

INITIAL TITLE V AIR PERMIT APPLICATION REVIEW

APPLICANT: ECU, School of Medicine	SITE LOCATION: Greenville, NC	COUNTY: Pitt	
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APPLICATION NUMBER: 7400242.00A	EXISTING PERMIT NUMBER: 04321R11	NEW PERMIT NUMBER: 04321T12	

I. Introduction

The U.S. Environmental Protection Agency (EPA) has given interim approval to North Carolina's Title V operating permits program effective on December 15, 1995. This EPA approval triggered the requirements for Title V facilities to submit permit applications to the Division of Air Quality (DAQ). Title V facilities are required to obtain an operating permit which addresses all applicable regulations under the State Implementation Plan, Federal Implementation Plan, and other provisions of the Clean Air Act (CAA). The Title V Operating Permit will define all of the facility's obligations under the CAA.

This Initial Title V Air Permit Application Review intends to convey all pertinent emissions data, rules, policies, and engineering assumptions used to construct the DRAFT Title V operating permit. The primary source of information used to construct the DRAFT permit is the above referenced air permit application.

II. Background Information

The Title V operating permit replaces an existing Air Quality Construction and Operation Permit No. 04321R11, which was issued on March 11, 2005 and is currently scheduled to expire on February 28, 2010.

Pursuant to 15A NCAC 2Q .0506, East Carolina University, School of Medicine submitted its initial Title V application to the Division of Air Quality on January 4, 2000. The application was considered complete for processing on September 18, 2000. The DRAFT permit is required to go to public notice pursuant to 15A NCAC 2Q .0521.

ECU, School of Medicine is Title V due to the fact that all facilities that operate an HMIWI are required to apply for a Title V permit, and all pollution sources in a facility must be included in the permit application.

III. Facility Description

East Carolina University, School of Medicine, operates one dual chamber hospital, medical and infectious waste incinerator (HMIWI) along with three permitted boilers, two boilers of which are NSPS-affected, and four emergency generators.

On September 15, 1997, the US-EPA promulgated new source performance standards and emission guidelines to reduce emissions from hospital, medical, and infectious waste incinerators (HMIWI). The States are required to submit their own implementation plans to the US-EPA for approval. Each state may adopt regulations different but no less stringent than the federal requirements.

The HMIW incinerator first began operation in August 1996 and is Subject to Subpart Ec, “Standards of Performance for Hospital/ Medical/ Infectious Waste Incinerators for which Construction Is Commenced After June 20, 1996.” It is classified as a large incinerator, since it processes more than 500 lb/hr of waste (maximum of 1,000 lb/hr). ECU School of medicine HWIW incinerator combusts medical waste, housekeeping waste, and low-level radioactive waste.

ECU School of Medicine is also subject to the recently promulgated HMIWI regulations (15A NCAC 2D .1206). As of July 2004, 15A NCAC 2D .1206 has not been approved by EPA and is considered a state-only requirement. Whenever Rule .0524 (NSPS) and 2D .1206 regulate the same pollutant, the more restrictive provision for each pollutant shall apply.

IV. Statement of Compliance

The DAQ has reviewed the compliance status of this facility. The applicant has certified that the facility will be in compliance with all applicable requirements. The applicant has also certified that the facility will be in compliance with any applicable requirements taking effect during the term of the permit and will meet such requirements on a timely basis.

Compliance History:

During the most recent inspection of April 19, 2005 by Robert Barker of the Washington Regional Office, the facility was undergoing compliance testing. The tests being conducted included Method 2 (velocity), 3A (CO₂, O₂ instrumental), 5/ 26A (particulate matter/ hydrogen halide and halogen - isokinetic), 9 (visible emissions), 10 (CO), and 22 (fugitive opacity). The incinerator (ID No. ES-1a) and NSPS boiler (ID No. ES-1b) were both in operation, with the boiler combusting natural gas. There were no visible emissions observed, and compliance with the permit operating requirements was indicated, as shown in the table below. None of the other sources were in operation at the time of the inspection.

<u>Parameter</u>	<u>Limit</u>	<u>Inspection Observation</u>
Max Charge Rate	1,000 lbs./hr	<1,000 lbs./hr
Min secondary chamber temp	1,796.4 F	2,002 F
Min amperage to scrubber	42.4 amps	47 amps
Min scrubber liquor flow rate	14.6 GPM	16.4 GPM
Min scrubber liquor pH	7.3	7.4
Min outlet temperature	110 ⁰ F	134 ⁰ F

*The parameters in the table above are listed below with their respective limit and “measurement” during the inspection.

Other Recent Compliance Testing

- As per the last compliance testing report, dated August 24, 2004 from James Hammond of the SSCB, visible emissions testing (Method 9) and fugitive emissions testing (Method 22) was conducted April 22, 2004 by Environmental Source Samplers, and resulting emissions were 0% opacity and fugitive emissions were 0% of operating period and in compliance with the Subpart Ec visible and fugitive emission limits.

Notice of Violation History

- **May 7, 2003 Notice of Violation** - Facility was in noncompliance with Specific Permit Condition A.4.(a)(ii) – Reporting Requirement for fuel oil usage in NSPS Subpart Dc affected boiler. Specific Permit Condition A.4.(a)(ii) stipulates that a report of fuel oil usage with percent sulfur content is required to be received by the Washington Regional Office thirty days after each calendar year quarter. This first quarter report was received on May 6, 2003, which was six days after the required date.
- **November 13, 2000 Notice of Violation** - Facility was in noncompliance with Specific Permit Condition A.11.(j)(ii)(B) which references values for site-specific operating parameters established pursuant to 40 CFR 60.56(d) or (i) as applicable. ECU failed to submit a report of the site-specific operating parameters within 60 days of the initial performance test in violation of the reporting requirements of 15A NCAC 2D .0524 “NEW SOURCE PERFORMANCE STANDARDS” as promulgated in 40 CFR 60, Subpart Ec.

V. Summary of Emission Sources and Control Devices

The following table identifies all emission sources and associated control devices for which the Initial Title V Operating Permit is being issued:

Emission	Emission Source	Control	Control Device
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Source ID No.	Description	Device ID No.	Description
ES1a NSPS	1,000 lbs./hr No. 2 fuel oil/natural gas/methane-fired, medical/housekeeping waste/low-level radioactive waste incinerator (8 million Btu per hour w/ two primary chamber burners and one secondary chamber burner) with a heat recovery system (stack EP-1a)	CD1, CD2	5 gallons per minute minimum fresh injection rate, 14.6 gallons per minute minimum total scrubber liquor flow rate wet scrubber (CD-1) with a sodium hydroxide scrubbing medium and an OPTIONAL carbon bed adsorber (CD-2)
2W	20.9 million Btu per hour maximum heat input, No. 2 fuel oil / natural gas-fired boiler	NA	NA
ES-1b NSPS	16.7 million Btu per hour maximum heat input, No. 2 fuel oil / natural gas-fired boiler	NA	NA
B-3 NSPS	40 million Btu per hour maximum heat input, No. 2 fuel oil / natural gas-fired boiler	NA	NA
G#1	350 kW No. 2 fuel oil-fired generator	NA	NA
G#2	400 kW No. 2 fuel oil-fired generator	NA	NA
G#3	600 kW No. 2 fuel oil-fired generator	NA	NA
G#4	1250 kW No. 2 fuel oil-fired generator	NA	NA

VI. Emission Source-by-Source Evaluation

- A. **1,000 lbs./hr No. 2 fuel oil/natural gas/methane-fired, medical/housekeeping waste/low-level radioactive waste incinerator (NSPS, Subpart Ec, ID No. ES1a, 8 million Btu per hour w/ two primary chamber burners and one secondary chamber burner) with a heat recovery system (stack EP-1a), 5 gallons per minute minimum fresh injection rate, 14.6 gallons per minute minimum total scrubber liquor flow rate wet scrubber (CD-1) with a sodium hydroxide scrubbing medium and an OPTIONAL carbon bed adsorber (CD-2)**

1. Description

Medical waste is incinerated using this dual chamber incinerators firing supplemental natural gas with a maximum permitted charging capacity of 1,000 pounds per hour.

Each chamber is also equipped with two 1.5 MMBtu/hr primary chamber burners and one 5.0 MMBtu/hr secondary chamber burner. The control equipment on the incinerator is a wet scrubber and an OPTIONAL carbon bed adsorber. As per the permit modification (04321R10) issued March 12, 2004, the use of the carbon adsorber was made optional. This is because the facility was having problems with it, and there are no regulatory requirements for having a carbon adsorber, since the facility uses a wet scrubber.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
toxic air pollutants	State-enforceable only - See Section VII.A. and VII.B.	15A NCAC 2Q .0711 15A NCAC 2D .1100
odorous emissions	State-enforceable only - See Section VII.C.	15A NCAC 2D .1806
PM, SO ₂ , NO _x , CO, HAPs, visible emissions, fugitive emissions	Limits for Hospital, Medical and Infectious Waste Incinerators	40 CFR 60 Subpart Ec 15A NCAC 2D .1206 <i>(State enforceable-only until approval into SIP by EPA)</i>

a. 40 CFR 60 Subpart Ec “Standards of Performance for Hospital/ Medical/ Infectious Waste Incinerators for Which Construction Is Commenced After June 20, 1996”

(1) Regulatory Analysis

- a. Operator Training and Qualification Requirements/ Operator Training and Certification [40 CFR 60.53c and 15A NCAC 2D .1206(h)]
 - i. The Permittee shall not allow the HMIWI to operate at any time unless a fully trained and qualified HMIWI operator is accessible, either at the facility or available within one hour. The trained and qualified HMIWI operator may operate the HMIWI directly or be the direct supervisor of one or more HMIWI operators. Operator training shall be obtained by completing the requirements of 40 CFR 60.53c(c) through (g).
- b. Siting Requirements [40 CFR 60.54c]
 - i. The Permittee shall prepare an analysis of the impacts of the affected

facility. The analysis shall consider air pollution control alternatives that minimize, on a site-specific basis, to the maximum extent practicable, potential risks to public health or environment. In considering such alternatives, the analysis may consider costs, energy impacts, non-air environmental impacts, or any other factors related to the practicability of the alternatives.

c. NSPS Emissions Limitations [40 CFR 60, Subpart Ec, Table 1]

- i. On and after the date on which the initial performance test is completed, the emission limits in Table 1 apply.

Table 1. Subpart Ec.--Emission Limits for Large Hospital/Medical/Infectious Waste Incinerator (HMIWI)

Pollutant	Emission Limits	Units (7 percent oxygen, dry basis)
Particulate matter	34 (0.015)	Milligrams per dry standard cubic meter (grains per dry standard cubic foot)
Carbon Monoxide	40	Parts per million by volume
Dioxins/furans	25 (11) or 0.6 (0.26)	Nanograms per dry standard cubic meter total dioxins/furans (grains per dry standard cubic feet) or nanograms per dry standard cubic meter total dioxins/furans TEQ (grains per billion dry standard cubic feet).
Hydrogen chloride	15 or 99%	Parts per million or percent reduction
Sulfur dioxide	55	Parts per million by volume
Nitrogen oxides	250	Parts per million by volume
Lead	0.07 (0.03) or 98%	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction
Cadmium	0.04 (0.02) or 90%	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction
Mercury	0.55 (0.24) or 85%	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction

- ii. **Opacity Limit** - On and after the date on which the initial performance test is completed or is required to be completed under 40 CFR 60.8, whichever date comes first, no owner or operator of an affected facility shall cause to be discharged into the atmosphere from the stack of that affected facility any gases that exhibit greater than 10 percent opacity (6-minute block average).

✓ *As per the last compliance testing report, dated August 24, 2004 visible emissions were 0% opacity (April 12, 2004).*

- iii. **Fugitive Emissions Limit**- On and after the date on which the initial performance test is completed or is required to be completed under 40 CFR 60.8, whichever date comes first, no owner or operator of an

affected facility utilizing a large HMIWI shall cause to be discharged into the atmosphere visible emissions of combustion ash from an ash conveying system (including conveyor transfer points) in excess of 5 percent of the observation period (i.e., 9 minutes per 3-hour period), as determined by EPA Reference Method 22, except as provided in (iv) and (v) of this section.

✓ *As per the last compliance testing report, dated August 24, 2004, fugitive emissions testing (Method 22) were 0% of operating period (April 12, 2004).*

d. NSPS Testing Requirements [40 CFR 60.56c] – The following tests shall be conducted:

<u>POLLUTANT</u>	<u>TEST METHOD</u>
Particulate	5 or 29
Visible Emissions	9
CO ¹	10 or 10B
Dioxin/Furans ¹	23
HCl	26
Pb, Cd, and Hg ¹	29
Fugitive ash	22

¹NSPS initial testing and/or other testing requirements have been completed for these pollutants, and no further testing needs to be done for these pollutants at this time, as they tested in compliance. However, future testing requirements may be installed if warranted.

The facility conducted the above tests in January 2000 and compliance with the standards was indicated. These tests were conducted at the scrubber stack without considering any controls from the carbon adsorber.

i. Ongoing Testing Requirements :

<u>POLLUTANT</u>	<u>TEST METHOD</u>	<u>FREQUENCY</u>
Particulate	5 or 29	Every 3 years
Visible Emissions	9	Annually
CO ¹	10 or 10B	Every 3 years & ongoing CEM requirement
HCl	26	Every three years
Fugitive ash	29	
	22	Annually

The most recent testing was conducted 4/19/2005 for these pollutants. SSCB is currently reviewing the results of this testing.

- a. **Annual Testing Requirement** - No more than 12 months following the previous performance test, the owner/operator shall conduct a test for **opacity and fugitive emissions** using the applicable procedures and test methods above to meet the limits above.
- b. **Every Three Years** - Determine compliance with the PM, CO, and HCl emission limits by conducting a performance tests using the applicable procedures and test methods listed in paragraph (d) of this section. At a minimum, a performance test for PM, CO, and HCl shall be conducted every third year (no more than 36 months following the previous performance test). If a performance test conducted every third year indicates compliance with the emission limit for a pollutant (PM, CO, or HCl), the owner or operator may forego a performance test for that pollutant for an additional 2 years. If any performance test indicates noncompliance with the respective emission limit, a performance test for that pollutant shall be conducted annually until all annual performance tests over a 3-year period indicate compliance with the emission limit. The use of the bypass stack during a performance test shall invalidate the performance test.
- c. Facilities using a CEMS to demonstrate compliance with any of the emission limits under 40 CFR 60.52c shall:
 1. Determine compliance with the appropriate emission limit(s) using a 12-hour rolling average, calculated each hour as the average of the previous 12 operating hours (not including startup, shutdown, or malfunction).
 2. Operate all CEMS in accordance with the applicable procedures under appendices B and F of Subpart Ec.
- e. Monitoring Requirements
 - i. WET SCRUBBER REQUIREMENTS - [40 CFR 60.56c(f)]- The owner or operator of an affected facility equipped with a wet scrubber shall:
 - a. Following the date on which the initial performance test is completed or is required to be completed under 40 CFR 60.8, whichever date comes first, ensure that the affected facility does not operate above any of the applicable maximum operating parameters or below any of the applicable minimum operating parameters listed in Table 2 and measured as 3-hour rolling

averages (calculated each hour as the average of the previous 3 operating hours) at all times except during periods of startup, shutdown and malfunction. Operating parameter limits do not apply during performance tests. Operation above the established maximum or below the established minimum operating parameter(s) shall constitute a violation of established operating parameter(s).

- b. To ensure that optimum control efficiency is maintained by the scrubber, monthly inspections and maintenance will be performed as recommended by the manufacturer. If no manufacturer's recommendations are available, as a minimum, the inspections will include checking the spray nozzles for clogging or corrosion and cleaning and calibrating the instruments. The scrubber will be equipped with a pressure gauge and flow meter.

ii. OTHER MONITORING REQUIREMENTS - [40 CFR 60.56c(f)]:

- a. Operation of the affected facility below the minimum carbon bed outlet temperature and above the maximum charge rate (each measured on a 3-hour rolling average) simultaneously shall constitute a violation of the Hg emission limit.
- b. The owner or operator of an affected facility may conduct a repeat performance test within 30 days of violation of applicable operating parameter(s) to demonstrate that the affected facility is not in violation of the applicable emission limit(s).
- c. The owner or operator of an affected facility may conduct a repeat performance test at any time to establish new values for the operating parameters. The Administrator may request a repeat performance test at any time.
- d. The Permittee shall not charge any waste into the incinerator until the proper operating temperature of 1,796.4⁰ F is attained in the secondary chamber.
- e. Gases generated by combustion shall, for a period of not less than one second, be subjected to a minimum temperature of 1,796.4⁰ F.
- f. Incineration of wastes shall be limited to items and materials that fit within the definition of hospital, medical, and infectious waste contained in 40 CFR 60.51c; low-level radioactive waste, and housekeeping waste.
- g. The owner or operator of an affected facility shall install, calibrate (to manufacturers' specifications), maintain, and operate a device or method for measuring the use of the bypass stack including date, time, and duration.

- h. The EPA Administrator retains the exclusive right to approve equivalent and alternative test methods, continuous monitoring procedures, and reporting requirements. Use of the carbon adsorber is optional. If the carbon adsorber is used, the facility shall, as mandated by USEPA Region 4, monitor the carbon bed outlet temperature and maintain it above 110° Fahrenheit, and replace the carbon bed every five years unless testing results indicate earlier replacement is necessary.
- i. The owner or operator of an affected facility shall obtain monitoring data at all times during HMIWI operation except during periods of monitoring equipment malfunction, calibration, or repair. At a minimum, valid monitoring data shall be obtained for 75 percent of the operating hours per day and for 90 percent of the operating days per calendar quarter that the affected facility is combusting hospital waste and/or medical/infectious waste.
- j. Under 40 CFR 60.57c, the owner or operator of an affected facility shall install, calibrate (to manufacturer's specifications), maintain, and operate devices (or establish methods) for monitoring the applicable maximum and minimum operating parameters listed in Table 2 of this section such that these devices (or methods) measure and record values for these operating parameters at the frequencies indicated in Table 2 of this section at all times except during periods of startup and shutdown.

Table 2--Operating Parameters to be Monitored and Minimum Measurement and Recording Frequencies

WET SCRUBBER - Maximum/Minimum Operating Parameters:			
Operating parameters to be monitored	Monitoring frequency	Recording Frequency	Operating Parameter Limits
Maximum charge rate	Continuous	1 x hour	1000 lbs./hr.
Minimum secondary chamber temperature	Continuous	1 x minute	1796.4 (Deg. F)
Minimum amperage to wet scrubber	Continuous	1 x minute	42.4 (amps)
Minimum scrubber liquor flow rate	Continuous	1 x minute	14.6 (gpm)
Minimum scrubber liquor pH	Continuous	1 x minute	7.3 (pH)
CARBON BED - Minimum Operating Parameter			
Minimum outlet temperature	Continuous	1 x minute	110 (Deg. F)

Based on the above operating parameters and consistent with 60.56c(f)(1)-(6), 62.14455(d), and 2D .1206(d)(3), the table below identifies operating scenarios that trigger a pollutant emissions limit violation.

Pollutant Emission Limit Violation	Operating Scenario Triggering Violation
particulate matter	above maximum charge rate (1,000 pounds per hour) and below minimum amperage to scrubber (42.4 amps)
CO	above maximum charge rate (1,000 pounds per hour) and below minimum secondary chamber temperature (1796⁰ F)
dioxin/furan	above maximum charge rate (1,000 pounds per hour) and below minimum secondary chamber temperature (1,796⁰ F) and below minimum scrubber liquor flow rate (14.6 gpm)
HCl	above maximum charge rate (1,000 pounds per hour) and below minimum scrubber liquor pH (7.3 pH)
Mercury	above maximum charge rate (1,000 pounds per hour) and below minimum carbon bed outlet temperature (110⁰ F)
particulate matter, dioxin/furan, HCl, lead, cadmium, mercury	operation of bypass stack (except during start-up, shutdown, or malfunction)

f. Reporting and Recordkeeping Requirements - [40 CFR 60.58c]

- i. The owner or operator of an affected facility shall maintain the following information (as applicable) for a period of at least 5 years.
 - a. Concentrations of any pollutant listed in 40 CFR 60.52c or measurements of opacity as determined the continuous emission monitoring system (if applicable);
 - b. Results of fugitive emissions (by EPA Reference Method 22) tests, if applicable;
 - c. HMIWI charge dates, times, and weights and hourly charge rates;
 - d. secondary chamber temperatures recorded during each minute of operation;
 - e. liquor flow rate to the wet scrubber inlet during each minute of operation, as applicable;
 - f. amperage to the wet scrubber during each minute of operation, as applicable;
 - g. temperature at the outlet from the carbon bed during each minute

- of operation, as applicable;
- h. pH of the recirculated scrubber liquor measured during each minute of operation;
 - i. records indicating use of the bypass stack, including dates, times, and durations, and
- ii. For affected facilities complying with 40 CFR 60.56c(i) and 60.57c(c), the owner or operator shall maintain all operating parameter data collected.
- a. Identification of calendar days for which data on emission rates or operating parameters have not been obtained, with an identification of the emission rates or operating parameters not measured, reasons for not obtaining the data, and a description of corrective actions taken.
 - b. Identification of calendar days, times and durations of malfunctions, a description of the malfunction and the corrective action taken.
 - c. Identification of calendar days for which data on emission rates or operating parameters exceeded the applicable limits, with a description of the exceedances, reasons for such exceedances, and a description of corrective actions taken.
 - d. The results of the initial, annual, and any subsequent performance tests conducted to determine compliance with the emission limits and/or to establish operating parameters, as applicable.
 - e. All documentation produced as a result of the siting requirements of 40 CFR 60.54c;
 - f. Records showing the names of HMIWI operators who have completed review of the information in 40 CFR 60.53c(h) as required by 40 CFR 60.53c(i), including the date of the initial review and all subsequent annual reviews;
 - g. Records showing the names of the HMIWI operators who have completed the operator training requirements, including documentation of training and the dates of the training;
 - h. Records showing the names of the HMIWI operators who have met the criteria for qualification under 40 CFR 60.53c and the dates of their qualification; and
 - i. Records of calibration of any monitoring devices as required under 40 CFR 60.57c(a), (b), and

- iii. An annual report shall be submitted 1 year following the submission of the initial performance test data and subsequent reports shall be submitted no more than 12 months following the previous report (once the unit is subject to permitting requirements under Title V of the Clean Air Act, the owner or operator of an affected facility must submit these reports semiannually). The annual report shall include the information specified in this section. All reports shall be signed by the facility manager.
- a. The values for the site-specific operating parameters established pursuant to 40 CFR 60.56c(d) or (i), as applicable.
 - b. The highest maximum operating parameter and the lowest minimum operating parameter, as applicable, for each operating parameter recorded for the calendar year being reported, pursuant to 40 CFR 60.56c(d) or (i), as applicable.
 - c. The highest maximum operating parameter and the lowest minimum operating parameter, as applicable for each operating parameter recorded pursuant to 40 CFR 60.56c(d) or (i) for the calendar year preceding the year being reported, in order to provide the Administrator with a summary of the performance of the affected facility over a 2-year period.
 - d. Any information recorded under VI.A.2.f.ii.a. through i. of this Condition for the calendar year being reported.
 - e. Any information recorded under VI.A.2.f.ii.a. through i. of this Condition for the calendar year preceding the year being reported, in order to provide the Administrator with a summary of the performance of the affected facility over a 2-year period.
 - f. If a performance test was conducted during the reporting period, the results of that test.
 - g. If no exceedances or malfunctions were reported under VI.A.2.f.ii.a. through i. of this Condition for the calendar year being reported, a statement that no exceedances occurred during the reporting period.
 - h. Any use of the bypass stack, the duration, reason for malfunction, and corrective action taken.
 - i. The owner or operator of an affected facility shall submit semiannual reports containing any information recorded under VI.A.2.f.ii.a. through i. of this Condition no later than 60 days following the reporting period. The first semiannual reporting period ends 6 months following the submission of information in (ii) of this section. Subsequent reports shall be submitted no later than 6 calendar months following the previous report. All reports shall be signed by the facilities manager.

- j. All records specified under (i) of this section shall be maintained onsite in either paper copy or computer-readable format, unless an alternative format is approved by the Administrator.

b. 15A NCAC 2D .1206 “Hospital, Medical, and Infectious Waste Incinerators”

(1) Regulatory Analysis

- i) The following ambient air quality standards, which are an annual average, in milligrams per cubic meter at 77°F (25°C) and 29.92 inches (760 mm) of mercury pressure, and which are increments above background concentrations, shall apply to the facility incinerator:

arsenic and its compounds 2.3×10^{-7}
beryllium and its compounds 4.1×10^{-6}
cadmium and its compounds 5.5×10^{-6}
chromium (VI) and its compounds 8.3×10^{-8}

(2) Emissions Limitations

- i) Emissions Limitations- To ensure compliance with the ambient standards listed above, the following emissions limitations shall apply:

Emission Source(s) ID No(s):	Toxic Air Pollutant(s)	Emission Limit(s)
ES-1a	Arsenic	0.5987 lbs./yr.
ES-1a	Beryllium	0.3927 lbs./yr.
ES-1a	Cadmium	3.3971 lbs./yr.
ES-1a	Chromium VI	0.0081 lbs./yr.

B. One natural gas/ No. 2 fuel oil-fired boiler (ID No. 2W, 20.9 million Btu per hour)

1. Description

This boiler combusts natural gas and No.2 fuel oil. Emissions from the boiler are uncontrolled.

2. Applicable Regulatory Requirements

NSPS Subpart Dc does not apply since construction of this boiler commenced prior to June 9, 1989. Although this boiler is located at a Title V facility, this facility is Title V due to category, not emissions level. Thus, the Boiler MACT does not apply.¹

¹40 CFR 63 Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters. You are subject to this subpart if you own or operate an industrial, commercial, or institutional boiler or process heater as defined in §63.7575 that is located at, or is part of, a major source of HAP as defined in §63.2 or §63.761 (40 CFR part 63, subpart HH, National Emission Standards for Hazardous

Air Pollutants from Oil and Natural Gas Production Facilities), except as specified in §63.7491. As defined in §63.2, Major source means any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants, unless the Administrator establishes a lesser quantity, or in the case of radionuclides, different criteria from those specified in this sentence.

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	0.41 pounds per million Btu heat input	2D .0503
sulfur dioxide	2.3 pounds per million Btu heat input	2D .0516
visible emissions	20 percent opacity	2D .0521
toxic air pollutants	State-enforceable only; See Section VII	2D .1100

a. 2D .0503 “Particulates from Fuel Burning Indirect Heat Exchangers”

(1) Regulatory Analysis

This rule applies to installations burning fuel, including natural gas and fuel oils, for the purpose of producing heat or power by indirect heat transfer.

Allowable emissions of particulate matter from fuel combustion shall be calculated as follows:

$$E = 1.090 Q^{-0.2594}$$

where: E = allowable particulate emission rate, pounds per million Btu
Q = combined heat input of all boilers.

Addition of a boiler constructed or permitted after February 1, 1983 shall not change the emission limit of boilers whose emission limits had been previously established.

Boiler (ID No. 2W)

Allowable particulate emissions for boiler (ID No. 2W, 20.9 million Btu per hour maximum heat input capacity) was determined based on a total plant site heat input rate from the fuel-fired indirect heat exchangers before the boiler (ID No. ES-1b and newest boiler (ID No. B-3) were added. Following were the heat inputs when the emissions limit was established:

Boiler 1W: 20.9 million Btu per hour – *this boiler was recently replaced.*

Boiler 2W: 20.9 million Btu per hour

Total = 41.8 million Btu per hour

$$E = 1.09 \times (41.8)^{-0.2594} = \mathbf{0.41 \text{ pound per million Btu}}$$

Since the boiler (ID No. 2W) was constructed prior to February 1, 1983, its emissions limit will not be affected by heat input rate of the NSPS-affected boilers (ID Nos. ES-1b and B-3).

The AP-42 emission factor for total particulate emissions from natural gas combustion is 7.6 pounds of particulate per million cubic feet combusted [ref: AP-42 Table 1.4-2; July 1998]. Assuming a heating value of 1,020 Btu per cubic foot, this equates to:

$$\frac{7.6 \text{ lb particulate}}{1,000,000 \text{ cubic ft}} \times \frac{1 \text{ cuft}}{1,020 \text{ Btu}} \times \frac{1,000,000 \text{ Btu}}{\text{million Btu}} = 0.007 \frac{\text{pounds particulate}}{\text{million Btu heat input}}$$

Thus, compliance is indicated while firing with natural gas.

The DAQ's "Fuel Combustion Emissions Calculator Spreadsheet" uses AP-42 emission factors to estimate worst case particulate emissions from fuel combustion. It combines the 2.0 lb/1,000 gallon filterable particulate emissions with the 1.3 lbs/1,000 gallon condensable particulate emission factor.

$$\frac{3.3 \text{ lb particulate}}{1,000 \text{ gallons}} \times \frac{\text{gallons}}{141,000 \text{ Btu}} \times \frac{1,000,000 \text{ Btu}}{\text{million Btu}} = 0.023 \frac{\text{pounds particulate}}{\text{million Btu heat input}}$$

Thus, compliance is indicated while firing with No. 2 fuel oil.

(2) Monitoring/Recordkeeping/Reporting Requirements

Since potential particulate emissions are less than the allowable, no monitoring, recordkeeping or reporting are required. Stack testing is not required to ensure compliance with this regulation. However the test method condition will be put in the permit in the event that DAQ or EPA finds that

due to improper operation violations, etc, source testing is required.

b. 2D .0516 “Sulfur Dioxide Emissions from Combustion Sources”

(1) Regulatory Analysis

Sulfur dioxide emissions from any source of combustion that is discharged from any vent, stack, or chimney shall not exceed 2.3 pounds per million Btu heat input.

The AP-42 emission factor for total sulfur dioxide emissions from natural gas combustion is 0.6 pounds of sulfur dioxide per million cubic feet combusted [ref: AP-42 Table 1.4-2; July 1998]. Assuming a heating value of 1,020 Btu per cubic foot, this equates to:

$$\frac{0.6 \text{ lb sulfur dioxide}}{1,000,000 \text{ cubic ft}} \times \frac{1 \text{ cuft}}{1,020 \text{ Btu}} \times \frac{1,000,000 \text{ Btu}}{\text{million Btu}} = 0.0006 \frac{\text{pounds}}{\text{million Btu heat input}}$$

Thus, compliance is indicated with natural gas.

The sulfur content of No. 2 fuel oil is less than or equal to 0.5% by weight. The AP-42 emission factor for sulfur dioxide emissions from the combustion of fuel oil in boilers smaller than 100 million Btu per hour is 157(S) pounds of sulfur dioxide per 1,000 gallons of fuel oil. The sulfur dioxide emissions from the combustion of 0.5 weight percent sulfur No. 2 fuel oil are:

$$\frac{157(0.5) \text{ lb sulfur dioxide}}{1,000 \text{ gallon No. 2 fuel oil}} \times \frac{1,000 \text{ gal. No. 2 fuel oil}}{141 \text{ million Btu}} \times = 0.56 \frac{\text{pounds SO}_2}{\text{million Btu}}$$

Thus, compliance is indicated with No. 2 fuel oil.

(2) Monitoring/Recordkeeping/Reporting Requirements

Since potential sulfur dioxide emissions are less than the allowable, no monitoring, recordkeeping or reporting are required. Stack testing is not required.

c. 2D .0521 “Control of Visible Emissions”

(1) Regulatory Analysis

Visible emissions shall not exceed 20 percent opacity when averaged over a six-minute period for sources established after July 1, 1971.

(2) Monitoring/Recordkeeping/Reporting Requirements

No monitoring/recordkeeping/reporting is required for visible emissions from the firing of natural gas/No. 2 fuel oil in this boiler.

C. Two NSPS-affected natural gas/ No. 2 fuel oil-fired boilers (ID No. ES-1b, 16.7 million Btu per hour maximum heat input capacity and ID No. B-3, 40 million Btu per hour heat input capacity)

1. Description

These boilers combust natural gas and No.2 fuel oil. Emissions from the boilers are uncontrolled. NSPS Subpart Dc applies to these boilers since construction of these boilers was commenced after June 9, 1989.

The most recent NSPS-affected boiler (ID No. B-3) was added in a permit modification, issued March 11, 2005. As of the last inspection of 4/19/2005, this boiler (ID No. B-3) has still not been installed, and the boiler it was replacing (ID No. 1W) was still in operation.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	0.38 pounds per million Btu heat input	2D .0503
sulfur dioxide	2.3 pounds per million Btu heat input	2D .0516
visible emissions	20 percent opacity	2D .0521
toxic air pollutants	State-enforceable only; See Section VII	2D .1100
NA NA	Recordkeeping only; monthly fuel records	2D .0524 (40 CFR 60, Subpart Dc)

a. 2D .0503 “Particulates from Fuel Burning Indirect Heat Exchangers”

(1) Regulatory Analysis

This rule applies to installations burning fuel, including natural gas and fuel oils, for the purpose of producing heat or power by indirect heat transfer.

Allowable emissions of particulate matter from fuel combustion shall be

calculated as follows:

$$E = 1.090 Q^{-0.2594}$$

where: E = allowable particulate emission rate, pounds per million Btu
Q = combined heat input of all boilers.

Boilers (ID No. ES-1b and B-3)

Since both of these boilers were (or the case of boiler (ID No. B-3)) are going to be) installed after February 1, 1983, allowable particulate emissions are based on total plant heat input rating of all indirect fired heat exchangers. Following are the heat inputs:

Boiler (ID No. 2W): 20.9 million Btu per hour
Boiler (ID No. ES-1b): 16.7 million Btu per hour
Boiler (ID No. B-3): 40 million Btu per hour
Total = 77.6 million Btu per hour

$$E = 1.09 \times (77.6)^{-0.2594} = \mathbf{0.35 \text{ pound per million Btu}}$$

The AP-42 emission factor for total particulate emissions from natural gas combustion is 7.6 pounds of particulate per million cubic feet combusted [ref: AP-42 Table 1.4-2; July 1998]. Assuming a heating value of 1,020 Btu per cubic foot, this equates to:

$$\frac{7.6 \text{ lb particulate}}{1,000,000 \text{ cubic ft}} \times \frac{1 \text{ cuft}}{1,020 \text{ Btu}} \times \frac{1,000,000 \text{ Btu}}{\text{million Btu}} = 0.007 \frac{\text{pounds particulate}}{\text{million Btu heat input}}$$

Thus, compliance is indicated while firing with natural gas.

The DAQ's "Fuel Combustion Emissions Calculator Spreadsheet" uses AP-42 emission factors to estimate worst case particulate emissions for firing with fuel oil. It combines the 2.0 lb./1,000 gallon filterable particulate emissions with the 1.3 lbs/1,000 gallon condensable particulate emission factor.

$$\frac{3.3 \text{ lb particulate}}{1,000 \text{ gallons}} \times \frac{\text{gallons}}{141,000 \text{ Btu}} \times \frac{1,000,000 \text{ Btu}}{\text{million Btu}} = 0.023 \frac{\text{pounds particulate}}{\text{million Btu heat input}}$$

Thus, compliance is indicated while firing with No. 2 fuel oil.

(2) Monitoring/Recordkeeping/Reporting Requirements

Since potential particulate emissions are less than the allowable, no monitoring, recordkeeping or reporting are required for these two boilers (ID Nos. ES-1b and B-3). Stack testing is not required to ensure compliance with this regulation. However the test method condition will be put in the permit

in the event that DAQ or EPA finds that due to improper operation violations, etc, source testing is required.

b. 2D .0516 “Sulfur Dioxide Emissions from Combustion Sources”

(1) Regulatory Analysis

Sulfur dioxide emissions from any source of combustion that is discharged from any vent, stack, or chimney shall not exceed 2.3 pounds per million Btu heat input.

The AP-42 emission factor for total sulfur dioxide emissions from natural gas combustion is 0.6 pounds of sulfur dioxide per million cubic feet combusted [ref: AP-42 Table 1.4-2; July 1998]. Assuming a heating value of 1,020 Btu per cubic foot, this equates to:

$$\frac{0.6 \text{ lb sulfur dioxide}}{1,000,000 \text{ cubic ft}} \times \frac{1 \text{ cuft}}{1,020 \text{ Btu}} \times \frac{1,000,000 \text{ Btu}}{\text{million Btu}} = 0.0006 \frac{\text{pounds}}{\text{million Btu heat input}}$$

Thus, compliance is indicated with natural gas.

The sulfur content of No. 2 fuel oil is less than or equal to 0.5% by weight. The AP-42 emission factor for sulfur dioxide emissions from the combustion of fuel oil in boilers smaller than 100 million Btu per hour is 157(S) pounds of sulfur dioxide per 1,000 gallons of fuel oil. The sulfur dioxide emissions from the combustion of 0.5 weight percent sulfur No. 2 fuel oil are:

$$\frac{157(0.5) \text{ lb sulfur dioxide}}{1,000 \text{ gallon No. 2 fuel oil}} \times \frac{1,000 \text{ gal. No. 2 fuel oil}}{141 \text{ million Btu}} \times = 0.56 \frac{\text{pounds SO}_2}{\text{million Btu}}$$

Thus, compliance is indicated with No. 2 fuel oil.

(2) Monitoring/Recordkeeping/Reporting Requirements

Since potential sulfur dioxide emissions are less than the allowable, no monitoring, recordkeeping or reporting are required. Stack testing is not required.

c. 2D .0521 “Control of Visible Emissions”

(1) Regulatory Analysis

Visible emissions shall not exceed 20 percent opacity when averaged over a six-minute period for sources established after July 1, 1971. Compliance with this regulation will be indicated by inspection of the boilers (ID Nos. ES-1b and B-3).

(2) Monitoring/Recordkeeping/Reporting Requirements

No monitoring/recordkeeping/reporting is required for visible emissions from the firing of natural gas/No. 2 fuel oil in these boilers.

c. **2D .0524 “New Source Performance Standards, Subpart Dc”**

(1) Regulatory Analysis

These boilers (ID Nos. ES-1b and B-3) are subject to the visible emissions and sulfur dioxide limitations in NSPS Part 60 Subpart Dc, since they were constructed after June 9, 1989 and have a maximum design heat capacity greater than 10 million Btu per hour. There are no Subpart Dc particulate emissions limitation requirements.

Visible Emissions

Visible emissions shall not exceed 20 percent opacity when averaged over a six-minute period per 40 CFR 60.43c(c). Compliance with this regulation was indicated using EPA Test Method 9 during the initial performance test for ES-1b. The new NSPS-affected boiler (ID No. B-3) has not been installed yet.

Sulfur Dioxide

The applicant has chosen to meet the NSPS standard for sulfur dioxide emissions for these boilers by limiting the fuel oil content to 0.5 weight percent sulfur or less by meeting the hourly sulfur dioxide emission limit of 0.50 pounds per million Btu as allowed by 40 CFR 60.42c(d). There are no control devices to control the emissions of sulfur dioxide. Compliance with the emissions standard and the initial performance test will both be indicated by fuel supplier certification for distillate oil.

(2) Initial Testing Requirements

As required by 15A NCAC 2D .0524, the following tests shall be conducted for the new boiler (ID No. B-3):

Affected Facility	Pollutant	Test Method
Boiler (ID No. B-3)	Particulate matter (Visible Emissions)	Method 9

- (A) All performance tests shall be conducted in accordance with EPA Reference Methods, as contained in 40 CFR 60, Appendix A.
- (B) The EPA Administrator retains the exclusive right to approve equivalent and alternative test methods, continuous monitoring

procedures and reporting requirements.

- (C) Within 60 days after achieving the maximum production rate at which the facility will be operated, but not later than 180 days after the initial start-up of the affected facility, for each fuel permitted, the Permittee shall conduct the required performance test(s) and submit a written report of the tests to the Regional Supervisor, DAQ.
 - (D) The source shall be responsible for ensuring, within the limits of practicality, that the equipment or process being tested is operated at or near its maximum normal production rate or lesser rate if specified by the Director or his delegate.
 - (E) All associated testing costs are the responsibility of the Permittee.
 - (F) To afford the Regional Supervisor, DAQ, the opportunity to have an observer present, the Permittee shall PROVIDE the Regional Office, in WRITING, at least 15 days notice of any required performance tests.
- (3) Initial Reporting Requirements (for the new boiler (ID No. B-3))

The Permittee shall NOTIFY the DAQ in WRITING of the following:

- (A) The date of construction (40 CFR 60.7) or reconstruction (40 CFR 60.15) that an affected source is commenced, postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities, which are in completed form.
 - (B) The actual date of start-up of an affected source, postmarked within 15 days after such date. If the affected source is permitted to burn multiple fuels, then the actual date of startup, for each fuel, must be submitted and postmarked within 15 days after such date.
- (4) Monitoring Requirements

Sulfur Dioxide

No CEM is required for sulfur dioxide since the applicant has elected to determine the sulfur dioxide emission rate based on the monthly fuel supplier certification for distillate oil as allowed by 40 CFR 60.46c(e).

- (5) Recordkeeping Requirements

Records shall be maintained of the amount of fuel combusted each month.

- (6) Reporting Requirements

The Permittee shall report the following semi-annually (by January 30 for

the preceding six-month period between July and December and July 30 for the preceding six-month period between January and June).

- (A) any excess emissions report
- (B) a summary report of the sulfur content of fuel oil as follows:
 - a. Distillate Oil – Fuel supplier certification shall include the following information:
 - i. the name of the fuel supplier
 - ii. a statement from the fuel supplier that the oil complies with the specification under the definition of distillate oil under 40 CFR 60.41c; and
 - iii. a certified statement signed by the owner or operator of an affected facility that the records of fuel supplier certification represents all of the fuel combusted during the preceding six-month period.
- (C) All instances of deviations from the requirements of this permit must be clearly identified. Records must be maintained for a minimum of two years.

D. Four No. 2 fuel oil-fired generators (ID Nos. G#1, G#2, G#3, and G#4, 350 kW, 400 kW, 600 kW, and 1,250 kW respectively)

1. Description

The generators (ID Nos. G#1, G#2, and G#3) all began operation in December 1999 and are 350 kW, 400 kW, and 600 kW, respectively. Based on emission rates, only the 600 kW generator would be required to be permitted; however, since all three emergency generators operate simultaneously, all three are required to be permitted.*

*EPA defines potential to emit for emergency generators based on a maximum of 500 hours of operation per year. Using this, along with Regulation 2Q .0503(8) which states 5 tons per year for any criteria pollutant and 1000 lbs./yr for HAPs, the normal cutoff for diesel-fired generators is 590 kW.

The newest 1250 kW generator (ID No. G#4) was permitted with Permit No. 04321R11. As of the latest inspection of 4/19/2005, this generator has not been installed yet. (Generator ID No. G#4 will replace IS-2 – 125kW Detroit Emergency generator.)

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated	Limits/Standards	Applicable Regulation
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Pollutant		
sulfur dioxide	2.3 pounds per million Btu heat input	2D .0516
visible emissions	20 percent opacity	2D .0521
toxic air pollutants	See Section VII – State-enforceable only	2D .1100 and 2Q .0711

a. **2D .0516 “Sulfur Dioxide Emissions from Combustion Sources”**

(1) Regulatory Analysis

Sulfur dioxide emissions from any source of combustion that is discharged from any vent, stack, or chimney shall not exceed 2.3 pounds per million Btu heat input.

From AP-42, 5th Edition, Volume 1, Table 3.3-1 [April 2000], “Emission Factors of Criteria Pollutants and Greenhouse Gases from Stationary Gas Turbines,” the sulfur dioxide emission factor is 1.018 pounds per million Btu heat input. Thus, compliance with the 2.3 pound/million Btu limit is indicated with No. 2 fuel oil.

(2) Monitoring/Recordkeeping/Reporting Requirements

Since potential sulfur dioxide emissions are less than the allowable, no monitoring, recordkeeping or reporting are required for these emergency generators. Stack testing is not required

c. **2D .0521 “Control of Visible Emissions”**

(1) Regulatory Analysis

Visible emissions shall not exceed 20 percent opacity when averaged over a six-minute period for sources established after July 1, 1971. Compliance with this regulation will be indicated by inspection of the generators (ID Nos. G#1, G#2, G#3, and G#4).

(2) Monitoring/Recordkeeping/Reporting Requirements

No monitoring/recordkeeping/reporting is required for visible emissions

from the firing of No. 2 fuel oil in these generators.

VI. Multiple Emission Source Limits

STATE-ONLY REQUIREMENTS

A. Facility-wide affected sources

The above emission sources are subject to this multiple emission source limit.

Regulated Pollutant	Limits/Standards	Applicable Regulation
toxic air pollutants	Toxic air pollutants shall not exceed their TPERS unless they are modeled as per 2D .1100	15A NCAC 2Q .0711

(1) Regulatory Analysis

The facility must demonstrate the actual emission rates of any toxic air pollutants are below the 2Q .0711 TPERS to avoid performing modeling and complying with the AALs under 2D .1100. ECU was originally subject to the toxics rule in 1994 with the permitting of the HMIWI (4321R4).

Emissions of TAPs from combustion sources other than the incinerator are exempt from toxics consideration unless ambient concentrations of that pollutant have been included in 2D .1100 modeling and it is believed that removal of those pollutants from consideration may lead to 2D .1100 violations.

Analysis

(A) Hourly emissions are based on a maximum hourly charge rate of 1,000 pounds per hour. This will be established as a permit limit for toxics.

(B) Daily emissions are based on a maximum daily charge rate of 16,000

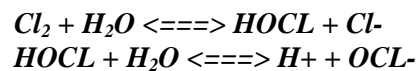
pounds per day (16 hours per day maximum operation). This will also be established as a permit limit for toxics.

(C) Emission factors are based on the AP-42 emission factors for medical waste incinerators, unless noted with a superscript ¹. In the case of a superscript ¹, no AP-42 emission factor is available, and toxic emissions were evaluated in a previous permit review and emission rates were calculated as listed below. AP-42 provides HMIWI emission factors for chlorine, hydrogen fluoride, and TCDD. [Reference: AP-42, 5th Edition, Volume 1, Chapter 2, Solid Waste Disposal, Section 2.3 “Medical Waste Incineration,” July 1993]

(D) Since the scrubber uses a caustic solution and it has been determined to achieve greater than 99% control efficiency for HCl, for this review, it is reasonable to assume that the scrubber will achieve at least 90% control for HF.

(E) It is assumed that due to the solubility of chlorine in water, the scrubber should provide at least 25% control for chlorine. As per a chemistry website: <http://mattson.creighton.edu/Cl2>

Chlorine is highly soluble and is easily applied to water in controlled amounts, either as chlorine gas (Cl₂), which readily dissolves in water at room temperature, or as a salt of hypochlorite (OCl⁻). When chlorine gas is added to water, the following reactions occur:



Under standard conditions, 3.1 volumes of Cl₂ will dissolve per 1 volume of water. At 10 °C, 14.6 g Cl₂ dissolve per L H₂O; this corresponds to 4.62 volumes Cl₂ per 1 volume of water.”

The current list of TAPS, which are calculated to be emitted below the 2Q .0711 TPERS are listed below:

Toxic	AP-42 Emission Factor	Potential TAP Emissions	2Q .0711 Carcinogens (lb/year)	2Q .0711 Chronic Toxicants (lb/day)	2Q .0711 Chronic Irritants (lb/hour)
Manganese and compounds	<i>Not listed</i>	<i>0.0002 lb/day¹</i>		0.63 lb/day	
Benzene (71-43-2)	<i>Not listed</i>	<i>0.03 lb/year¹</i>	8.1 lb/year		
Chlorine (7782-50-5)	<i>0.105 lb/ton (uncontrolled)</i>	<i>0.63 lb/day (25% control) 0.0525 lb/hr (25% control)</i>		0.79 lb/day	0.23 lb/hr

Chromium VI	<i>Not listed</i>	<i>0.000048 lb/day¹</i>		0.013 lb/day	
Formaldehyde (50-00-0)	<i>Not listed</i>	<i>0.00103 lb/hr¹</i>			0.04 lb/hr
Hydrogen Fluoride (7664-39-3)	<i>0.149 lb/ton (uncontrolled)</i>	<i>0.596 lb/hr (uncontrolled) 0.0596 lb/hr (90% control)</i>			0.064 lb/hr
Mercury	<i>Not listed</i>	<i>0.00036 lb/day¹</i>			
Tetrachlorodibenzo-p-dioxin (2,3,7,8) TCDD (1746-01-6)	<i>1.29E-10 lb/ton (Wet scrubber)</i>	<i>3.77E-07 lb/year</i>	0.00020 lb/yr		

(2) Monitoring Requirements

To ensure that optimum control efficiency of TAPS is maintained by the wet scrubber, the Permittee shall keep records of hourly and daily input rates to the incinerator to assure that the 1,000 lbs/hour (as contained in Subpart Ec) and 16,000 lbs./day charge rates are not exceeded. All other monitoring requirements per NSPS Subpart Ec and 2D .1206 shall be a reasonable assurance of compliance.

(3) Recordkeeping Requirements

The Permittee will keep records of the following:

- (i) the daily charge rate to the incinerator.

(4) Reporting Requirements

A summary report of the monitoring/recordkeeping shall be submitted to DAQ by July 30 and January 30 of each year.

B. Facility-wide affected sources

The above emission sources are subject to this multiple emission source limit.

Regulated Pollutant	Limits/Standards	Applicable Regulation
toxic air pollutants	Toxic air pollutant emissions shall not exceed their modeled acceptable ambient levels; State -enforceable only	15A NCAC 2D .1100

TOXIC AIR POLLUTANT EMISSIONS LIMITATION AND REPORTING REQUIREMENT - Pursuant to 15A NCAC 2D .1100 "Control of Toxic Air Pollutants," and in accordance with the approved application for an air toxic compliance demonstration, the following permit limits shall not be exceeded:

Emission Source(s) ID No(s):	Toxic Air Pollutant(s)	Emission Limit(s)
ES-1a	HCL	0.62 lbs./hr.
ES-1a, ES-1b, 2W	Arsenic	0.5987 lbs./yr.
ES-1a, ES-1b, 2W	Beryllium	0.3927 lbs./yr.
ES-1a, ES-1b, 2W	Cadmium	3.3971 lbs./yr.
ES-1a, ES-1b, 2W	Nickel	23.4199 lbs./yr.

(1) Regulatory Analysis



The facility has modeled the above toxics to demonstrate compliance with their AALs under 2D .1100. ECU was originally subject to the toxics rule in 1994 with the permitting of the HMIWI (4321R4).

(2) Monitoring Requirements

To ensure compliance with the above limits, the following restrictions shall apply:

- (a) No more than 815,000 gallons of No. 2 fuel oil may be combusted in the facility boilers.
- (b) The incinerator (ID No. ES-1a) should not be operated more than 4,000 hours per year, with the loading not to exceed more than a total of 1,000 pounds per hour of medical waste and housekeeping waste.

(3) Recordkeeping Requirements

The facility shall keep records as necessary to demonstrate compliance with the operations restrictions noted above.

(4) Reporting Requirements

For compliance purposes, within 30 days after each calendar year, regardless of the actual emissions, the following shall be reported to the Regional Supervisor, DAQ:

- i. the monthly No. 2 fuel oil consumption for each of the previous (12) months and the total No. 2 fuel oil consumption for the previous (12) months ending on each month of the reporting quarter,

- ii. the daily No. 2 fuel oil consumption for the previous quarter, and
- iii. the monthly number of hours of operation for the incinerator.

C. Facility-wide affected sources

The above emission sources are subject to this multiple emission source limit.

Regulated Pollutant	Limits/Standards	Applicable Regulation
Odors	Odors must be controlled; State -enforceable only	15A NCAC 2D .1806

STATE ENFORCEABLE ONLY

15A NCAC 2D .1806: CONTROL AND PROHIBITION OF ODOROUS EMISSIONS

- a. The Permittee shall not operate the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary.

VIII. MACT Applicability and Requirements

Based on a review of the facility's current operations and emission sources, the facility is not subject to any promulgated or proposed MACT standards.

IX. Permit Shield (including non-applicable requirements)

In accordance with 2Q .0512 the permit will contain a provision stating that compliance with the terms, conditions, and limitations of the Title V permit shall be deemed in compliance with applicable requirements specifically identified in the permit, as of the date of permit issuance. If the permit does not expressly state that a permit shield exists then it shall be presumed not to provide such a shield.

X. Other Applicable Requirements

None

XI. General Conditions

The "General Conditions" section of the Title V Operating Permit lists additional applicable rule requirements that the permittee must adhere to, as with any other permit condition. These requirements in general are common to all Title V facilities. The general conditions include provisions such as annual fee payment, permit renewal and expiration, transfer of ownership or operation, property rights, submission of documents, inspections and entry procedures, reopen for

cause, severability, etc.

XII. Insignificant Activities

The insignificant activities listed in the application have been reviewed and verified.

Following are a list of insignificant activities:

- One 500 kW diesel-fired Caterpillar emergency generator (ID No. IS-1)
- One 125 kW Detroit generator (ID No. IS-2) (Will be replaced by G#4)
- One 100 kW Generack generator (ID No. IS-3)
- One 10,000 gallon UST gasoline tank and dispensing unit (ID No. IS-4)
- One 75,000 gallon No. 2 fuel oil tank (ID No. IS-5) * This tank was installed prior to 1984 (in the 1970's) and is not subject to NSPS Subpart Kb.
- One 4,000 gallon UST fuel oil tank (ID No. IS-6)
- Two 15 – 20 gallon parts washers (ID No. IS-7)
- Ethylene oxide sterilizer (ID No. IS-8, small 18.51 g of EtO used once every two months)
- Dust Collection system. (ID No. IS-9)
- Laboratory Fume Hoods (ID No. IS-10)

*EPA defines potential to emit for emergency generators based on a maximum of 500 hours of operation per year. Using this, along with Regulation 2Q .0503(8) which states 5 tons per year for any criteria pollutant and 1000 lbs./yr for HAPs, the normal cutoff for diesel-fired generators is 590 kW.

Although each insignificant activity is not listed in the Title V permit, a general condition is placed in the Title V permit stating that all insignificant activities shall comply with the applicable requirements. Those sources which qualify for exemption from permitting under regulation 2Q .0102(b)(2) will be attached to the cover letter of the permit.

XIII. Public Notice

Pursuant to 15A NCAC 2Q. 0521, a notice of the draft Title V Operating Permit shall be placed in a newspaper of general circulation in the area where the facility is located. The notice will provide for a 30 day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA.

XIV. Recommendations

ECU, School of Medicine's initial Title V application has been reviewed by the DAQ to determine compliance with all procedures and requirements under 15A NCAC 2Q .0500 and 40 CFR Part 70. The DAQ has made a preliminary determination that the facility is complying or will achieve compliance as specified in the draft permit with all applicable requirements. Therefore, the DAQ is proposing to issue the Title V Operating Permit upon completion of the public comment period and the EPA review.