remains valid for a period of 90 days from the closing date for this submission. It is being submitted as an Executed Original and one Copy.

In response to the other items requested in the RFP, Veolia has prepared the following responses:

4.0 - Qualifications of Proposers

NET meets and exceeds the minimum of 5-years of experience standard for the disposal of dewatered wastewater biosolids through our current and past work with the City of Torrington, and other work in the State of Connecticut and the New England region at large.

NET was established in 2001, as a direct subsidiary of Veolia Water North America Operating Services, LLC (Veolia), and our company manages operations of our company's merchant biosolids operations in a regional service area that include the New England and New York region.

The Naugatuck Merchant Plant, located at 500 Cherry Street (Naugatuck, Connecticut), will remain as the primary disposal site for the sludge from the City of Torrington. This merchant facility, which is co-located and the site of the Borough's wastewater treatment plant, which is also operated and managed by NET. That plant utilizes a sewage sludge incinerator subject to various regulations including: 40 CFR 62 Subpart LLL; 40 CFR 503 Subpart E; and CGS 22a-174-3a. The Naugatuck facility operates under Operating Permit Number 109-0081, as issued under the latter regulation through the State of Connecticut's Department of Energy and Environmental Protection. The plant receives liquid sludge and sludge cake, both from our on-

In 2019, Veolia manages the hauling and disposal of 17,122 wet tons (4,555 dry tons) of sludge from Brockton's Advanced Wastewater Treatment Facility for end disposal via incineration at Veolia merchant biosolids operation at the Borough of Naugatuck, Connecticut.

Period of time contractor performed service: 2017 to Present
(Contract was renewed in 2021 for a new term.)

Total annual dollar amount of service invoiced: \$1,881,557

- **City of Westfield, Massachusetts** – NET is the current contract with responsibility for the hauling and disposal of dewatered cake sludge removal, transportation and final disposal:

Client name, address and contact person:

Ms. Tammy Tefft, Chief Procurement Officer
City of Westfield
59 Court Street, Westfield, MA 01085
Telephone: (413) 572-6254 - Email: t.tefft@cityofwestfield.org

Nature and amount of waste managed and method of disposal or beneficial reuse:

Veolia manages the hauling and disposal of 5,279 wet tons (1,000 dry tons) of municipal digested wastewater sludge, with end disposal via incineration at Veolia's merchant operations at the Borough of Naugatuck, Connecticut.

Period of time contractor performed service: Two Terms
- July 2008 to June 2014 and July 2017 to Present

Total annual dollar amount of service invoiced: \$523,255

- **City of West Haven, Connecticut** – NET is the current contract with responsibility for the hauling and disposal of dewatered cake and liquid sludge removal, transportation and final disposal:

Client name, address and contact person:

Mr. Jack Crosby, Water Pollution Control Commission Superintendent
City of West Haven, Connecticut
355 Main Street, West Haven, CT 06516
Telephone: (203) 937-3575, Ext. 3026 - Email: jcrosby@westhaven-ct.gov

Nature and amount of waste managed and method of disposal or beneficial reuse:

Veolia manages the hauling and disposal of 10,200 wet tons (1,865 dry tons) of municipal wastewater sludge, with end disposal via incineration at Veolia's merchant operations at the Borough of Naugatuck, Connecticut.

Period of time contractor performed service: June 2017 to Present

Total annual dollar amount of service invoiced: \$544,157

Our key qualifying experience remains NET's work under the current agreement with the services that are being procured under this new RFP.

Financial Information

NET is a subsidiary company of Veolia Water North America Operating Services, LLC, and our company continues to maintain the financial resources that will be needed to meet the ongoing delivery of services to the City of Torrington, as we have done over the current agreement with your community.

In support of that Bid/Proposal, we have provided a copy of the audited financial statements for our parent

would need to clarify the terms and conditions that shall govern the work. Within the Bid materials, there are references to terms that are not identified in detail. Also, there are also a small number of terms that Veolia's governance requires, including but not limited to a customary exclusion of consequential/indirect damages for both parties, and establishment of a reasonable liability limit based on the scope/value of the contract. Veolia is confident that fair and reasonable terms can be established expeditiously, and its bid shall be subject to agreement on such terms.

In summary, the information provided in this Transmittal Letter, the referenced Attachments and our separate Cost Proposal (Proposal Form 6), provide our complete Proposal/Bid submittal.

Subcontractors

NET understands that as the successful bidder we will not employ any subcontractor(s) to fulfill any of the duties herein specified without express, prior written approval of the City of Torrington or its designated agent. In that regard, we will continue to use H.I. Stone & Sons, Inc. as our primary hauling contract.

Their role has been approved under the current agreement, and they provide liquid sludge hauling and sludge cake hauling from various wastewater operations in New England for processing at NET's Naugatuck merchant plant.

H.I. Stone employs a staff of more than 50 employees and is a fully bonded and insured construction and trucking company. The majority of work is self-performed with company owned equipment and trucks. This firm is a family owned business, established in the 1940s and headquartered in Southbury, Connecticut.

Pricing: Wet Ton vs. Dry Ton Pricing

The City has requested first year pricing to be per wet ton of dewatered sludge transported and disposed. NET is taking exception to the single rate transportation and disposal rate on a wet ton basis. Payload and sludge water content is not within NET's control. NET is proposing a separated transportation rate (\$ / truckload) and disposal rate (\$ / dry ton of sludge disposed). The bid form has been modified accordingly.

The chart below demonstrates the impacts of % dry solids content of the dewatered sludge cake AND wet tons loaded per roll off container with respect to total transportation and disposal pricing. The quantity of wet tons and the number of truckloads are variables that the City can manage and optimize to minimize price by maximizing dewatered cake dryness and the wet tons loaded (up to the legal CT DOT weight limit).

Torrington Cost Impact of Sludge Payload & Sludge Dry Solids Content			
\$/Wet Ton Transportation & Disposal Rate			
	%Dry Solids of Wet Sludge (by weight)		
Wet Ton per Truckload	20%	24%	27%
14	\$109	\$125	\$137
16	\$105	\$121	\$133
17	\$104	\$120	\$132
Annual Sludge Transportation & Disposal Cost			
	%Dry Solids of Wet Sludge (by weight)		
Wet Ton per Truckload	20%	24%	27%
14	\$686,888	\$656,429	\$639,507
16	\$664,044	\$637,392	\$622,586
17	\$654,637	\$629,553	\$615,618
1260 Dry Ton / Year based on average 5 year trend from 2016 - 2020			
Base on unit price disposal rate of \$400 per Dry Ton of sludge disposed AND \$406 per Truckload delivered to Naugatuck			

Attachment 4 – Disposal Facility Capacity Documentation

Attachment 5 – Financial Statements for Veolia Water North America Operating Services, LLC
(Parent company of NET, and financial information is consolidated at this parent
company level for the purposes of reporting.)

**CERTIFICATE OF ASSISTANT SECRETARY
OF
NAUGATUCK ENVIRONMENTAL TECHNOLOGIES LLC**

The undersigned, Whitney Fawcett, Assistant Secretary of Naugatuck Environmental Technologies LLC, a Connecticut limited liability company (the "Company"), does hereby certify that Daniel Gorka is the duly elected and acting Vice President of the Company and in such capacity is authorized to execute contracts and make commitments with regard to the following project:

**HAULING AND DISPOSAL OF
DEWATERED MUNICIPAL SEWAGE SLUDGE
CITY OF TORRINGTON, CONNECTICUT
DEPARTMENT OF PUBLIC WORKS**

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the Company this 16th day of March, 2021.


Whitney Fawcett, Assistant Secretary

SEAL

Naugatuck Environmental Technologies
Merchant Biosolids Facility
Naugatuck, Connecticut



Attachment 1:
RFP/Bid Form 7.0 –
Sewage Sludge Hauling/ Disposal Fee Form

7.0 Sewage Sludge Hauling/Disposal Proposal Fee Form

The undersigned proposes to furnish the service, including all labor and materials required, based on the information contained in the Request for Proposals for the unit prices indicated below.

Item	Unit Price
<i>Dewatered Sewage Sludge</i> Firm fixed 1-year cost per wet ton to pick-up, transport and dispose of dewatered sewage sludge in customized roll off containers. Subsequent years subject to CPI increase per Addendum 3	\$ 400 Per Dry Ton of sludge Disposed \$ 406 Per Truckload of sludge transported*
<i>Sludge Hauling Roll Off Containers (Permanent)</i> Cost to fabricate and permanently provide to the City three (3) customized roll-off containers meeting the specifications included herein on or about August 11 th , 2021.	\$ 40,000 Lump Sum
<i>Sludge Hauling Roll Off Containers (Temporary)</i> Cost to temporarily provide to the City three (3) roll-off containers meeting the temporary specifications herein on or about June 1 st , 2021.	\$ 6,000 Lump Sum

***Fuel Surcharge based on actual mileage and on the PADD1A, New England weekly rate as posted on the website.**

Note: Price shall not include any Federal, State, or local taxes, as the City is not liable. This Project is NOT subject to State of Connecticut prevailing wage laws and the Davis Bacon Act.

Primary Disposal Facility	Incineration Facilities at the Naugatuck Water Pollution Control leased and Operated by Naugatuck, Environmental Technologies, LLC located at 500 Cherry Street, Naugatuck, CT 06770
Back-Up / Secondary Disposal Facility	Turnkey Landfill operated by Waste Management Located at 176 Rochester Neck Road, Rochester, NH 03839

ADDENDA: Receipt of Addenda numbers 1, 2 and 3 is hereby acknowledged and reflected herein.

SUBMITTED on March 25, 2021

By Daniel J. Gorka
(Proposer Name – Printed Name of Person Authorized to Sign)

By 
(Proposer Name – Signature of Person Authorized to Sign)

Vice President
(Title of Individual)

Business Name: Naugatuck Environmental Technologies, LLC

Business address: 500 Cherry Street, Naugatuck, Connecticut 06770

Phone: (401) 265-1085 Email: daniel.gorka@veolia.com

Federal Tax Identification Number: (FEIN) 06-1631043

Company Confidential – Trade Secret and Proprietary Information - Veolia



Attachment 2: **Non-Collusion Affidavit Form**

CITY OF TORRINGTON, CT DEPARTMENT OF PUBLIC WORKS
REQUEST FOR PROPOSALS
HAULING AND DISPOSAL OF DEWATERED MUNICIPAL SEWAGE SLUDGE RFP
#HMS-030-031221

BID/PROPOSAL FORM
Bid # RFP # HMS-030-031221

NON-COLLUSION AFFIDAVIT

STATE OF Connecticut COUNTY OF New Haven

I, Daniel J. Gorka, being first duly sworn, deposes and says that:

1. I am Vice President of Naugatuck Environmental Technologies, LLC,
the Bidder that has submitted the attached Bid for "RFP# HMS-030-031221 - Bid/Proposal for Hauling
and Disposal of Dewatered Municipal Sewage Sludge";
2. I am fully informed respecting the preparation and contents of the attached Bid and of all
pertinent circumstances respecting such bid;
3. Such Bid is genuine and is not a collusive or sham Bid;
4. Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or
parties of interest, including this affiant, has in any way colluded, conspired, connived or agreed directly or
indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with such
Contract, for which the attached Bid has been submitted nor has it in any manner, directly or indirectly,
sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix
the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of
the Bid price or the price of any Bidder, or to secure through any collusion, conspiracy, connivance or
unlawful agreement any advantage against the City of Torrington or any person interested in the proposed
Contract; and
5. The price or prices quoted in the attached Bid are fair and proper and are not tainted by any
collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents,
representatives, owners, employees, or parties in interest, including this affiant.

(Printed) Daniel J. Gorka

(Signed) [Signature]

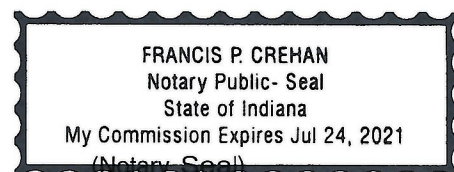
(Title) Vice President

Subscribed and sworn to before this 24th day of March, 20 21.

Francis P. Crehan
Notary Public Printed

[Signature]
Notary Public Signature

My Commission Expires July 24, 2021



NOTE: Documents must be signed before and sealed by a Notary Public. Only documents bearing a notary seal will be accepted.



Attachment 3:

Disposal Facility Documentation



Connecticut Department of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

79 Elm Street • Hartford, CT 06106-5127

www.ct.gov/deep

Affirmative Action/Equal Opportunity Employer

JUN 03 2019

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

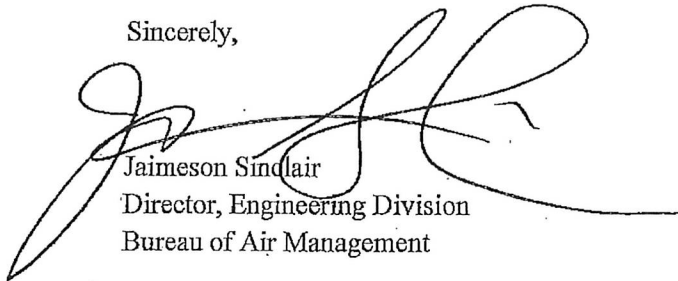
Dear Mr. Stewart:

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




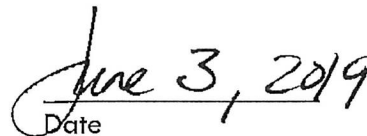
Connecticut Department of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

**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 03 2019
Prior Permit Issue Dates	4/1/02, 9/6/05, 4/23/09 and 5/7/10
Expiration Date	None


Betsey C. Wingfield
Deputy Commissioner


Date

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; $\leq 12,070$ cf/hr for natural gas
 - c. Lance Burner Auxiliary Fuel Rate: ≤ 225 gal/hr for No. 2 oil; $\leq 32,000$ 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 H₂O (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 H₂O

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 60.51 a, 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 ₂ SO 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 RCRA §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% O₂)*
 - *HAP (Be, Cd, Dioxins/Furans, HCl, Hg, H₂SO₄): 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 RCRA §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 ₂ O
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% O₂ does not apply during periods of startup or shutdown. Use the measured CO concentration without correcting for O₂ concentration in averaging with other CO concentrations (corrected to 7% O₂) 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 $\pm 5\%$ 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, PM₁₀, PM_{2.5}, SO₂, NO_x, 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 an 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 taken 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 ☒ PM₁₀ ☐ PM_{2.5} ☒ SO₂ ☒ NO_x ☒ CO
☒ VOC/HC ☒ Opacity
☒ Other (NSPS): Be, Hg
☒ Other (HAPs): Pb, HCl, H₂SO₄, 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, PM₁₀, 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. PM₁₀, SO₂, NO_x, VOC/HC, CO, Pb, HCl, H₂SO₄: lb/DT
 - b. Ash, sulfur content: %
 - c. PM₁₀, Pb, Cd: mg/dscm @ 7% O₂
 - d. SO₂, NO_x, CO, HCl: ppmvd @ 7% O₂
 - e. Be, Hg: lb/24-hr period
 - f. Dioxins/Furans (total mass basis or toxic equivalency basis): ng/dscm @ 7% O₂
 - g. VOC/HC, HAPs, metals: µg/m³
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 PM₁₀ shall include determination of:

- a. percent ash content in the sludge;
 - b. compliance with the PM₁₀ emission limit; and [40 CFR §60.152(a)(1)]
 - c. PM₁₀ 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, SO₂, Cd, Pb and fugitive emissions from 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.



Attachment 4: **Disposal Facility Capacity Documentation**

**SLUDGE PROCESSING SITE CERTIFICATION
(Primary Cake and Disposal Location)**

I, Christopher Makuch, am the Project Manager
(authorized disposal facility representative) (title)

for Naugatuck Environmental Technologies, LLC
(company name of disposal facility operator)

who operates a sludge processing site at the following location, listed by name and address:

Naugatuck Water Pollution Control Facility
500 Cherry Street, Naugatuck, CT

On behalf of the Proponent, Naugatuck Environmental Technologies, LLC, hereinafter referred to as the Contractor, I have reviewed the City of Torrington, CT Request for Proposals – Hauling and Disposal of Municipal Sewage Sludge RFP #HMS-030-031221.

The above named Facility is approved to accept municipal wastewater residuals (sludge) and has adequate and sufficient processing capacity to service the contract term at the following processing site, identified by site name and address:


City of Torrington Water Pollution Control Facility
252 Lower Bogue Road, Harwington, CT

If the City of Brockton awards this contract to the Contractor, Naugatuck Environmental Technologies, LLC is able to provide the Contractor with adequate and sufficient processing capacity to service this contract for its entire term. The current permitted capacity is 84 dry tons per day, on a 30 day rolling average. The current processing rate is 75.3 dry tons per day on a 12 month rolling average from December 2019 – November 2020.

Naugatuck Environmental Technologies, LLC operates the processing site listed above in compliance with current federal and state laws and regulations:

The facility operates under CT DEEP NSR Permit No. 109-0081 and is also in compliance with 40 CFR 62 Subpart LLL.

Naugatuck Environmental Technologies, LLC
(company name of disposal facility owner/operator)

Christopher Makuch, Project Manager: 
(authorized disposal facility representative printed name, title and manager)



Attachment 5:
Financial Statements
for
Veolia Water North America Operating Services, LLC
(Parent company of NET, and financial information
is consolidated at this parent company level
for the purposes of reporting.)

Veolia Water North America Operating Services, LLC
Balance Sheet (Unaudited IFRS) - December 31 2019 and December 31 2018

In USD Million

	Year Ended 2018	Year Ended 2019
ASSETS		
Goodwill & Intangibles with Indefinite Useful Life (Net)	176.3	176.1
Intangible Assets with Finite Useful Life (Net)	40.5	32.8
Tangible Assets (Net)	35.0	49.7
Non-Current I12 & I4 Financial Assets	35.5	32.7
Non-Current Financial Loans and Receivables (Net)	6.5	0.1
Investments in Subsidiaries	8.6	8.6
Other Non Current Financial Assets	4.3	5.0
Non-Current Financing Related Assets	2.6	2.9
Deferred Tax Assets (Non-Current)	28.7	27.7
Net Non-Current Assets	338.0	335.6
Current I12 & I4 Financial Assets	4.7	2.8
Inventory and Work in Progress	14.0	15.1
Operating Receivables (Current)	162.0	164.4
Loans, Receivables & Other Current Financial Assets	2.2	0.1
Current Financing Related Assets	4.6	4.6
Tax Receivables (Current)	-	0.0
Cash and Cash Equivalents (Net)	56.1	117.7
Net Current Assets	243.6	304.7
Assets Held for Sale	-	-
TOTAL ASSETS	581.6	640.3

In USD Million

	Year Ended 2018	Year Ended 2019
LIABILITIES & SHAREHOLDERS' FUNDS		
Group Shareholders' Funds	276.0	330.8
Shareholders' Equity Attributable to Non Controlling Interest	-	-
Shareholders' Funds	276.0	330.8
Provisions (Non-Current)	46.0	42.4
Financial Liabilities (Non-Current)	16.8	21.5
Non current Payables Relating to IFRIC 12 (Fixed Royalties)	6.0	3.3
Non-Current Deferred Tax Liabilities	42.9	44.7
Non-Current Liabilities	111.7	111.9
Provisions (Current)	7.9	7.5
Financial Liabilities (Current)	19.8	32.0
Operating Liabilities (Current)	160.2	153.5
Tax Liabilities (Current)	0.0	-
Payables on Acquisition of Non-Current Assets (Current)	3.5	2.1
Current Payables Relating to IFRIC 12 (Fixed Royalties)	2.5	2.7
Current Liabilities	194.0	197.7
Liabilities on Assets Held for Sale	-	-
TOTAL LIABILITIES & SHAREHOLDERS' FUNDS	581.6	640.3

Income Statement (Unaudited IFRS) - December 31 2019 and December 31 2018

<i>In USD Million</i>	Year Ended 2018	Year Ended 2019
Revenue	726.0	744.5
Cost of Sales	(604.7)	(627.2)
Selling, General and Administrative Costs	(48.5)	(48.0)
Other (including restructuring costs)	(0.3)	(0.2)
Operating Income from Joint Ventures	1.1	0.9
Operating Income	73.7	70.0
Cost of Net Financial Debt	(0.4)	(0.5)
Dividends	0.4	0.0
Other Financial Expenses / Revenue	(5.5)	(6.2)
Net Profit Before Taxes	68.2	63.4
Tax on Profit and Loss in the Period	(2.6)	(3.6)
Deferred Taxes	(10.6)	(3.1)
Net Profit or Loss in the Period	55.0	56.6
Non Controlling Interests	1.4	2.9
Net Profit or Loss Attributable to the Group	56.4	59.5

Cash Flows Statement (Unaudited IFRS) - December 31 2019 and December 31 2018

<i>In USD Million</i>	Year Ended 2018	Year Ended 2019
Net Profit Or Loss	55.0	56.6
Operating Provisions (Other Than Working Capital)	17.0	13.2
Financial Provisions	0.0	0.0
Profit or Loss of Joint Ventures	(1.1)	(0.9)
Dividends	(0.4)	(0.0)
Net Financial Debt Cost	0.4	0.5
Tax on Profit (Incl Deferred Tax)	13.2	6.7
Other Income and Expenses	1.9	2.2
Change in Operating Working Capital (Net)	1.1	(2.1)
Change in Payables relating to IFRIC 12 (Fixed Royalties)	(2.9)	(2.5)
Tax Paid	(3.2)	(3.3)
Net Cash Flows from Operations	81.0	70.5
Industrial Investments Net of Subsidies	(6.0)	(14.2)
Discontinued Business	0.6	1.6
Financial Investments	(23.6)	-
Financial Disposals	-	0.3
Financial Assets Purchased I12 & I4	(0.0)	(0.1)
I12 & I4 Financial Assets Repayment	4.5	4.8
Dividends Received (Non Consolidated Companies)	0.4	0.0
Change in Receivables and Other Financial Assets	(1.5)	(0.5)
Net Investment Cash Flows	(25.6)	(8.0)
Change in Financial Liabilities	4.7	(0.5)
Repayment of Long Term Borrowings & Other Financial Liab.	-	(0.3)
Total Liquid Assets and Financing-Related Assets	(0.3)	(0.3)
Dividends Paid	(62.8)	-
Net Financial Interest	(1.1)	(1.5)
Net Financing Cash Flows	(59.5)	(2.5)
Net Cash Impact of Foreign Exchange Translation	(0.7)	1.7
CHANGE IN NET CASH POSITION	(4.8)	61.6
Opening Cash Balance including Short Term Current Account	60.9	56.1
Closing Cash Balance including Short Term Current Account	56.1	117.7

Veolia Water North America Operating Services, LLC
Balance Sheet (Unaudited IFRS) - December 31 2018 and December 31 2017

In USD Million

	Year Ended 2017	Year Ended 2018
ASSETS		
Goodwill & Intangibles with Indefinite Useful Life (Net)	168.6	176.3
Intangible Assets with Finite Useful Life (Net)	36.1	40.5
Tangible Assets (Net)	34.4	35.0
Non-Current I12 & I4 Financial Assets	40.3	35.5
Non-Current Financial Loans and Receivables (Net)	0.4	6.5
Investments in Subsidiaries	8.6	8.6
Other Non Current Financial Assets	11.1	4.3
Non-Current Financing Related Assets	2.3	2.6
Deferred Tax Assets (Non-Current)	36.6	28.7
Net Non-Current Assets	338.4	338.0
Current I12 & I4 Financial Assets	4.6	4.7
Inventory and Work in Progress	13.6	14.0
Operating Receivables (Current)	157.5	162.0
Loans, Receivables & Other Current Financial Assets	0.3	2.2
Current Financing Related Assets	4.6	4.6
Cash and Cash Equivalents (Net)	60.9	56.1
Net Current Assets	241.5	243.6
Assets Held for Sale	-	-
TOTAL ASSETS	579.9	581.6

In USD Million

	Year Ended 2017	Year Ended 2018
LIABILITIES & SHAREHOLDERS' FUNDS		
Group Shareholders' Funds	284.4	276.0
Shareholders' Equity Attributable to Non Controlling Interest	-	-
Shareholders' Funds	284.4	276.0
Provisions (Non-Current)	45.4	46.0
Financial Liabilities (Non-Current)	20.3	16.8
Debt Due to Affiliates	-	-
Other Non-Current Liabilities	-	-
Non current Payables Relating to IFRIC 12 (Fixed Royalties)	8.6	6.0
Non-Current Deferred Tax Liabilities	40.1	42.9
Non-Current Liabilities	114.4	111.7
Provisions (Current)	9.1	7.9
Financial Liabilities (Current)	11.6	19.8
Operating Liabilities (Current)	156.7	160.2
Tax Liabilities (Current)	0.4	0.0
Payables on Acquisition of Non-Current Assets (Current)	0.5	3.5
Current Payables Relating to IFRIC 12 (Fixed Royalties)	2.9	2.5
Current Liabilities	181.1	194.0
Liabilities on Assets Held for Sale	-	-
TOTAL LIABILITIES & SHAREHOLDERS' FUNDS	579.9	581.6

Income Statement (Unaudited IFRS) - December 31 2018 and December 31 2017

<i>In USD Million</i>	Year Ended 2017	Year Ended 2018
Revenue	669.1	726.0
Cost of Sales	(549.4)	(604.7)
Selling, General and Administrative Costs	(45.7)	(48.5)
Other (including restructuring costs)	(1.7)	(0.3)
Operating Income from Joint Ventures	0.9	1.1
Operating Income	73.2	73.7
Cost of Net Financial Debt	(0.1)	(0.4)
Dividends	0.5	0.4
Other Financial Expenses / Revenue	(4.7)	(5.5)
Net Profit Before Taxes	69.0	68.2
Tax on Profit and Loss in the Period	(2.9)	(2.6)
Deferred Taxes	4.5	(10.6)
Net Profit or Loss in the Period	70.5	55.0
Non Controlling Interests	1.8	1.4
Net Profit or Loss Attributable to the Group	72.3	56.4

Cash Flows Statement (Unaudited IFRS) - December 31 2018 and December 31 2017

<i>In USD Million</i>	Year Ended 2017	Year Ended 2018
Net Profit Or Loss	70.5	55.0
Operating Provisions (Other Than Working Capital)	4.1	17.0
Financial Provisions	0.0	0.0
Gains/Losses on Disposal of Assets	(0.1)	-
Profit or Loss of Joint Ventures	(0.9)	(1.1)
Dividends	(0.5)	(0.4)
Net Financial Debt Cost	0.1	0.4
Tax on Profit (Incl Deferred Tax)	(1.5)	13.2
Other Income and Expenses	2.1	1.9
Change in Operating Working Capital (Net)	3.8	1.1
Change in Payables relating to IFRIC 12 (Fixed Royalties)	(2.6)	(2.9)
Tax Paid	(2.7)	(3.2)
Net Cash Flows from Operations	72.4	81.0
Industrial Investments Net of Subsidies	(7.4)	(6.0)
Discontinued Business	-	0.6
Financial Investments	-	(23.6)
I12 & 14 Financial Assets Repayment	6.2	4.5
Dividends Received (Non Consolidated Companies)	0.5	0.4
Change in Receivables and Other Financial Assets	(2.3)	(1.5)
Net Investment Cash Flows	(2.9)	(25.6)
Change in Financial Liabilities	(2.7)	4.7
Repayment of Long Term Borrowings & Other Financial Liab.	(7.7)	-
Total Liquid Assets and Financing-Related Assets	(0.0)	(0.3)
Dividends Paid	(119.6)	(62.8)
Net Financial Interest	(0.9)	(1.1)
Net Financing Cash Flows	(130.9)	(59.5)
Net Cash Impact of Foreign Exchange Translation	1.1	(0.7)
CHANGE IN NET CASH POSITION	(60.4)	(4.8)
Opening Cash Balance including Short Term Current Account	121.3	60.9
Closing Cash Balance including Short Term Current Account	60.9	56.1