



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE

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STATEMENT OF LEGAL AND FACTUAL BASIS

Hampton/NASA Steam Plant
Hampton, Virginia
Permit No. TRO-61019

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/NASA Steam Plant has applied for a Title V Operating Permit for its Hampton facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Permit Writer:

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I. FACILITY INFORMATION

Permittee

Hampton/NASA Steam Plant
50 Wythe Creek Road
Hampton, VA 23666

Facility

Hampton/NASA Steam Plant
50 Wythe Creek Road
Hampton, VA 23666

County-Plant Identification Number: 51-650-00061

A. SOURCE DESCRIPTION

NAICS Code: 221330 – Distribution of Steam Heat

This is a municipal waste mass burn facility that generates steam for use at the NASA Langley base. Refuse is received and stored in a stockpile, then fluffed, and delivered by an overhead crane, for mass combustion and waste heat recovery in one of two high pressure watertube Detroit Stoker water-wall furnaces (Units 1 and 2). Combustion gas products are cooled in a Keeler water-tube boiler with economizer. The flue gas is rapidly quenched and scrubbed with a lime slurry and water in a McGill AirClean spray dryer. Solid particles are removed from the flue gas with a three compartment McGill AirClean filter system. Emissions are monitored with Land Instrument FGAI analyzers. Flue gases from Units 1 and 2 are exhausted through two separate flues in a 248 foot double flue stack. Alternate scenarios were not provided in the application.

The facility is a Title V major source of NO_x, HCl and SO₂. This source is located in an attainment area for all pollutants, and is a PSD sized source. The boilers at this facility are subject to 9 VAC 5-40, Article 46, Emission Standards for Small Municipal Waste Combustors (Rule 4-46). They are classified as Class II units which are defined as units with a combustion capacity less than or equal to 250 tons per day of municipal solid waste. The facility is operating under a minor NSR permit dated 8/16/2007.

II. COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit, 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 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
Fuel Burning Equipment							
1	#1	Mass burn waterwall municipal waste combustion unit with pre-heater, (1979) Keeler MK1 Water Wall boiler NB 5341 Detroit Stoker	5 ton/hr-120 ton/day (45.9 mmBTU/hr) 33,000 lb/hr steam	McGill Airclean LLC., BETA/MARK 3-156-14, Spray Dryer & Fabric Filter	SD/FF #1	Acid Gases/PM	8/16/2007
2	#2	Mass burn waterwall municipal waste combustion unit with pre-heater, (1979) Keeler MK1 Water Wall boiler NB 5341 Detroit Stoker	5 ton/hr-120 ton/day (45.9 mmBTU/hr) 33,000 lb/hr steam	McGill Airclean LLC., BETA/MARK 3-156-14, Spray Dryer & Fabric Filter	SD/FF #2	Acid Gases/PM	8/16/2007
Miscellaneous Other Emission Units							
LS1		Lime silo - pneumatically loaded (2006)	20 ton/hr	Passive Fabric Filter	-	PM/PM10	-
AH1		Ash Handling	3 ton/hr	Wet suppression/Water added	-	PM/PM10	8/16/2007
EG1	-	Emergency Diesel Generator, Startup 10/2003 MACT ZZZZ	1120 HP, 750kW Installed 2003	-	-	-	8/16/2007

IV. EMISSIONS INVENTORY

A copy of the 2011 annual emission inventory is attached. Emissions are summarized in the following tables.

2011 Actual Emissions in Tons/Year

Pollutant	VOC	CO	SO ₂	PM ₁₀	NO _x	HCl	Lead
Total	3.9	20.8	50.2	5.9	117.1	54.8	0.05

V. FUEL BURNING EQUIPMENT APPLICABLE REQUIREMENTS - Units 1 & 2

A. Limitations

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

9 VAC 5 Chapter 40	Article 1: Visible Emissions and Fugitive Dust/Emissions
9 VAC 5 Chapter 40	Article 2: Emission Standards for Odor
9 VAC 5 Chapter 40	Article 46: Emission Standards for Small Municipal Waste Combustors (Virginia Standards to meet the guidelines of Section 111(d) and 129 of CAA)
9 VAC 5 Chapter 60	Article 4: Emission Standards for Toxic Pollutants

Limitation Conditions 1-5, 7 and 8 are all from 9 VAC 5-40 Article 46. Condition 6 restricts the facility by not allowing them to combust any material that is regulated under RCRA.

B. Monitoring

The monitoring requirements of the minor NSR permit meet Part 70 requirements. The facility is subject to Article 46 of Chapter 40 and the monitoring for this regulation is specified in 9 VAC 5-40-6750. Compliance is specified in 9 VAC 5-40-6730. CEMS are required for SO₂, CO and Oxygen. The facility is required to do annual emission tests to measure the emission levels of dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, and hydrogen chloride. The results of the emission tests for dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, and hydrogen chloride are then used to demonstrate compliance with the applicable emission limits.

A special section titled "Definitions and Clarifications" has been added to the permit to help assist both the facility and DEQ in making sure Article 46 requirements are understood and are being met.

The most recent stack test shows the following emission rates for the following pollutants:

Pollutant	Emission Limits	Emission Rate Unit 1 October 2011	Emission Rate Unit 2 December 2010
HCl	250 ppmvd	30.7 ppmvd	203.9 ppmvd
PM ₁₀	70 mg/dscm	9.0 mg/dscm	4.7 mg/dscm
Mercury	0.08 mg/dscm	0.00526 mg/dscm	0.007 mg/dscm
Cadmium	1.6 mg/dscm	0.00028 mg/dscm	0.00026 mg/dscm
Lead (Pb)	0.1 mg/dscm	0.00550 mg/dscm	0.00154 mg/dscm
MWC Organics	125 ng/dscm	10.5 ng/dscm	3.2 ng/dscm
2378 TCDD TEQ	-	0.10 ng/dscm	0.03 ng/dscm
NO _x	-	167.4 ppmvd	149.9 ppmvd
CO	100 ppmvd	28.4 ppmvd	22.7 ppmvd
SO ₂	77 ppmvd	26.9 ppmvd	46.6 ppmvd

Based on this stack test data it is unlikely that the facility will exceed any of the emission limits in the permit.

From 9 VAC 5 Chapter 40 Article 46, CEMS are required for the CO and SO₂ emissions and provide direct compliance with the emission limits in the permit. Condition 11 specifies how the source must operate and maintain the CEMS. The temperature monitoring requirements are listed in Condition 9. Unit load monitoring is specified in Condition 14.

The facility also has a COMS, however, they are not using the COMS for direct compliance with the opacity limit. Condition 10 requires that the facility perform a 3-hour VEE annually.

C. Recordkeeping

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records are listed in Condition 15.

D. Testing

The permit requires source testing annually to comply with the emissions standards in 9 VAC Chapter 40, Article 46. 9 VAC 5-40-6740 lists the test methods approved for testing. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

E. Reporting

The facility is required to submit quarterly reports for Continuous Monitoring data used for direct compliance. They are also required to submit an annual Title V compliance certification, and annual emissions statement, malfunction reports, excess emission reports, protocol reports prior to stack testing, stack test reports and Article 46 reports.

VI. MISCELLANEOUS OTHER EMISSION UNITS (Units AH1 & EG1)

A. Limitations

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

9 VAC 5 Chapter 40	Article 1: Visible Emissions and Fugitive Dust/Emissions
9 VAC 5 Chapter 40	Article 46: Emission Standards for Small Municipal Waste Combustors

The following federal regulation is applicable – Section 63.6640(f) only:

40 CFR Part 63 Subpart ZZZZ - National Emission Standards for Stationary Reciprocating Internal Combustion Engines (RICE)

The limitations for the emergency generator (Unit EG1) are from the minor NSR permit dated 8/16/2007 and from the MACT, 40 CFR Part 63, Subpart ZZZZ, 63.6640(f), which is the only part of the MACT that is applicable to this unit. Opacity requirements are from the state new source regulation 9 VAC 5-50-80.

The limitations for the Ash Handling system (Unit AH1) are from 9 VAC 5 Chapter 40, Article 46.

B. Monitoring

Monitoring of the opacity from the emergency generator (Unit EG1) has been included in Condition 29 to prove compliance with the opacity limit, however, because the unit only operates as an emergency generator this is only performed annually.

C. Testing

Article 46 requires an annual fugitive emissions evaluation of the Ash Handling system (Condition 30). The MACT ZZZZ does not require any testing of the emergency generator.

D. Recordkeeping

Recordkeeping is required to prove the emergency generator does not exceed the annual hour limit and the visible emission limit. The fugitive emission evaluation records for the Ash Handling system must also be kept. (Condition 30)

E. Reporting

The facility is required to submit an annual Title V compliance certification, and annual emissions statement, malfunction reports, excess emission reports, protocol reports prior to stack testing, stack test reports and Article 46 reports.

VII. STREAMLINED REQUIREMENTS

63.6640 (f)(a)

“There is no time limit on the use of emergency stationary RICE in emergency situations.” The source has a state requirement to limit hours of emergency operation to 500 hours (9 VAC 5-80-1320B.2.), so this has been streamlined out to remove the conflict between these two requirements.

Condition 6 of the minor NSR permit as been streamlined out because the preheater is used at all time and is inherent in each combustor. **“Preheater** – Each refuse fired boiler shall use a combustion air preheater during periods when high-moisture refuse is burned, as indicated by carbon monoxide (CO) spiking (when CO concentration is >100 ppm) and heavy flame beds (when flame beds are in excess of two feet above the grate at the drop-off of the burn-out section).”

Condition 17 of the minor source permit has been streamlined out because it is direct conflict with Condition 15 of the minor source permit. Condition 15 required the source to do visual observations annually. This condition has been kept in the permit and combined with condition 16. Condition 17 in the minor permit allows the facility to use their COMS for direct compliance if they choose. The source has chosen not to use their COMS for direct compliance.

Conditions 15 and 16 of the minor source permit have been combined and streamlined due to redundancy and the listed opacity has been changed to reflect the correct opacity limit.

Condition 21 of the minor NSR permit has been streamlined out because the facility has already implemented a quality control program for the CEMS/COMS.

Condition 7 of the minor NSR permit has been changed to streamline out the combustion zone temperature requirement because the facility has no way to prove compliance with this requirement and the upper furnace temperature monitoring is sufficient to ensure proper combustion of the waste.

VIII. 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:

Odor: (9 VAC 5 Chapter 40, Article 2) and the State Toxics Article: (9 VAC 5 Chapter 60, Article 4)

IX. GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 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. Condition B. 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".

b. Condition F. Failure/Malfunction Reporting

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 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 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

c. Condition J. Permit Modification

This general condition cites the sections that follow:

9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources

9 VAC 5-80-190. Changes to Permits.

9 VAC 5-80-260. Enforcement.

9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources

9 VAC 5-80-1790. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas

9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas]

d. Condition U. Malfunction as an Affirmative Defense

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

e. Condition Y. 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.

X. INAPPLICABLE REQUIREMENTS

The following requirements which have been specifically identified as being not applicable to this permitted facility:

Citation	Title of Citation	Description of Applicability
40 CFR 60 Subpart E	Standards of Performance for Incinerators	Combustion units 1 and 2 are steam generators, rather than incinerators.
40 CFR 60 Subpart Cb	Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors That are Constructed on or Before September 20, 1994	Applies only to existing MWC units with capacities exceeding 250 tons per day.
40 CFR 60 Subpart Eb	Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994 or for Which Modification or Reconstruction is Commenced After June 19, 1996	Applies only to new MWC units with capacities exceeding 250 tons per day.
40 CFR 60, Subpart III	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	The emergency generator at this site was manufactured before the applicability date of this NSPS (July 11, 2005).
40 CFR 63, Subpart JJJJJ	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources	This source is a major source of HAP.
40 CFR 63, Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters-Major Sources	63.7491a. specifically exempts municipal waste combustors covered by subpart BBBB.
40 CFR 63, Subpart UUUUU	National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units	These units do not fire coal or distillate alone.
40 CFR 64.2(b)(1)(i)	Compliance Assurance Monitoring	The applicable emission standards, for Units 1 & 2, pursuant to section 111d were proposed after the November 15, 1990, so all monitoring requirements are included in the emissions guidelines (NSPS BBBB) and state rule (Rule-4-46).
9 VAC 5-40-6760 F	Activated Carbon Records	The facility will be achieving the mercury standard without the use of activated carbon.

XI. 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 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity 9 VAC 5-80-720 C)
LH1	Hydrated Lime Hopper Fill Vent Fabric Filter	(9 VAC 5-80-720 B)	Lime Dust	-
CH1	Ash Treatment Hopper Filler Vent with Passive Filter	(9 VAC 5-80-720 B)	Dicalcium Phosphate dust	-

XII. Greenhouse Gas Requirements

40 CFR Part 98 - Mandatory Greenhouse Gas Reporting: The provisions of 40 CFR Part 98 require owners and operators of general stationary fuel combustion sources that emit 25,000 metric tons CO₂e or more per year in combined emissions from such units, to report greenhouse gas (GHG) emissions, annually. The definition of "applicable requirement" in 40 CFR 70.2 and 71.2 does not include requirements such as those included in Part 98, promulgated under Clean Air Act (CAA) section 114(a)(1) and 208. Therefore, the requirements of 40 CFR Part 98 are not applicable under the Title V permitting program.

As a result of several EPA actions regarding GHG under the CAA, emissions of GHG must be addressed for a Title V permit renewed after January 1, 2011. The current state minor NSR permit for the Hampton/NASA Steam Plant contains no GHG-specific applicable requirements and there have been no modifications at the facility requiring a PSD permit. Therefore, there are no GHG applicable requirements from the underlying permits being pulled into the Title V permit, however, this facility is subject to Part 98, Mandatory Green House Gas Reporting.

XIII. PUBLIC PARTICIPATION

The proposed permit will be placed on public notice in the Daily Press newspaper from Monday, November 12, 2012 to Wednesday, December 12, 2012.