



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

TIDEWATER REGIONAL OFFICE

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## STATEMENT OF LEGAL AND FACTUAL BASIS

Hampton Roads Sanitation District - Boat Harbor WWTP  
300 Terminal Avenue, Newport News, Virginia  
Permit No. TRO-60351

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9VAC5 Chapter 80, Hampton Roads Sanitation District – Army Base WWTP has applied for a Title V Operating Permit for its 300 Terminal Avenue, Newport News, Virginia facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Permit Writer/Contact:

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Date: July 28, 2016

Regional Air Permits  
Manager:

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Date: July 28, 2016

Regional Director:

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Maria R. Nold

Date: July 28, 2016

## I. FACILITY INFORMATION

### Permittee

Hampton Roads Sanitation District  
P.O. Box 5911

### Facility

Boat Harbor WWTP  
300 Terminal Avenue  
Newport News, Virginia 23607

County-Plant Identification Number: 51-700-00068

### A. SOURCE DESCRIPTION

NAICS Code: 221320 - Sewage Treatment Facilities

NAICS Code: 562219 - Non-Hazardous Waste Treatment and Disposal

NAICS Code: 562213 - Solid Waste Combustors or Incinerators, Non-Hazardous

The Hampton Roads Sanitation District (HRSD) is a political subdivision of the Commonwealth of Virginia and was established as a governmental instrument to provide for the public health and welfare by abating water pollution in the Hampton Roads area through the interception of wastewater outfalls and providing wastewater treatment plants. Each of the HRSD plant facilities meets the definition of a non-industrial Publicly Owned Treatment Works (POTW) as defined in 40 CFR 63, Subpart VVV. All of the HRSD treatment plants are interconnected for diverting wastewater flow to alternate treatment locations as the area's daily amount of generated wastewater flow varies along with the operational capabilities of each plant. Each HRSD facility has been evaluated based on its individual maximum design capacity, whereby no flows can be re-directed to any of the facilities in excess of their individual design capacities. The Boat Harbor Plant provides both primary and secondary municipal wastewater treatment for the Hampton Roads area, serving mainly Newport News and Hampton clients in the Hampton Roads area. The Boat Harbor Plant is rated to treat a design maximum average dry weather flowrate of 25 million gallons per day (mgd) and sized to accommodate an instantaneous wet weather peak hour flowrate of 50 mgd. The facility process units are grouped into four main functions: liquids management, solids handling, sludge incineration, and other combustion units.

**Liquids Management** - Liquids management consists of all of the unit processes that treat the received wastewater prior to discharge to the Elizabeth River. These unit processes include the septic tank truck unloading station, headworks (influent screening and pumping)/grit removal chamber, aerobic reactors, primary and secondary clarification, and disinfection contact basin.

**Solids Handling** - Solids handling consists of unit processes that treat liquid treatment by-product streams before disposal. These unit processes include grit handling, raw and primary scum holding tank/concentrator, gravity belt thickener, primary and waste biosolids holding tank, biosolids day tank, dewatering centrifuges, biosolids screw conveyors, foreign biosolids storage and handling, biosolids belt conveyors (converting to screw conveyor), and ash storage/disposal.

***Sludge Incineration*** - Sludge incinerator units are comprised of two identical multi-hearth incinerators used to dispose of dewatered solids from the solids handling sections. Each incinerator has eight hearths, a dedicated induced-draft fan, and air pollution control equipment for particulate matter consisting of a multiple venturi and packed bed wet scrubbing system. The incinerators can fire either natural gas or distillate oil as supplemental fuel in the combustion process.

***Electrical generators*** - Two diesel engine-generator sets firing distillate fuel oil. HRSD is not enrolled in the emergency load response program (ELRP) and does not participate in ISO-declared emergencies. The electrical generators are used only for the occurrence of normal power lost, maintenance, and readiness testing as is allowed for emergency engines in 40 CFR 63 (MACT), Subpart ZZZZ. A small diesel solids-handling emergency generator supports incineration operations during a loss of power. This small emergency electrical generator was previously listed in the Title V FOP as an insignificant emissions unit; however, because it is subject to the provisions of 40 CFR 63, Subpart ZZZZ, the unit must now be considered a significant emissions unit.

The facility is a Title V major source of NO<sub>x</sub>, VOC, SO<sub>2</sub> and CO and an area source for HAPs. This source is located in an attainment area for all pollutants. The facility is permitted under Minor NSR Permits issued on 02/13/73 and 04/24/00.

## **II. COMPLIANCE STATUS**

A full compliance evaluation of this facility, including a site visit on 06/25/15, has been conducted. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable air requirements at this time.

### III. EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	Pollutant Controlled	Applicable Permit Date
<b>Incinerators (SSI units)</b>						
I-1 I-2	2	Multi hearth SSI units (natural gas or distillate oil as backup), 1973	13 burners per each unit - 6 burners at 2.7 MMBtu/hr and 7 at 1.8 MMBtu/hr. 43 dry tons/day (sludge) per SSI	Von Roll APC Train with Ring Jet™ venturis, 2007	PM/PM-10 (Odor)	02/13/73
<b>Liquids Management</b>						
L-1	3a 3b	Liquids Management, 1940	25 mgd (dry) (wastewater)	Two stage packed tower scrubber (water plus NaOCl and NaOH) Mass Transfer, Inc. Model Atlac 711-050, 1994	(Odor)	N/A
<b>Emergency Electrical Generators</b>						
G-3 G-4	5a 5b	Diesel-fired Emergency Electrical generators, 2000 <i>MACT Subpart ZZZZ</i>	15.5 MMBtu/hr (combined) (1500 kW) each	N/A	N/A	04/24/00
ISU-CB-24	EG1S	Diesel-fired Emergency Generator, 1991 <i>MACT Subpart ZZZZ</i>	0.75 MMBtu/hr 66 HP (80 kW)	N/A	N/A	04/05/01
<b>Solids Handling</b>						
S-1	3a 3b	Solids Handling, 1973	25 mgd (dry) (wastewater)	Two stage packed tower scrubber (water plus NaOCl and NaOH) Mass Transfer, Inc. Model Atlac 711-050, 1994.	(Odor)	N/A
<b>Gasoline Dispensing</b>						
T-28	---	Gasoline UST, 2007 <i>MACT Subpart CCCCCC</i>	1,000 gallons	Leak Detection System: Veeder-Root, 2009	---	N/A

\*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

#### IV. EMISSIONS INVENTORY

A copy of the 2014 annual emission update is attached. Emissions are summarized in the following table.

2014 Criteria Pollutant Emission in Tons/Year					
Emission Unit	VOC	CO	SO <sub>2</sub>	PM <sub>10</sub>	NO <sub>x</sub>
SSI Units (I-1 & I-2)	5.2	94.9	147.0	0.5	15.3
Liquids Management	5.4	0.0	0.0	0.0	0.0
Generators	0.02	0.2	0.01	0.02	0.8
Solid Handling Generator	0.0	0.01	0.0	0.0	0.05
<b>Total</b>	<b>10.6</b>	<b>95.1</b>	<b>147.0</b>	<b>0.5</b>	<b>16.2</b>

2014 Hazardous Air Pollutant Emissions	
Pollutant	Tons/yr
Total HAPs	2.06

#### V. EMISSION UNIT APPLICABLE REQUIREMENTS – SSI UNITS (I-1 and I-2)

##### A. Limitations

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-80-110	Permit Content
9 VAC 5-50-260	Standards for Stationary Sources
9 VAC 5-50-80	Standards for Visible Emissions
9 VAC 5-60-70	Designation of Emission Standards (Mercury)
9 VAC 5-40-750	Standards for Particulate Matter (Incinerators)
9 VAC 5-40: Article 55	Emission Standards for Sewage Sludge Incineration Units

The following Federal Regulations that have specific emission requirements have been determined to be applicable:

40 CFR 61, Subpart E	NESHAP - Mercury
40 CFR 60, Subpart M	NSPS - Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units (as referenced by 9VAC5-40: Article 55)

See also NSR permit issued 02/13/1973.

The Virginia new source standards for opacity (9VAC5-50-80) were not promulgated until 08/09/75 - some two (2) years after the 02/13/0973 permit was issued. The introduction to the new source standards (9VAC5-50-10) specify that the standards apply to all new source activity that has been conducted after March 17, 1972. The new source opacity standards, 20% with no more than one six-minute period not to exceed 30%, are the resultant values from the permit and Regulations that should be used for compliance.

The facility plans to comply with the Sewage Sludge Incinerator Unit requirements (9VAC5-40: Article 55) by way of annual stack tests and parametric monitoring.

The PM emission limit of 0.14 grains/dscf from the 1973 permit has been streamlined out of this permit. The 9 VAC Chapter 40, Article 55 PM limit of 80 mg/dscm, which is equivalent to 0.035 grains/dscf, coupled with the testing and monitoring requirements of Article 55, ensures that the 1973 permit limit cannot be exceeded.

**B. Monitoring**

The following Virginia Administrative Codes that have specific monitoring requirements have been determined to be applicable:

9VAC5-80-110 Permit Content  
9VAC5-40: Article 55 Emission Standards for Sewage Sludge Incineration Units

The following Federal Regulations that have specific monitoring requirements have been determined to be applicable:

40 CFR 60, Subpart M NPS - Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units (as referenced by 9VAC5-40: Article 55)

See also NSR permit issued 02/13/1973.

**C. Recordkeeping**

The following Virginia Administrative Codes that have specific recordkeeping requirements have been determined to be applicable:

9 VAC 5-80-110 Permit Content  
9 VAC 5-50-50 Notifications, Records and Reporting

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include fuel supplier certifications, sludge or stack test results for mercury emissions, PM stack test results with PM emission factors used, VEE records, operating procedures, maintenance records, operator training records, and daily (monthly average) dry ton biosolids feed rate to active incinerator(s).

**D. Compliance, Performance Testing, and Setting Operating Limits**

The following Virginia Administrative Codes that have specific testing requirements have been determined to be applicable:

9VAC5-80-110 Permit Content

The following Federal Regulations that have specific testing requirements have been determined to be applicable:

40 CFR 61, Subpart E NESHAP-Mercury

MACT Subpart E, Para 61.53(d) and 61.54, only requires an annual test for Mercury by means of an incinerator stack test performed using Method 101A of 40 CFR 61, Appendix B; or the sludge be tested for mercury levels using Method 105 of 40 CFR 61, Appendix B) if mercury emissions exceed 1,600 grams per 24-hour period. The source conducted Mercury testing during first Title V FOP cycle (June 2000) and used Method 29 for 40 CFR 503 stack emissions compliance and emissions were 17 grams/day (near 1/200 of standard). During the second permit cycle, the source tested biosolids fed to the hearth furnaces using SW-846 Method 7471A. Mercury emissions were determined using equivalent equations to those listed in 40 CFR 61.54. Results from those tests are as follows:

Year	Hg Emission Rate gram/day)
2010	8
2011	8
2012	6

The source is required to test the sludge for Mercury under 40 CFR 503 every 60 days. Since all past Mercury test results have been very low and with the 40 CFR 503 requirement of a continuing Mercury sludge test requirement of every 60 days, no additional 40 CFR 61, Subpart E Mercury compliance testing was required for this Title V renewal FOP.





## VIII. STREAMLINED REQUIREMENTS

The following conditions in the minor NSR permit of February 13, 1973, have been streamlined out of the Title V FOP:

Condition 1: Progress reports for construction of incinerators were submitted until operations began. No further reporting is required.

Condition 2: Stack testing of new incinerators was accomplished after operations began.

Condition 3: Notifications of proposed stack testing was accomplished

Condition 4.i: Section IX of the Title V FOP lists State-Only Enforcement issues. Odor is not only an issue for the incinerators but the entire facility (liquids management, solids handling, etc.). The source is complying with Article 5-2 for BACT on odor control for the incinerators by using the scrubber system to control PM on the incinerators. The monitoring of the incinerator scrubber system is a way to also monitor odor control for the incinerators. If PM emissions are minimized, odor is expected to be minimized.

Conditions 86 - 89: The Malfunction as an Affirmative Defense conditions listed in the Title V FOP have been removed as startup, shut down, and malfunction opacity exclusion listed in 9VAC5-40-20 A.4 cannot be included in any Title V FOP. This portion of the regulation is not part of Virginia's federally approved state implementation plan. The opacity standard applies to existing sources at all times including startup, shutdown, and malfunction. Opacity exceedances during startup and shut down will be reviewed with enforcement discretion using the requirements of 9VAC5-40-20 E, which state that "At all times, including periods of startup, shutdown, soot blowing and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions."

The following conditions in the 40 CFR 61, Subpart E have been streamlined out of the Title V FOP:

61.63 (d)(2)(i) and 61.54(a)(2): Initial testing of existing source. Source conducted this testing as required in the 1970's.

61.55(a): Monitoring. Not required as source has no emissions at the specified level to require more testing.

40 CFR Part 64 (CAM) conditions have been streamlined out of the Title V FOP based on the following:

The implementation of certain federal NSPS and NESHAP rules or emission limitations in the Clean Air Act can exclude the requirement for Compliance Assurance Monitoring (CAM). The exemptions from CAM are granted on the basis of monitoring requirements in those NSPS and NESHAP rules or emission limitations being inherently sufficient to provide assurance of compliance without the additional need of CAM. Accordingly, Section 111 (NSPS) and 112 (NESHAP) rules in the Clean Air Act that have been promulgated after 11/15/1990 do not require the addition of CAM requirements. As such, CAM is not necessary for this FOP due to the emission limitations and monitoring requirements contained in 40 CFR Part 60, Subpart M - *Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units* (finalized on 2/22/2016) being sufficient to provide assurance of compliance. This subpart establishes emission guidelines and compliance schedules for the control of emissions from SSI units and was developed in accordance with sections 111(d) and 129 of the Clean Air Act and subpart B of this part. The provisions of Subpart M have been incorporated by reference in 9VAC5-40-8370 of 9VAC5 Chapter 40, Part II, Article 55 (Rule 4-55).

The following requirements from 9VAC5-40: Article 55 (Emission Standards for Sewage Sludge Incineration Units) have been streamlined into the Title V FOP:

9VAC5-40-8220B	The 9 VAC Chapter 40, Article 55 PM limit of 80 mg/dscm (equivalent to 0.35 grains/dscf) ensures that the 1973 permit limit of 0.14 grains/dscf cannot be exceeded.
9VAC5-40-8230	Standard for Visible Emissions – states the provisions of Article 1 (9VAC5-40-60 et. Seq.) apply. Article 1 has visible emission limits of 20%/60%. The Title V FOP currently limits visible emissions to 20%/30%. The more stringent limitation will remain in the permit.
9VAC5-40-8240A	Standard for Fugitive Dust/Emissions – 9VAC5-40-90 is covered by Title V General Condition 78.
9VAC5-40-8250	Standard for Odor - already covered in State-Only Enforceable Section of Title V FOP.
9VAC5-40-8260	Standard for Toxic Pollutants – already covered in State-Only Enforceable Section of Title V FOP.

The following conditions in the minor NSR permit of April 24, 2000, have been streamlined out of the Title V FOP:

Condition 2:	Title V Condition II.
Condition 4:	This condition states a sulfur content limit of 0.5% for the fuel burned in the generators. MACT ZZZZ (40 CFR 63.6604(b)) specifies that emergency compression ignition stationary RICE units must meet the fuel requirements in 40 CFR 80.510(b) which limits the sulfur content to 15 ppm beginning January 1, 2015. The MACT ZZZZ fuel requirement is referenced in Condition 41.
Condition 9:	Initial notifications for construction are complete.
Condition 10:	Title V Condition 62.
Condition 12:	Title V Condition 61.
Condition 13:	Title V Condition 74.
Condition 15:	Title V Condition 62.
Condition 16:	Title V Condition 84.
Condition 17:	Title V Conditions 78 and 79.
Condition 19:	Title V Condition 76.

## **IX. GENERAL CONDITIONS**

The permit contains general conditions required by 40 CFR Part 70 and 9VAC5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

1. Comments on General Conditions
  - a. Conditions 58 - 63. Permit Expiration

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia*, and the “Department of Environmental Quality Agency Policy Statement No. 2-09”.

This general condition cite(s) the Article(s) that follow(s):

Article 1 (9VAC5-80-50 et seq.), Part II of 9VAC5 Chapter 80. Federal Operating Permits for Stationary Source.

This general condition cites the sections that follow:

9VAC5-80-80.	Application
9VAC5-80-140.	Permit Shield
9VAC5-80-150.	Action on Permit Applications

Condition 69. Failure/Malfunction Reporting

Section 9VAC5-20-180 requires malfunction and excess emission reporting within four (4) hours of discovery. Section 9VAC5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two (2) days. Section 9VAC5-20-180 is from the general regulations. All affected facilities are subject to section 9VAC5-20-180 including Title V facilities. Section 9VAC5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9VAC5-20-180 and 9VAC5-80-250. The report must be made within four (4) daytime business hours of discovery of the malfunction.

This general condition cites the sections that follow:

9VAC5-40-41.	Emissions Monitoring Procedures for Existing Sources
9VAC5-40-50.	Notification, Records and Reporting
9VAC5-50-50.	Notification, Records and Reporting

Condition 73. Permit Modification

This general condition cites the sections that follow:

9VAC5-80-50.	Applicability, Federal Operating Permit For Stationary Sources
9VAC5-80-190.	Changes to Permits.
9VAC5-80-260.	Enforcement.
9VAC5-80-1100.	Applicability, Permits For New and Modified Stationary Sources
9VAC5-80-1605.	Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas
9VAC5-80-2000.	Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

Condition 90. Asbestos Requirements

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains a citation from the Code of Federal Regulations that follow:

40 CFR 61.145, NESHAP Subpart M.	National Emissions Standards for Asbestos as it applies to demolition and renovation.
40 CFR 61.148, NESHAP Subpart M.	National Emissions Standards for Asbestos as it applies to insulating materials.
40 CFR 61.150, NESHAP Subpart M.	National Emissions Standards for Asbestos as it applies to waste disposal.

This general condition cites the regulatory sections that follow:

9VAC5-60-70. Designated Emissions Standards  
9VAC5-80-110. Permit Content

## X. STATE ONLY APPLICABLE REQUIREMENTS

The following Virginia Administrative Codes have specific requirements only enforceable by the State and have been identified as applicable by the applicant:

9VAC5-40-290 Existing Source Standards for Hydrogen Sulfide  
9VAC5-60-220 Existing Source Standards for Toxics  
9VAC5-40-140 Existing Source Standards for Odor  
9VAC5-50-140 New Source Standards for Odor  
9VAC5-60-320 New Source Standards for Toxics

## XI. INAPPLICABLE REQUIREMENTS

Citation	Title of Citation	Description of Applicability
40 CFR 60 Subpart O	NSPS for Sewage Treatment Plants	Incinerator that charges more than 2,205 lb/day of municipal sewage sludge (dry basis)
40 CFR 61 Subpart C	NESHAPS for Beryllium	Incineration of Beryllium wastes
40 CFR 60, Subpart Kb	NSPS for Volatile Organic Liquid Storage Vessels	Source does not store a VOC liquid product that is subject to the NSPS
40 CFR 63 Subpart VVV	NESHAPS for POTWs	New and reconstructed major HAPs POTWs
40 CFR 60 Subpart IIII	NSPS for Stationary CI ICES	Standards for emissions from CI ICES
40 CFR 60 Subpart JJJJ	NSPS for Stationary SI ICES	Standards for emissions from SI ICES
9 VAC 5 Chapter 40, Article 8	Emission Standards for Fuel Burning Equipment	Standards for PM and SO <sub>2</sub> for fuel burning equipment
9 VAC 5 Chapter 40, Article 4	Emission Standards for General Process Operations	Standards for PM from any process unit and SO <sub>2</sub> standard for combustion equipment
There are no applicable GHG permitting requirements.		

## XII. INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9VAC5-80-110.

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9VAC5-80-720 B)	Rated Capacity (9VAC5-80-720 C)
ISU-CB-25	2 Incinerator bldg. space heaters (natural gas fired)	5-80-720 C.2.a	N/A	0.02 MMBtu/hr (each)
ISU-T-1	Solids Handling distillate oil AST	5-80-720 B.2	VOC	25,000 gallons (installed prior to 1984)
ISU-T-2	Solids Handling distillate oil AST	5-80-720 B.2	VOC	25,000 gallons (installed prior to 1984)
ISU-T-3	Solids Handling diesel AST	5-80-720 B.2	VOC	250 gallons

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9VAC5-80-720 B)	Rated Capacity (9VAC5-80-720 C)
ISU-T-4	Liquids Management distillate oil AST	5-80-720 B.2	VOC	15,000 gallons (installed after 1984 NSPS exempt)
ISU-T-5	Liquids Management distillate oil UST	5-80-720 B.2	VOC	1,000 gallons

<sup>1</sup>The citation criteria for insignificant activities are as follows:  
 9VAC5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application  
 9VAC5-80-720 B - Insignificant due to emission levels  
 9VAC5-80-720 C - Insignificant due to size or production rate

### **XIII. CONFIDENTIAL INFORMATION**

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

### **XIV. PUBLIC PARTICIPATION**

The proposed permit will be placed on public notice in the **Daily Press** newspaper from **Thursday, June 9, 2016** to **Monday, July 11, 2016**.

Draft and proposed permit sent to affected state (NC) on **Friday, June 24, 2016**.

Draft and proposed permit sent to EPA on **Wednesday, June 8, 2016**.