



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

TIDEWATER REGIONAL OFFICE

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STATEMENT OF LEGAL AND FACTUAL BASIS

Hampton Roads Sanitation District – Virginia Initiative WWTP
4201 Powhatan Road, Norfolk, Virginia
Permit No. TRO-60350

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 9 VAC 5 Chapter 80, Hampton Roads Sanitation District – Virginia Initiative WWTP has applied for a Title V Operating Permit for its 4201 Powhatan Road, Norfolk, Virginia facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Permit Writer/Contact:

James A. White Jr.
(757) 518-2180

Date: **June 10, 2016**

Regional Air Permits
Manager:

Date: _____

Regional Director:

Maria R. Nold

Date: **June 10, 2016**

I. FACILITY INFORMATION

Permittee

Hampton Roads Sanitation District
PO Box 5911
Virginia Beach, Virginia 23471

Responsible Official

Mr. Edward G. Henifin, P.E.
General Manager

Facility

Virginia Initiative WWTP
4201 Powhatan Road
Norfolk, Virginia 23508

Contact Person

Mr. Mark Feltner
Environmental Scientist
757-460-4254

County-Plant Identification Number: 51-710-00197

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, Nonhazardous

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. The Virginia Initiative WWTP provides both primary and secondary municipal wastewater treatment for the Hampton Roads area, serving mainly Norfolk clients. The Virginia Initiative WWTP is rated to treat a design maximum average dry weather flow rate of 40 million gallon per day (mgd). The facility process units are grouped into four main functions: liquids management, solids handling, sludge incineration, and electrical generators.

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, anaerobic, anoxic reactors, primary and secondary clarification, and disinfection contact basins. (2 basins, exist tank and new contact channel).

Solids handling - Solids Handling consist of unit processes that treat liquid treatment by-product streams before disposal. These streams consist of primary solids from Primary Solids day tank, primary scum concentrators, waste activated solids and sidestream solids from a local waste treatment facility. The solids are processed through pumps to a dewatering centrifuge then screws route dry solids to a belt that conveys solids to incinerator.

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 10 hearths, a dedicated induced-draft fan, and air pollution control equipment for particulate matter consisting of a pre-cooler, venturi scrubber, and an impingement (tray) scrubber. The incinerators can fire either natural gas or distillate oil as supplemental fuel in the combustion process.

Electrical generators – Four (4) 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.

The facility is a Title V major source of SO₂, CO, and NO_x. This source is located in an attainment area for all pollutants. The facility is currently permitted under Minor NSR Permits issued on 02/13/1973 and 03/17/2014.

II. COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit on December 15, 2015, 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 | PCD ID | Pollutant Controlled | Applicable Permit Date |
|------------------------------------|----------|--|--|---|-------------------|---------------------------|------------------------|
| Incinerators | | | | | | | |
| I-1 I-2 | 2 | Multi hearth sludge incinerators (natural gas or distillate oil as backup) 1973 | 21 burners rated at 2.7 MMBTU/hr each per incinerator. 45 dry tons/day (sludge) per incinerator | Pre-cooler with Venturi scrubber followed by impingement (tray) scrubber (water only). ARCO Products Model No. VS-37-JS-2070 1973 Venturi replacement – TurboSonic 2010 Sulfur Dioxide scrubber - Monroe 2015 | ISBR-1 ISBR-2 | PM/PM-10 (Odor) | 02/13/73 (State Only) |
| Liquids Management | | | | | | | |
| L-1 | 3a 3b | Liquids Management, 1943 Preliminary Treatment Facility 2015 | 40 mgd (dry) (wastewater) | Two stage packed tower scrubber (water plus NaOCl & NaOH). Ershings 1990 Two stage system, 8300 cfm (biological tower followed by NaOH & NaOCl scrubber) BioWay & Daniel Co. 2008 | LSBR-1/ LSBR-2 | (Odor - H ₂ S) | N/A (State Only) |
| Solids Handling | | | | | | | |
| S-1 | 4a 4b | Solids Handling 1976 | 40 mgd (dry) | Two stage packed tower scrubber (water plus NaOCl and NaOH). Ershings 1990 | N/A | (Odor - H ₂ S) | N/A (State Only) |
| Plant Electrical Generators | | | | | | | |
| G-1 G-2 G-3 | 1 | Three (3) diesel-fired generators with Cummings - QSK78 Series Engines, Model DQLE manufactured 2014 | 2,500 kW Each | N/A | N/A | N/A | 03/17/2014 |
| ISU-CB-31 | --- | One (1) diesel-fired solids handling emergency generator | 107 hp (80 kW) | N/A | N/A | N/A | Pre-2000 |
| Gasoline Dispensing | | | | | | | |
| T-42 | - | Gasoline UST | 1,000 gallons | N/A | N/A | N/A | N/A |

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

IV. CHANGES TO PERMIT

This action is a minor amendment to the Title V FOP issued on December 21, 2015. This action is a re-opening to remove the particulate CAM requirements that were inadvertently left in the renewed December 21, 2015 Title V FOP.

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 Title V 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* 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: Article 55 (Rule 4-55).

During the re-opening of the Title V FOP, revisions were also made to permit conditions involving the four (4) existing stationary emergency electrical generators affected by the resulting vacatur of the emergency demand response provisions in NSPS, Subpart IIII and MACT, Subpart ZZZZ (paragraphs 40 CFR 60.4211(f)(2)(ii)-(iii) in NSPS, Subpart IIII, and 63.6640(f)(2)(ii)-(iii) in MACT, Subpart ZZZZ).

V. CHANGES TO THE DECEMBER 21, 2015 ISSUED FOP

The following Compliance Assurance Monitoring (40 CFR Part 64) conditions have been streamlined out of the December 21, 2015 Title V FOP:

- Condition 10: **Incinerator Requirements - (I-1 and I-2) - Monitoring - Compliance Assurance Monitoring (CAM) Scenario No. 1**
- Condition 11: **Incinerator Requirements - (I-1 and I-2) - Monitoring - CAM Scenario No. 2**
- Condition 12: **Incinerator Requirements - (I-1 and I-2) - Monitoring - CAM Plan Scenarios**
- Condition 13: **Incinerator Requirements - (I-1 and I-2) - Monitoring - CAM**
- Condition 14: **Incinerator Requirements - (I-1 and I-2) - Monitoring - CAM**
- Condition 15: **Incinerator Requirements - (I-1 and I-2) - Monitoring - CAM**
- Condition 16: **Incinerator Requirements - (I-1 and I-2) - Monitoring - CAM**
- Condition 17: **Incinerator Requirements - (I-1 and I-2) - CAM**
- Condition 18: **Incinerator Requirements - (I-1 and I-2) - Monitoring - CAM**
- Condition 19: **Incinerator Requirements - (I-1 and I-2) - Monitoring - CAM**
- Condition 24: **Incinerator Requirements - (I-1 and I-2) - CAM Recordkeeping**
- Condition 36: **Incinerator Requirements - (I-1 and I-2) - CAM Reporting**

The following permit conditions have been streamlined out of Section VIII in the December 21, 2015 Title V FOP:

Conditions 85 - 88: **Malfunction as an Affirmative Defense**

These permit 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 Section IV of the December 21, 2015 Title V FOP have been modified to reflect the vacatur of the emergency demand response program in NSPS, Subpart III and MACT, Subpart ZZZZ:

- Condition 28: **Electrical Generators (G-1, G-2, G-3, & ISU-CB-31) - Limitations - Emergency Power Generation**
- Condition 40 h: **Emergency Electrical Generators (G-1, G-2, G-3, & ISU-CB-31) - NSPS Subpart III**
- Condition 42 d: **Emergency Electrical Generators (G-1, G-2, G-3, & ISU-CB-31) - MACT Subpart ZZZZ**

The following conditions have been streamlined into Section IV of the December 21, 2015 Title V FOP:

- Condition 34: **Emergency Electrical Generators (G-1, G-2, G-3, & ISU-CB-31) - Visible Emissions**
- Condition 35: **Emergency Electrical Generators (G-1, G-2, G-3, & ISU-CB-31) - Visible Emission Evaluations (VEE)**

The following condition in Section V of the December 21, 2015 Title V FOP has been modified to cite 9VAC5 Chapter 40 - Articles 4 and 8 as not being applicable:

- Condition 45: **Permit Shield & Inapplicable Requirements**

The 107 HP diesel-fired (CI ICE) solids handling emergency generator (ISU-CB-31) emission unit was moved from the **Insignificant Emission Units Table** (Condition 42) to the **IV. Electrical Generators** section of the Title V FOP, as the CI ICE for the emergency generator set is subject to 40 CFR 63 (MACT), Subpart ZZZZ and therefore cannot be considered as an insignificant emission unit. Applicable MACT, Subpart ZZZZ requirements for the 107 HP solids handling emergency generator (ISU-CB-31) CI ICE were added as Condition 42 - **Electrical Generator (ISU-CB-31) - 40 CFR 63, Subpart ZZZZ** in the FOP. The CI ICE was also included in other applicable conditions in the FOP – see Conditions 28 – 30 (Emergency Power Generation, Operating Hours, and Fuel Limitations), Condition 33 (Monitoring Device Requirement), Conditions 34 and 35 (Visible Emissions Monitoring), Conditions 36 and 37 (Recordkeeping), and Conditions 38 and 39 (Testing).